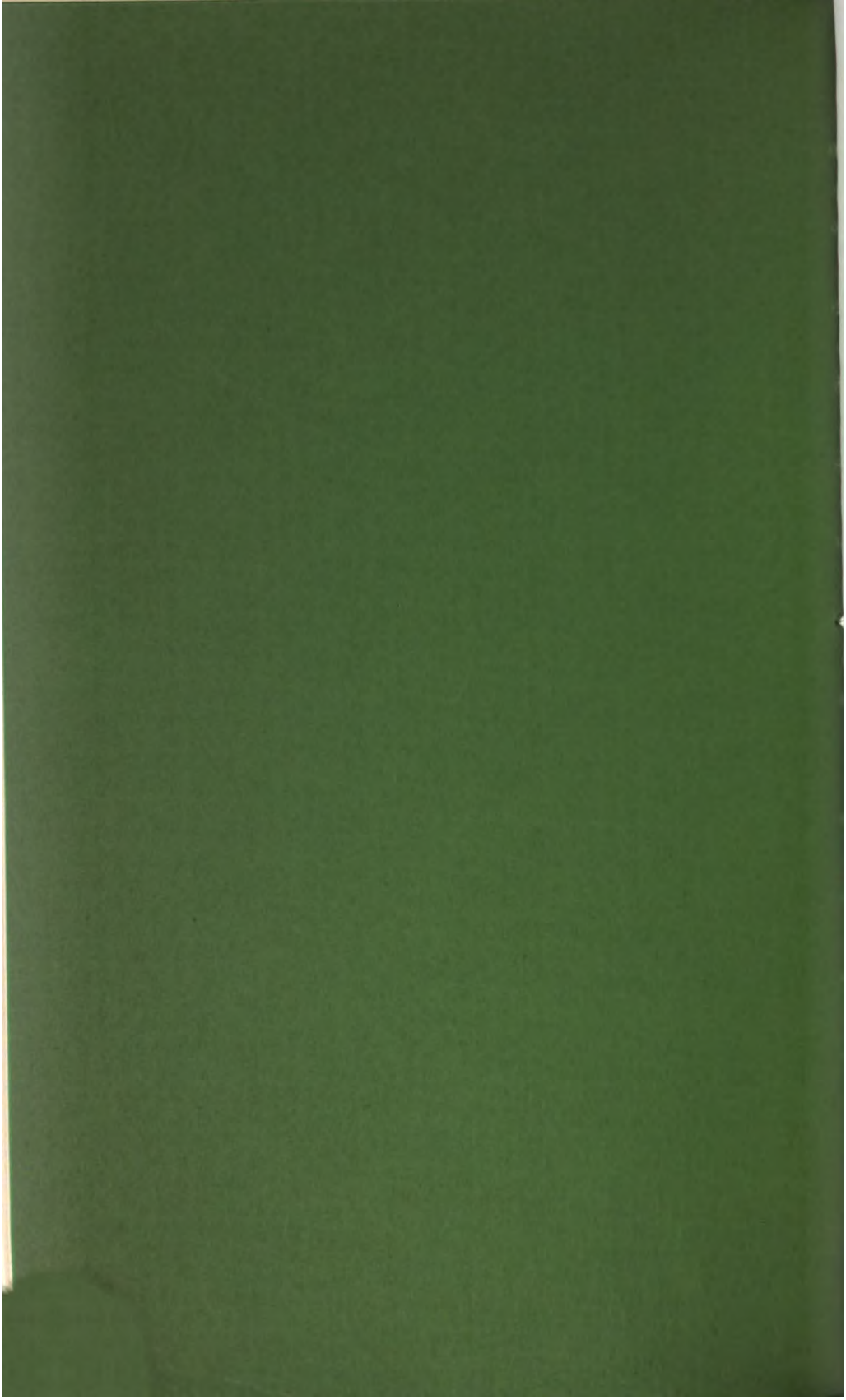
Department of the Army Historical Summary

Fiscal Year 1973

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON, D.C., 1977



Department of the Army Historical Summary

Fiscal Year 1973

Compiled and Edited

by

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and

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I. Introduction

The major development of fiscal year 1973 for the United States Army was the negotiated settlement of the Vietnam War. On 23 January 1973, President Richard M. Nixon announced that agreement had been reached in Paris between the United States and the Republic of Vietnam on the one side and the North Vietnamese and Viet Cong on the other. A cease-fire would take effect on 27 January 1973, and all U.S. military personnel would be withdrawn by 28 March 1973. By the latter date the last three of fifteen redeployments of U.S. forces had been completed, bringing to an end the longest war in U.S. history and the fourth costliest in battle deaths.

American involvement in the Vietnam War developed over a period of years in a series of relatively distinct phases. An advisory period opened in 1950 when the United States entered into a Pentalateral Agreement with France and the associated states of Indochina, of which Vietnam was one, to provide military aid. The U.S. Military Assistance Advisory Group, Indochina, was established to administer the program. Accelerated attention to South Vietnam's needs came in the mid-1950s following the signing in 1954 of the Geneva Accords, which divided Vietnam at the 17th parallel, and French withdrawal from Indochina. Although the United States was not a signatory to the accords, it moved to fill the vacuum created by the French departure by launching, at South Vietnam's request, advisory, logistical, and training programs.

A renewal of revolutionary activity in 1960 and the authorization in January 1961 for U.S. advisers to be assigned to Vietnamese field units—although with the understanding that the advisers would not engage in combat except in self-defense—signaled an expansion of U.S. assistance to include an operational support as well as an advisory role. The operational support mission required an infusion of airmobile, communications, intelligence, logistics, and Special Forces personnel, opening a phase of American assistance to South Vietnam that extended over a period of about three years and included wide-ranging efforts to improve the lot of the Vietnamese citizen as well as to develop the military capabilities of the Vietnamese armed forces.

The combat phase of the U.S. commitment in Vietnam opened in early 1965 in response to a number of deliberate and unprovoked attacks on American military personnel and facilities by Communist forces, which included North Vietnamese regular units, and the inability of the South Vietnamese to cope with mounting enemy attacks. Over a

period of about four years these forces were rapidly augmented until, at the peak in April 1969, there were 363,300 of the Army's 1,500,000 strength in Vietnam, including 8⅓ of the Army's 19⅔ division force equivalents.

By 1968 the immense logistics base required to maintain such a force had been forged, the lines of communication were established, and a force appropriate to the measured scale of the war had been fielded. Extending from the battlefield back to the home front, the variety of contributing systems of personnel, training, supply, equipment, weapons, transportation, and reclamation were functioning smoothly. On the diplomatic front, U.S. and North Vietnamese negotiators were meeting in Paris in a face-to-face attempt to find mutually acceptable grounds for reducing or ending the conflict, even as heavy fighting continued in the battle zone.

A major milestone in the conflict was reached on 8 June 1969, when President Nixon, meeting on Midway Island with the Republic of Vietnam's President Nguyen Van Thieu, announced that 25,000 American troops would be withdrawn from South Vietnam by the end of August 1969. This unilateral move by the United States opened the way for substantive negotiation to end the war. Combat and Vietnamization proceeded in concert with negotiation and withdrawal, leading eventually to the cease-fire of 27 January 1973—an imperfect one in the light of continuing incidents between indigenous elements, yet final with respect to U.S. Army involvement. The last redeployment of U.S. troops in March 1973 brought the long and costly struggle to an end.

In terms of deaths due to hostile action, the Vietnam War is surpassed only by the Civil War and the two world wars as the costliest in U.S. history. Between 1 January 1961 and 30 June 1973, a total of 46,063 Americans—30,617 of them Army personnel—were killed as a result of enemy action. Of 303,653 members of the U.S. armed forces who were wounded in action, 201,533 were Army personnel, of whom 104,723, it may be noted, did not require hospital care. Equally distressing for both the Army and the next of kin was the fact that 342 individuals were listed as missing at the end of the year and at the close of the war, 13 as prisoners of war, 235 as missing in action, and 94 as missing and unaccounted for.

Not all deaths in Vietnam were the result of hostile action. Another 10,308 American military personnel—7,155 of them Army—died from such causes as aircraft and vehicle accidents; drownings, suffocations, and burns; malaria, hepatitis, and other diseases; heart attacks and strokes; and suicide and homicide. Among these deaths were eighty-six that resulted from "fraggings"—assaults by one serviceman upon another with an explosive device, such as the fragmentation grenade. A serious, unusual, and highly regrettable development that received wide publicity

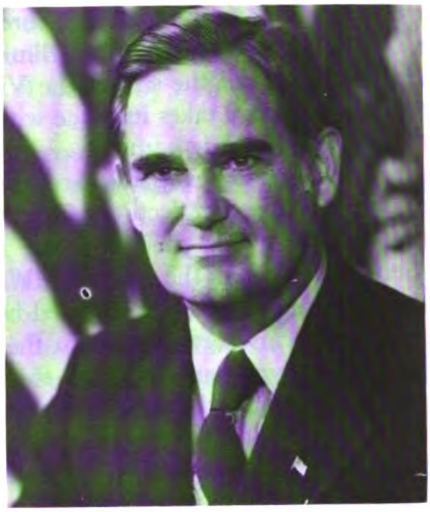
and raised speculation about a breakdown in discipline, the incidence of fragging was yet relatively limited in light of the over-all strength of the Army and the size of the Vietnam commitment. In perspective, the phenomenon takes its place with other forms of behavioral extremes that marked the Vietnam era.

In this connection, the Army's problems in the Vietnam era were to some extent a reflection of the nation's problems. American youths tend to bring into the Army the ideals, philosophies, and opinions of their society, and the Vietnam War, developing in a period of social unrest, affected and was affected by the problems of the time. The fact that American participation in the war was founded upon ideological premise rather than territorial threat, was fought on the other side of the world, required only selective manpower levies, and was undertaken with only minor Reserve Component mobilization, placed additional strains upon military efficiency and effectiveness. The impact upon behavior and discipline extended from the civil into the military sphere, embracing draft evasion and card burning, drug abuse, antiwar demonstrations, underground activities, resistance to legally constituted authority, unauthorized absences, desertion, fraggings, and battlefield misconduct. The details of how the Army dealt with a wide variety of behavioral and disciplinary problems are covered in appropriate annual editions of this report.

The termination of the war, reform and then elimination of the draft, reductions in over-all strength, and transition to an all-volunteer force, by mid-1973 had largely eliminated wartime problems and cleared the way for the armed services to rebuild along new lines. From a wartime peak in June 1968 of over 1,500,000 men and women, the Army leveled off in June 1973 at a strength of 800,000, slightly below intended postwar levels. Steady reductions during the five-year period proceeded in parallel with the co-ordinated program to phase out the draft and achieve the all-volunteer force. The Army launched a series of actions to elevate the professional environment, provide a better life for military personnel, and inspire public esteem for the military men and women who serve the nation. By December 1972 these actions had been so successful that the Secretary of Defense terminated draft calls for the period January–June 1973—six months before the legal expiration of the draft on 30 June 1973. By that date—the eve of the target date of 1 July 1973—the transition from the draft to an all-volunteer basis had been achieved. The Army could turn its full attention to a central goal—the development of a disciplined, highly motivated, and thoroughly professional peacetime force.

A wartime situation puts military organization to its severest test. The Vietnam period revealed weaknesses and pointed the way to modifications which could make the Army an even more efficient and effective

GENERAL BRUCE PALMER, JR., *Acting Chief of Staff (1 July–11 October 1972).*



HOWARD H. CALLAWAY, *Secretary of the Army (15 May 1973–).*

force. Thus in 1973 the Army launched its first major reorganization since the sweeping one of 1962. Among the principal changes begun in fiscal year 1973 and scheduled for completion in fiscal year 1974 were the discontinuation of the Continental Army Command and the Combat Developments Command and the redistribution of their functions between two new commands. These are the United States Army Forces Command, which will comprise all operational divisions and Strategic Army Force units in the continental United States, will direct all U.S. Army Reserve units, and will be responsible for Army National Guard readiness; and the United States Army Training and Doctrine Command, which will oversee individual training, the service schools, and the combat developments process. Numerous other modifications in existing organizational and functional arrangements were instituted to diminish the involvement of the departmental headquarters in field command operations, enhance the role of the installation commander, and take advantage of technological change and new managerial techniques.

Several major changes took place in Army leadership as well as in organization and operation during fiscal year 1973. On 12 October 1972, General Creighton W. Abrams was sworn in as Army Chief of Staff, replacing General William C. Westmoreland, who retired on 1 July 1972; General Bruce Palmer, Jr., served as Acting Chief of Staff pending

GENERAL CREIGHTON W. ABRAMS, *Chief of Staff (12 October 1972–).*

ROBERT F. FROEHLKE, *Secretary of the Army (1 July 1971–14 May 1973).*

General Abrams' confirmation by the United States Senate. In the top civilian leadership, the Honorable Howard H. Callaway was sworn in as Secretary of the Army on 15 May 1973, succeeding the Honorable Robert F. Froehlke, who returned to private life.

These were some of the highlights of a year of transition from a wartime to a peacetime environment. The details of the conversion along numerous functional lines are set out in the following chapters of this report.

II. Operational Forces

The Army's operational situation began to stabilize in fiscal year 1973 as the Vietnam War ended and the lines of postwar adjustment began to take shape. Over-all strength, which had been declining sharply as the war abated and U.S. troops were withdrawn, now leveled off at 800,000. The strength and readiness of the thirteen divisions in the force structure gradually improved as the year progressed.

With the Army out of Vietnam, major forward deployments included four and a third divisions in Europe and one in Korea, with special mission brigades on station in Alaska, Panama, and Berlin. There were seven divisions in the continental United States and two-thirds of a division in Hawaii. These 13 active Army divisions, backed by 8 divisions and 21 combat brigades of the Reserve Components, comprised the Army's base-line force in June 1973.

The Pacific and the Far East

The major change in Army forces during fiscal year 1973, one that substantially affected the operations of U.S. Army, Pacific, was the liquidation of the Vietnam commitment. U.S. Army withdrawal from the peak deployment there in mid-1969 took place over the course of three and a half years in fifteen redeployment increments, the last three of them in fiscal year 1973. In the thirteenth increment spanning July and August 1972, approximately 10,000 U.S. military personnel were withdrawn, including two infantry battalions that were the last Army combat units in South Vietnam. The fourteenth increment brought another 12,000 troops, primarily Army combat service support units, back to the United States by 30 November 1972.

At that point, with only 27,000 American military personnel left in Vietnam, 15,000 of them Army members, redeployment was suspended as the result of a breakdown in diplomatic negotiations in Paris. Finally, on 23 January 1973, President Nixon announced that agreement had been reached in Paris, that a cease-fire would take effect on 27 January 1973, and that all U.S. military personnel would be withdrawn from Vietnam by 28 March 1973. By that date all remaining troops had been withdrawn in four phases of the fifteenth increment, leaving only a small number of military personnel assigned to the Office of the Defense Attache, Saigon, and with the Four Party Joint Military Commission.

Following is a summary of Army redeployments from Vietnam in fiscal years 1970–73:

Fiscal Year	Number of Increments	Personnel	Divisions	Brigades	Major U.S. Army Combat Units
1970	3	59,000	2	7	9th Inf Div; 1st Inf Div; Elements, 4th Inf Div; 82d Abn Div
1971	4	111,000	3	11	4th Inf Div; 25th Inf Div; 1st Cav Div (Airmobile); Elements, 9th Inf Div; 199th Inf Bde; 11th Cav Regt
1972	5	166,000	2	9	23d Inf Div; 101st Abn Div (Airmobile); Elements, 5th Inf Div; 1st Cav, 173d Abn Bde; 196th Inf Bde
1973	3	32,000	. . . . .	9	None
Total	15	368,000	7	36	

During the final months of U.S. withdrawal from Vietnam, other allied nations were pulling out their forces as well. The Australian Army assistance group departed from Vietnam on 18 December 1972, and on 2 March 1973 the contingents from Thailand and the Philippines left. Between 30 January and 23 March the two Republic of Korea divisions were withdrawn, and on 26 March the Republic of China completed the departure of its contingents. The removal of these elements relieved the United States of a major support mission which it had fulfilled over an extended period of time.

As fighting in South Vietnam and peace negotiations in Paris continued, the United States accelerated the delivery of tanks, howitzers, small arms, vehicles, communications equipment, and ammunition to insure that the Republic of Vietnam would have the means of defending itself upon implementation of the cease-fire agreement. Under the agreement, arms and other materiel importation into South Vietnamese territory would be limited to one-for-one replacement. Deliveries were completed by 20 November 1972, and U.S. advisers, until their withdrawal from regimental levels in February 1973, helped the South Vietnamese develop their capability to use the new materiel.

Beginning in July 1972, the number of U.S. advisers decreased steadily, from about six thousand to zero in March 1973; district and regimental teams were first withdrawn as advisory efforts shifted from day-to-day operational support to consultation on program management and staff co-ordination. By March, contract or Department of Defense civilian specialists had replaced military men in the few remaining areas where technical knowledge or administrative skill was required.

Although it had been freed of certain support requirements by the withdrawal of allied contingents, the United States acquired a new general support mission with the arrival of the International Commission of Control and Supervision (ICCS). On 28 January 1973, representatives of Canada, Hungary, Indonesia, and Poland began arriving in South

Vietnam, and U.S. Army, Vietnam/Military Assistance Command, Vietnam (separate commands which had been combined on 15 May 1972), provided initial support including billeting, communications equipment, messing, and medical facilities. As an example of the magnitude of that support, the Army provided 8 teletypewriters, 171 FM radios, 148 sedans, 136 scout vehicles, 85 jeeps, 55 ¾-ton trucks, 30 helicopters, and 3 U–21 aircraft to backup the ICCS and the Four Party Joint Military Commission. Support for the latter continued until its termination on 31 March; support for the ICCS continued for another month, when Vietnamese and civilian contractors assumed the burden. Without U.S. support, neither of these bodies would have been able to function with any effect in the critical sixty-day period between the start of the cease-fire and the withdrawal of remaining non-indigenous forces.

The attainment of the cease-fire and the withdrawal of U.S. forces from Vietnam led automatically to the disestablishment, on 29 March 1973, of the major Army field headquarters in Southeast Asia—United States Army, Vietnam/Military Assistance Command, Vietnam.

In Thailand, meanwhile, U.S. Army Support Command, Thailand, continued to provide primary logistics support for military assistance in Thailand and Cambodia and on 1 July 1972 acquired responsibility for storage and stocks connected with the Army portion of military support to neighboring Laos.

There were several other developments in the U.S. Army, Pacific, region during the year. In Korea the Eighth Army continued as the major U.S. ground headquarters; Army field elements were assigned to the I U.S./ROK Corps Group headquartered at Uijonbu. Conditions in Korea were stable during fiscal year 1973. On 4 July 1972, following a series of discussions between representatives of the two Koreas, a joint announcement was issued in which the parties agreed to work for reunification and to take other steps toward stability and peace. Infiltration and incidents dropped off to such a degree that hostile-fire pay for U.S. personnel serving along the demilitarized zone—authorized in April 1968 in a period of high tension and frequent clashes—was terminated. In one of the few significant developments concerning U.S. Army forces, an assault helicopter company, equipped with the CH–47C craft, was activated, organized, and trained in the United States and shipped to Korea in February 1973.

In Japan the U.S. Army, Japan/IX Corps headquarters continued in operation at Camp Zama, along with the subordinate commands listed in last year's report. One incident of some note involving U.S. operations occurred in Japan on 4 August 1972 when Japanese demonstrators, supported by local government officials, blocked the road from the U.S. Army depot at Sagami to the U.S. North Pier at Yokohama to prevent

the shipment of five M48 tanks to Vietnam. A later movement of armored personnel carriers was stopped, and other attempts to move equipment were subjected to harassment by demonstrators. Although equipment had been moved from the depot to the pier for several years without incident, local Japanese officials, including the Socialist mayor of Yokohama, now imposed strict compliance with an ordinance of April 1972 which required permits to move overweight and oversize vehicles over roads and bridges.

The U.S./Japanese Status of Forces Agreement (SOFA) provides that all U.S. vehicles, including armor, have the right of unimpeded access between U.S. facilities and Japanese ports; it also provides that U.S. forces will observe all relevant Japanese laws. On 17 October 1972, the Japanese cabinet resolved the problem by amending the existing vehicle restriction order to exempt U.S. forces from local permit requirements to move large vehicles. Thus 168 armored personnel carriers were moved from Sagami to the North Pier, the Chidori Bridge in Yokohama was reinforced, and M48 tanks were cleared for movement to the port. The impasse in Japan, however, required that M48 tanks be shipped directly from the United States to Vietnam to meet delivery schedules there. Consequently, Anniston Army Depot at Anniston, Alabama, had to accelerate its M48 rebuild program to insure adequate stocks to meet Vietnam requirements; materiel programed for shipment from Vietnam to Japan was diverted to other locations; and U.S. Army, Pacific, was alerted to anticipate and take steps to avoid possible further disruption in Japan or Okinawa, recently transferred to Japanese control. All in all, the tank-delivery impasse emphasized the need for contingency plans to keep logistics lines functioning.

Following the reversion of Okinawa to Japan on 15 May 1972, the Japanese Defense Agency took over the mission of defending Okinawa. By 31 December 1972 Japan had deployed some 3,200 personnel to Okinawa to take over ground and air defense, maritime defense patrol, and search and rescue operations. In March and April 1973 another 3,600 Japanese ground and air defense personnel were deployed for missile defense and to operate control and warning systems. By the close of the fiscal year about 6,800 Japanese Self-Defense Force personnel were stationed on Okinawa. Existing U.S. Hawk and Nike missile elements and aircraft control and warning systems were purchased by Japan. U.S. air defense units were phased out and the personnel were reassigned.

Because of various consolidations and reorganizations, principally resulting from termination of the U.S. involvement in Vietnam and Japanese assumption of the defense of Okinawa, U.S. military strength on Okinawa dropped from about 52,000 in 1969 to 40,000 by the end of fiscal year 1973. Base facilities were also cut back; 12 of 134 installa-

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tions were transferred to Japanese forces, 34 were transferred to civilian use, and 88 were retained by U.S. forces. The Japanese government now serves as intermediary between U.S. forces and prefectual officials on Okinawa. Over the next few years further reductions are anticipated in U.S. holdings in both Okinawa and Japan.

In Hawaii, Governor John A. Burns announced on 9 February 1973 that in future wartime mobilization the 25th Infantry Division would be rounded out by the Hawaii Army National Guard's 29th Infantry Brigade and the U.S. Army Reserve's 100th Infantry Battalion of the 442d Infantry Regiment. This arrangement, worked out by Department of the Army, U.S. Army, Pacific, and the state adjutant general, required readjustments in the Hawaii Army National Guard and restructuring of the 29th Brigade. The action, a major change in the Reserve Component employment concept, enhances the mobilization readiness of Reserve elements and permits the immediate expansion to wartime strength of an Army combat division.

The 29th was restructured from a separate brigade of eleven units and 3,358 personnel to a divisional brigade of nine units with a strength of 2,710. Its effectiveness has been improved in both its state and federal roles. The 25th Infantry Division commander will share responsibility for the brigade's training, and each commander will be familiar with the other's procedures. The general officer position in the 29th is retained, and the incumbent becomes the 25th's assistant division commander upon mobilization.

The 100th Battalion required no reorganization under the new arrangement and will continue its training assemblies as in the past. Both the 29th Infantry Brigade and the 100th Battalion will continue to wear their respective distinctive insignia and carry all of the battle honors and credits to which their lineages entitle them.

Europe

With the downturn of the Vietnam War and the redeployment of U.S. forces from the Pacific region, the Atlantic area became the focus once again of the largest overseas deployment of U.S. Army elements. U.S. Army, Europe, continued to operate as an instrumentality of the United States in fulfilling its obligations to the North Atlantic Treaty Organization. With only minor organizational changes during the year, U.S. Army, Europe, discharged its mission with 2 corps, 4⅓ divisions, and 2 armored cavalry regiments. Major subordinate elements included the Theater Army Support Command, the Southern European Task Force in Italy, and the Berlin Brigade.

To improve conventional combat forces in the European area, four combat support units, comprising about a thousand men and new-

model equipment, were deployed during the period. The Chaparral/Vulcan Air Defense Battalion of the 1st Infantry Division was deployed along with a supporting Ordnance detachment and two attack helicopter companies equipped with AH–1G Cobras; these units were organized, trained, and deployed from 13 November 1972 to 24 January 1973. Five forward area alerting radar platoons were also organized, trained, and deployed to Europe to augment the capability of existing Chaparral/Vulcan air defense battalions, and an assault support helicopter company with CH–47 craft and two medical helicopter air ambulance platoons with UH–1H helicopters were also deployed.

Under Project FENDER, the ratio of combat units to support units was improved without increasing U.S. Army strength in the theater. This so-called "tooth-to-tail" relationship was achieved through mergers, reductions, inactivations, and an over-all streamlining of headquarters and logistical functions. Personnel economies were used to improve the combat forces, two tank battalions and an airborne battalion combat team were activated, and a 105-mm. artillery battalion was converted to a 155-mm. battalion.

Exercise REFORGER IV was conducted in Germany during 9 January–22 March 1973. This exercise, the fourth in a series begun in 1969, is conducted annually in accordance with U.S. obligations to NATO, the United Kingdom, and the Federal Republic of Germany and is designed to test procedures for receiving, equipping, and assembling deploying U.S. Army troops assigned to reinforce NATO. About 10,000 troops from the 1st Infantry Division (Mechanized), Fort Riley, Kansas, the 3d Brigade, 2d Armored Division, Fort Hood, Texas, and eight nondivisional support units deployed from bases in the continental United States to Rhine-Main, Ramstein, and Echterdingen airfields in Germany, requiring 109 C–141, 4 DC–8, and 6 C–5 airlift missions by the Military Airlift Command. On arrival, troops drew prepositioned heavy equipment stored at several locations in Germany and moved immediately to assembly areas where combat-loading, final maintenance, and inspections were performed. The units then moved to a major assembly area to open a five-day field training exercise. CERTAIN SHIELD, as it was called, was conducted in an area south of Wuerzburg, with REFORGER, U.S. Army, Europe, and German and Canadian units participating. The continental U.S. units then moved to the major training area at Grafenwoehr to test-fire all major weapons and perform heavy equipment maintenance; the main body of troops then flew out of Nuremberg to return home, while the remainder of the force returned the heavy equipment to storage before exiting from Ramstein Air Force Base. The exercise was considered by all commands to have been highly successful, and the German press commented favorably on the continuing U.S. commitment to NATO.

Alaska and Panama

In the northernmost of the fifty United States and the one closest to the Soviet Union, the U.S. Army, Alaska, is the Army component of the unified Alaskan Command, and in fiscal year 1973 it continued its mission of providing ground defense of Alaska. During the report period the military manpower reductions announced last year were completed; the organizational modifications are proving equal to the unique requirements of the Arctic area. The command's infantry brigade, aviation battalion, and support forces participated in two major exercises, and the air defense battalion continued to contribute to Alaska's air defense.

In the Panama Canal Zone, U.S. Army Forces Southern Command continued its defense mission during a period of sensitivity due to difficulties stemming from U.S.-Panama treaty negotiations, and to an earthquake in Nicaragua on 23 December 1972. In the latter instance the command responded by providing civil affairs and medical units, the 518th Engineer Company, and demolition teams. This military aid extended to mid-January 1973.

The Southern Command carried forward some organizational adjustments during the period, worked to improve over-all readiness, acquired responsibility for developing the Army's doctrine for jungle operations, and established a training program for company-size units in this special field. The first continental U.S. companies began training at the command's Jungle Operations Training Center in October 1971; by February 1973, forty-four units had requested jungle training and twenty-two were scheduled for fiscal year 1974.

In August 1972, three helicopters and one fixed-wing aircraft were loaned to Venezuela to carry out mapping, charting, and radar imagery interpretation in southern Venezuela. The Southern Command provided an aviation support team to service the three UH–1H and one U–1A aircraft.

Continental United States

There were no major changes during the fiscal year in the status of Army forces allocated to the defense of the continental United States. The forty-eight Nike-Hercules batteries defending nine urban/industrial complexes remained at that level. But three significant issues pertaining to the air defense of the United States were addressed.

The first concerned modified air defense objectives for continental United States, announced by the Secretary of Defense on 15 February 1972. This had triggered a major study by the Joint Chiefs of Staff to develop a modernized continental U.S. air defense concept of operations and the modernized forces required to implement it. The Army contributed to the study by analyzing not only Army modernized forces but also those of the Air Force. The Joint Chiefs approved and forwarded

on 14 September 1972 a concept of operations and recommended force and activity levels to fit the modified objectives for the United States. Elements of the modernized force included the Army's Surface-to-Air Missile Development (SAM–D) and the Air Force's Over-the-Horizon Backscatter Radar, Improved Manned Interceptor, and Airborne Warning and Control System.

The second issue, Program Budget Decision 271 of 4 December 1972, proposed three alternative force structures for the defense of continental United States. Upon consideration, the Deputy Secretary of Defense elected to maintain the currently approved force structure.

The third issue concerned a proposal submitted by the commander in chief of the Continental Air Defense Command (CINCONAD) to the Joint Chiefs of Staff on 18 December 1972, that his headquarters elements be consolidated with those of the Aerospace Defense Command and the Air Force Component Command. The Joint Chiefs approved the consolidation, designated the commander of the Army Air Defense Command as the deputy commander of the Continental Air Defense Command, and directed a study of the possibility of consolidating Headquarters, Army Air Defense Command, and its subordinate headquarters into the combined Continental Air Defense/Aerospace Defense Command.

Readiness

Army unit readiness improved during fiscal year 1973 as the turbulent conditions associated with the withdrawal from Vietnam subsided and stabilization became the rule rather than the exception. Of the thirteen active Army divisions, ten were rated as combat ready. The 9th Division at Fort Lewis, Washington, and the 25th Division in Hawaii, both recently constituted, had their personnel undergoing either basic or advanced training, with most of the advanced training being done in the divisions. The 4th Division at Fort Carson, Colorado, while further along in the cycle, had still not completed its training. The Army focused attention upon and allocated resources to training, discipline, organization, and techniques to attain a thirteen-division combat-ready force.

While unit readiness was improving during the year there was a small but measurable decline in logistics readiness, which could be attributed to unit activations, inactivations, and reorganizations. Units were hampered by shortages of qualified personnel and by fund constraints. But the general readiness posture of Army units worldwide was excellent. A number of management programs were in progress to improve logistics readiness, including one designed to insure that Strategic Army Force units in the continental United States attained a readiness condition matching their authorized levels of organization, another to

insure the levels and serviceability of materiel prepositioned in Europe, and a third to improve the status of equipment on hand in the Eighth Army in Korea.

Command and Control

The Worldwide Military Command and Control System consists of the National Military Command System, the command and control systems of the unified and specified commands, the subordinate unified commands, service and service component command headquarters, the management information systems of the service headquarters, and the command and control support systems of Department of Defense agencies. The National Military Command System is the primary subsystem and directly supports the National Command Authority and the Joint Chiefs of Staff.

In fiscal year 1972 a contract was awarded to Honeywell Information Systems, Inc., for computer systems, and the Army was assigned responsibility for seven of thirty-five approved systems and a terminal for the U.S. Army Forces Southern Command. During fiscal year 1973, the first three systems were installed at Headquarters, Department of the Army, in the operations and intelligence areas, and in the U.S. European Command and U.S. Army, Europe. The Army's remaining systems will be installed in fiscal year 1974. Within the Army Operations Center System, software was converted to insure compatibility with the new computer system.

In another command and control development, the Joint Chiefs of Staff published a Worldwide Military Command and Control System warning plan for the 1970s providing for the orderly development and employment of systems for tactical warning of strategic missile attacks on the continental United States. Also, the Army's Operation Center briefing team was disestablished on 15 June 1973 following the Vietnam cease-fire and the withdrawal of Army forces from Southeast Asia.

Exercises

Annually the Joint Chiefs of Staff, in conjunction with the unified and specified commands, develop a five-year exercise program. Army components of unified commands support the unified command exercise program to the extent permitted by resources, providing Army personnel—active and Reserve—to staff joint headquarters, funds for Army forces, and administrative and logistical support. In fiscal year 1973, Army participation amounted to $8.096 million, an amount that was not adequate to provide unified and specified commands with the size and number of joint training exercises requested, although the Army did participate in twenty-eight JCS-directed and co-ordinated exercises.

The Joint Chiefs of Staff sponsored Exercise HIGH HEELS 73, a worldwide command post exercise to test the plans and procedures that would be employed during a period of deteriorating worldwide politico-military relations leading to strategic nuclear war. The exercise was conducted in March 1973, concurrently with a NATO dual-phase command post exercise called WINTEX 73. No conclusions or implications concerning current or estimated capabilities, vulnerability, or combat effectiveness were to be drawn from exercise play, nor were politico-military decisions made during the exercise. Major participants in HIGH HEELS 73 included the Department of State, Office of the Secretary of Defense, the Office of the Joint Chiefs of Staff, military services, unified and specified commands, Office of Emergency Preparedness, Central Intelligence Agency, National Security Agency, Federal Aviation Agency, and other Defense agencies. Department of the Army headquarters participation included augmentation of the Army Operations Center on a 24-hour basis from 7 to 13 March; staff agencies manned response cells in their normal operating areas to support their representatives in the Army Operations Center. The Continental Army Command, Army Security Agency, Army Materiel Command, Criminal Investigation Command, Strategic Communications Command, Intelligence Command, Military Traffic Management and Terminal Service, Military District of Washington, continental armies, III Corps, and XVIII Airborne Corps participated in the exercise.

Tactical Nuclear Weapons Policy

The events of the year underscored the need for a choice of options that would allow the President to deal with a wide range of threats. Realistic deterrence requires that the United States be prepared to respond to various threat levels with conventional, tactical nuclear, and strategic nuclear capabilities. A realistic and effective range of tactical nuclear options, combined with a strong conventional capability and backed by strategic forces, provides the United States with the means to deter conventional and nuclear aggression.

While the all-out retaliation role of theater nuclear forces is generally understood, selective employment of such forces has not been well articulated. Although the deterrent effect of nuclear-capable forward deployed general purpose forces is recognized, there have been divergent views in the United States and among allied nations concerning the role and utility of tactical nuclear weapons.

In the last year the Army made substantial progress in the review of tactical nuclear operational concepts begun in the previous year. The Interagency Advisory Council was of great assistance to a study on tactical nuclear operational concepts completed in March by the Army War College. During the fiscal year a five-day politico-military war

game was held in the Pentagon to evaluate the options of a defender and an aggressor and to determine the military and political circumstances under which a particular option would likely be implemented. Blue and red teams playing the roles of national command authorities were staffed by personnel from the Office of the Secretary of Defense, Defense Intelligence Agency, Defense Nuclear Agency, Office of the Joint Chiefs of Staff, service staffs, Department of State, Central Intelligence Agency, Atomic Energy Commission, U.S. Army Combat Developments Command, and overseas commands and various research institutions.

The exercise provided valuable political and military insights into tactical nuclear weapon employment and contributed substantially to a DA deployment and employment policy for tactical nuclear weapons, which was approved by the Chief of Staff in May 1973.

Special Forces and Special Assistance Forces

All active and Reserve Component Special Forces units are now organized under the "H series" tables of organization and equipment, and Special Forces organizational terminology is the same as that for conventional units. The former Special Forces "C," "B," and "A" detachments have been redesignated as battalions, companies, and operational detachments, respectively.

Active Army force structure includes four Special Forces groups with major units within the United States at Fort Bragg, North Carolina, and Fort Devens, Massachusetts, and overseas units in Germany, the Panama Canal Zone, and Okinawa.

The Army Reserve has two Special Forces groups which have units located throughout the United States. The Army National Guard has two groups and one separate company. Unlike the active Army and Army Reserve Special Forces units, each with three operational battalions, the Army National Guard has four Special Forces battalions and the headquarters that would be required for a fifth.

In 1963 the Army formed some Special Action forces by attaching engineer, medical, intelligence, psychological operations, civil affairs, military police, and signal elements to a nucleus of a Special Forces group. Special Action forces were oriented toward Asia, Europe, Latin America, and Africa/Middle East/South Asia, and mobile training and technical advisory teams assisted various countries. In the spring of 1972, Special Action forces were redesignated Security Assistance forces and remained oriented to geographical regions. The Security Assistance Force (Asia) was the first to deploy a Disaster Assistance Relief Team (DART), which had its operational test in the Philippines; details of its flood assistance mission appear in Chapter XII.

Civil Affairs and Psychological Warfare

In fiscal year 1973 the Department of the Army's Committee for Civil Affairs Development met twice—in October 1972 and May 1973—to examine the Army's civil affairs interests and develop recommendations on organization and management of civil affairs units and personnel. The meetings were attended by representatives of staff and field agencies from stateside and overseas.

Active Army civil affairs units began the transition to new tables of organization and equipment during the year, a restructuring intended to improve their readiness. The changeover of Army Reserve units, however, was deferred pending a review of civil affairs doctrine and force structure. Conversion should take place in fiscal year 1974. Under revised doctrine, units would assist and support host government institutions where U.S. military forces are deployed rather than restructure political institutions as in World War II. On 1 February 1973, Reserve civil affairs units were reduced 10 percent to meet a revised strength ceiling.

All Army Reserve civil affairs units participated in a comprehensive survey of officer attitudes, future intentions as to Reserve participation, and training and capabilities, both civilian and military. Some 2,500 officers, approximately 90 percent of those in Army Reserve civil affairs units, participated, and the survey indicated that officer recruitment would be required within the next few years to replace those who intend to retire or who will be released.

In the field of psychological operations (PSYOP), development of a computerized information retrieval system advanced during the year. The PSYOP Automated Management Information System is designed for the collection, collation, and analysis of information needed to plan, develop, implement, and evaluate PSYOP programs in various environments. The Office of the Joint Chiefs of Staff provides computer and software support, and the Army provides research and development, management, and analysis of system output. The first system component, the Foreign Media Analysis Subsystem, was supplied with a one-year data base which will be analyzed in the early weeks of fiscal year 1974. Research for the Foreign Area Data Subsystem was completed in June 1973; computer programs will be developed and field testing of the subsystem will be conducted in fiscal year 1974.

Military Support to Civil Authorities

The Army has broad governmental responsibility for military support operations. Through its Directorate of Military Support, the Army controls the military resources committed to civil disturbance operations, monitors the employment of Department of Defense resources provided

to civil authorities during natural disasters, supports the U.S. Secret Service in its statutory protective duties, assists the District of Columbia in anticrime activities, and directs the Military Assistance to Safety and Traffic Program. Many, if not most, of these responsibilities were exercised in fiscal year 1973.

Based on an agreement between the Department of Defense Executive Agent for Civil Disturbances and the Deputy Attorney General of the United States, the Directorate of Military Support planned the prepositioning of federal military forces during the 1972 national conventions. The initial objectives were to identify and develop a police and National Guard capability sufficiently strong so that federal forces would not have to be used, and a police capability sufficiently strong so that neither federal nor state military forces would have to be employed. Since the state of Florida, where both the Republican and Democratic conventions would be held, lacked experience in civil disturbances, it was concluded that approximately 5,000 federal troops would be required. Army liaison officers worked with Florida's police and National Guard officials to develop state capabilities and integrate state and federal planning. Approximately 2,700 troops were prepositioned at Homestead Air Force Base, Florida, from 9 to 15 July 1972 for the Democratic Convention and from 19 to 26 August for the Republican Convention. Conditions were stable on both occasions, and federal forces were not used.

The Army supported the U.S. Secret Service during the national political campaigns. In mid-June 1972 the support requirements were co-ordinated with the Secret Service for presidential and vice presidential candidates; 204 personnel were involved in such areas as security, transportation, and explosive ordnance disposal and in providing a small standby civil disturbance task force with thirteen helicopters and crews. On 7 July 1972 the Secret Service asked for an additional backup of 300 troops (two 150-man teams) to be used if the civilian resources were exhausted. These forces were not used.

Before the 1973 presidential inauguration, the Directorate of Military Support was designated as the Army staff co-ordinator for inaugural activities and charged with carrying out civil disturbance contingency planning based on the Department of Justice's assessment of the threat of civil disorder that might occur during the ceremony. On 20 December 1972, the Under Secretary of the Army and the Director of Military Support joined the Attorney General and representatives of local and federal police and public safety officials at the Department of Justice for the first meeting of the principals from involved agencies.

The Department of Justice requested the Secretary of Defense to provide for troop participation in the ceremonial and security aspects of the inauguration, to employ the District of Columbia National Guard,

and to preposition up to 2,000 active Army troops. On 18 January 1973 a Marine civil disturbance battalion from Camp Lejeune, North Carolina, and the Army's 1st Squadron of the 6th Armored Cavalry Regiment and 519 Military Police Battalion from Fort Meade, Maryland, were prepositioned as standby civil disturbance units, but they were not employed. The 3d Brigade of the 82d Airborne Division from Fort Bragg, North Carolina, was designated as the ceremonial Capitol Cordon unit. The commander of the Military District of Washington was designated as commander of Task Force MDW.

The Department of Justice estimated that 25,000 demonstrators might assemble in Washington. These demonstrations took place in the inaugural period without major incident. Although there were several confrontations, they were insignificant, and only thirty-six arrests were made by the Metropolitan Police Department.

From 27 February to 15 May 1973, the Department of Defense provided logistical support to a Department of Justice civil law enforcement task force employed on the Pine Ridge Indian Reservation in South Dakota against militant members of the American Indian Movement (AIM) who occupied the hamlet of Wounded Knee, site of the last battle of the Indian wars in 1890. The Army's Directorate of Military Support co-ordinated the movement of supplies, munitions, equipment, and observer and instructor personnel authorized by the Department of Defense to support the federal civil law enforcement task force at the scene. The National Guard made clothing and equipment available to the civil enforcement officials and trained them to operate military equipment; Guard technicians maintained the tracked and wheeled vehicles. The following major items of clothing and equipment were on loan:

Item	Amount
M16 rifles	137
Steel helmets	45
Protective vests	195
Pistol belts	100
Canteens	100
5.56-mm. ammunition	5,040 rounds
.30-caliber ammunition	15,624 rounds
Field jackets	45
1.5-kilowatt generator	1
Protective masks	126
Public address set	1
Sniper rifles	40
Carrier, command post	2
Truck, 2 1/2-ton, cargo	2
Truck, 1/4-ton	9
Truck, tractor, 5-ton	3
Semitrailer, 25-ton	3
Xenon searchlight	4
Carrier, personnel	15
Truck, fuel-servicing, 5-ton	1

In February 1973 the Directorate of Military Support was assigned staff responsibility for Army support to the U.S. Bureau of Customs, Department of the Treasury, and Bureau of Narcotics and Dangerous Drugs. Department of the Army assistance was also provided to other

federal agencies, such as the Immigration and Naturalization Service, Department of Justice, to help suppress illicit drug traffic into the United States. Army support has been primarily in the form of aircraft, radios, electronic sensors, and radar. Also approved on a reimbursable basis were emergency evacuation and subsequent medical treatment at Department of Defense installations for Bureau of Customs agents and their prisoners.

The Army also assisted the government of the District of Columbia in its program to combat crime by training helicopter pilots, providing aircraft hangar facilities, assisting in the acquisition of excess helicopters, and training a polygraph operator at the Army's Military Police School at Fort Gordon, Georgia.

The Military Assistance to Safety and Traffic (MAST) Program continued to operate at five test sites during the year. Because of reductions in U.S. Air Force aerospace rescue and recovery service, the operation at Luke Air Force Base in Arizona was terminated, but operations continued at Fort Lewis, Washington, Fort Carson, Colorado, Fort Sam Houston, Texas, and Mountain Home Air Force Base, Idaho. By the end of the year, 2,064 missions consuming 4,270 hours had been flown, and 2,372 patients had been airlifted. Legislative authority would be required to expand the program to other sites. A bill authorizing Department of Defense participation passed the House of Representatives and was referred in May to the Senate Armed Services Committee. Pending legislative authorization, plans for ten additional MAST sites were approved by the Executive Group.

Explosive ordnance disposal is another element of the Army's military support mission. Army personnel are trained to find and dispose of hazardous explosive ordnance. The Army continued to support the Secret Service during the year, providing specialists to eliminate explosive hazards in vehicles and at facilities used by key government officials and other dignitaries, including the President, Vice President, immediate family of the incumbent and former Presidents, and foreign visitors.

The Army in fiscal year 1973 responded to over 4,000 requests from civil authorities for assistance in dealing with bomb threats, deactivation of homemade devices, disposal of war souvenirs, and accidents involving the transportation of explosives. The volume of requests was about 15 percent lower than in 1972 as a result of Army training of civil law enforcement agencies; 400 students per year receive Army instruction in how to deal with bomb threats. In the coming fiscal year it is planned to organize explosive ordnance disposal units into teams so that personnel with special skills may be used more effectively while technical proficiency is improved.

In 1971 the Secretary of the Navy was designated as the single manager for military explosive ordnance disposal (EOD) technology and training, and a Department of Defense Explosive Ordnance Disposal Program Board was established with a senior officer from each of the four military services. An EOD Military Technical Acceptance Board was created with similar representation to approve newly developed tools, equipment, and procedures for joint use. The EOD Program Board signed policy agreements and ruled that live chemical agents be used to train EOD personnel. Army training is conducted by the U.S. Army Training and Doctrine Command.

Military Engineering

There were a number of developments in the field of military engineering during fiscal year 1973, relating to organization, equipment, materials, and techniques. Field evaluation of a functionalized engineer construction battalion began in April 1973, the culmination of more than three years of planning to capitalize upon centralized project management and the pooling of key equipment and skills. In a continuing effort to modernize engineer heavy equipment, 25-ton hydraulic cranes were procured under the commercial construction equipment program. Fourteen tool sets used by engineer troops were reviewed; infrequently used hand tools will be eliminated, archaic tools will be replaced, and new tools in common use by civilian craftsmen will be added as a result of this review.

Future combat engineer unit capabilities will be improved through the development of a new Family of Military Engineer Construction Equipment (FAMECE), which includes a common power module that can be quickly connected to each of eight work modules to form pieces of construction equipment. Each module weighs less than 15,000 pounds to permit movement by medium-lift helicopter. The construction equipment in the family will be used in engineer combat units, primarily in airmobile and airborne engineer units. The modules will perform scraping, dozing, bucket-loading, hauling, grading, watering, and compacting. Contractors continued to develop prototype power, scraper, and grader modules during the year; prototype design was completed and fabrication begun. Prototype delivery and testing will begin in fiscal year 1974.

In April 1973, a Combat Engineer System Program Review was conducted at Fort Belvoir, Virginia. Chaired by the Assistant Vice Chief of Staff and attended by high-level military and civilian officials, the review group discussed ways to increase the mobility, survivability, and combat effectiveness of the Army and then developed guidance on engineer actions. The review covered doctrine, personnel, repair parts, base development, barrier operations, tactical mobility, engineer force structure, and foreign engineer developments.

At the same time that these actions on military equipment were going forward, there was progress in a program to introduce construction equipment of standard commercial design into Army construction units. In addition to contracts placed last year for dump trucks and bituminous distributors, a contract was let in fiscal year 1973 for 25-ton hydraulic cranes, and procurement planning was completed on ten additional items, including self-propelled compaction equipment, mobile concrete mixers, water distributors, utility and heavy tractors, scoop loaders, and low-bed trailers.

In some phases of the conflict in Vietnam up to 70 percent of U.S. tank and vehicle losses and 30 percent of personnel casualties were due to enemy mines and booby traps. In light of these losses, the Army has undertaken a fully integrated effort to solve the problem posed by enemy mine warfare. New and improved mine detection and neutralization equipment incorporating the microwave phenomenon into a man-portable mine protector and the use of fuel-air-explosive munitions to neutralize buried mines will improve breaching capabilities. A simple mechanical mine planter has replaced hand emplacement and improved the Army capability to conduct defensive operations and deter enemy vehicular movement.

In the field of bridging, the Army's tactical mobility and capacity to move quickly across rivers and other terrain gaps will be materially improved by the recent addition of a new medium girder bridge. A prefabricated, modular, hand-erectable aluminum bridge developed in the United Kingdom, it was designed to carry the Army's heaviest vehicles and can be erected faster and with less personnel than the Bailey panel bridge which it will replace.

The Army's capability to use camouflage effectively was advanced during the fiscal year with the introduction of a new version of a lightweight camouflage screening system. Work was also done on camouflage pattern painting, glare covers for vehicles and aircraft, and other materiel in tests of experimental equipment and troop organizations. The Corps of Engineers helped the U.S. Air Force develop a camouflage scheme for an aircraft shelter complex. The Modern Army Selected Systems Test, Evaluation, and Review (MASSTER) facility was assigned a leading role in evaluating camouflage materiel, concepts, and ideas, and the U.S. Army Mobility Equipment Research and Development Center was designated the primary laboratory in camouflage technology.

During the past year improvements were made in the Army's system of expedient airfield surfacing, which consists of prefabricated landing mats, prefabricated waterproofing membranes, and dust control materials. Testing was completed on an extruded aluminum truss-web, heavy-duty landing mat and an aluminum honeycomb-core, sandwich-

type, medium-duty landing mat to support tactical and cargo aircraft. Testing continued on a dust control system of polyvinyl-acetate, water-emulsion material along with a sectionalized liquid distributor to emplace the material.

Security Assistance

In December 1972 the Department of Defense issued a revised directive covering policy and responsibilities for security (military) assistance. Under the new directive the military departments are provided wider latitude in making recommendations concerning policy, planning, and programing.

Fiscal year 1973 was a year of adjustment in the field of military assistance. Increasing competition among friendly nations for U.S. materiel had to be balanced against U.S. requirements to modernize U.S. forces—active and Reserve—and meet the obligations of Vietnamization. The initial effects of postwar austerity began to be felt, and as available stocks dwindled, the question of priorities in materiel allocation and distribution assumed greater importance.

The Department of the Army's Master Priority List and Logistics Priorities publications control the allocation and distribution precedence for materiel; foreign country standings, determined by the Joint Chiefs of Staff, are meshed with U.S. Army active and Reserve priorities in these lists. During the year these publications were revised, the correlation of foreign beneficiaries to the Joint Strategic Objectives Plan was studied, and the Army staff considered the issues involved in providing security assistance to allies under the Nixon Doctrine.

The sale of military equipment to foreign countries under military assistance programs is often a long process, in some cases requiring approval of the Department of State and the National Disclosure Policy Committee as well as elements of the Department of Defense. To improve the Army's ability to respond rapidly to proposals and requests for sales, the departmental staff initiated a study to establish an Army position on sales of major weapons systems; the first system selected was the Redeye air defense missile. The Army position statement will identify countries eligible for foreign military sales which are favored to receive the system, those not favored, and those for which an Army predisposition should not be determined before a decision is rendered.

Also in fiscal year 1973, the Army experimented with the concept of a single supply pipeline—a supply system for certain regions of the world where a single supply line could directly serve the needs of foreign countries as well as U.S. forces. The concept was tested in Thailand but was dropped when it raised too many problems related to security assistance program controls and funding.

The role of friendly countries and allies in total force planning continued to be examined during the fiscal year, for the part played by friendly as well as U.S. forces in various parts of the world is an ingredient of the Nixon Doctrine. Thus military assistance continued for various nations. In Vietnam, as noted above, the U.S. accelerated the delivery of military equipment to complete the Vietnamization program and lay the foundation for the post-cease-fire agreement condition of one-for-one replacement only. In Korea, meanwhile, a five-year plan to modernize the Republic of Korea's forces and improve stability in Asia, begun in 1971, was delayed by funding problems.

In the Middle East, security assistance continued to play an important role for the United States and the participating countries. Grant aid of $32.75 million was provided to Jordan, while Lebanon and Saudi Arabia each received about $230,000 for training. Foreign military sales credits were extended to Israel for $307 million and to Lebanon for $10 million. U.S. teams visited Jordan and Kuwait to review defense needs, and sales authority was granted to Bahrein, Oman, Qatar, the United Arab Emirates, and the Yemen Arab Republic.

The Army is also providing 280 military and civilian technicians and support personnel to assist Iran in the modernization of its ground forces. Of the total, 207 are to be deployed to Iran in eight technical assistance field teams in such major functional fields as engineering, logistics and maintenance, communications-electronics, air defense, aviation, automatic data processing, personnel services, and the TOW (tube-launched, optically tracked, and wire-guided rocket). The remaining personnel will augment the U.S. European Command Support Activity, which provides administrative and logistical support to Department of Defense agencies and activities in Iran. Army personnel for these teams began arriving in Iran in April 1973.

During March–April 1973, the Department of the Army negotiated with the Imperial Iranian Air Force a Foreign Military Sales agreement to train in Iran, from 1974 to 1978, some 2,700 personnel to operate the improved Hawk weapon system being purchased by that Middle East country. Their contract of about $32 million was the first of its type and magnitude negotiated by the Army with a foreign government.

On 19 March 1973, the United States and Saudi Arabian governments signed a Memorandum of Understanding covering the modernization of the Saudi Arabia National Guard. The Department of the Army was designated as the executive agent and on 27 April was assigned to manage the program.

Security assistance for Latin American countries continued to be hampered by legal and policy considerations concerning dollar limits and materiel restrictions imposed by legislation and Department of De-

fense policy. In the spring of 1973 some of the restraints were eased for selected countries with respect to the M16 rifle, medium tanks, and the Chaparral/Vulcan system, indicating more favorable trends in U.S. security assistance for Latin America.

Training is a major security assistance activity, one that involves preparing U.S. personnel to administer programs and train foreign nationals of recipient countries. In the spring of 1973, the Army Chief of Staff returned from a visit to Latin America convinced of the efficacy of the program in terms of U.S. national security and the need to improve the selection and training of U.S. officers for key positions in security assistance staffs and agencies. A Security Assistance Management Orientation Seminar was established at the Military Assistance Institute at Fort Bragg, North Carolina; the Washington, D.C., orientation for certain personnel being assigned to U.S. military assistance advisory groups was continued, with some forty-one senior designees, ranging from lieutenant colonel to major general and scheduled for duty in thirty-two countries, receiving the three-day briefing.

The combined military assistance grant aid, service-funded, and foreign sales programs for training foreign personnel were smaller in fiscal year 1973 than in 1972. *Table I* shows the training support in fiscal year 1973 under the Foreign Assistance Act.

TABLE 1—TRAINING SUPPORT UNDER THE FOREIGN ASSISTANCE ACT

	Europe Area	Pacific Area	Latin America Area	ABC Area [1]	Total
CONUS school					
Spaces	2626	3161	311	450	6548
Students	1954	2673	217	212	5056
Oversea school					
Spaces	1383		1574		2957
Students	1383		1468		2851
Third country					
Spaces		27576			27576
Students		27576			27576
Orientation					
Tours	14	9	9		32
Participants	65	38	257		360
Mobile training teams (man-years)	13	18	15		46
Field training service (man-years)	18	22			40
Training for other departments					
Spaces	3	206	2		211
Personnel	3	194	2		199
Total training dollar value					(in millions)
MAP	$3.054	$5.361	$4.446		$12.861
MASF		3.247			3.247
FMS	6.411	.285		.528	7.224
					$23.332

[1] Australia, Britain, Canada.

International Humanitarian Law

In February and March 1973 a number of government experts met to continue preparations for a 1974 diplomatic conference on International Humanitarian Law, scheduled by the International Committee of the Red Cross. Experts from eleven nations and four international organizations met in Geneva, Switzerland, from 5 to 9 February to deal with identification systems for medical transports. The primary discussions covered technical means to improve identification and marking systems for land, sea, and air medical transports and for medical facilities and installations. Recommendations were made to the Red Cross for improvements in identification and marking systems by use of visual, sonic, radio, and radar techniques. The International Committee will study these recommendations prior to submitting proposals to the Swiss Federal Council as the working draft for the 1974 diplomatic conference.

In March 1973 experts from twenty nations met at Geneva to discuss texts prepared by the International Committee of the Red Cross concerning noninternational armed conflict and guerrilla and resistance movements.

III. Force Development

With the Vietnam War ended, Army strength leveled off at intended postwar levels, making it possible to proceed under peacetime conditions with organizational planning, operational concepts and doctrine, manpower allocation, training and schooling, materiel requirements, and the other elements that go into force development.

A number of actions were taken to insure that both military and civilian manpower would be carefully managed under postwar constraints. To reduce grade authorizations in the Army Authorization Document System to the level provided for in the Officer Grade Limitation Act, officer grade authorizations were set up for all Army commands and agencies in March and April 1973; documentation under these constraints will be established for each element's position at the end of fiscal year 1974. Although this action reduced field grade authorizations, it increased company grades a like amount. There was no net change in officer end strength.

The same could not be said for civilian end strength. At the start of fiscal year 1973, the Army was authorized in the President's budget a civilian work force of 367,122. By the close of the year this had been reduced to 343,622 as a result of the withdrawal from Vietnam, military force reductions, and fiscal constraints. Actual strength at year's end, on the other hand, had dropped even lower, to 333,235 (not including disadvantaged youth employees), the result of accelerated retirements prompted by a 6.1 percent bonus offered to those who elected to terminate their service by 30 June 1973. On that date the composition of the civilian work force was as follows:

Category	End Strength
Direct hire	333,235
U.S. nationals (315,628)	
Foreign nationals (17,607)	
Indirect hire (contract)	72,296
Disadvantaged youth	5,458

During the year the Army program to develop an improved tactical command and control capability through an Integrated Battlefield Control System (IBCS) continued to show progress. This program, as defined and governed by the Army Tactical Command and Control Master Plan, is a comprehensive one that establishes a logical sequence for the progressive development, testing, and introduction of new and improved doc-

trine, organization, procedures, and equipment for command and control. Its goal is to provide battlefield commanders at each echelon with the improved command and control capabilities required to take advantage of advances in mobility, firepower, battlefield intelligence, and communications.

Studies and tests are being made to identify the best possible staff organization and procedures to field at tactical echelons. The newly organized U.S. Army Training and Doctrine Command will conduct detailed studies to develop candidate organizations and procedures. Results of these studies will then be subjected to exhaustive testing by the Modern Army Selected Systems Test, Evaluation, and Review (MASSTER) facility at Fort Hood, Texas; findings, conclusions, and recommendations will lead to further refinement of staff organization and procedures. During fiscal year 1973, the second of a series of division-level studies was completed; results will be tested in 1974. Study was also begun to improve the command and control system for echelons above the division. This effort includes an examination of strategic and tactical interface requirements. The program is intended to provide a fully integrated tactical command and control system that will mesh with similar systems of the other services.

Development of the Army Tactical Data Systems (ARTADS) proceeded concurrently with the development of staff organizations and procedures. Although the Tactical Fire Direction System (TACFIRE) program experienced some delay during engineering and service testing in fiscal year 1973, system design was determined to be basically sound and the program continued. Development efforts for the Tactical Operations System (TOS) also continued; the Office of the Secretary of Defense approved the development concept for the system, including test fundings, in September 1972. And finally, contractor testing continued on the Air Defense Command and Control System (AN/TSQ–73 Missile Minder), and development of the Air Traffic Management Automated Center (ATMAC) was started in October 1972 with a contract for modeling and concept formulation.

There were other developments in fiscal year 1973 in the fields of electronic warfare, airspace control, and materiel acquisition. Electronic warfare (EW) is military use of electromagnetic energy to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum; it also includes friendly use of the spectrum. In the report year, EW training and concepts were combined in one major command, the U.S. Army Training and Doctrine Command. Proponency for training within the command was vested in the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas. A new concept for EW support to tactical forces was developed and approved; along with other support-

ing concepts it will realign EW forces and place them in appropriate locations to support key tactical forces. An EW documentary program was pursued through the year to support equipment research and development test and evaluation programs, and departmental guidance was developed for a detailed review of Army EW programs, concepts, and capabilities preparatory to development of an EW Master Plan to be completed in September 1973.

In May 1972 the U.S. Army Combat Developments Command and MASSTER prepared a plan to evaluate the Army's airspace control system, and MASSTER was directed to conduct the evaluation, which took place from June to September 1972. The findings and conclusions centered around the potential interference among mortar, field artillery, and aircraft operations in the airspace over a division area. As a result of the findings, two airspace control systems were evaluated from October to November 1972, leading to development by MASSTER of a proposed Army airspace control system. This will be evaluated by the Training and Doctrine Command and presented to Headquarters, Department of the Army, for approval and field evaluation.

Training and Schooling

On 20 February 1973, the functions of unit training were transferred from the Office of the Assistant Chief of Staff for Force Development to the Office of the Deputy Chief of Staff for Military Operations. There were numerous developments during the year that involved training programs, tests, literature, devices, ammunition, and the like. There was continuing effort to decentralize training further by revising Army Training Programs (ATP's) and Army Training Tests (ATT's). The aim is to make them guides for users—to be modified by commanders to reflect the resources, requirements, and mission of a unit—rather than restrictive programs and tests. Systems engineering philosophy and techniques were developed for ATP's and ATT's, and prototype documents were prepared by Army schools.

The Army continued to emphasize adventure training during the year. Adventure training is designed to provide individuals and units with unusual experiences, involving some degree of risk, that build unit integrity by developing self-reliance, physical ability, mental stamina, attitude, leadership, and the desire to excel. Every effort is made to inject imaginative, innovative, challenging, and adventurous features into training. Adventure training may include such activities as survival training, cross-country movement, mountaineering, skiing, parachuting, and scuba diving. Some of these activities, such as the one in which a military unit retraced the route of Lewis and Clark, have been highly publicized.

In the summer of 1972 the Army began to field test and evaluate a number of concepts developed by a Defense Reserve Component Study Group to improve Reserve Component readiness. The purpose is to determine the ability of these units to perform assigned missions, ways to improve their readiness, and how best to mix Reserve Component and active Army units. Four concepts were appraised: measures to improve the readiness of Reserve Component units in peacetime without changing existing command or organizational relationships, post-mobilization measures to reduce the time between mobilization and availability of Reserve Component units for deployment, measures to reduce the time required after mobilization to have Reserve Component units available for deployment, and measures that do not affect any Reserve Component troop units but do influence the peacetime manning levels of active Army divisions.

In November 1972 the British Army formally requested and the U.S. Army approved a training visit by a Royal Army Engineer squadron. Exercise GOBI DUST 73 began at Fort Riley, Kansas, in April 1973 and will be completed shortly after the close of the fiscal year.

The Army-wide Training Literature Program for fiscal year 1973 contained requirements for approximately 700 new or revised publications involving items under the proponency of the Continental Army Command, the Combat Developments Command, the Army Materiel Command, and the Chief of Military History. Requests for publications were screened for validity and urgency, and priorities were established for printing and issue on an orderly basis.

There were a number of actions on training devices during this period. Development was completed on a laser tank gunnery device, an artillery unit trainer, an electronic countermeasure device, and a small arms retaliatory target system, and all became standard items of issue. Procurement was begun for a television trainer, and co-ordinated test plans and milestone schedules were established for an observed fire trainer, the M16A1 man-versus-man target engagement simulator, the field target screen and moving target screen, a vehicle engagement simulator, an M60 machine-gun laser, and a combat vehicle simulator.

Training ammunition allowances were realigned to insure that they satisfy requirements of the Army's decentralized training policy. Training allowances and training devices for the TOW, Shillelagh, Dragon, and Redeye systems were reviewed, and allowances for the Redeye were realigned by reducing missile allocations for advanced individual training in favor of increases in allocations for unit training. Because of limited supplies and funding constraints, approval authority for special allowances for realistic training was held at Headquarters, Department of the Army. The training portion of the Army's ammunition budget for fiscal

year 1973 was reduced by $21 million by the Office of the Secretary of Defense, and will be reduced by $18.2 million in fiscal year 1974.

As the Vietnam War drew to a close, operational reports dwindled and were no longer necessary. On 1 November 1972 the Operational Reports–Lessons Learned (ORLL) requirement was suspended, and the unit history annual supplement replaced the ORLL.

The reduction in the size of the Army prompted some modifications in the Army school system and in training activities. These considerations coupled with basic national policy and international treaty decisions concerning chemical warfare led to the disestablishment on 24 June 1973 of the U.S. Army Chemical Center and School with a redistribution of some of its activities. The school's Explosive Ordnance Disposal Course, Technical Escort Course, and Chemical Accident/Incident Control Officer Course were transferred to the U.S. Army Missile and Munition Center School, Redstone Arsenal, Alabama. The Chemical Officer Basic courses, both resident and nonresident, were eliminated and a six-week Chemical-Biological-Radiological (CBR) Staff Officer Course was established at the U.S. Army Ordnance Center and School at Aberdeen Proving Ground, Maryland. The Chemical Officer Advanced courses, resident and nonresident, were eliminated, and the instructional scope of the Ordnance Officer Advanced Course was modified to include CBR instruction; the Ordnance School also assumed responsibility for ten additional chemical-related courses formerly taught at the Chemical School.

With the student load for pilot training also declining from an all-time high of 6,887 in fiscal year 1969 to a projected level of about 1,500 in fiscal year 1974, consolidation of Army aviation training began in April 1973. Fort Wolters, Texas, will be closed and primary helicopter training will be transferred to the U.S. Army Aviation School at Fort Rucker, Alabama, which will also assume responsibility for AH–1G (Cobra) flight training conducted at Hunter Army Airfield, Georgia—an installation that will be placed in a caretaker status.

The male Officer Candidate Program was modified in March 1973 after a two-year test to determine the practicality of reducing the length of the course. As a result of the experiment, the Officer Candidate Course was reduced from twenty-three to fourteen weeks in length and redesignated the Branch Immaterial Officer Candidate Course. Graduates will immediately attend their Branch Basic Officer Course. Input to Officer Candidate School (OCS) was reduced, and only in-service applicants are accepted. The OCS program at Fort Sill, Oklahoma, was terminated in June 1973, leaving Fort Benning, Georgia, as the only installation to conduct male officer candidate courses.

The Army's Reserve Officers' Training Corps (ROTC) program, which supplies the larger percentage of new officers, continued to meet

active Army and Reserve Component needs in a vastly improved atmosphere. Anti-ROTC incidents in fiscal year 1973 were 76 percent below the previous year.

A five-year decline in ROTC enrollments slowed considerably in fiscal year 1973 despite elimination of the draft and a switch in course status from required to elective in six institutions. Without the draft, ROTC units may expect a higher percentage of career-motivated cadets with improved retention rates.

Over-all minority enrollment for the 1971–1972 school year was 14 percent; 10.8 percent were blacks, and 3.2 percent represented other minorities. In the 1972-1973 school year, minority enrollment increased to 17.4 percent, with 13.7 percent black and 3.7 percent other minorities. In May 1972 the Army began to allow women to enroll in Army ROTC and 212 female students enrolled in ROTC courses at ten test institutions for the 1972–1973 school year; 20 women received four-year ROTC scholarships. Female scholarship cadets incur a four-year active duty obligation like their male counterparts.

In noncommissioned officer training, the three-level progressive NCO Education System (NCOES) moved forward in fiscal year 1973. Forty-one basic level service school courses of eight to twelve weeks' duration provide training in all career management fields. These courses prepare E–4 and E–5 personnel for the duty required at E–5, E–6, and E–7 levels. During fiscal year 1973, 11,530 students entered basic level courses. Advanced level courses, begun in the third quarter of fiscal year 1972, were fully implemented in fiscal year 1973; forty-three courses of eight to twelve weeks' duration provide training for E–6 and E–7 personnel in all career management fields to prepare them for duty in grades E–8 and E–9. About 4,400 students attended these classes in fiscal year 1973.

The senior level course of professional development in the military educational system for noncommissioned officers is the Sergeants Major Academy at Fort Bliss, Texas. The academy objective is to prepare selected E–8's as command sergeants major throughout the Army. The course prepares senior noncommissioned officers to help commanders solve leadership, human relations, and training problems; enhance senior NCO capabilities to develop and maintain discipline in the volunteer Army; increase knowledge in tactical and administrative operations of divisions; update knowledge of contemporary Army problems; provide an orientation on national and international affairs; improve interpersonal communication skills; and develop intellectual depth and analytical ability. Classes of twenty-two weeks' duration will be conducted twice annually. The first, of a hundred students, opened on 8 January 1973; later classes may reach a strength of two hundred. A Department of the Army board selects the students.

A special course for training Province/District Senior Advisers was terminated in February 1973 when the last of these specialists were withdrawn from South Vietnam. Their number was reduced from 152 on 1 July 1972 to 63 in February when the program ended. The last advisers were withdrawn on 28 February 1973.

Systems

Since early 1969, when an over-all reassessment of ballistic missile defense (BMD) resulted in a substantially modified and carefully phased deployment concept with multiple objectives, BMD development and deployment programs have been reviewed annually to consider technical developments, the threat, and the diplomatic context including arms limitation negotiations. Activities in the diplomatic arena, particularly those which led to the August 1972 Senate ratification of the Antiballistic Missile (ABM) Treaty, coupled with BMD deployment constraints imposed by the Congress during legislation of the fiscal year 1973 DOD Authorization Bill, have influenced the fiscal year 1973 BMD-related programs and the programs for fiscal year 1974 and beyond.

Safeguard technical progress through fiscal year 1973 continued to be excellent. Virtually all hardware subsystems have been released to production. The software development continued on schedule. The final phase of system tests at Kwajalein Missile Range to support software development was continued. A total of 43 system tests were completed as of 30 June 1973; of these tests, 37 were successful, 2 were partially successful, and 4 were unsuccessful. Of the 15 tests conducted in fiscal year 1973, 13 were successful and 2 were unsuccessful.

The initial Strategic Arms Limitation (SAL) agreements will not necessarily limit the growth of the Soviet strategic threat. The Interim Offensive Agreement, which has a limited duration of five years, restricts the number of Soviet intercontinental ballistic missiles (ICBM's) and sea-launched ballistic missiles (SLBM's) launchers, but does not limit improvements in accuracy or development and deployment of Multiple Independently Targetable Re-entry Vehicles (MIRV's). The ABM Treaty limits each country to deployment of antiballistic missile defenses at two sites, but permits, with certain limitations, continued research and development of fixed land-based ABM systems. As a result of the deployment limitations, work at the Malmstrom Safeguard site was suspended on 27 May 1972 and terminated on 2 October 1972. Neither the Interim Offensive Agreement nor the ABM Treaty applies to the Peoples Republic of China, which is moving toward an offensive strategic ballistic missile capability. This threat and the possibility of an accidental or intentional ballistic missile launch from any source provides incentive for

the United States to continue research and development on the technology of strategic defense systems.

Immediately following the signing of the ABM Treaty by President Nixon on 26 May 1972, the Secretary of Defense directed the Army to continue Safeguard deployment at the Grand Forks, North Dakota, site as planned; plan for deployment of an ABM defense of the National Command Authority (NCA), within the provisions of the treaty, on the fastest reasonable schedule; initiate planning to cancel the remainder of the twelve-site Safeguard program; and suspend all ABM programs which are prohibited by the treaty. In June 1972, the BMD portion of the fiscal year 1973 Department of Defense budget was amended to reflect the limitations established by the ABM Treaty.

Pursuant to instructions from the Secretary of the Army and the Chief of Staff, two studies were undertaken to evaluate the impact of the limitations of the ABM Treaty on ballistic missile defense deployment and development programs. These studies, the System Design Review (SDR) and the BMD Management Study, were conducted concurrently as separate activities.

The SDR, conducted by a task force under the direction of Major General George Mayo, Jr., was to analyze the design of Army BMD systems and related development programs to include deployment configurations, schedules, and objectives. The SDR was completed in October 1972; a number of recommendations were made in the areas of deployment objectives configurations, cost and deployment schedules, funding, and concepts of operations, maintenance, and base support. These were approved by the Secretary of the Army.

The BMD Management Study was prepared at the direction of the Secretary of the Army by Brigadier General Hal E. Hallgren. This study, completed in September 1972, was an over-all examination of the Army management of its ballistic missile defense programs and the impact of the ABM Treaty on these programs. Also taking expected funding constraints into account, the study group recommended several organizational alternatives for the management of BMD activities that called for the consolidation and streamlining of existing activities. Selected alternatives were approved in October 1972 and included in the January 1973 announcement, made by the Secretary of Defense, of the over-all Army reorganization.

The Army has reduced its BMD management structure, as a result of the ABM Treaty and the expressed congressional intent limiting Safeguard deployment to the Grand Forks site, and in line with approved recommendations and alternatives of the SDR and the BMD management studies. By the end of June 1973, personnel strengths in support of the Safeguard program had been reduced to about 45 percent of the

manning level authorized prior to the signing of the ABM Treaty. Further reductions are planned in fiscal year 1974.

One of the recommendations common to both the SDR and the BMD management study was to provide logistics support to the limited Safeguard deployment by contract rather than a large dedicated government force. Adoption of this recommendation thus allowed the disestablishment of the Safeguard Logistics Command at Huntsville, Alabama, and the Safeguard Training Facility at Fort Bliss, Texas, and the change of the Safeguard Army Depot at Glasgow, Montana, to a government-owned and contractor-operated facility. These actions should lead to significant savings in operating cost and reductions in manpower requirements.

Safeguard deployment at the Grand Forks site proceeded on schedule. Beneficial occupancy of the two radar facilities was accomplished, and the installation and testing of tactical hardware was under way. "Power-On" in the Perimeter Acquisition Radar was achieved in June 1973. The scheduled equipment readiness date of the Grand Forks site remains October 1974.

The original budget request of $1.6 billion for the Safeguard program was based on a four-site defense of Minuteman, advanced preparation on an NCA defense site at Washington, D.C., and continuation of area defense research and development programs.

In June 1972, an amended budget request for $890.4 million was presented to the Congress to support the reduced deployment permitted by the ABM Treaty. This amended budget asked for authority to continue the deployment at the Grand Forks site, the advanced preparation for an NCA defense, and the production of those Minuteman system components that could be used in an NCA defense. The fiscal year 1973 DOD Authorization Act expressed congressional intent in the following words: "None of the funds authorized by this or any other Act may be obligated or expended for the purpose of continuing or initiating deployment of an antiballistic missile system at any site except Grand Forks AFB, Grand Forks, North Dakota." This act authorized continuation of deployment at the Grand Forks site but denied for the third consecutive year authority for advanced preparation of a site in defense of the NCA. It also denied the authority to continue production of hardware for any site except Grand Forks, thus causing the shutdown of Safeguard production lines.

Site defense, begun in 1971 as a prototype demonstration program under the direction of the Safeguard System Manager, therefore continued, protecting Minuteman against an advanced strategic ballistic missile threat that includes MIRV's, decoys, and other penetration aids. The Congress during its deliberation on the fiscal year 1972 Department of Defense budget request had recognized the need for this option to

defend Minuteman and provided initial funds for the conduct of a prototype demonstration program. Congressional support, though not at the funding level requested, continued in fiscal year 1973.

Development of site defense hardware and software components proceeded on a schedule adjusted by fiscal year 1973 funding constraints, and progress was satisfactory. The majority of the radar design was completed and some hardware fabrication started. Design of the tactical software was under way. Fabrication and testing of major missile subsystem components has begun. Collection of target signature data has been initiated to aid discrimination and bulk filter design.

As a result of fiscal year 1972 limited funding, the pace of the site defense program was deliberately slowed. The basis for the original fiscal year 1973 budget request for $100.5 million was to make steady progress in the prototype demonstration program and begin construction of facilities at the Kwajalein Missile Range to support the demonstration program.

Decisions related to the strategic arms limitations agreement led to an increased request for Research, Development, Test, and Evaluation (RDTE) funds for the site defense program. The previous $80.1 million request was upped to $140.1 million. This increase would have provided for hardware and software development and test and demonstration in sufficient time for deployment before the expiration of the interim offensive agreement.

As a result of final congressional actions and apportionments made by the Department of Defense, the budget for site defense was reduced to the amount of the original request of $100.5 million, which included $20.4 million in Military Construction, Army (MCA), funds.

In his initial budget presentation to Congress on 26 March 1973, the Secretary of Defense outlined the scope of the proposed fiscal year 1974 Ballistic Missile Defense program. The program called for $402 million to continue Safeguard deployment for the Grand Forks site; $170 million was included for the site defense program, continuation of the prototype demonstration program, and definition of the modifications needed to adapt the site defense system for the defense of the National Command Authority site. Funds for deployment of an NCA site were not included.

The recommended budget supported the comprehensive Safeguard and site defense programs within the constraints of the ABM Treaty. These programs would provide for the defense of retaliatory forces in the Grand Forks area; retain the advantages gained from installing, testing, and operating a deployed BMD system; lead to an economical, effective defense of the Minuteman if the threat could not be limited; begin program definition and planning for the defense of the NCA; and enhance the probability of success in follow-on SALT (Strategic Arms Limitation

Talks) negotiations by maintaining the strength and flexibility of the negotiating position.

During fiscal year 1973, work continued on the Hawk air defense guided missile system. The Hawk is designed to provide defense, primarily for the field army, against low and medium altitude targets of slow and high speed. A new missile has been developed using the basic Hawk airframe, and other improvements include radar modification, made possible by recent technological advance, and an automatic data processor to accelerate reaction time. Developmental testing was completed in August 1972, and the Army's first improved Hawk battalion became operational in Germany in November 1972.

The Army's SAM–D surface-to-air missile will be the successor to the Hawk and the Hercules, and fiscal year 1973 was the first full year in the SAM–D engineering development program. The advanced development fire control equipment was readied for early flight tests, and design and fabrication began on the prototype missiles and fire control equipment. Based on a nuclear and antimissile capability study of the SAM–D, the Chief of Staff approved recommendations to delete research, development, and procurement funds for the nuclear warhead; retain design and development of the ancillary ground support and missile equipment; program the SAM–D for the continental United States; and begin research and development on a nonnuclear warhead.

Engineering development also proceeded on the hand-carried Stinger air defense system. The contractor conducted successful nonguided test flights, and developmental plans and schedules moved forward. Product improvements also continued on the Chaparral and Vulcan short-range air defense systems. Evaluations were completed on the British Rapier system and the French-German Roland system. The 1st Battalion, 3d Artillery (Vulcan), 101st Airborne Division, and the 1st Battalion, 67th Artillery (Chaparral/Vulcan), 9th Infantry Division, were activated during the year.

Improvements to the Pershing missile system were examined during the year, and a nonnuclear capability for the Lance was advanced with the successful firing of a nonnuclear round at White Sands Missile Range in December 1972. The first Lance foreign military sales case, about $40 million, was signed by Italy in November 1972. In June 1973, the Army was authorized to execute contract options with Germany and the United Kingdom for similar sales. The total amount for all sales cases was $184 million.

The first procurement of the Forward Area Alerting Radar was completed and initial deployment began in fiscal year 1973. The system has been favorably received by the Chaparral/Vulcan battalions.

The Army convened the Short Range Air Defense (SHORAD) Study Group in April 1973 to re-evaluate the air attack threat to the army in the field, determine SHORAD system capabilities required to complement SAM–D, and recommend a development and procurement program for achieving the required SHORAD capabilities to include force levels and funding estimates. As the year closed, the study group had completed its computer simulations and war gaming and was developing its final report.

The Army in fiscal year 1973 established a Positioning and Navigation System Task Force to determine Army requirements in this field in the 1980s, appraise Army participation in the Defense Navigation Satellite Development Program (DNSDP), and make recommendations concerning Army equipment requirements for a Defense Navigation Satellite System. At the close of the year, the task force was developing data for a joint proposal for the DNSDP, as requested by the Deputy Secretary of Defense.

In aviation systems there were numerous developments during fiscal year 1973. A helicopter-launched missile requirement was approved on 29 December 1972 for an air-to-ground, laser-guided missile capable of defeating individual targets such as tanks before the target takes action. As visualized, the target area would be illuminated by a laser designator located on the ground or on another aircraft, and the attacking aircraft would be able to take evasive action or depart the area after firing. This system, called Hellfire, includes a missile, fire control and integration equipment, and training and support equipment. Concept formulation for Hellfire was funded, and tests on its military potential were completed.

In August 1972 the Army canceled the Cheyenne helicopter program and started to develop an advanced attack helicopter. Cost and performance characteristics were defined, and, with the approval of the Deputy Secretary of Defense, the Army on 15 November 1972 invited industry to submit proposals for production prototypes. Bell and Hughes helicopter companies were selected to produce the prototypes.

The heavy-lift helicopter program continued through the advanced technology component stage to the development of flight control, cargo handling, and rotor drive systems that would raise the payload from 10 to 12 tons to 22.5 tons. In January 1973 a contract was signed with the Boeing Vertol Company to build a single prototype to demonstrate these components in a flying helicopter. The first flight is scheduled for August 1975.

In the period from March through May 1972, a joint attack helicopter instrumented evaluation was conducted in Germany by U.S., German, and Canadian military elements. AH–1G attack helicopters and OH–58 observation helicopters were pitted against Bundeswehr

Leopard tanks and U.S. Vulcan air defense units. Using "nap-of-the-earth" tactics, the OH–58's found the tanks and directed the AH–1G's to the targets. Laser beams were used to simulate firings of TOW antiarmor and antiaircraft weapons; laser receivers on the helicopters and ground vehicles recorded hits. A laser hit triggered a smoke grenade on the victim vehicle. Sixty trials were conducted with the following results: 10 AH–1G's and 4 OH–58's destroyed by antiaircraft fire and 167 tanks and 29 Vulcans destroyed by AH–1G's. These impressive results confirmed that a missile-equipped helicopter using nap-of-the-earth tactics and taking advantage of speed, maneuverability, cover, and concealment can achieve a high-kill ratio and survive on a high-threat battlefield.

Early in the fiscal year the Army and the Air Force simultaneously but separately began to procure a light, twin-engine, fixed-wing aircraft of the V–21F type. This was modified during budget hearings when the Congress, noting the similarity in the projects, directed that the procurement be combined in a single solicitation. The Office of the Secretary of Defense assigned the leading role to the Army, and the services developed specifications jointly. In October 1972 the Army sought proposals from industry. Of the four responses received, two were for turboprop and two for turbofan. The latter was recommended by a source selection board. When difficulties arose over the source selection process, specifications, and congressional understandings concerning the project, the Secretary of the Army canceled the joint procurement effort. At the end of the year, the services were awaiting congressional action on a request for unilateral service procurement.

In July 1972 the Army was authorized to equip the AH–1G Cobra helicopter with the TOW missile. The new aerial antiarmor craft will be designated the AH–1Q. Prototype aircraft were flown and test-firings were conducted successfully at Yuma Proving Ground in Arizona. Until production aircraft are available in fiscal year 1975, the Army will modify 101 AH–1G's in fiscal year 1974 by arming them with the TOW, and another 189 will be modified in fiscal year 1975.

The TOW antitank missile system had been mounted on two UH–1 helicopters and deployed to Vietnam in April 1972. There were 133 combat firings during the period from 30 April 1972 to 14 October 1972. Of the 107 targets hit, there were 26 confirmed tank kills, 3 suspected tank kills, 15 wheeled vehicles destroyed, and 33 other point targets hit.

The Army continued to review its requirements for wheeled vehicles. The so-called WHEELS Study has reduced the Army's requirement by about 29 percent, or 110,000 vehicles. It was found that commercial vehicles could meet a large number of military needs, and vehicles of commercial design were increased from 20 to 43 percent of the fleet. Annual

savings in acquisition, operation and maintenance, and support costs are estimated to be about $300 million.

In August 1972 the task force dealing with the Army's main battle tank submitted a final report that proposed a new Army tank, the XM1. Industry was asked to submit proposals, and on 28 June 1973 Chrysler and General Motors were awarded contracts to provide prototypes. One contractor will be selected for full-scale engineering development following a 34-month validation phase.

On 11 September 1972, in response to a request from the U.S. Army Tank Automotive Command, the Chrysler Corporation, Food Machinery Corporation, and Pacific Car and Foundry Corporation submitted proposals for a mechanized infantry combat vehicle. Following technical evaluation of the proposals, Food Machinery Corporation was awarded a contract for $29.2 million to perform—on a cost-plus-incentive-fee basis—the engineering development for the vehicle. Two rigs will be developed and fabricated for component testing; 13 engineering prototypes will be constructed (12 to be used in development/operational test), and 4 second-generation prototypes will be produced, along with training devices.

The armored reconnaissance scout vehicle (XM800) project also advanced during the year. On 22 May 1972 the Food Machinery Corporation and Lockheed Missiles and Space Company had been awarded contracts respectively for design and fabrication of 4-tracked and 4-wheeled prototype versions. As the year closed, both contractors had their first vehicle in operation and being tested. The additional vehicles will be delivered to the Army in November 1973 for competitive testing.

The success of the wheeled vehicles (WHEELS) study suggested the need for a similar one on tactical radios. In January 1973 a Special Analysis of Net Radios (SPANNER) study group was established to review tactical net radio and related equipment requirements. Reductions in procurement were recommended based on a revision of the logistical factors used to compute authorized acquisition objectives. In a coming phase the group will examine Army tables of authorization and equipment to see where fundamental reductions might be made in net radio authorization.

Chemical and Biological Matters

On 10 April 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. To enter into force the convention must be ratified by twenty-two countries, including the United States, the Soviet Union, and the United Kingdom. By 30 June 1973, the requisite number of countries had signed the treaty, but the United States, the Soviet Union, and the United Kingdom had not yet completed ratification procedures. The treaty was pending in the U.S. Senate.

Destruction of biological and toxin stocks in this country was completed by the end of 1972. Disposal took place at the Pine Bluff Arsenal, Arkansas. The former biological warfare facility there is now a new national center for research on the adverse effects of chemical substances on man's environment. The former Army biological research facility at Fort Detrick, Maryland, is a center for cancer research.

Article IX of the convention reaffirms the prohibition of chemical weapons and calls for negotiations to reach an early agreement on 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, Rocky Mountain Arsenal, Colorado, and at Fort Detrick, Maryland, were disposed of without incident.

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. Three surveys of the disposal site have been made by the U.S. Navy, the last being made in November 1972. No contamination of the water surrounding the hulk was found. There was no evidence to indicate that any noticeable change to sea-bottom life has occurred as a result of the disposal.

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IV. Organization

Armed forces must reorganize continually to take advantage of technological advance, adjust to fluctuations in strength, and offset the threat of potential adversaries. Reorganization in the Army takes place at every level, at departmental headquarters, in field commands, and in installations and units. Occurring even more frequently are organizational refinements to keep apace with Army needs in manning and staffing, funding and management, weapons and equipment, concepts and doctrine, and tactics and training.

Military organization faces its crucial test in wartime. A cessation of hostilities usually brings substantial organizational change to correct imperfections exposed by the conflict, to take advantage of lessons learned from it, and to adjust to postwar conditions. This has been the case with the Vietnam War, and the structural changes that were taken in fiscal year 1973 or were pending as the year closed are of sufficient magnitude and importance to warrant a separate chapter in this annual report.

In addition to structural deficiencies revealed by the war, substantial changes in managerial programs and techniques, stimulated by the conflict and by the introduction of new automated data processing equipment, also suggested organizational revision. Other pressures were raised by the requirements to eliminate the draft and establish an all-volunteer Army. These developments coincided in turn with the rapid decline of the war, a sharp reduction in the size of the Army, and a shift to a peacetime footing—all matters of organizational import.

Against this background, it became evident early in 1972 that some major reorganization would be necessary and that the subject should be studied at the upper levels of the Army. Thus, on 24 April 1972, an Office of the Project Manager for Reorganization was established within the Office of the Chief of Staff. Major General James G. Kalergis, who was designated Project Manager, was to develop and manage a program that would improve Army organization at the major command and higher headquarters staff levels. The objectives of the reorganization, as set out in the Project Manager's charter, were to improve active and Reserve forces readiness, make schools and training more effective, improve the methods of developing equipment and forces, streamline management, and reduce overhead. Certain controlling influences were recognized: the Army would be smaller, people costs would increase,

greater reliance would be placed on the Reserve Components, and the need for decentralization would increase.

As a result of the study and the Project Manager's recommendations, Secretary of the Army Robert F. Froehlke and General Creighton W. Abrams, Chief of Staff, announced on 11 January 1973 a series of major actions to modernize and streamline the Army's organization within the continental United States—the most sweeping reorganization since 1962.

Restructuring the Major Commands

The 1962 reorganization had established three major commands within the continental United States to handle most of the Army's business. For more than a decade since, the Continental Army Command has provided a headquarters to direct most Army training and to monitor combat readiness at home. During the same period the Combat Developments Command has kept the Army prepared to meet current contingencies and has assayed its needs of the future. And, finally, the Army Materiel Command has handled commodity affairs, including the major share of logistic support for the war in Vietnam.

Under the 1973 reorganization, two of these three commands are to be discontinued, the Continental Army Command on 1 July 1973 and the Combat Developments Command on 31 December 1973. Their functions will be redistributed on 1 July 1973 between two new commands: the United States Army Forces Command and the United States Army Training and Doctrine Command.

The United States Army Forces Command (FORSCOM) oversees all operational divisions and Strategic Army Force units in the continental United States and all U.S. Army Reserve units. FORSCOM is also responsible for the readiness of the Army National Guard. Headquartered at Fort McPherson, Georgia, and formed from a nucleus of the disestablished Third U.S. Army, FORSCOM represents about 60 percent of total Army strength, with about 225,000 active Army troops and 660,000 soldiers in Reserve units. The command also employs about 37,000 civilians. Active installations will report directly to FORSCOM headquarters, and the FORSCOM commander will use the First U.S. Army at Fort Meade, Maryland, the Fifth U.S. Army at Fort Sam Houston, Texas, and the Sixth U.S. Army at the Presidio of San Francisco, California, to help him manage the Reserve Components. Nine Army readiness regions will serve as extensions of the armies in carrying out the Reserve Component function. These organizational arrangements were in progress from January to June 1973 in preparation for FORSCOM's becoming operational on 1 July 1973.

The United States Army Training and Doctrine Command (TRADOC) merges previously separated Combat Developments Command

agencies with the service schools. Basic and individual training, education at service schools, and the combat developments process have been brought together under TRADOC's sponsorship, with synergistic benefits accruing to each of these functions. Headquartered at Fort Monroe, Virginia, TRADOC has a strength of about 180,000 military—some 22 percent of the active force—and will employ about 49,000 civilians. Three new centers will assist the commander in co-ordinating the combat developments effort: the Combined Arms Center at Fort Leavenworth, Kansas, the Logistics Center at Fort Lee, Virginia, and the Administration and Personnel Center at Fort Benjamin Harrison, Indiana. TRADOC will also manage the Army Reserve Officers' Training Corps program through four regional activities.

Under the new organization, the importance of the installation commander has increased. Without intervening headquarters layers, he now has a direct line to his parent major command. An installation commander under either FORSCOM or TRADOC is responsible to the command for all units assigned to his post. The reorganization also recognizes his prominence in support activities in his geographical area. The installation commander clearly has an important role in FORSCOM's and TRADOC's mission accomplishment and in the Army execution of policy on a geographical basis.

The third command that was created in the 1962 Army reorganization—the U.S. Army Materiel Command—continues as the major element concerned with the design, development, procurement, distribution, and wholesale support of materiel for U.S. forces. Its ability to carry out this mission, however, is being improved by the 1973 reorganization through functional and geographical consolidations.

The Antiballistic Missile Treaty and 1972 congressional actions limiting the Safeguard program led to some consolidations and reductions. At Huntsville, Alabama, the U.S. Army Safeguard Logistics Command was merged with the U.S. Army Safeguard System Command, and strength was reduced. The Safeguard Central Training Facility at Fort Bliss, Texas, was disestablished, and remaining elements at Huntsville and at Malmstrom, Montana, Fort Huachuca, Arizona, and White Sands, New Mexico, were reduced in strength.

As a result of a general reorganization and centralization of defense investigative services, the U.S. Army Intelligence Command was also reorganized. Personnel and functions concerned with routine security investigations were transferred to the newly formed Defense Investigative Service, and the Intelligence Command, reduced to about half its previous strength, was limited to the traditional counterintelligence role. These actions were phased to a long-term plan to close Fort Holabird, Maryland, as an Army post and to move the Intelligence Command to Fort Meade, Maryland, by 30 September 1973.

Department of the Army

The 1973 reorganization affected Headquarters, Department of the Army (DA), as well as the major continental commands. Headquarters involvement in operations within the domain of the major commands will diminish. The headquarters will plan and integrate broad programs, develop policy, arrange priorities, and allocate resources. It will pull together the activities of the three major commands, control the tasking of new missions, and provide for the disciplined use of resources. To assist the DA headquarters in decision-making, the U.S. Army Concepts Analysis Agency and the U.S. Army Operational Test and Evaluation Agency were formed; they will report directly to the Department of the Army and will analyze and evaluate requirements for new materiel systems, force designs, and operational concepts.

The U.S. Army Concepts Analysis Agency, established on 15 January 1972, will respond to Army staff needs by conducting war games, studies, and analyses connected with force development and operational planning. The U.S. Army Operational Test and Evaluation Agency, established on 25 September 1972, will plan and test all major and selected nonmajor systems required in materiel acquisition.

In health care, medical supervisory functions were removed from the Office of the Surgeon General, the Continental Army Command, and the continental U.S. armies and consolidated into a U.S. Army Health Services Command headquartered at Fort Sam Houston, Texas. Providing a single manager for Army medical activities in the United States, the Health Services Command was established on 1 April 1973 and has over 50,000 military and civilian personnel. Subordinate to it is the Academy of Health Services, which manages all medical service schools and the Medical Training Center.

In personnel, the U.S. Army Military Personnel Center was established on 15 January 1973 at Alexandria, Virginia. By combining personnel assignment, career planning, counseling, and personnel-related fuctions, the Army has set up a one-step center for military personnel and has reduced the operational functions of the Deputy Chief of Staff for Personnel.

The Office of The Inspector General was also affected by the 1973 reorganization. The Inspector General's responsibilities for inspections and investigations were broadened, and his grade was increased from major general to lieutenant general. Studies are also under way that would further expand the coverage and improve the efficiency of the Inspector General system.

The 1973 reorganization was intended not only to make the headquarters staff responsive to the new continental-wide command structure but also to improve efficiency. Thus there were organizational realign-

ments and functional transfers within the major staff agencies at the departmental level. When all changes have been completed, the Office of the Chief of Staff will have been substantially reduced. The Adjutant General's Office will experience the greatest reduction by transferring several of its functions to the Military Personnel Center and to the Adjutant General Center, a field operating agency responsible for administrative services, education and morale, casualties, postal and publications services, heraldry, registry and courier services, and nonappropriated funds. The Office of the Deputy Chief of Staff for Logistics will be reduced from eight to six directorates and the Office of the Deputy Chief of Staff for Personnel from seven to four directorates.

There are substantial changes involving staff support agencies and field operating agencies.[1] Some of the changes have already been noted. For instance, the Concepts Analysis Agency is a staff support agency; the Operational Test and Evaluation Agency, the Military Personnel Center, and the Adjutant General Center are field operating agencies. In another change, the Office of the Chief of Military History was renamed, on 17 June 1973, the U.S. Army Center of Military History, a field operating agency of the Army staff. The Chief of Military History, while remaining a separate Special Staff member of the Army staff, was also designated Commanding General, U.S. Army Center of Military History.

Organizational modifications will continue through fiscal year 1974, by which time the Army staff will have dropped more than 50 percent below the 1969 level, as shown below.

AUTHORIZED STRENGTH OF THE ARMY STAFF

Date	Military	Civilian	Total
January 1969	2,983	6,617	9,600
June 1972	2,683	4,877	7,560
June 1973	1,904	2,912	4,816
June 1974	1,898	2,821	4,719

Training

The reduced U.S. role in the Vietnam War, the attendant cutback in Army strength, the decreasing use of the draft, and the shift to an all-volunteer force—all had a major effect on Army training. To insure close and high-level co-ordination of all elements of Army training in the turbulent transitional period, the Chief of Staff on 1 July 1972 established within his office a Special Assistant for Training (SAT) with the mission of enhancing the effectiveness of the Army as a fighting force

[1] The terms *field operating agency* and *staff support agency* replace the former designation *Class II activity*. A field operating agency is concerned primarily with operational functions, although it may operate under the supervision of a specific staff agency. A staff support agency, on the other hand, directly supports the Army staff, usually with management information, analysis, or command and control support.

by improving the training and motivation of individuals and units. Lieutenant General Glenn D. Walker was designated as the Special Assistant for Training and served in that capacity for the first critical year.

The SAT was authorized to monitor the progress of the Army staff and major commands in areas related to training and motivation, develop new programs to improve individual motivation and unit effectiveness, and monitor and implement actions in this area initiated by the Special Assistant for the Modern Volunteer Army.

Field Organization

The Army's major field combat organization—the division—is regularly altered to take advantage of the latest developments in weapons, equipment, tactics, and techniques. In the relatively brief period from World War II to the present, a span of little more than thirty years, there have been major changes in division organization. The cavalry division and the horse gave way to the armored division and the tank. Airborne and light mountain divisions were added to the existing infantry and armored division base. The organizational composition of the division moved from square to triangular to pentomic. Serious consideration was given to the possibility of eliminating type divisions in favor of a "universal" division. And in more recent times the helicopter has led to the airmobile division.

Experience in Vietnam has now prompted experimentation with yet another form of division, one organized to provide it with a triple capability. The 1st Cavalry Division (TRICAP) was activated at Fort Hood, Texas, on 5 May 1971. An experimental unit composed of an armored brigade, an airmobile brigade, an air cavalry combat brigade, and a division base, the 1st Cavalry Division is expected to adapt the highly successful airmobility experience gained in Vietnam to more traditional battlefield environments. Evaluation of the division concept and the air cavalry combat brigade is being done by the Modern Army Selected Systems Test, Evaluation, and Review (MASSTER) facility at Fort Hood.

Testing of the TRICAP concept began in February 1972 with an investigation into the operational employment and effectiveness of various company teams organized into battalion forces to accomplish specific tasks. The TRICAP test has centered on the air cavalry combat brigade element and related studies and experiments conducted by various commands and agencies. As a result of a Combat Developments Command evaluation, the 1st Cavalry Division will be reorganized late in fiscal year 1974 and will have two armor brigades and an air cavalry combat brigade.

Other Reorganization Actions

Among other important actions scheduled in the 1973 reorganization to be carried out in 1974, the Recruiting Command headquarters will move from Hampton Roads, Virginia, to Fort Sheridan, Illinois; the Strategic Communications Command will be assigned responsibility for co-ordinating all continental Army communications, including installation communications; the Criminal Investigation Command will be reorganized to eliminate some headquarters and consolidated field agencies; the Intelligence Command will complete its reorganization and its move to Fort Meade, Maryland; and the U.S. Army Chemical Corps will be reduced preparatory to its eventual merger with the U.S. Army Ordnance Corps. Some of the details of ongoing actions related to these and other elements of the 1973 reorganization appear in appropriate functional sections of this report.

V. Intelligence and Communications

Intelligence

During fiscal year 1973 there were a number of developments in the intelligence field concerning prisoner of war, attaché, organization, collection, investigation, automation, classification, documentary, and security matters.

On 27 January 1973, the Communists in Vietnam released a list of American prisoners of war. Fifteen days later seventeen of these were turned over to American authorities at Loc Ninh, Republic of Vietnam. Fifty-nine other Army men, including Major Floyd J. Thompson, who had been a prisoner of war longer than any other American in history, were released in Hanoi in three subsequent increments. One other prisoner of war, Captain Robert White, was released alone in the Mekong Delta on 1 April 1973, the last of seventy-seven Army prisoners returned to U.S. control.

In keeping with the joint repatriation operations plan, nicknamed Operation Homecoming, each released prisoner of war was evacuated to Clark Air Force Base in the Philippines for initial processing and intelligence debriefing. The purpose of this debriefing which, for Army personnel, was conducted by the 500th Military Intelligence Group, was to obtain information on missing and captured American personnel who were not being repatriated by the enemy. After a brief stay in the Philippines, returnees were evacuated by air to one of eight Army hospitals in the continental United States or Hawaii for medical treatment and detailed debriefing. Agents of the U.S. Army Intelligence Command, each selected and trained to debrief a specific individual, conducted detailed interviews of all Army returnees in the continental United States. Three Army men from the Pacific area were debriefed at Tripler Army Hospital in Hawaii by members of the 500th Military Intelligence Group.

From information obtained through returnee debriefings, the Army resolved the status of a number of prisoners of war and missing-in-action personnel. Still there were 350 Army men missing in Southeast Asia as the year closed, and efforts to account for them continued, with the Joint Casualty Resolution Center in Thailand particularly involved in the search.

Information acquired from the returned prisoners of war revealed much about Communist interrogation techniques and use of torture, deprivation, and psychological pressure to break the resistance of prisoners.

The project to purge the files of the U.S. Army Investigative Records Repository (USAIRR) of unauthorized materials was stepped up in fiscal year 1973. The monthly screening rate increased from approximately 50,000 files in September 1972 to 250,000 in May 1973. By the close of the fiscal year about 25 percent of the holdings had been screened, 57 percent of the files that were reviewed had been eliminated, and 4.2 million files remained to be reviewed. Prior to January 1973, the screening was performed by operational personnel of the USAIRR as an additional duty. In January 1973 fifty enlisted personnel were assigned full time to the project, and in May 1973 an additional seventy-five military personnel were authorized to begin work no later than July. The Intelligence Command expected to complete the screening by 15 March 1974.

Because of an urgent need to reduce the file holdings of the USAIRR before its move from Fort Holabird, Maryland, to Fort George G. Meade, Maryland, authority was requested of the Archivist of the United States to change the retention period for favorable Army personnel security investigations from thirty to fifteen years after the last action. As exceptions, files containing an adverse action against an individual would be retained permanently, and files of personnel who were being considered for employment with the Department of Defense, but who never joined, would be destroyed one year after completion. The request was approved on 26 April 1973, and the policy was implemented. As a result of this policy, the estimated file holdings of 6.7 million dossiers should be reduced by nearly 59 percent and substantial savings achieved in manpower, funds, and space.

Counterintelligence personnel from the Office of the Assistant Chief of Staff for Intelligence visited thirteen commands during the fiscal year to insure that the instructions of June 1971, which restricted the collection of information about persons and organizations affiliated with the Department of Defense, were being observed. No violations or discrepancies were noted, and unit personnel at all levels were found to be fully aware of and observant of the policy.

Pursuant to the action to terminate area intelligence collection activities, the U.S. Army Field Activities Command was disestablished in November 1972 and its remaining responsibilities assumed by the 902d Military Intelligence Group.

Significant progress was made during the year on the Army's portion of the presidentially directed Records Declassification Program. Over 1,900 linear feet of pre-World War II and World War II intelligence

files were reviewed in detail by Reserve officers assigned for annual or active duty training. In this review initiated by the Assistant Chief of Staff for Intelligence and The Adjutant General, each document had to be scrutinized to insure that confidential intelligence sources and sensitive intelligence methods would not be revealed through declassification. Nevertheless, approximately 98 percent of Defense-originated documents in the reviewed files were declassified.

The Adjutant General's permanent staff of declassification specialists, assisted by several consultants and Reserve officers assigned to four staff agencies for annual training, reviewed over 27,000 linear feet of nonintelligence records and declassified over 22,000 linear feet in bulk. The balance was reviewed on a paper-by-paper basis. To date, very few Army-originated records on nonintelligence subjects will require continued classification beyond the thirty-year limit prescribed by Executive Order 11652. The volume and content of those that should remain classified cannot be accurately predicted at this stage of the project, since most material currently exempted from declassification will require further review by qualified specialists.

Also surveyed in fiscal year 1973 were 51,000 linear feet of Army classified records originated during 1946–48. Positive identification and location data were developed for each record group and series, and preliminary recommendations were formulated for declassification in bulk and for limited or detailed review for each record series. About two-thirds of the material surveyed appeared to be eligible for declassification in bulk.

There were a number of functional and organizational developments in the intelligence area during the year. In addition to the move of the U.S. Army Intelligence Command and the disestablishment of the U.S. Army Field Activities Command, both outlined above, the Army's intelligence effort was reduced as a result of the transfer of resources to the Defense Investigative Service and the Defense Mapping Agency.

The Defense Investigative Service (DIS) grew out of the recommendations of a special panel to the President, who directed on 5 November 1971 that a single agency be established at Department of Defense level to conduct all DOD personal security investigations. The Secretary of Defense formed the agency on 29 December 1971 to handle all personal security investigations in the fifty states, the Military District of Washington, and Puerto Rico. The Army will continue to be responsible for complaints and limited investigations that stem from allegations of adverse loyalty and subversive activity; counterespionage, countersabotage, and countersubversion; security services including counterintelligence surveys and inspections, technical security surveys and inspections, and security education and assistance; and conduct of personal security

investigation leads for the Defense Intelligence Service outside of DIS jurisdiction. On 1 May 1972, the Defense Investigative Service became responsible for the DOD National Agency Check Center, the Defense Control Index of Investigations, and the Intelligence Data Handling System. During fiscal year 1973 the DIS assumed control of all Department of Defense personal security investigations within its jurisdiction.

The Defense Investigative Service is headquartered in Washington, D.C., with its operational staff located at Fort Holabird, Maryland. It has 20 district offices, 163 field offices, and 80 resident offices. Its authorized strength is 3,000 (646 officers, 1,104 enlisted personnel, and 1,250 civilians), of whom 1,409 are Army personnel (480 officers, 620 enlisted personnel, and 309 civilians), about 45 percent of the U.S. Army Intelligence Command's strength.

On the Army staff, the Assistant Chief of Staff for Intelligence was made responsible for "Army representational activities within the Defense Attache System, to include providing the Army point of control for Army attache matters." In the Canal Zone, the Army Human Resource Collection (HUMINT) System (see last year's report) was formalized, although the over-all system for collecting, evaluating, correlating, and disseminating intelligence information continued to decline under pressures to reduce expenditures.

Because of continuing efforts by congressional committees and other governmental authorities to determine the total manpower and money involved in intelligence activities, the Army began in August 1972 to identify and list resources that contribute to intelligence. The Army programing system specifically identified as intelligence resources only those elements exclusively devoted to intelligence. Other elements of operational complexion do, however, contribute to the commander's knowledge of the enemy and the area of operations. To define and list these sources will be a lengthy and complex undertaking because of the units and systems involved and the need to co-ordinate the work with the other services.

In March 1973 the Army launched Project ASSIST, Army Systems for Intelligence Support Terminals, to standardize automatic data processing hardware and software to support intelligence functions. The project will make it possible to access standardized data files in any of the data-handling systems or national level data bases with a system of interconnected centers. When completed, Project ASSIST will facilitate data exchange and co-ordination between Army and Army-supported intelligence and command and control computers, and, through the use of dedicated telecommunications and terminals, improve the response to analysts and commanders.

In April 1973 the Office of the Assistant Chief of Staff for Intelligence assumed Army responsibility for the operation, maintenance, and administrative support of the Foreign Disclosure Automated Data System, a Department of Defense system that provides a central repository for the storage and retrieval of data on the release of classified military information to foreign governments. The system will begin in October 1973 and will expand its user capability by the last quarter of fiscal year 1974.

In November 1972 a Honeywell 6050 dual-process computer was installed in the Army Operations Center to provide automatic data support for the operational and intelligence elements of the Army staff. The initial operating capability was achieved in February 1973.

During fiscal year 1973 the Army continued to recognize the importance that foreign powers place upon the interception and exploitation of military communications, primarily unciphered (plain language) voice traffic. An assessment of signal security within the Army revealed that while the number of voice radios in a representative Army division has grown from 225 during World War II to over 3,000 today, the development and procurement of crypto-equipment has not kept pace. The Army therefore looked for ways to improve tactical voice security.

Major commands, Army installations, and tactical units were all successful to some degree in educating the soldier about the foreign intercept threat and improving signal security within the limits of available resources. To help operating commands allocate and use their voice encryption equipment, a study was conducted that attempted to assign priorities for radio nets on the basis of an assumed intelligence value of voice traffic content. The study also provided information concerning the intelligence threat and the vulnerability of Army radios to interception.

Over 80 percent of the Army's tactical secure-voice equipment had been deployed to Southeast Asia to support operations in Vietnam; most of this had been withdrawn by the end of 1972. A major effort in 1973 was to rehabilitate the voice encryption equipment and redistribute it to tactical units. The age and condition of much of this equipment required the procurement of new and more advanced models. Long-range programs were continued in fiscal year 1973 to develop advanced equipment while making good use of existing devices.

Communications

In communications as in all aspects of Army operations, fiscal year 1973 was a transitional period between war and peace and a time for efficiency and economy. General objectives were established for the Army communications-electronics field and for the constituent areas of audio-visual technology, communications operations, electromagnetics,

electronics, management, personnel, security, and standardization. Significant reductions were made in the departmental headquarters communications-electronics staff. Operational functions were transferred to the field so that headquarters elements could concentrate on true functions. In November 1972 a comprehensive document was published outlining basic communications-electronics principles and concepts and program objectives and milestones.

Communications technical standards developed and distributed throughout the Department of Defense in fiscal year 1973 provided guidelines for equipment and systems, established design standards for certain equipment that would operate in both U.S. and NATO environments, set up criteria for teletype and digital equipment, and developed standards for long-haul and tactical communications. Also testing was under way to validate far-reaching communications concepts established by the Department of Defense.

Progress continued during the year on the Joint Tactical Communications (TRI-TAC) Program, established in May 1971 to achieve compatibility among service telecommunications systems and to procure common tactical multichannel trunking and switching equipment for use by all services. From 1965 to 1969 the United States had participated with Australia, Canada, and the United Kingdom in Project Mallard, a co-operative effort to develop a standard tactical communications system for the military forces of the participating nations. At congressional behest, U.S. participation was terminated because of the turbulence inherent in international development programs and inadequate joint U.S. service participation. The TRI-TAC program was established to develop and improve tactical multichannel communications for U.S. forces. An office was established at Fort Monmouth, New Jersey, staffed by all services on an equal departmental basis. The major objectives of the program are to achieve compatibility among service telecommunications systems, procure common equipment, eliminate duplication, and save money.

Under the TRI-TAC program, the service telecommunications system will be gradually modernized and upgraded to obtain the desired system by 1980. The Army has been designated to develop an automatic voice and message switching system and an associated tactical communications control facility, along with other equipment. Additional elements will be developed by the National Security Agency and the U.S. Air Force, Navy, and Marine Corps.

In another joint effort, the Army and the Air Force developed a joint manpower arrangement under which both services will man the Joint Communications Support Element that will augment the unified commands in contingency situations and joint exercises.

Under the Defense Satellite Communications System, the first two satellites were failures. The Pacific satellite became inoperative shortly after launch; the Atlantic satellite was providing communications relay for forty-six ground terminals when it failed in May 1973. Corrective actions were taken by the U.S. Air Force Space and Missile System Office and contractors, and two new satellites will be launched in November 1973. Under the Tactical Satellite Communications Program, a contract was awarded in December 1972 to the Radio Corporation of America to fabricate multichannel terminals for engineering development test, and testing of tactical satellite capabilities in a tactical environment continued.

For communications between the National Command Authority and U.S. forces worldwide, various elements of the Minimum Essential Emergency Communications Network program progressed during fiscal year 1973. The system will use a variety of unique communications techniques employed within the military departments, covering all portions of the electromagnetic spectrum.

The government's effort to integrate the Defense Special Security Communication System community into the Automatic Digital Network (AUTODIN) was completed. In the Korea Wideband Network project, designed to upgrade communications in Korea, outmoded foreign equipment was replaced by U.S. equipment, some of it withdrawn from Vietnam as U.S. involvement in the war ended. The American withdrawal from Vietnam had an impact upon the Consolidated Telecommunications Program; funds for this program were reduced for the coming fiscal year for research and development, procurement, and operational needs. Other factors contributing to this reduction included a moderating threat and presidential efforts to limit defense spending.

During fiscal year 1973, a number of steps were taken in preparation for the compatibility testing of tactical air control and air defense systems in joint military operations (TACS/TADS). These actions included developing joint service documentation, manning the service test teams, and arranging for secure communications support by the Army at the test sites. An interface Test Plan was prepared covering organization, methods, documentation, schedules, objectives, and support for joint testing. The Army portion, approved on 23 February 1973, included communications elements. Personnel of the 268th Signal Company from Fort Lewis, Washington, installed equipment at the test site in southern California in January 1973, and formal testing began on 13 March between the Naval Tactical Data System and the Naval Airborne Tactical Data System of San Diego, California, and the Marine Air Command and Control System at Camp Pendleton, California. Air Force and Army systems (AN/TSQ–73) will join the tests in fiscal year 1974.

The Army Tactical Communications System, which provides the army in the field with its organic capability for multichannel communications, employs a variety of communications assemblages embracing transmission, switching, teletype, control, and other shelter-mounted facilities. Developmental contracts were awarded for equipment that will provide the field army with the means to transmit high-speed data and secure-voice traffic over existing multichannel communications equipment. The first pulse code modulation multichannel transmission equipment was issued to the Reserve Components, and two tactical automatic digital switches were deployed to Europe for use in the Seventh Army communications system.

Also in Europe, the Army assumed from the Air Force the responsibility for providing American television to American military and dependent personnel in the region. This service will be broadened to cover some 140,000 Americans upon completion of site surveys, real estate acquisition, construction, and equipment installation.

In 1973 the Army reviewed a Digital Transmission Application Project designed to test and evaluate digital equipment, procedures, and personnel under field conditions at two locations, one in Germany and one at Fort Huachuca, Arizona. The Army concluded that the program should be restructed and co-ordinated with the Defense Communications Agency, and these steps were in progress as the year ended.

There were several developments in communications personnel matters during the year. The communications-electronics portion of the Officer Personnel Management System was developed to provide four specialties for Signal officers: combat communications-electronics, fixed telecommunications systems, communications-electronics engineering, and audio-visual instructional technology. A Civilian Career Program for communications was also established, with the Assistant Chief of Staff for Communications-Electronics as the functional chief and the commander of the Strategic Communications Command delegated the responsibility for program management. At the close of the fiscal year, 996 Department of the Army civilian communications managers and specialists were registered in the program.

VI. Personnel

Military Personnel

As fiscal year 1973 opened, Army strength was just under 811,000. Although the President's budget had specified a year-end strength of 825,000, and even though this had been reduced to 815,000 following the cease-fire in January 1973, the Army's strength as the year closed had dropped to 801,015. This coincided with the expiration of the draft on 30 June 1973 and the long-range target date for achieving the all-volunteer force on 1 July 1973.

A ceiling of 60,000 had been set on calls for the final year of draft authority. Since enlistments in the early months of fiscal year 1973 proved to be greater than had been anticipated, only 36,000 men were drafted, and in December 1972 call-ups for the second half of the fiscal year were canceled. When Army strength dipped below desired levels in the closing weeks of fiscal year 1972, the expanded early release program was suspended to permit strength adjustments; this program was resumed in the fall of 1972 and gradually adjusted to the levels before the phase-down. Fluctuations in strength, enlistments, draft calls, and early release actions reflected the turbulence that attended the end of the war in Vietnam, the termination of the draft, and the adjustment to peacetime constraints.

Operation Homecoming

Shortly after the Vietnam cease-fire took effect, the Democratic Republic of Vietnam and the Provisional Revolutionary government of Vietnam released the names of U.S. personnel being held as prisoners, seventy-seven of them members of the U.S. Army. They were released to U.S. military control in five increments over a 64-day period and were aeromedically evacuated through Clark Air Force Base in the Philippines to designated Army hospitals for medical and administrative processing and debriefing. All were granted ninety days of convalescent leave and were medically evaluated. By 30 June 1973, thirteen had been released to new assignments or released from active duty.

The Assistant Secretary of Defense for Public Affairs conducted the public affairs aspects of Operation Homecoming for the DOD Prisoner of War/Missing in Action Task Group. His office issued detailed guidance which the military services used in developing their own plans. The

Adjutant General served as the point of contact for the Army and headed the Army PW/MIA Task Force. The Army provided eight public affairs officers to act as representatives of the Department of Defense at Army hospitals where returning prisoners of war were processed. These officers were supervised by the Joint Services Homecoming Information Center in Washington, D.C. The Army's Office of the Chief of Information furnished a representative for the Information Center staff and also provided escort officers to accompany returnee evacuation planes from their points of entry into the continental United States to final hospital destinations. Press and public queries were handled at the Information Center and Army hospitals. A press conference was arranged for returnees who desired one, and public affairs guidance was provided as necessary. (For the intelligence aspects of Operation Homecoming, see Chapter V.)

Readiness and Trained Strength

The Army's base-line force structure for the post-Vietnam period included thirteen combat divisions plus supporting forces and essential headquarters. As fiscal year 1973 opened, the 101st Airborne Division (Airmobile) and the 25th Infantry Division had only recently been reorganized (January and February 1972 respectively), while the 9th Infantry Division had just been activated in May. At the end of fiscal year 1972 there had been a shortfall of 36,000 in trained strength, a condition ameliorated by the Unit of Choice enlistment program and the ability of participating units to fill gaps in the lower enlisted grades during fiscal year 1972. The 101st Airborne Division (Airmobile) set a promising pace in recruiting in fiscal year 1973 with its unexpected success in enlisting 2,000 men during June 1972.

The impact of personnel policy changes instituted in fiscal year 1972 began to be felt in fiscal year 1973. Stability was the central theme of these policies. Reduction in the frequency of permanent changes of station and termination of the early release program lowered personnel turnover in the combat divisions and, along with personnel assignment priorities for the active divisions, brought them to appropriate personnel readiness levels. It was apparent, however, that with the termination of the draft personnel readiness in these divisions would be dependent upon Unit of Choice and Special Unit Enlistment recruiting efforts. Oversea divisions were dependent upon U.S. Army Recruiting Command efforts in their behalf, supported by canvassers sent to the continental United States by the major oversea commands.

Trained strength improved by the middle of fiscal year 1973, although there were still imbalances in military skills. Shortages and overages in military occupational specialties were gradually corrected by cross-training and reclassification actions. The termination of draft calls

at the end of December 1972 closed off one line of supply of potential specialists—the skilled draftee. Lacking skilled people supplied by the draft, the Army was faced with the question of whether it could attain and sustain balanced strength through recruiting alone. In the transition period, with holdovers from the draft and through successful recruiting, strength levels were maintained and personnel readiness improved. By the close of the fiscal year, eleven of the Army's thirteen divisions had met their personnel readiness objectives.

The Modern Volunteer Army

The decentralization of the functional management of the Modern Volunteer Army, begun with the disestablishment of the Office of the Special Assistant for the Modern Volunteer Army on 30 June 1972, continued during fiscal year 1973. Various elements of this office were moved into the appropriate functional areas of the departmental staff, and the Deputy Chief of Staff for Personnel was assigned to monitor the program.

As decentralization proceeded, soldier-oriented programs funded from the Department of the Army budget were emphasized, and actions to enhance professionalism, improve Army life, and strengthen recruitment and re-enlistment were accelerated and expanded. Funds from the Department of Defense made some innovations possible.

The VOLAR (Volunteer Army) experiment, begun on 4 January 1971 and completed on 30 June 1972, was conducted at thirteen continental U.S. installations and three oversea commands. It provided selected commanders with limited funds to explore new approaches to attract and retain volunteers for the combat arms and to raise living, working, and professional standards throughout the Army. A final VOLAR report (An Analysis of the Modern Volunteer Army's Field Experiment on Soldier Attitudes and Army Career Intentions—DA Report No. 72–1, June 1973) indicated that the VOLAR program improved the soldier's attitude toward the Army and increased re-enlistments, especially among the enlisted group with less than two years of service.

The Secretary of Defense's announcement in January 1973 to discontinue draft calls before the expiration of the draft authority on 30 June 1973 showed that actions begun in fiscal year 1971 (January–June 1971) were bearing fruit. As had been projected in 1971, the Army came to sustain its strength through voluntary enlistment. By the spring of 1973, the services were notified that Project Volunteer funds would be integrated into the regular budget beginning with the formulation in 1973 of the fiscal year 1975 budget. As of 30 June 1973, the Army ended the centralized management of the Modern Volunteer Army and simultaneously discontinued the use of that term.

Leadership, Motivation, and Recruitment

For the first time in thirty-three years, the Army faced with the long-term prospect of developing and maintaining a force through volunteer recruitment. This required an organizational climate that would attract, develop, and retain professional soldiers. A Directorate of Human Resources Development was therefore established on 15 August 1972 within the Office of the Deputy Chief of Staff for Personnel to help create this climate and to address ways of integrating soldiers, their tasks, and the work environment in a way that would enhance individual motivation and unit effectiveness.

During the past year Army schools have increased the hours devoted to leadership instruction. New courses in human behavior, race relations, discipline, drug abuse, and counseling have been added. Leadership instructor qualifications have been enhanced through seminars, workshops, and graduate education. Special leadership courses (for instance, the Senior Commander Orientation Course) have been established, and the leadership field manual, FM 22–100, was revised to cover methods for dealing with human and social problems.

Leadership programs in the field were also expanded. Installations initiated their own leadership courses, seminars, and workshops (for example, the USAREUR Company Commander Course). Several new division-level NCO academies were established.

A Motivational Development Program was set up to examine leadership development and training as a part of personnel management. Several pilot projects were begun, among them: an Assessment Center to provide officers and NCO's with personalized appraisals of their strengths, weaknesses, and career options—an evaluation that can also be used for promotion, schooling, and assignment selection decisions; a Survey Feedback System that uses questionnaires and group problem-solving to help commanders view unit conditions and improve troop welfare and effectiveness; Management by Objectives, a process whereby superiors and subordinates identify common goals, define areas of responsibility, and use these measures to operate the unit and determine individual contributions; Job Enrichment, a process for improving task efficiency, unit effectiveness, and individual job satisfaction; and Team Building, a technique designed to strengthen the chain of command by improving individual and group communication skills and problem-solving processes.

The recruiting advertising program, which increased substantially in fiscal year 1972, continued in fiscal year 1973 at a funding level of $26.7 million. Continuity of advertising appeals and messages to the target au-

dience was emphasized. There were several main objectives of the program. One was to influence the target audience of 17- to 21-year-old high school graduates, or those about to graduate, to seek enlistment in the Army; another, to obtain sufficient enlistments for the combat arms for jobs requiring medium and hard skills and for special programs (such as officer candidate school and the Women's Army Corps); a third, to enhance general public knowledge of the Army. Still another objective was to obtain congressional approval for the use of paid radio and television advertising and to get broadcasters to donate public service time for Army recruiting. Little progress was made along either line. As a result, other forms of media support were used throughout the year—newspapers, magazines, transit space, and billboards, as well as coupon inserts and a direct mail campaign.

Since a high percentage of all initial enlistment contracts require the government to provide training for a particular military occupational specialty, the process of reserving training spaces to satisfy these contractual requirements was automated by providing an electronic data terminal to the Army career counselor at each Armed Forces Examining and Entrance Station. These terminals provide direct access to a central computerized data base and provide near-instantaneous quota information and training space reservations. The system matches job requirements with applicant qualification and desire. Called the Automated Recruit Quota System (REQUEST), the service was tested during fiscal year 1973 and is expected to be installed at all recruiting stations in the continental United States during the first quarter of fiscal year 1974.

Recruiting for the volunteer Army was not without its problems. A U.S. Army Audit Agency investigating team found a number of irregularities during an examination of recruiting practices during fiscal year 1972. In a report issued in April 1973, the agency listed a number of recruiting malpractices such as improper coaching to assist volunteers to pass entrance examinations, acceptance of medically substandard individuals, and inadequate police checks on some applicants. The report indicated that 29,217 men and women—16 percent of those accepted by Armed Forces Examining and Entrance Stations during fiscal year 1972—had to be discharged later because they were found to have been unfit mentally, physically, or morally when first accepted. Of these, 10,252 were Army enlistees. The Audit Agency estimated that the acceptance and discharge of first term personnel for unsuitability or medical problems which existed prior to service cost the Army $73 million in fiscal year 1972.

The Army investigated the irregularities exposed by the Audit Agency. Allegations of criminal violations by Army personnel were re-

ferred to the U.S. Army Criminal Investigation Command for action, and procedures were tightened up throughout the recruiting system.

Enlisted Personnel

In fiscal year 1973, a total of 170,413 males with no prior service were enlisted in the Army, as compared to 154,459 during fiscal year 1972. The true volunteer rate for males with no prior service (true volunteers were those completely invulnerable to the draft) was 79 percent, or 133,861, as opposed to 70 percent, or 107,572, in fiscal year 1972. Women's Army Corps enlistments of personnel with no prior service totaled 8,696 in fiscal year 1973 against a fiscal year 1972 total of 5,667.

All applicants for Army service, whether voluntary or involuntary, were required to meet established mental, moral, and physical standards Applicants were placed in four mental categories depending upon education, aptitude, and qualification for service in various areas of specialization; the groupings range from high Category I to low Category IV for acceptable personnel. The percentages of personnel in the mental categories of enlisted male accessions for fiscal years 1973 and 1972 are shown below:

PERCENTAGES IN MENTAL CATEGORIES FOR ALL ENLISTED MALES

Categories	Fiscal Year 1973	Fiscal Year 1972
I	3.2	3.9
II	26.8	28.5
III	53.3	50.2
IV	16.7	17.4

PERCENTAGES IN MENTAL CATEGORIES FOR TRUE MALE VOLUNTEERS

Categories	Fiscal Year 1973	Fiscal Year 1972
I	2.6	2.8
II	24.0	24.1
IIIa	22.5	21.3
IIIb	31.7	31.1
IV	19.2	20.7

Among males with no prior service who were enlisted in fiscal year 1973, 58.2 percent were high school graduates compared with 69.5 percent in fiscal year 1972. The high school diploma percentage (not counting those holding equivalent status as a result of General Educational Development testing) for males with no prior service was 56.5 percent in fiscal year 1973 and 57.5 percent in fiscal year 1972. The high school graduate percentage among true volunteers with no prior service was about 54.4 in fiscal year 1973 compared with an estimated 50.9 in 1972.

The enlisted grade structure was relatively stable in fiscal year 1973 except for substantial decreases in grades E-4 and E-5, attributable to insufficient time-in-service requirements for promotion of those in lower

grades. The strengths in the various grades as of the close of fiscal years 1972 and 1973 were as follows:

COMPOSITION OF THE ENLISTED GRADE STRUCTURE

Grade	30 June 1972	30 June 1973
E-9	4,157	3,977
E-8	14,065	13,149
E-7	52,019	48,653
E-6	85,683	76,298
E-5	120,252	105,012
E-4	193,899	127,606
E-3	85,868	102,585
E-2	63,401	162,138
E-1	67,348	42,544
Total	686,692	681,962

Enlistment options were increased in fiscal year 1973. In August 1972, a WAC Choice of Training/Station Enlistment Option was implemented, offering qualified Women's Army Corps applicants a choice of ultimate assignment to a continental U.S. (CONUS) installation or activity, or an oversea area, and a choice of short-duration training courses. In October 1972, a CONUS Station of Choice Enlistment Option was implemented, offering qualified men the choice of assignment to one of forty CONUS installations and training in one of over 250 entry level military occupational specialties. Also in October, a Berlin Brigade Enlistment Option was introduced, offering qualified applicants assignment to the U.S. brigade in Berlin, Germany, and a choice of training. In the same month, a special procurement program to increase enlistments for Europe was initiated for a sixty-day period. U.S. Army, Europe, furnished approximately 200 unit canvassers to work with representatives within the Recruiting Command to raise the visibility of U.S. Army, Europe, in the recruiting market.

In May 1973 a U.S. Army Training and Cash Enlistment Option was implemented for a two-month test. Terminated on 30 June, this option offered high school graduates in Mental Category III and above a $2,500 bonus for enlisting in one of twenty-one hard-to-fill occupational specialties. The existing U.S. Army Cash Bonus Enlistment Option for combat arms was changed to offer a $2,500 enlistment bonus to high school graduates in Mental Category III and above for enlisting for four years in the combat arms.

In light of the continuing cutback in over-all strength, the Army Re-enlistment Program emphasized the retention of the best qualified personnel to staff the all-volunteer Army. In July 1972 the first Army conference on re-enlistments was held in Washington, D.C., and attended by representatives of the major commands and departmental staff agencies.

The re-enlistment option program was revised to provide a more visible package to present to prospective re-enlistees. Two new options

were established: one permitted re-enlistment for assignment to the 3d Infantry (The Old Guard); the other authorized re-enlistment in the Berlin Brigade.

The Army's re-enlistment regulations were revised. The requirement for parental consent was discontinued, and the age requirements for men and women were equalized at eighteen years. Also, the ineligibility point-in-service for personnel in grade E–3 was changed from three to five years; this permitted E–3's who were not recommended for promotion to E–4 to re-enlist during a three-month period only—between twenty-one to twenty-four months in service. The bar-to-re-enlistment procedures were standardized so that they could be applied Army-wide, and all requirements for men and women were equalized.

The eight-month point-in-service re-enlistment eligibility provision for first-term personnel was changed to twenty-one months to permit more accurate strength forecasts and provide more time to evaluate a soldier's potential for continued service.

The following tables compare re-enlistment rates by type and by grade over approximately the last decade.

UNADJUSTED RE-ENLISTMENT RATES SINCE FISCAL YEAR 1963 [1]

Fiscal Year	1st Term RA	Career RA	Inductees	Over-all [2]
1963	22.2	89.5	11.2	41.8
1964	27.9	84.5	3.6	33.2
1965	25.7	84.1	8.4	38.6
1966	28.0	83.4	10.2	30.6
1967	23.7	74.2	20.8	33.8
1968	28.0	67.6	11.5	22.5
1969	17.4	64.5	9.4	18.4
1970	18.3	62.6	6.9	19.0
1971	18.6	64.6	4.4	22.6
1972	10.2	45.5	0.8	13.0
1973	37.8	63.0	2.7	35.4

[1] Computed by dividing re-enlistment actions by number of members eligible to re-enlist. Prior to 1970, data includes immediate and two- to ninety-day enlistments only; for 1970 and after, extensions of two or more years were included as re-enlistments. WAC data are included in rates.

[2] Excludes Reserve, National Guard, and former officers and warrant officers; also excludes extensions.

RE-ENLISTMENT RATE (PERCENT) BY PAY GRADE

Fiscal Year	E–9	E–8	E–7	E–6	E–5
1965	100	100	100	95	47
1966	100	99	99	90	42
1967	100	98	97	82	21
1968	97	97	94	72	11
1969	93	92	91	59	7
1970	85	84	81	54	9
1971	92	92	91	70	13
1972	85	82	83	68	9
1973	93	93	93	82	33

Officer Personnel

In fiscal year 1973, a total of 11,845 officers and warrant officers were procured through various sources. The following tables provide a breakdown of officer and warrant officer procurement and the totals of each category by grade structure.

FISCAL YEAR 1973 OFFICER PROCUREMENT BY SOURCE

U.S. Military Academy	923
Reserve Officers' Training Corps	5,177
Officer Candidate School	1,028
Voluntary active duty	255
Direct appointment (JAGC, MSC, CHAP)	507
Women's Army Corps	304
Medical Corps, Dental Corps, Veterinary Corps	1,909
Other	23
Miscellaneous*	159
Nurses and medical specialists	436
Warrant officers	1,124
Total	11,845

*Includes administrative gains such as recalls from the retired list and interservice transfers.

OFFICER GRADE STRUCTURE IN FISCAL YEAR 1973

Commissioned Officers

General officers	484
Colonel	5,381
Lieutenant colonel	12,212
Major	18,874
Captain	36,224
First lieutenant	14,871
Second lieutenant	12,709
Total	100,755

Warrant Officers

CW-4	1,411
CW-3	3,541
CW-2	8,227
CW-1	1,831
Total	15,010

Officer promotions to all grades declined in fiscal year 1973 as authorized strength diminished. Excluding the medical and the dental corps, a total of 763 officers were promoted to colonel, 1,671 to lieutenant colonel, 962 to major, 1,461 to captain, 261 to CW–4, and 1,028 to CW–3. Time in service and time in grade at the end of fiscal year 1973 were as follows:

Grade	Time in Service (Years)	Time in Grade (Years)
Colonel	21.0	6.1
Lieutenant colonel	14.8	6.3
Major	9.3	6.5
Captain	3.8	2.8
First lieutenant	Transitioning to twenty-four months' time in service by January 1974	
CW–4	10.8	5.6
CW–3	7.1	5.3

For officers, the Secretary of the Army authorized up to 15 percent of the promotion list to field grade to come from the secondary zone. A 7.5 percent rate was established for CW–4 and CW–3 grades. Zones of eligibility are being designed to allow all officers at least two secondary zone considerations prior to eligibility in the primary zone.

The President declared a promotion and civilian-hire freeze from 10 December 1972 through January 1973, and only those promotions contingent upon successful completion of a training program were exempted. The Department of Defense directed that the promotion phase points for first lieutenant and captain, AUS, be extended to twenty-four and forty-eight months, respectively, by January 1974.

The House Appropriations Committee in its report of September 1972 raised the "grade creep" issue. All services were accused of increasing the number of senior officers (lieutenant colonel and above) and noncommissioned officers and warned that unless the situation was corrected Congress would dictate how many officers would be authorized in the various grades. As a result, grade percentages were reduced below those at the end of fiscal year 1972, and numerical strengths were brought below what was authorized under the Officer Grade Limitation Act.

It was expected that the termination of draft legislation in July 1973 would reduce the pool of physicians and dentists available to the military by lowering medical student enrollment under the Berry Plan. Fiscal year 1974 procurement levels for both the Medical Corps and the Dental Corps were therefore raised to take advantage of the current pool. The increases were accommodated by the Department of Defense through an increase in authorized medical and dental strengths and through tradeoffs with other officer procurement programs.

Special Remuneration Programs

There were a number of developments during the year in the areas of variable re-enlistment, enlistment, and proficiency pay.

On 1 August 1972, the Army delegated to major commanders the authority to approve requests on a quota for lump-sum payments of the Variable Re-enlistment Bonus. This accelerated payment of $45 million in bonuses and allowed career counselors to advise potential re-enlistees that the bonus could be paid at the time of re-enlistment if a quota was available. The Combat Arms Enlisted Bonus Test, which was expanded for two months to determine its impact on critical hard skills, proved to be successful in attracting quality enlistees into hard-to-fill skills for longer periods of service. The bonus was increased on 1 May 1973 from $1,500 to $2,500 because the lower rate did not attract enough high school graduates into the combat arms. Combat arms specialties were made more attractive by having a geographical preference added to the bonus, an advantage also available in several other enlistment options.

The Army obtained authority from the Office of the Secretary of Defense to increase the rate of Superior Performance Pay from $30 to $50 per month starting 1 July 1973. This will add $4 million in payments to outstanding soldiers. At the same time, Shortage Specialty Proficiency Pay continued, but the number of skills affected declined from 154 military occupational specialties in fiscal year 1972 to 92 in fiscal year 1973. A reduction to 75 is anticipated for the coming year.

The Army supported the Department of Defense legislative proposal, submitted to the Congress on 17 May 1973, to restructure the flight pay system to make it more economical. The proposal responds to congres-

sional criticism of the existing system as expressed in Public Law 92–570, which terminated flight pay for colonels and higher grades in noncombat assignments effective 31 May 1973. The principal features of the proposal provide that flight pay be based on the years of aviation service, rather than by grade and longevity, for the first eighteen years of active officer service; the highest rates of flight pay begin after six years of aviation service; pay rates gradually decline after eighteen years of active officer service; all flight pay be terminated after completion of twenty-five years of active officer service (except warrant officers); a three-year transition period with save-pay provisions be established for those faced with pay reductions or denial of pay; and provision of flight pay for officers in the grade of colonel and above.

The Army also supported the Department of Defense legislative proposal, submitted to the Congress on 28 March 1973, to modernize the military nondisability retirement system. This legislation is an important element in the over-all effort to modernize the military compensation and personnel management systems and to achieve and maintain an all-volunteer force. The plan provides for a two-step retirement rate for retirees with less than thirty years of service—a reduced rate until they would have reached thirty years of service; use of high one-year salary averaging instead of terminal basic pay for computation of the retirement rate; integration of military and social security retirement benefits at sixty-five; payments to personnel who are separated, voluntarily or involuntarily, prior to retirement eligibility; and transition and save-pay provisions where a possible diminution of benefits would occur in the retirement annuity compared to the present system.

Another Department of Defense legislative proposal, supported by the Army, led to the enactment of a new Survivor Benefit Plan (Public Law 92–425) signed by President Nixon on 21 September 1972. The new plan permits retirees to leave to their spouses and dependent children up to 55 percent of their retired pay. With the federal government paying a substantial part of the over-all cost, reductions in retired pay will be considerably lower than those for the same protection under the former plan, the Retired Serviceman's Family Protection Plan. The new plan is open to current and future retirees, including those of the Reserve forces.

A recent decision of the United States Supreme Court (*Frontiero* v. *Richardson*) addressed the right of a female member of the uniformed services to claim her spouse as a "dependent" to obtain allowances and medical and dental benefits under 37 U.S.C. 401 and 403 and 10 U.S.C. 1072 and 1076 on an equal footing with male members. The Court concluded that, by according differential treatment to male and female members of the uniformed services for the sole purpose of achieving administrative convenience, the challenged statutes violate the Due

Process Clause of the Fifth Amendment insofar as they require a female member to prove the dependency of her husband. Put in effect 14 May 1973, this decision allows a female member to claim her civilian husband as a dependent, without regard to actual dependency, to receive the allowance for quarters and medical and dental benefits. As the year closed, the impact of the Supreme Court decision on such other areas as travel, transportation, and family separation allowances was under review by the Comptroller General of the United States.

Personnel Management

In January 1973, the U.S. Army Military Personnel Center was established (see Chapter IV) to manage the Army personnel system worldwide more efficiently. Its creation reduced the number of offices through which personnel actions flow; centralized the control of activities with similar functions; and grouped some activities to deal with career management, design and maintenance of the over-all personnel management system, and the various support elements required to operate the system.

Within the departmental staff, an Operations Center was established on 24 October 1972 in the Office of Personnel Operations (OPO) to control the necessary movements and assignments of military and civilian personnel as required by the 1973 reorganization. In carrying out its mission, the center sought to hold down change-of-station costs by keeping to a minimum reassignments within and between commands and installations; reduce personnel hardship; retain qualified people; and fill authorized positions on time with qualified people. On 30 October 1972 the OPO Operations Center was redesignated as the Personnel Coordination Center and continued until 1 June 1973, when, with the reorganization near completion, its members were reassigned to the Office of the Deputy Chief of Staff for Personnel and the Military Personnel Center.

During fiscal year 1973 the Military Personnel Center made several changes in military occupational specialties (MOS's). Eighteen enlisted MOS's were added, 4 deleted, and 42 revised; 3 were added to the officer list, 5 deleted, and 6 revised. A number of studies were also undertaken to adapt the classification system to the post-Vietnam, volunteer environment. One study, which was implemented on 1 January 1974, improved personnel management by regrouping enlisted MOS's into occupationally related career fields and establishing logical progression to grade E–9 within each field.

The Military Occupational Data Bank (MODB) administered over 30,000 occupational questionnaires to enlisted personnel working in 143 different MOS's to provide Department of Defense, Department of the Army, and Army service schools with reliable data on what soldiers

do, or must know how to do, on the job. Work also began on the conversion of the MODB system from collecting "frequency of performance" data to "relative time spent" data. This conversion will allow the MODB to take advantage of the DOD-sponsored series of sophisticated analytical programs called Comprehensive Occupational Data Analysis Programs (CODAP).

In November 1968, a concept was approved for an enlisted personnel career program, titled Management of Enlisted Careerists, Centrally Administered (MECCA). The concept was designed, in conjunction with the goals for a volunteer Army, to provide career management for enlisted careerists and emphasize individual professional development through assignments, education, promotion, classification, evaluation, and quality control. The manpower spaces and funds to introduce the first two phases of this program were made available in fiscal year 1973. The first phase provides for career management of enlisted personnel in grades E–8 and E–9; the second extends it to grade E–7, with development of career management files for grades E–6 and E–5.

In January 1973 the Enlisted Personnel Directorate assignment divisions were restructured to meet MECCA requirements and an Education/Professional Development Division was established. Five new assignment divisions were formed, each responsible for the professional development of careerists and the assignments of all enlisted personnel in the MOS's under its control: Combined Arms, Engineering and Transportation Operations and Maintenance, Communications/Supply Operations and Maintenance, General Support, and Special Categories. The latter controls personnel with such skills as military police, automatic data processing, intelligence, command sergeant major, and enlisted aide. The responsibilities of the Education/Professional Development Division also include the professional training of soldiers in the basic and advanced Noncommissioned Officer Education System and at the Sergeants Major Academy and the reclassification of career soldiers.

Beginning in January 1973, the location of enlisted selection boards (except standby advisory boards) was changed from the Secretariat for DA Selection Boards in Washington, D.C., to the U.S. Army Enlisted Records Center at Fort Benjamin Harrison, Indiana. Since the Enlisted Official Military Personnel File is at Fort Harrison, the cost of annually shipping some 150,000 records to Washington will be saved. An officer from the Secretariat for DA Selection Boards was stationed at the Enlisted Records Center to serve as recorder for the boards.

The expanded early release program in fiscal year 1972 demonstrated that manpower management models available to the Army were incapable of coping with wide-ranging policy decisions. During fiscal year 1973, new computer models for projecting losses and determining gain requirements were therefore developed both by the contracting agencies and the

Army. These new models provide a better analysis of the impact of Army policies on losses, re-enlistments, and gains.

On 2 August 1972, the Chief of Staff approved a plan to increase the enlisted strength of the Women's Army Corps during fiscal years 1973–78 to 23,800. By the end of fiscal year 1973 there were 16,457 enlisted Wacs, an increase of about 4,000 over the opening strength of 12,349. A later decision raised the strength goal to 47,300 by 1978 and higher by 1979.

Numerous restrictions upon female service, such as those on flight training, were lifted during the year, and additional specialties were opened to them. Although Wacs had served in Army law enforcement as criminal investigators for a number of years, the basic military police specialty had been restricted to men. Then in the fall of 1972, a pilot program was conducted to test the concept of using Wacs as military police; twenty-four volunteers were trained, and twenty-one completed a course consisting of standard advanced individual training, including weapons firing and unarmed defense. The Wacs were assigned to seven continental U.S. installations to perform a variety of law enforcement tasks as MP desk, patrol, traffic control, and investigative activities. As a result of the Wacs' performing as well as their male counterparts, MOS 95B was opened to qualified women, and up to 180 Wacs will be trained as military police during fiscal year 1974.

The development of the Officer Personnel Management System (OPMS) that began in fiscal year 1971 continued through fiscal year 1973. Major accomplishments included the centralized selection of colonels for troop command, development of forty-seven specialties, identification of specialty requirements in Army authorization documents, and expansion of the command selection for colonels to include logistics commands and district engineers.

Also under way at the end of the year were the revision of the officer career planning pamphlet, a study of the Army's system of officer education and training to align it with OPMS concepts, plans to designate specialties for lieutenant colonels, and the revision of procedures for officer distribution and assignment. All told, the Officer Personnel Management System is the most comprehensive study of officer personnel management since the Officer Personnel Act of 1947.

A study completed late in 1969 disclosed a number of problems in deficiencies in the Officer Evaluation Reporting System and in the Officer Efficiency Report Form (67–6), which had been used since July 1968. The study recommended restructuring management information requirements to acquire more useful data concerning character, job performance, and aptitude; furnishing a copy of the evaluation to the rated officer; restoring numerical scoring and recording it on the form; design-

ing the form to permit conversion of selected data to ADP; periodically publishing average scores by grade as bench marks for rating and indorsing officers; and identifying special skills on the evaluation form. Based upon these recommendations, the Army began work on a new Officer Evaluation Reporting System the following year. New forms were designed, staffed, and tested from fiscal year 1970 to fiscal year 1972, and the revised form, supporting regulations, and ADP systems were approved early in fiscal year 1973. During October-December 1973, teams were dispatched to brief Army personnel worldwide, and the system went into effect on 1 January 1973.

Research into the Officer Evaluation System will continue on, under a Master Management Plan, through the 1970s. Priorities will be established to improve and identify evaluation indexes compatible with a "whole officer" concept, and peer ratings will be introduced into the officer basic courses at Fort Benning, Georgia, and Fort Belvoir, Virginia.

During fiscal year 1973 logistic career programs for civilians were improved by strengthening command, subcommand, and installation functional channels of communication and emphasizing the role of the career program manager. Departmental specialists visited field installations in the continental United States and overseas to brief careerists, managers, and civilian personnel office representatives on career program matters. Reduction-in-force and equal employment areas received special attention.

On 6 March 1973 a Foreign Area Officer Program was established, replacing the Foreign Area Specialty and Military Assistance Officer programs. The consolidated program is designed to provide the Army with a pool of officers professionally qualified—through language proficiency, knowledge of foreign areas, politico-military awareness, and other special skills—for military assistance advisory groups and other positions related to international security affairs. As of 30 June 1973 there were 1,061 members in the Foreign Area Officer Program, and over 713 positions worldwide had been approved, including 126 instructors, 138 in security assistance, 111 in attaché, and 47 in command.

Race Relations and Equal Opportunity

The objective of the Army's Race Relations Education Program is to help maintain the highest degree of combat readiness through the creation of harmonious relations among military personnel. This continuous program has three elements: instruction conducted in basic training and in service schools, the Racial Awareness Program (RAP) for units, and special race relations training for Army leaders at all levels.

In basic training and in professional development courses conducted in the service schools, four hours of race relations instruction is manda-

tory. Many of the service schools, however, have increased the amount of instruction and have integrated this training with other subjects.

The Racial Awareness Program for units includes all activities directed toward improving interracial communications and promoting racial harmony. Mandatory race relations seminars, conducted annually in every Army unit according to a standard format, are the heart of the program. These seminars stress unit teamwork, and suggested topics address both minority and majority views. In addition to the mandatory seminars, there are other activities that stimulate racial understanding and harmony, such as cultural awareness groups, observance of special events of significance to minority groups, and racial and cross-cultural exhibits.

Top Army managers and leaders receive formal race relations training at the Command and General Staff College, the Army War College, the Sergeants Major Academy, and the Senior Commanders Orientation Course conducted for prospective battalion and brigade commanders. A special orientation and seminar program was conducted for all general officers to insure that they are aware of the extent and causes of racial tensions, and a special orientation was prepared by the Infantry School for use in conducting race relations training for officers and senior NCOs. Instructors to support the Army's race relations education program are trained at the Defense Race Relations Institute (DRRI) and in Unit Discussion Leaders courses conducted by the Training and Doctrine Command and major commanders overseas. The total Army requirement for DRRI graduates is 483 teams (an officer and an NCO) which operate full-time at brigade or comparable level and in all Army service schools and training centers. Specific policies governing the race relations education program were published in December 1971, January 1972, and January 1973.

On 27 November 1972, the Secretary of the Army approved 2,012 race relations and equal opportunity staff positions for brigade or higher levels. Such staffing extends to the top levels of the Department of the Army and includes a general officer position in the Office of Equal Opportunity.

Of particular significance in race relations was the decision of the Secretary of the Army on 24 September 1972 to change the discharge status of some 167 black soldiers of the 1st Battalion, 25th Infantry (Colored), to honorable. The precipitating event was a shooting incident in Brownsville, Texas, early in the century. Around midnight on 13 August 1906, some sixteen to twenty horsemen rode through Brownsville firing weapons at homes and stores, leaving one person dead and two wounded. Witnesses alleged that the riders were "colored soldiers" of the 1st Battalion, stationed outside the town.

When military investigations and a county grand jury failed to establish the identity of the riders, Companies B, C, and D of the 1st Battalion were assembled and the guilty parties asked to step forward or the entire battalion would be discharged without honor. Maintaining their innocence, the men stood fast and were thereafter discharged without honor. Subsequent courts of inquiry failed to recommend remedial action, and relief legislation introduced on behalf of various individuals was never enacted.

An internal Army review of administrative and judicial policies brought this instance of mass punishment to the attention of Secretary of the Army Froehlke. Although the practice had been occasionally invoked under extreme circumstances during frontier times, it has been contrary to Army policy for decades. At the time the Secretary of Army corrected the injudicious handling of the Brownsville incident by awarding honorable discharges to the men of the 1st Battalion, only one survivor remained.

Alcohol and Drug Abuse

In June 1972, DA Circular 600–85, Department of the Army Alcohol and Drug Abuse Prevention and Control Program, was distributed to all major commands. This circular, which was a refinement of the initial plan issued in September 1971, spells out the Army's approach to the prevention of alcohol and other drug abuse through education and training, law enforcement, and community and recreational efforts that provide alternatives to drug abuse.

Several formal education and training courses were initiated. At the Medical Field Service School, Fort Sam Houston, Texas, the United States Army Alcohol and Drug Abuse Team Training Course, conducted in two-week cycles, provides a general overview of alcohol and drug abuse problems for personnel involved in installation programs. During nine cycles 432 military and civilian personnel were trained.

A United States Army Drug and Alcohol Rehabilitation Training Course was also started during fiscal year 1973. Providing additional training for counselors in the rehabilitation program, it graduated 260 during six cycles.

In addition to Army training, military and civilian personnel have attended alcohol and drug education courses conducted by civilian institutions. The majority of this civilian training has been done in courses sponsored by the National Institute of Mental Health (NIMH) in participating universities in California, Florida, and Oklahoma. The National Drug Education Center, University of Oklahoma (NIMH-sponsored), conducted three two-week training cycles in U.S. Army, Europe, for program counselors and commanders. One hundred commanders and

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150 counselors were trained. At Johns Hopkins University in Baltimore, Maryland, a special course in alcohol counselor training was conducted for more than 100 personnel.

Identification of drug abusers includes a urinalysis program and a voluntary identification program, both supported by the exemption policy, as well as other command and police methods of identification. In fiscal year 1973 random urinalysis screening resulted in 15,185 laboratory positives out of 617,641 tests, a rate of 2.5 percent; subsequently, 7,858 cases, or 1.3 percent, were clinically evaluated as drug abusers.

Rehabilitation measures are directed to restore drug abusers to full duty status. Seventy-three military hospitals receive and provide initial care for identified drug abusers. Other medical facilities, halfway houses, and rap centers are used for transitional and outpatient assistance for those undergoing rehabilitation. Monitoring of personnel in the rehabilitation program continues for one year or until the individual is separated from the Army. Personnel who are incapable of or unwilling to respond to rehabilitation efforts are transferred, while on active duty, to a Veterans Administration hospital near their home prior to separation from the service.

Department of the Army assistance teams, Surgeon General field evaluation teams, and periodic reports are used to evaluate and improve the program.

Medical and behavorial research in alcohol and drug abuse prevention and control was conducted during the past year within the Army and through outside contracts. For example, Information Concepts, Inc., studied the extent and patterns of alcohol use and abuse in the Army and verified that alcohol abuse more adversely affects duty performance than all other drugs combined. With this in mind, the Army has increased its assistance to personnel with alcohol problems and has taken steps to limit its use.

Military Justice, Discipline, and Legal Affairs

During fiscal year 1973 there was a sharp decline in courts-martial throughout the Army, primarily the result of an over-all reduction in strength. The magnitude of the decline is evident in a comparison of general, special, and summary courts-martial in fiscal years 1972 and 1973:

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 with a bad conduct discharge included in the approved sentence.

PERSONS TRIED BY COURTS-MARTIAL IN FISCAL YEAR 1973

	Convicted	Acquitted	Total
General	1,493	128	1,621
Special	*12,802	1,049	*13,851
Summary	6,627	699	7,326
Total	20,922	1,876	22,798

*900 of these were special courts-martial with a bad conduct discharge included in the approved sentence.

During fiscal year 1973 the level of indiscipline or misconduct in the Army, as measured by the traditional indicators—general, special, and summary courts-martial, absence without leave, desertion, and separation under less than honorable conditions—was below that of the previous year. The downward trend was more discernible for courts-martial than for nonjudicial punishment and separation under less than honorable conditions. This could be attributed in part to the complexities of judicial processes and the increased disciplinary powers afforded commanders in nonjudicial punishment. The downward trend in absenteeism could be attributed to fewer soldiers being sent overseas, stabilization of assignments, management improvements at personnel control facilities, and greater command emphasis on corrective measures.

In addition to programs designed to enhance professionalism in the Army, there were other related programs, in varying stages of development during the fiscal year, that are expected to contribute to a disciplined and secure military environment. Among them are the Army Crime Prevention Program and programs in leadership development, stabilized tours for commanders, research to identify absentee-prone soldiers and provide counseling, and quality control over enlistments.

From 1 December 1971 through 30 November 1972, there were 32,279 cases in which members of the U.S. Army overseas were charged with offenses that were subject to the jurisdiction of foreign courts. In 16,215 of these cases, the offenses charged were solely violations of foreign law and thus subject to exclusive foreign jurisdiction. The remaining 16,064 cases involved alleged violations of both United States military law and foreign law, with the foreign country having the primary right to exercise jurisdiction. In 15,244 of these cases foreign authorities waived their primary right to exercise jurisdiction. All told, 12,400 members of the U.S. Army were tried by foreign courts; of these, only 89 received sentences to unsuspended confinement.

As a result of the recommendations of the Matheson Committee, which evaluated the effectiveness of the administration of military justice, the concept of the military legal center, mentioned in last year's report, was tested in U.S. Army, Europe. Under the concept, legal offices in a common geographical area are consolidated, using the staff judge advocate office as a nucleus. The center then furnishes complete legal services

to Army units in the region, including the processing of courts-martial proceedings, administrative discharges, and nonjudicial punishment. Resulting advantages are better manpower utilization, rapid administrative processing, and expanded legal services for all military personnel.

In fiscal year 1973, the Department of Defense Task Force on the Administration of Military Justice in the Armed Forces submitted its report. The task force, composed of various civilians and military officers, held hearings, visited military installations throughout the world, and interviewed servicemen and servicewomen of all ranks. It found that despite improvements in military justice a few remaining military environmental factors contributed to discrimination against minorities. The task force therefore recommended that military judges be granted the power to suspend and defer sentences, summary courts-martial be abolished, a separate defense counsel corps be created, the Uniform Code of Military Justice (UCMJ) be amended to specifically prohibit discrimination, and revisions be made in nonjudicial punishment.

Realizing that full implementation of the task force's recommendations would require a major revision of the UCMJ, the Army made internal changes to avoid discrimination in the administration of military justice. Following the task force recommendations, it amended the military justice regulation (Army Regulation 27–10) to increase the procedural rights of personnel processed under Article 15, UCMJ. As amended in Change 12, Army Regulation 27–10 now provides for the availability of legal advice to the accused prior to the imposition of nonjudicial punishment; the opportunity for a public hearing before the officer who imposes punishment; the right to present evidence to the imposing officer, including the calling of witnesses; the right to a spokesman at the hearing; and the automatic stay of certain punishments upon the timely filing of an appeal. To help allay doubts about fairness in the administration of military justice, the Army has also directed that the office of the defense counsel be separate from those of the trial counsel and staff judge advocate.

Fiscal year 1973 was a period of further evaluation and expansion of the Army's Pilot Legal Assistance Program, whose establishment and testing have been covered in this report for the past two years. Between 1 February 1972 and 31 January 1973, the test program, initially introduced in New Jersey, was extended to Arizona, Colorado, Iowa, Maryland, Massachusetts, and Missouri. Specifically, additional projects were established at Fort Huachuca, Arizona; Fitzsimons General Hospital and Fort Carson, Colorado; U.S. Army Weapons Command, Rock Island, Illinois (for the state of Iowa); Fort George G. Meade, Aberdeen Proving Ground, and Edgewood Arsenal, Maryland; Fort Devens, Massachusetts; and Fort Leonard Wood, Missouri.

Program cases fall within four general categories: small claims, domestic relations, landlord/tenant, and criminal. Based on program criteria, legal assistance is limited to those who are clearly indigent; a case was not accepted if the client could afford to pay a civilian attorney. To illustrate, some 45,000 persons sought advice from legal assistance offices participating in the program during the test period, and but only a few more than 1,700 qualified for full representation.

In New Jersey, Forts Dix and Monmouth have accepted just over 1,700 cases since the program began in February 1971, and almost 600 of these were fully litigated by military lawyers on behalf of soldier clients. With the enthusiastic support of the New Jersey bar and the zealous pursuit of program objectives by military lawyers, the program has succeeded and the majority of clients have been pleased with the expanded services provided by military lawyers.

A supplemental report on the Army Pilot Legal Assistance Program was sent to the Secretary of Defense on 2 February 1973, recommending that the program be adopted and, as resources permit, expanded to other state jurisdictions at the discretion of The Judge Advocate General.

The Judge Advocate General's Corps (JAGC) has maintained an active minority lawyer recruiting program since October 1971, and recently a black captain in the corps was assigned as program co-ordinator and minority recruiting officer. Substantial progress has been made. At the beginning of the program, only 15 of 1,600 attorneys in the Judge Advocate General's Corps were black. Of 1,500 officers now in the corps, 29 are black, 12 are of Spanish descent, 5 are Oriental Americans, and 16 are women.

In addition to the annual recruiting trips made to each law school approved by the American Bar Association, extra recruiting trips were made to law schools with a substantial minority enrollment. As a result of these efforts the number of applications from minority law students rose from four in October 1971 to forty-three at present. Of that number, thirty-two were black. Thirty-nine applicants were selected to enter the corps following admission to practice.

In 1972 a summer intern program was established with the authority to hire a hundred law students for employment in CONUS and USAREUR. In fiscal year 1973, ninety-six students participated in the program, of which approximately 30 percent were minority law students, and 25 percent were women.

The advertising campaign has been expanded to include an advertisement depicting minority group and female attorneys in the roles of judge and counsel. The advertisement will appear in the October, November, and December 1973 issues of several legal magazines and other publications that appeal directly to the black community.

Communication has been established through the National Bar Association and the Black American Law Students Association to the 4,000 black lawyers and 3,700 black law students in the United States, and for the past two years the Judge Advocate General's Corps has been invited to participate in the National Bar Association and Black American Law Students Association conventions. For instance, at the latter's convention held in Los Angeles in March 1973, The Judge Advocate General took part in a seminar on military justice with The Judge Advocate Generals from the Navy and Air Force and the Director of the Marine Judge Advocate Corps. At each convention materials on the corps were distributed from an information booth to the minority lawyers and law students in attendance. In addition to an active role in such conventions, the Judge Advocate General's Corp has made contact with the National Association for the Advancement of Colored People, National Urban League, and the National Conference of Black Lawyers, soliciting their ideas on increasing the number of minority lawyers.

In the field of litigation, there were a number of significant developments in fiscal year 1973. The services are still struggling with unresolved issues arising out of the 1969 decision of the United States Supreme Court in *O'Callahan* v. *Parker* (395 U.S. 258). This case held that as a prerequisite for court-martial jurisdiction the offense must be "service connected." During fiscal year 1973 the U.S. Court of Appeals for the Seventh Circuit held that *O'Callahan* did not have extraterritorial application (*Wimberly* v. *Laird*), and the Court of Appeals for the Tenth Circuit upheld a district court decision holding that off-post drug offenses by a serviceman are not "service connected" and restrained a trial by general court-martial (*Councilman* v. *Laird*). A similar district court holding is on appeal to the Court of Appeals for the Third Circuit (*Sedivy* v. *Laird*). Of major importance was the decision by the United States Supreme Court in *Gosa* v. *Mayden* on 25 June 1973, which held that *O'Callahan* is not retroactive in effect.

There have also been other major cases whose long-term impact is not yet clear, although it appears that substantial changes in courts-martial practice may result. In the Navy case of *Avrech* v. *The Secretary of the Navy,* the Court of Appeals for the D.C. Circuit held that the first two clauses of Article 134 of the Uniform Code of Military Justice were unconstitutionally vague. The Court of Appeals for the Third Circuit followed shortly in the Army case of *Levy* v. *Parker,* holding that both Article 133 and Article 134 were unconstitutionally vague in their entirety. Notice of appeal to the U.S. Supreme Court has been filed in both cases.

The commander's authority to control his post, particularly where dissident activity is involved, has been the subject of severe challenge. This area was opened up to active litigation by the Supreme Court's

Flower decision (*Flower* v. *U.S.*, 407 U.S. 1972), wherein the court found that the post commander at Fort Sam Houston had abandoned any interest or authority he might have had to control access to or activities (in this case, leafletting) on a city street that traversed the post. Subsequent cases have confirmed the relief granted leafleteers and political campaigners who desire access to military installations. These include *Spock* v. *David* at Fort Dix, New Jersey, *Burnett* v. *Tolson* at Fort Bragg, North Carolina, and *CCCO-Western* v. *Fellows* at the Presidio of San Francisco, California. At the same time, the Court of Appeals for the Fourth Circuit found no plain duty to open the Fort Eustis, Virginia, base chapel to servicemen who wanted to conduct an antiwar memorial service (*McGaw* v. *Farrow*).

Perhaps the most publicized challenges to personnel procedures were the three suits brought by West Point cadets (*Hagopian*, *Brown* and *White*) seeking to enjoin their separation from the school for deficiency in conduct. So far no major change has been required in the military academy's administrative regulations, and the changes which were made create no problem in future operations. At present, the Army is also in Federal District Court defending a suit by some present and former inmates challenging the procedures of the Disciplinary Barracks at Fort Leavenworth (*Berenguer* v. *Froehlke*).

On 21 June 1973, an important decision limiting judicial review of activities committed to military discretion was handed down by the Supreme Court in *Gilligan* v. *Morgan*. The Army filed an *amicus curiae* brief in this case which grew out of the Kent State shootings because the issue of reviewing the training, weaponry, and orders of the National Guard was a matter of direct concern to the active Army.

The end of the fiscal year was highlighted by the filing of a broad-scale attack on the Army's drug abuse control program in Europe in the United States District Court for the District of Columbia (the *Committee for GI Rights* v. *Froehlke, et al.*).

Contract litigation continued unabated, the Army caseload continuing to average around 260 open files. During the year contractors continued to file bid protests, although most courts still find no standing to sue despite the previous discussion of the Court of Appeals for the District of Columbia in *Scanwell Laboratories* v. *FAA*. Some examples of unsuccessful bid protests were *Page Communications Engineers, Inc.* v. *Resor, Leeds Travelwear* v. *U.S. Army and Air Force Exchange Service, Pioneer Recovery Systems* v. *United States*, and *MDM, Inc.* v. *United States*. Litigation in the *Page* case also involved damages arising out of bid protests to be awarded the United States. On 12 March 1973, the U.S. Court of Appeals for the District of Columbia held that the lower district court had discretion to refuse to award damages to the govern-

ment and that this discretion was not abused by the court's refusal to assess damages. This holding came despite the fact that the Court of Appeals had earlier found that the lower court had erroneously enjoined the award of a contract to operate the communications system in Vietnam.

On 18 January 1973, the Court of Claims rendered a very important decision in government contracts law in the case of *Astro-Science Corp.* v. *United States*. This case established a standard of acceptability for preproduction samples that are intended to be counted toward the total number of items furnished as an "end" product. The court held that the preproduction sample must be in substantial compliance with the contract specifications, or otherwise the contracting officer may properly terminate the contract for default on the part of the contractor.

During the year a number of cases were filed under the Freedom of Information Act, but it is felt that the amount was insignificant in view of the tremendous number of requests for information handled each year by the Army. The Army successfully defended a suit brought by Congressman Les Aspin for release of the Peers Report and another brought by four college professors for release of the "Operation Keelhaul" file (*Aspin* v. *Froehlke* and *Wolfe, et al.* v. *Froehlke*).

In the area of environmental litigation, the federal government has long taken the position that it is not obligated to apply for state pollution permits to operate its facilities, although federal facilities must comply with state-established pollution control standards under the Clean Air Act. In the suits that involved Redstone Arsenal, Alabama (*Alabama* v. *Seeber, et al.*) and the three Army installations in Kentucky (*Kentucky* v. *Ruckelshaus, et al.*), the states had attempted to force the Army to apply for state permits in order to operate air contaminant sources on Army installations. The court, apparently agreeing with the Army's position that the supremacy clause of the Constitution prohibits such a permit scheme, granted the government's motions to dismiss.

The Medical Care Recovery Act underwent close scrutiny by the courts this year. In one case, the Court of Appeals for the Third Circuit allowed the United States to collect from the defendant the value of medical care and treatment supplied to her husband, who was injured because of her negligence (*United States* v. *Leta Moore*). The court held the government's claim independent of the vagaries of a state intraspousal immunity doctrine.

In a decision which had the opposite effect of diminishing the independent nature of the government's rights, the Court of Appeals for the Ninth Circuit subjected the United States to the one-year statute of limitations of the California uninsured motorist law *United States* v. *Hartford Accident and Indemnity Company*. It held that the United

States must give notice of its lien within one year of the accident in order for its right under the statute to accrue, regardless of the three-year statute of limitations of the Medical Care Recovery Act.

There were several serum hepatitis cases in the medical malpractice suits filed in fiscal year 1973 under the Federal Tort Claims Act. Two instances, *Mercedes W. Cantu* v. *United States* and *Claire M. Maglio* v. *United States,* involved the contraction of this disease through transfusions of blood. *Lucy McElroy* v. *United States* involved the contraction of hepatitis through the alleged use of an unsterile instrument for a blood test. In the *Cantu* case, the plaintiff alleged an implied breach of warranty theory which, since it is a theory of strict liability, is not cognizable under the Federal Tort Claims Act. Also, since the imposition of warranty liability requires a finding of a sale, the theory of implied warranty fails because most states hold that the furnishing of commercial blood is a service rather than a sale.

Several of the malpractice cases involved the failure to diagnose heart problems. In *Hazel Bryan* v. *United States,* the deceased had suffered an acute myocardial infarction immediately after returning home from the emergency ward at Madigan General Hospital, where his complaint of having stomach cramps had been diagnosed as a stomach ailment. A recent case in this area was *Rogerson* v. *United States.* Ten days before his death, a retired Army major who complained of having an episode of chest pains was examined at Madigan. He was sent home to rest and treated for mild hypertension. The major subsequently developed crushing chest pains and was again taken to the emergency room at Madigan, where he went into cardiac arrest and died.

The Court of Appeals for the Ninth Circuit in the case of *McBride* v. *United States* continued a trend in malpractice cases away from the "locality rule" to a more liberal "minimal" general standard rule. In the *McBride* case death occurred, too, as the result of a major coronary. A young resident on duty at the emergency room of Tripler Army Hospital erroneously interpreted the decedent's electrocardiogram as normal and told him that his pains probably resulted from a gastrointestinal disturbance. In its written opinion, the Ninth Circuit pointed out that there was uncontroverted expert medical opinion that had the electrocardiogram been properly interpreted the decedent's chances of living would have been improved at least 50 percent by immediate admission to Tripler.

There were a number of important developments in fiscal year 1973 in military law and order, crime prevention, protection, and correctional affairs. On 8 February 1973, for example, the Army's Provost Marshal General and the Acting Director of the Federal Bureau of Investigation completed an agreement for a computerized criminal history (CCH)

control terminal at Headquarters, Department of the Army; installation was deferred, pending a study of the Army's requirements for computerized criminal history records and further refinement to the system. The Army joined other federal agencies as an active contributor to the CCH system by revising its criminal fingerprint card system to furnish final arrest and disposition data to the FBI on certain Army offenders. Criteria and procedures concerning criminal fingerprint records were issued, stipulating that extraordinary and valid criminal justice needs for CCH records must be submitted in letter form to departmental headquarters, where they will be processed and monitored in accordance with the recommendations of the Security and Confidentiality Committee of the National Crime Information Center Advisory Control Board.

In late 1971, the Army conducted a study to evaluate the Blue Bell system under which serious incidents are reported. It was concluded that information on serious incidents was not being received in a timely manner, and that guidance concerning suspected criminal conduct, wrongdoing, or mismanagement was inadequate and contributed to the general ineffectiveness of the system. In February 1972, The Provost Marshal General was given staff responsibility for policy relating to reporting procedures for all Army serious incidents, and in July 1972 new reporting procedures were announced. The primary objective of the new procedures is to insure that pertinent information concerning an event involving Army personnel or facilities is reported immediately to Headquarters, Department of the Army, for rapid evaluation and action to avoid potential embarrassment to Department of the Army and Department of Defense.

In fiscal year 1973, the Military Police Investigator (MPI) Program was expanded and further formalized. Standard credentials were issued, which replaced locally produced ones. MPI spaces were identified in tables of organization, and steps were taken to validate personnel requisitions for MPI skills. In December 1972, commanders were authorized to use MP investigators to conduct searches on the possession and use of marijuana and dangerous (nonnarcotic) drugs, thus freeing Criminal Investigation Division special agents to carry out investigations of narcotics offenses and drug trafficking.

Based on the philosophy that crime prevention is a command responsibility and everyone's business, actions were taken during the year to develop a sound program to assist commanders in achieving a uniform attack against crime, with the recognition that effective crime prevention requires continuing and concerted action by commanders using all of their resources to eliminate or reduce the opportunity or the motivation to commit or conceal criminal acts and to detect, apprehend, try, and dispose of offenders.

In December 1972 the U.S. Army correctional system was modified to provide commanders with more effective programs for military offenders, insure the maximum use of highly skilled correctional and professional services personnel, and provide modern confinement facilities. Under the new system, correctional treatment of convicted military offenders is conducted at either the United States Disciplinary Barracks or the U.S. Army Retraining Brigade (formerly the U.S. Army Correctional Training Facility). All other confinement facilities provide services for commanders by receiving and orientating prisoners and transferring selected prisoners who have been tried to the appropriate facility. Prisoners sentenced to confinement for six months or less without punitive discharges, or the punitive discharges were suspended by proper authority, are sent to the Retraining Brigade. Those whose sentences include a punitive discharge, dismissal, or confinement in excess of six months, with thirty days' confinement remaining to serve upon arrival, are sent to the Disciplinary Barracks.

Installation stockades have been redesignated as confinement facilities. The correctional treatment mission previously performed at installation level was transferred to the Retraining Brigade and the Disciplinary Barracks. There are three types of confinement facilities: transient installation confinement facilities (TICF), installation confinement facilities (ICF), and area confinement facilities (ACF). The first type has the mission of providing services on a short-term basis for installation prisoners; programs are aimed at keeping prisoners gainfully employed while awaiting courts-martial at the installation or transfer. Programs at the ICF are designed also to keep prisoners fully employed during their stay; emergency counseling is available as well. The ACF provides services on an area basis for Army and other service personnel awaiting trial or pending transfer to correctional facilities; meaningful training and work programs at the ACF help to prepare prisoners for the transition to correctional and rehabilitative facilities.

Along other military police lines was the passage of the Highway Safety Act of 1966, which led to added emphasis on reducing deaths and accidents on U.S. highways. In October 1972 the Secretary of Transportation took action to make the Highway Safety Program standards promulgated under the act applicable to areas in which federal agencies control the highways or supervise traffic operations. The Office of the Provost Marshal General, as proponent agency for the joint service regulation on Motor Vehicle Traffic Supervision, revised the joint directive by including standards applicable to safety programs of the military services, such as policies and procedures concerning vehicle inspection, motorcycle safety, driver education, codes and laws, alcohol in relation to highway safety, identification and surveillance of accident locations, traffic

records, traffic engineering, pedestrian safety, police traffic services, and accident investigation.

In September 1972, the military police working dog program was expanded to include patrol dogs. This type of dog has added a new dimension to military law enforcement. Patrol dog teams, consisting of man and animal, receive a twelve-week training course at Lackland Air Force Base, Texas.

In the Industrial Defense Program, a pamphlet covering industrial defense against civil disturbances, sabotage, and bombings was published in fiscal year 1973. A course on disaster planning for privately owned and operated facilities was taught at the Military Police School, and Army personnel participated in conferences on industrial defense. On 29 June 1973, the Deputy Secretary of Defense announced that all aspects of industrial defense and security would be consolidated under the Defense Supply Agency; the Army will transfer its functions and responsibilities to DSA during fiscal year 1974.

In November 1971 The Provost Marshal General assumed staff responsibility for the law enforcement aspects of customs laws and regulations, including technical assistance to the Deputy Chief of Staff for Logistics on policies and procedures concerning customs inspection and enforcement, serving as point of contact with the U.S. Customs Service for enforcement, and providing technical guidance to departmental agencies and major commanders on operational techniques and training standards for military police and other personnel assigned to customs operations. Both civil and military customs efforts were intensified in the United States and overseas.

The publication of Department of Defense Directive 5100.69, DOD Enemy PW/Detainee Program, 27 December 1972, designated the Secretary of the Army as the DOD executive agent for the program involving persons captured or detained by the armed forces during an armed conflict.

During the Vietnam War, the Army's Provost Marshal General monitored the activities of U.S. forces regarding enemy prisoners of war, supervised the 22d U.S. Prisoner of War/Civilian Internee Information Center at Fort Meade, Maryland, and provided staff and other technical assistance to Defense and State Department agencies. During the negotiations of the Paris Agreement of 27 January 1973, the Office of the Provost Marshal General provided advice concerning persons detained by U.S. forces in Vietnam. There were 17,258 U.S.-captured prisoners of war who were transferred to and interned in Republic of Vietnam armed forces prisoner of war camps. By the end of fiscal year 1973, all prisoners of war had been released or repatriated with the exception of eighty-seven

retained by the South Vietnamese to complete civil sentences for felonies committed while interned.

Civilian Personnel

Civilian strength in the Department of the Army declined during the year by 8.6 percent, from 479,529 persons at the beginning of the year to 438,459 on 30 June 1973. The phase-out of operations in Vietnam accounted for a major portion of the decline in civilian strength. In a two-month period approximately 21,000 Vietnamese employees were separated. Early and skillful contingency planning resulted in over one-third of the Vietnamese employees being placed in other jobs in local government or private industry in Vietnam. Over five hundred U.S. citizen employees in Vietnam were transferred to jobs elsewhere.

The reorganization of major parts of the Department of the Army in the United States was the most important factor affecting U.S. citizen civilian personnel during the year. The elimination of a number of large organizations, the creation of several others, and the transfer of many functions to other locations were more far-reaching than the reorganization of 1962 and evoked keen political and union interest on behalf of affected employees.

Significant efforts were expended to ease the considerable personnel turbulence caused by the reorganization, and maximum assistance was given to employees affected by these actions. Early and intensive planning helped to insure that all civilian employees affected by the reorganization were treated equitably, provided maximum placement assistance, and spared unnecessary geographic dislocation. Extensive efforts were also made to keep employees and unions informed of the planned changes in order to maintain the efficiency and morale of the work force.

Registration in the seventeen Army civilian career programs providing for the orderly intake, training, placement, and progression of Army careerists declined during the year but still comprised over 35 percent of the work force. This reduction is attributed to the major reorganization in the Department of the Army and reduced budget and manpower allocations.

A major project was set up to improve the appraisal, screening, and referral systems now being used in Army-wide career programs. A Professional Review Committee was established to assist functional chiefs in the development and validation of professionally acceptable methods to measure skills, knowledge, abilities, and personal characteristics required for high-quality performance in the various career fields. This committee will approve all systems before putting them into effect at Department of the Army and command referral levels.

During the year, recruitment of Army civilian career interns declined because of the retrenchment of Army's work force. Greater emphasis was placed on career program manager involvement in developing realistic projections of intern intake requirements and improvement of intern training and development. Reporting requirements were expanded to include data on the intake and retention of female interns and graduates of the programs. This information will be used by functional chiefs in assessing command progress in meeting department goals for equal employment opportunity.

The Army continued to make progress in assuring equality of opportunity to all employees, with more attention being given to the Federal Women's Program and the President's 16-Point Program for the Spanish Surnamed. Despite substantial work force reductions, increases in over-all employment of persons in minority groups were recorded, particularly in the number of individuals at the higher grade levels. Significant increases were also recorded in the number of minority group teachers in the Department of Defense Overseas Dependents School System as the result of greater efforts to recruit educators through contacts made with predominantly minority group schools, organizations, and newspapers. At the end of the fiscal year, nearly 17 percent of the total Army work force were persons in the minority and almost one-third were women.

On 10 November 1972 the Army's definitive regulation on Equal Employment Opportunity was published which contained a revision of the EEO complaint system that meets the requirements of the Equal Employment Opportunity Act of 1972. Much program guidance was also issued to the field and included guidelines for Federal Women's Program co-ordinator positions, a manual for equal employment opportunity counselors, and an award-winning Army-produced film intended for managers and supervisors, entitled "Games."

In March 1973 the Secretary of the Army convened a worldwide Equal Employment Opportunity Conference to re-emphasize to commanders and EEO program officials the high priority which the department places on equal employment opportunity efforts. The conference was attended by officials at the highest levels and was highlighted by an address given by Secretary of Defense Elliot L. Richardson. Significantly, he chose this conference for his first public appearance as Secretary of Defense.

Also during the year, Army general officers were briefed on the EEO program through on-site visits by an Army team. Response to these briefings indicated a high level of commander interest in the EEO program and a firm commitment to action.

The Army worked to fulfill its special obligation to provide maximum placement assistance to veterans of the Vietnam era, particularly the dis-

abled. Despite sharp reductions in hiring, almost 10,000 returning veterans were appointed to civilian positions. This represented 59 percent of all veterans preference appointments during the fiscal year and 22.5 percent of all new hires. Additionally, support was given to a major job fair for veterans in Europe as well as to U.S. Civil Service Commission efforts to develop a pamphlet promoting the employment of disabled veterans of the Vietnam War.

Special attention was also given by the department to the employment of the severely handicapped, such as the blind, the deaf, the cerebral palsied, and the mentally retarded. A report from the U.S. Civil Service Commission listed the Department of the Army as the leader among all federal agencies in the number of excepted appointments of severely handicapped personnel since the inception of the special appointing authority in 1964.

Designated co-ordinators for selective placement of the handicapped at Army installations have worked successfully with local vocational rehabilitation agencies and the Civil Service Commission and have made positive efforts to employ the severely handicapped. The Army Aeronautical Depot Maintenance Center and Tooele Army Depot were selected as "Government Employers of the Year" by the National Association of Retarded Children. The awards are given annually to government employers who have done the most to hire and train the mentally retarded.

The Army's program to employ youth during the summer period continued at a high rate in fiscal year 1973; 16,800 young people in the fifty states were hired, including 11,200 disadvantaged youth. An additional 3,900 were employed in oversea areas. This was almost as many as in the previous summer, despite sizable reductions in regular civilian employment.

Union membership among Army employees continued to grow but at a slower rate than experienced in the sixties. At the end of fiscal year 1973, there were 740 exclusive bargaining units at Army activities covering 221,852 civilian employees.

In his memorandum of 6 September 1972, the President called on heads of departments and agencies to join in a concerted effort to make the labor management relations program more effective. Using the guidelines developed by the Civil Service Commission and the Office of Management and Budget, the Army set up a plan for the labor management relations program. Most of the requirements of this plan were accomplished during the fiscal year. A centralized training fund was established to guarantee the accomplishment of needed training for both military and civilian managers and to provide a basis for a more thorough analysis of cost and effectiveness. A labor relations bulletin

was issued to help commanders and activities assess the effectiveness of their efforts.

The staffing of professional labor relations positions at the command level received increased emphasis. Commands newly formed by reorganization established full-time positions for labor relations professionals to guide and assist their subordinate commands and activities. This procedure represented a significant departure from staffing the labor relations function as an added duty for staff officials having other areas of responsibility. Greater attention was also given to filling the positions with individuals who had clearly demonstrated their ability to meet the challenge of labor relations.

In 1972 the Corps of Engineers was delegated the authority to approve agreements negotiated with unions at the local level. Because this undertaking was successful, consideration was being given to extending the delegation of authority Army-wide.

Army, along with several other selected agencies, participated in the Civil Service Commission review of its policies and regulations which limited the scope of bargaining within departments and agencies. A number of important changes emanated from that review, changes that will allow increased bargaining in such areas as minimum charges for leave, withdrawals of retirement applications, incentive awards, performance rating appeals, and merit promotions.

The Army continued to stress quality in its labor relations training for managers and supervisors. Annual Army-wide inventories were taken to determine the kinds of training needed in labor relations and the managers, supervisors, and staff officials to attend such training. Based on the inventory results, training courses were developed and training schedules established. Currently, four centrally developed and administered courses are provided: basic labor relations, labor negotiations, collective bargaining, and labor relations for executives. In addition, there are two training courses in the Army's core curriculum on basic supervisory development and labor agreement administration which were centrally developed but locally administered. Labor relations is also included in the curriculum of the Army War College, Army Logistics Management Center, and Army Management Engineering Training Agency.

During the year a statutory prevailing rate system, known as the Federal Wage System, was enacted to cover the Army's blue collar wage grade employees. While incorporating the main features of a system developed under executive authority, new provisions in the act include establishment of uniform, nationwide night shift differentials and payment of differentials for hazardous duty, physical hardship, and unusual working conditions. The Secretary of the Army is responsible, within

the policies and practices of the Federal Wage System, for fixing and administering rates of pay for wage grade employees of the Department of the Army.

Army nonappropriated fund employees working in morale, welfare, recreational, and certain religious and educational programs were also brought under statutory coverage of the Federal Wage System. Wages for individuals in the trades-crafts or skills positions are fixed in accordance with the prevailing rates paid in the local area to people engaged in activities similar to those of the nonappropriated fund activity for which the survey is made. Compensation for employees in managerial, executive, technical, or professional nonappropriated fund positions is administratively fixed commensurate with the rates of compensation for comparable General Schedule positions in the Civil Service. Employee benefits such as leave, retirement, and insurance will be made equitable and, to the extent practicable, uniform for all nonappropriated fund employees within the Department of the Army.

During fiscal year 1973 the Department of the Army continued to control excessive grade escalation and civilian personnel costs. Adhering to the Office of Management and Budget guidelines, the Army reduced its average civilian General Schedule grade to 7.5013—below the prescribed target of 7.5872. The grade reduction, aided by a record number of retirements at the end of the fiscal year, was achieved by reorganizing and restructuring positions, requiring selective temporary freezes on promotions, and hiring summer employees at GS–1 wherever possible.

Department of the Army participated extensively in the Civil Service Commission project to implement a new job evaluation system as recommended by the Job Evaluation and Pay Review Task Force. The department furnished a member for both the working committee and the Interagency Advisory Group (IAG) Committee concerned with the design and testing of the system. The department also furnished "bench mark" descriptions covering 180 classes of positions. In addition, thirty Department of the Army operating officials participated in reviewing and ranking the key jobs.

In September of 1972, the Department of the Army's two-level classification appeals system was replaced by a single appellate level. This appellate authority was delegated by Headquarters, Department of the Army, to designated commands with the provision that this authority may not be redelegated. This single appellate level plan applies equally to General Schedule and wage grade employees except that wage grade employees must use Army's channel of appeal before going to the Civil Service Commission.

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During the year the Department of the Army issued its Guidelines for Executive Development which implement those issued by the U.S. Civil Service Commission. Functional chiefs of each Army-wide civilian career program have been assigned responsibility for developing specific plans to carry out the objectives of this program for their executive personnel. Major Army commands will continue their long-established role of drawing up and carrying out plans for developing those executives not covered by the Army's Civilian Career Management Program.

The Army's Guidelines for Executive Development place more emphasis on individual planning and adhere to the merit principles in selecting individuals for executive level training. A key feature of the Executive Development Guidelines is the establishment of the Executive Manpower Resources Board which will monitor the executive development efforts of the Department of the Army and periodically review progress being made in the program.

Specific objectives of the executive development program include participation of career program functional chiefs and top managers in planning and carrying out the program; involvement of career executives in developmental experiences; identification, development, and assignment of individuals with high potential to executive positions; and commitment of resources to accomplish these objectives.

Each fiscal year a significant number of civilian employees receive continuous, full-time training in excess of 120 days through the Department of the Army's Long-Term Training and Education Program. Since this program was established in 1964 by the Deputy Secretary of Defense, the level of participation has generally shown an upward trend. The following statistics show the number of employees assigned to long-term training for each year since 1966.

Fiscal Year	Employees Trained	Fiscal Year	Employees Trained
1966	144	1970	260
1967	242	1971	333
1968	325	1972	364
1969	319	1973	384

Although long-term training and education is normally a command responsibility, support from the DA central pool of funds and spaces may be made available for only the requirements which are beyond command resources. During fiscal years 1966–67 over 75 percent of the long-term trainees, Army-wide, received support from the central pool. While total Army-wide participation continued to increase, the number supported centrally declined to less than 50 percent for 1973.

In June 1972 the General Accounting Office (GAO) released a study of long-term training at selected DOD activities, including several

Army activities, covering fiscal years 1966–70. The study recommended several changes in the administration of the program, particularly in the method of evaluation. As a result of the GAO study, the Army civilian training policy was revised, incorporating the GAO recommendations, and issued to commands and activities in February 1973. The revised criteria should result in improved administration of the long-term training program.

VII. Reserve Forces

The Army's Reserve Components, consisting of the Army National Guard of the United States (ARNGUS) and the U.S. Army Reserve (USAR), have the mission of providing trained units and qualified individuals for active service in time of war or national emergency and on such other occasions as the national security requires. The Army National Guard has the additional mission of providing for the internal protection of life and property and the preservation of peace, order, and public safety under the competent orders of federal or state authorities. Army National Guard on-site air defense units also participate with Regular Army units in protecting the United States on an around-the-clock basis.

Force Structure and Organization

Major changes made in the ARNG organization and structure during fiscal year 1973 were as follows: reorganization of two Special Forces groups, which completed the conversion of all Guard units to the G and H series of the tables of organization and equipment (TOE); activation of one engineer battalion headquarters, three engineer construction companies, one engineer utilities detachment, four medical detachments, and one helicopter ambulance detachment; and the inactivation of four data processing units, two maintenance detachments, two engineer float bridge companies, and one military police detachment. Also, the Hawaii Army National Guard reorganized so that the 29th Infantry Brigade could round out the 25th Infantry Division.

At the close of the fiscal year, the ARNG force structure contained 3,263 units, an increase of eighteen as compared with fiscal year 1972. Major organizations in the structure were

5 infantry divisions	1 airborne brigade
1 mechanized infantry division	4 armored cavalry regiments
2 armored divisions	2 Special Forces groups
12 infantry brigades	156 separate battalions
4 mechanized infantry brigades	970 other company- and detachment-sized units
1 armored brigade	

The reorganization of U.S. Army Reserve units to the G and H series of tables of organization and equipment had been completed, with few exceptions, during fiscal year 1972. Major emphasis in 1973 was placed on moving units from G to H series status. Toward the end of the reporting period, a brigade from each of seven training divisions was inactivated in order to provide the spaces required to set up maneuver training

commands in seven of the nine newly organized readiness regions. Maneuver training commands in the other readiness regions will be formed from the two existing maneuver area commands.

The USAR troop basis, as of 30 June 1973, consisted of 3,279 company- and detachment-size units. Major organizations in the structure were

18 U.S. Army Reserve commands	2 infantry brigades
13 training divisions	1 mechanized infantry brigade
2 maneuver area commands	1 military police command
1 field army support command	3 military police brigades
2 engineer commands	4 hospital centers
2 engineer brigades	103 U.S. Army hospitals
3 support brigades	65 separate battalions

Personnel

Attaining authorized strength in a near-zero draft environment proved to be an elusive goal for both the National Guard and the Army Reserve. Paid drill strength of the Reserve Components at the end of the year was as follows:

	ARNG	USAR	Total
Authorized	402,333	261,300	663,633
Actual	385,600	235,499	621,099
Shortfall	(16,733)	(25,801)	(42,534)

The shortfall exists mainly in the enlisted ranks. An oversupply of officers in the Army Reserve has permitted the discontinuance of mandatory assignments of nonvolunteer officers and warrant officers to unit vacancies. Officer strength in the National Guard registered a gain of 1,042 and at the close of the fiscal year was at its highest level in recent years.

In order to narrow the gap between authorized and actual strength, the National Guard started a revitalized recruiting and retention program at the beginning of fiscal year 1973. The program emphasized the employment of trained, part-time recruiters who engage in unit recruiting and retention activities for from two to eight days each month. Over 7,000 unit recruiters participated in this program during the year. The USAR recruiting and retention effort was marked by significant gains in the number of women and blacks in the ranks of the U.S. Army Reserve. The strength of the Women's Army Corps more than tripled, from 483 at the end of fiscal year 1972 to 1,617 at the close of fiscal year 1973. The participation of blacks in the Army Reserve increased from 6,869 to 13,099 over the same period.

Both Reserve Components employed recruiters and career counselors at major Army installations in what continues to be a successful program in attracting persons whose active duty tours are near an end into the Reserve Component troop program. A new program designed to reach persons with no former service was begun in January 1973. It provides for the assignment of USAR and ARNG recruiters to main recruiting

stations on a full-time basis. This effort brought 1,432 individuals into the Reserve Components during the first three months of its operation.

The Individual Ready Reserve (IRR) of the U.S. Army Reserve comprises officer and enlisted personnel who are either not required, do not desire, or are unable to join a Reserve Component troop program unit. The Ready Reserve was screened, and its strength was reduced by 301,389 during the course of the year, from 1,059,064 at the close of fiscal year 1972 to 757,675 at the end of fiscal year 1973.

The number of ARNG and USAR technicians employed on a full-time basis to perform essential administrative, supply, and maintenance functions continued to rise, but the number of technicians authorized remained between 82 and 83 percent of the requirements. A total of 27,516 ARNG technicians were employed at the close of fiscal year 1973, an increase of 618 during the course of the year. USAR technician strength rose to 7,583, an increase of 651 for the year.

Equipment and Maintenance

During fiscal year 1973 the logistics status of the Reserve Components continued to improve notably in terms of equipment modernization, net inventory gain, and final implementation of management programs started in part years. Equipment issues decreased to $682 million as compared to $1.059 billion in fiscal year 1972. Nevertheless, net inventory gain and percent of equipment fill increased at a higher rate because deliveries made in fiscal year 1972 were not included in asset reports until fiscal year 1973. A comparison of requirements and inventory in billions of dollars at end of fiscal year 1972 and 31 March 1973 illustrates these improvements.

	30 June 1972	31 March 1973	Change
Mobilization requirement	$7.77	$7.44	$−.330
Training requirement	5.72	5.64	−.080
Inventory (assets)	3.83	4.24	+.410
Inventory standard assets	(2.67)	(3.36)	(+.690)
Inventory contingency/obsolete assets	(1.16)	(.88)	(−.280)
Percent fill for training	67M	75M	+08M

Critical equipment shortages continued to exist principally in self-propelled artillery, radars, tactical bridges and radios, and standard medium tanks.

Early in the year, USAR and ARNG units completed the changeover to open requisitioning and the transfer of organizational equipment held in pools to unit property books. This changeover greatly improved unit mobilization readiness.

At the end of fiscal year 1973 the Reserve Components had a total of 2,353 aircraft on hand; 1,919 were assigned to the National Guard and 434 to the Army Reserve. This represented 80 percent of the total authorization, which was 2 percent ahead of the target for fiscal year 1973.

Ninety percent of these are first-line models and substitute twin-engine aircraft. Sixty-two U–3 twin-engine utility aircraft were transferred to the Reserve Components during the year which provided improved command and control efficiency. An insufficient number of twin-engine aircraft continues to be one of the major problems facing the National Guard and the Army Reserve. It is hoped that reconfiguration and repair of excess active Army RU–8 airplanes during fiscal year 1974 will bring some relief.

The fiscal year 1973 Dedicated Maintenance Program was funded at $100 million and is expected to provide a return of $400 million in overhauled major items. Delivery of equipment under this program will continue in fiscal year 1974; however, the bulk of equipment delivered through 30 June 1973 was used to support AT–73 OSD tests. Major improvements made in the reporting and management of this program during the year include separate reporting identification in the quarterly issue, a separate account to handle equipment for distribution to only Reserve Component units, and coding of depot work directives to properly reflect the priority of the customer scheduled to receive the equipment after overhaul. Maintenance performance of ARNG and USAR units in the year compared favorably with worldwide averages in all areas. A shortage of installation units and antennas hampered full use of tactical radios.

Facilities

Early in fiscal year 1973 the Assistant Secretary of the Army delegated minor construction project approval authority to the Chief of the Office of Reserve Components. This authority was subsequently delegated to the Chief of the National Guard Bureau and to the Chief of the Army Reserve. This action added flexibility in the programing and accomplishment of Reserve Component construction plans, reduced the administrative work load borne by the Army staff in handling projects of limited work and cost, and resulted in an increase of minor construction for the Reserve Components from $4.4 million in fiscal year 1972 to $5.8 million this year. It is anticipated that the minor construction programs will be established at between $5 and $10 million annually, a level that will allow expeditious renovation and expansion of facilities not programed for replacement.

The fiscal year 1973 Reserve Component military construction program totaled $78.2 million, an increase of $15.7 million over the fiscal year 1972 authorization. Coupled with $23.7 million in carry-over appropriations from prior year programs, a total of $101.9 million was available for obligation, of which $66.3 million was obligated and $35.6 million carried over into fiscal year 1974. During the first three years of a ten-year Reserve Component construction plan 370 projects have

been developed, all of which are in varying stages of design, contract award, or under construction. These projects comprise about 19 percent of the Reserve Component construction requirements.

The current Program Objective Memorandum provides for construction programs between $75 and $94 million annually. The total requirements have increased from $639.4 million at the end of fiscal year 1971 to $708.0 million. Besides continued construction cost escalation, this large increase is the result of additional items needed: aviation facilities to support an expanded air fleet, maintenance and storage areas to house the voluminous equipment in the Reserve Components inventory, training and troop support accommodations at weekend and annual training sites, and construction requirements for home stations based upon improved building criteria.

The large influx of equipment has enabled Reserve Component units to conduct better home station field training but has also emphasized the shortcomings of many field training sites. Because the majority of Reserve Component units are located near large population centers, suitable training areas near these centers are at a premium. Surveys have confirmed that 73 out of the 402 combat and combat support battalions did not have adequate training sites.

Efforts during the past year have resulted in the acquisition of new training areas. One of the best sources for training area acquisition is property declared excess to the needs of the active forces and other federal agencies. Excess reports are closely screened, and areas that could satisfy requirements are reported to the General Services Administration for transfer to the requesting agency. At the close of the fiscal year more than ten excess facilities were in the process of being acquired for use by the Reserve Components. Acquisition of additional training areas will be a continuing action until all requirements are met.

The Reserve Components are programing construction projects to satisfy training needs at installations in which long-term use is anticipated. In fiscal year 1973, nineteen training facility projects were included in the military construction program. With the continuing efforts to acquire land areas and increased funding for training facilities, a permanent training base can be developed that will meet the expanded training programs.

Training and Readiness

Generally, Reserve Component units are approaching company-level proficiency, which has been established as the minimum standard. In a time of stability, Reserve Component units can be expected to progress three weeks in the Army training program each year. However, the conversion to the G and H series of the tables of organization and equipment, the changeover of several brigades from infantry to mechanized,

and the reorganization of certain units have slowed the training progress during the past year to an average of two weeks.

The integration of active Army and Reserve Component activities has reduced the demands made on the active Army to support Reserve Component training. At the same time, it has advanced unit training. Considerable attention has been directed toward reducing barriers between the components and improving relationships to promote productivity and mission training.

The first Reserve Components Enlisted Military Occupational Specialty Training Requirements Conference was held in May 1973. It introduced a new program directed at providing Reserve Component guaranteed training spaces by military occupation specialty (MOS)/by month in certain specialties for fiscal year 1974. These spaces, which represent about 63 percent of fiscal year 1974 training requirements, were allocated to the National Guard and the Army Reserve. Now, individuals in most MOS's will know at the time of enlistment the month they will enter training, and units will know in advance for a full fiscal year the number of spaces in the training base by MOS/by month for which enlistments can be guaranteed.

Multilevel training has been introduced into the Reserve Component program in an effort to break up the "company-level syndrome." Under this condition, all levels of command and staff have focused on the training of companies to the detriment of developing expertise appropriate to the functions of higher levels, and developing the increased readiness levels now required of the Reserve Components has been inhibited. In multilevel training, each level of command within an organization begins the training cycle at the same time. In addition to supervising training at lower levels of command, higher headquarters provide the training necessary to perform their own command and staff functions.

Army Reserve Component units and individuals participated in the large-scale logistics command post exercises LOGEX 73 and LOGEX/RC 73 at Camp Pickett, Virginia, in which the operation of a Theater Army Support Command was played. These exercises, conducted annually, help to insure that commanders and key staff personnel of the participating commands remain current in Army logistics doctrine and techniques.

The Reserve Components Unit Readiness Reporting System was revised in fiscal year 1973. A general dissatisfaction had existed with the previous reporting requirement, due primarily to its subjectivity and complexity. In late September 1972, representatives from all major commands met at a worldwide Readiness Conference to address merging the present Army Unit Readiness Reporting System with the JCS Force Status and Identity Report (FORSTAT). The conference unanimously

supported the DA staff proposal that a single reporting system applicable to both the active Army and the Reserve Components be established and that the current readiness reporting systems be merged with FORSTAT.

The transition to the new system was to be effective 1 July 1973 with approximately 2,262 company-size Reserve Component units reporting exclusively under the FORSTAT system.

Support to Civil Authorities

The Army National Guard and the U.S. Army Reserve support civil authorities in times of domestic emergency and national disaster. During fiscal year 1973, 31,089 National Guardsmen from thirty-nine states were called to state duty a total of 155 times by their governors to assist civil authorities. Natural disasters, such as tornados, floods, forest fires, snowstorms, and hurricanes, accounted for 104 call-ups, and eleven were for civil disturbances. The remaining forty call-ups were for other types of emergencies, including searches for missing persons, hauling water, natural gas explosions, enforcement of traffic safety, and furnishing ceremonial troops for burial of two presidents.

The largest call-up of National Guard units during the year was to combat the ravages of Hurricane Agnes. The states of Florida, Virginia, West Virginia, Maryland, Pennsylvania, and New York called a total of 14,141 Guardsmen to perform emergency missions of search and rescue, evacuation, security, traffic control, clearance of debris, and other relief assistance, such as providing food, housing, medical services, and distribution of material to flood victims. More than 1,000 Army Reservists from thirty USAR units located in Pennsylvania and New York also participated in Hurricane Agnes rescue, recovery, and restoration operations. (For additional coverage of emergency operations, see Chapter XII.)

VIII. Management, Budget, and Funds

Management Programs, Systems, and Techniques

Numerous management programs, systems, and techniques employing the latest advances in computer technology and automatic data processing are being developed to insure that military manpower, funds, and materiel are handled as efficiently and effectively as possible. Some of the more important management tools are mentioned in this chapter; others appear in appropriate sections of this report.

The Office of the Comptroller of the Army continued to conduct in-depth analyses of major Army commands, small installations, subinstallations, and off-post activities to evaluate the use of resources as related to assigned missions. Analyses were completed for the U.S. Army, Pacific, and U.S. Army activities in Alaska and the Panama Canal Zone. An analysis of the St. Louis region was in progress at year's end. Since the inception of this program in late 1969, twelve commands and regions have been analyzed. The current estimate of the annual cost benefits resulting from the analyses performed in fiscal year 1973 is approximately $60 million, and this figure is expected to increase as additional recommendations are adopted. The total estimate of cost benefits realized from the over-all program exceeds $140 million.

The Standard Army Management Language (SAML) study was set up to develop a single management language to replace the several classification systems and management languages which are currently used in the planning, programing, and budgeting of Army forces, manpower, materiel, and operating funds. The systems now in use have different formats, similar words have different meanings, definitions and translations between systems are expensive and time consuming, and precise correlations between the various languages have been extremely difficult and in some cases impossible. The development and use of a common language among planners, programers, and budgeters will correct these problems.

Phase I of the SAML study was completed in May 1973 and has led to a proposed revision of codes and definitions for Programs 2 and 5 of the Department of Defense Five-Year Defense Program. The revisions were awaiting approval by the Office of the Secretary of Defense at the end of the fiscal year. Meanwhile, Phase II of SAML is being undertaken for programs other than 2 and 5 and is scheduled for completion by the end of fiscal year 1974.

The trend to centralize personnel procedures at Department of the Army level has placed a premium on more timely, up-to-date personnel data, a requirement which overworked second- and second-and-one-half-generation computers and software used by the U.S. Army Personnel Center's Personnel Information Systems Directorate could not meet effectively. Project 70X was to relieve this situation by replacing outdated equipment with advanced third-generation computers and software. In April 1973, Sperry Rand's UNIVAC Division received an eight-year multimillion-dollar contract for delivery of a succession of dual UNIVAC 1108 computer systems, tape drives, disc and drum storage units, and other equipment. Services to be provided by UNIVAC include maintenance of the systems and training courses for operators, programers, system analysts, and managerial personnel. The first of the dual systems is scheduled to become operational in September 1973.

The expansion of computer abilities under Project 70X will greatly enhance the efficiency and effectiveness with which the Army's over-all personnel management mission is performed. It will also provide the automated means for putting new personnel management techniques developed in support of the Base Operating Information System (BASOPS) into effect.

BASOPS, the Army's first multicommand and multifunctional computer system, was operational at thirty-nine installations (thirty-seven in the continental United States plus one each in Alaska and Panama) at the end of the year. This centrally developed and maintained system standardizes automatic data processing equipment, programing, and systems management and reporting procedures in support of the Army's supply, financial management, and military personnel functions. To date, BASOPS has replaced many of the small, nonstandard systems that were locally developed and maintained.

During fiscal year 1973 a successful prototype test of the Standard Installation/Division Personnel System (SIDPERS), the BASOPS personnel subsystem, was completed at Fort Riley, Kansas, and the system was installed at Fort Hood, Texas, and Fort Lee, Virginia. Approval for the worldwide extension of SIDPERS, which will provide a single computerized system for the management of soldiers' personnel data at installation and division levels, is expected during fiscal year 1974.

The BASOPS supply subsystem was extended to additional Army installations at home and overseas during the reporting period, and it is now operational at thirty-seven installations. The prototype of a new supply subsystem, the Standard Army Intermediate Level Supply System (SAILS), was also successfully tested at Fort Carson, Colorado. SAILS will encompass all logistic support operations between the wholesale and direct support/user levels, including medical materiel currently

carried under the Medical Management Information System. Integration of medical materiel requirements in SAILS will provide uniform system support on a worldwide basis to Army Medical Department materiel managers.

The Standard Finance System (STANFINS), which is the BASOPS financial management subsystem, provides for the automation of accounting operations at the installation finance and accounting office level. STANFINS was extended to fifteen installations during the year, bringing the number of installations under the system to thirty-nine. Eighteen of these are within the U.S. Army Training and Doctrine Command, seventeen under U.S. Army Forces Command, and one each at the U.S. Army Military District of Washington, U.S. Army Forces, Southern Command, U.S. Army Strategic Communications Command, and U.S. Army, Alaska. Further extension of STANFINS is scheduled for fiscal year 1974.

The effort to cut paper work and reduce reporting requirements within the Army received special emphasis during fiscal year 1973. The Offices of the Comptroller and the Project Manager for Reorganization worked together to implement Project FASTCUT, a program to achieve a 30 percent reduction in the number and cost of reports that was formally established by the Chief of Staff on 28 September 1972. By the end of the fiscal year, 497 reports were reviewed; two-thirds of these were emanated from Headquarters, Department of the Army, and the remainder were requirements set by the Department of Defense and other federal agencies. Of these, 138 are to be rescinded and 132 will be revised. To date, forty-one of the revision actions and ninety-six rescissions have been accomplished.

Project FASTCUT was also applied in the field, where each major command reviewed its own reporting requirements and also strove to achieve a 30 percent reduction in the number and cost of reports. As of 30 June 1973 a total of 1,143 reports had been reviewed; of these, 304 with reporting costs identified at $6 million are to be revised or rescinded.

During the report year action was completed on all functional user manuals, training texts, lesson plans, and instructional plans and programs for the extension of the Combat Service Support System (CS_3). However, a test and evaluation of the system's Corps Computer Service Center indicated that the software system for supply actions, that is, the Division Supply System (DISUP), did not fully meet user proponent requirements. Test results also showed that the personnel system, the financial application, and the property book application were acceptable and that the Modification Workorder/Maintenance Control System (MWO/MCS) would require minor modification. Following the test, it was decided to delay the extension of CS_3. A revised concept that uses

a small mobile computer at division level and a slightly larger one at corps headquarters was developed to correct the deficiencies uncovered in the demonstration of the Corps Computer Service Center. The revised CS_3 will be tested under simulated combat conditions during fiscal year 1974, after completion of a functional evaluation of supply and maintenance applications, which was under way at the end of fiscal year 1973.

A number of substantive policy and procedural changes relating to the Army Commercial and Industrial Type Activities Program were promulgated during fiscal year 1973. These included redelegation to major commanders and Army staff agencies of the authority to make decisions as to the continuation, discontinuation, or curtailment of their activities in this area; establishment of a requirement to analyze local manpower resources before new starts and cyclical reviews are undertaken; establishment of new criteria for submitting new start proposals; and changes in reporting requirements for annual inventories of commercial- and industrial-type activities. The special commercial- and industrial-type activities training program sponsored by the Army Logistics Management Center upon the request of the Department of Defense entered its second phase. Phase I of the program, a series of executive seminars, was noted in last year's report. Phase II emphasized acquainting command and installation training personnel with the philosophy and concept of the Commercial and Industrial Type Activities Program and with the latest training techniques in use at the Army Logistics Management Center. Phase III will consist of a command training program for personnel at the installation level.

Integrated Logistic Support (ILS) is a concept that supports planning for new systems. It involves maintenance planning, support and test equipment, supply support, transportation and handling, technical data, facilities, personnel and training, logistic support resources and funds, and logistic support management information. The Integrated Logistic Support provides the basis for evaluating the potential or actual logistics impact of a materiel system during each phase of the system's life. Its objective is to field materiel that can be adequately supported within constraints created by resources and technology.

The ILS concept took on increased importance during fiscal year 1973 as the Army reorganized and revised its weapons acquisition policies. Weapons acquisition management has shifted from tight, central control to a more decentralized approach that permits high-level executives to focus their attention on major projects. Successful decentralization will require the development and implementation of policies that will not only permit program managers freedom of action but will also provide sufficient guidance to assure good management results. During

the past year, the main effort in furthering the ILS concept was directed toward developing a better definition of the degree of planning that would be appropriate to the various program phases of materiel systems. Future effort in this area will emphasize improving long-range logistic planning and enhancing the quality of logistic input in the design of system hardware.

The WHEELS Study, initiated in early 1972 to analyze the Army's needs and usage of wheeled vehicles and the management of this program, was completed during the period of this report. Actions to carry out the study's recommendations have been taken that will lead to an over-all reduction of 29 percent in requirements (from about 400,000 to under 300,000 vehicles) and a 23 percent increase in total fleet commercial vehicle authorizations (from 78,000 to 120,000 vehicles), the majority of which will be employed in selected tactical applications. These actions will result in a $1.1 billion reduction in programed procurements from fiscal year 1973 through fiscal year 1978 and an estimated life-cycle savings of $4.5 billion. Procurement plans are being developed for the acquisition of standard production line commercial replacements for military vehicles, such as 34-ton semitrailers, 40-ton low-bed semitrailers, and 1¼-ton trucks, which will be brought into the inventory during the next two to three years. In addition, the feasibility of leasing certain vehicles for Reserve forces training needs is being studied. The WHEELS Study has also led to the cancellation of the XM–852 1¼-ton truck program.

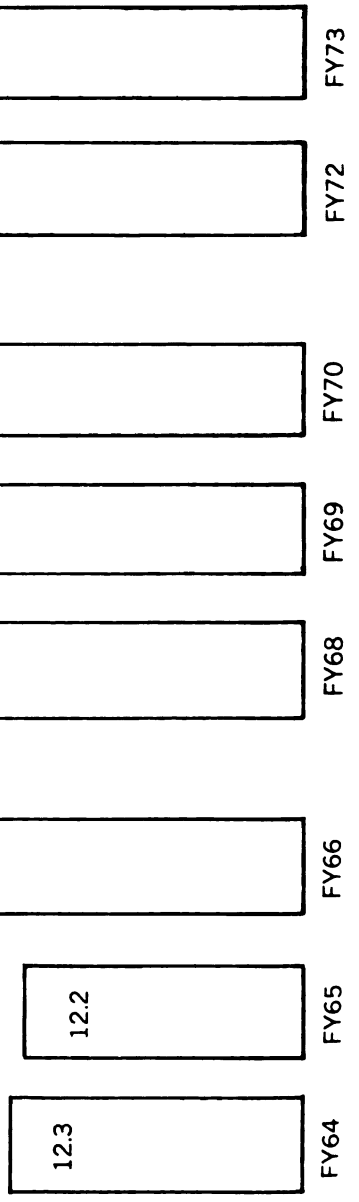
Budget and Funds

The Army's budget request for regular appropriations for fiscal year 1973 totaled $23,340.6 million. Following reviews by the Office of the Secretary of Defense and the Bureau of the Budget, the President requested $22,724.6 million for the Army, and the Congress appropriated $21,824.9 million. *Table 2* and *Chart 1* trace the chronological development of the fiscal year 1973 budget and compare budget authorizations over the past ten years.

Budget and Financial Management

It has become increasingly evident in recent years that the Army's system of budget management and reporting for the Operation and Maintenance, Army (OMA), appropriation is succumbing to stagnation. This condition is due largely to a proliferation of data requirements for numerous budget exercises, which has resulted in an unwieldy volume of machine reports and a loss of timely contact with the field. Nearly all major commands have complained about the explosion of data requirements and the numerous restrictions placed on funds.

CHART 1—ARMY BUDGET, FISCAL YEARS 1964 - 1973
(TOA in billions)



Because of the funding restrictions, field commanders have been denied flexibility in managing resources and taking actions that might resolve local financial problems. Also, the increased volume of data required by Headquarters, Department of the Army, has compelled subordinate commands to use an excessive amount of personnel in gathering data at the expense of performing vital data analysis.

TABLE 2—CHRONOLOGY OF THE FISCAL YEAR 1973 DIRECT BUDGET PLAN (TOA)

(In millions of dollars)

Appropriation	DA Submission to OSD	Amended President's Budget	Budget Approved by Congress	Supplemental Approved by Congress	Reprograming Approved by Congress	Total Approved by Congress
Military Personnel, Army	7,550.2	7,708.1	7,528.0	175.7	−1.1	7,702.6
Reserve Personnel, Army	484.8	529.5	453.7	7.9	—	461.6
National Guard Personnel, Army	578.0	616.3	568.2	15.4	—	583.6
Operation & Maintenance, Army	7,158.9	7,142.9	6,636.6	98.8	+67.0	6,802.4
Operation & Maintenance, Army Reserve	—	—	199.3	3.7	—	203.0
Operation & Maintenance, Army National Guard	492.9	468.5	443.2	8.5	—	451.7
National Board for the Promotion of Rifle Practice	.1	.1	.2	—	—	.2
Aircraft Procurement, Army	186.2	162.9	128.5	—	—	128.5
Missile Procurement, Army	1,579.5	896.7	704.7	—	—	704.7
Procurement of Weapons & Tracked Combat Vehicles, Army	285.6	375.1	242.8	—	—	242.8
Procurement of Ammunition, Army	1,250.6	1,350.4	1,318.8	—	—	1,318.8
Other Procurement, Army	678.0	654.0	630.2	—	—	630.2
Research, Development, Test & Evaluation, Army	2,045.7	2,122.7	1,889.0	—	—	1,889.0
Subtotal, excluding Construction	(22,290.5)	(22,027.2)	(20,743.2)	(310.0)	(65.9)	(21,119.1)
Military Construction, Army	967.5	619.2	586.6	—	+41.0	627.6
Military Construction, Army Reserve	40.6	38.2	38.2	—	—	38.2
Military Construction, Army National Guard	42.0	40.0	40.0	—	—	40.0
Subtotal, Construction Accounts	(1,050.1)	(697.4)	(664.8)	(—)	(41.0)	(705.8)
Total Direct Budget Plan (TOA)	23,340.6	22,724.6	21,408.0	310.0	+106.9	21,824.9

During fiscal year 1973 nearly all restrictions on operating funds that were not imposed by Congress, the Office of Management and Budget, or the Office of the Secretary of Defense, were removed, thereby giving major commands more flexibility in solving their own financial problems. An experimental monthly report, designed to keep all levels of command informed as to how funds are used at subordinate echelons, was tested at twenty-seven Continental Army Command installations. The reports were reviewed by the Office of the Director of the Army Budget to determine the type, quantity, and frequency of information on financial operations at the installation level that should be submitted to higher authorities.

The problem of voluminous data requirements for budget exercises was relieved substantially when a small task force, acting under orders of the Comptroller of the Army, reduced the requirements for the fiscal year 1973 Budget Execution Review by more than 50 percent. The volume of data actually submitted to Headquarters, Department of the Army, was only 30 percent of the amount sent in for the fiscal year 1972 review. A similar drive was conducted for data requirements associated with the fiscal year 1973 Command Operating Budget, and a reduction of nearly 25 percent was recorded.

Additional relief from burdensome reporting requirements will be realized with the putting in of Data Element Management/Accounting Reporting (DELMAR), a new system with a capacity for direct reporting of data from installations to the Comptroller of the Army (COA) Data Base. DELMAR will replace the Integrated Command Accounting Reporting (ICAR) System, reduce installation reporting by eliminating formatted reports and limiting input to changes in data previously recorded, and improve the reliability and timeliness of Army financial data. DELMAR is scheduled for testing during fiscal year 1974.

The COA Data Base will focus on the collection, storage, and processing of DELMAR's reported financial data. Once established, the financial data base will serve to support Department of the Army budget requests and actions, control the execution of programs and budgets, and meet the demands of other government agencies on financial information. Advances made in the COA Data Base during fiscal year 1973—that is, documentation of system specifications and development of computer programs—will permit, during the coming year, testing of the system's ability to store and process accounting data from installations.

The Army, the first and only service to install the Joint Uniform Military Pay System (JUMPS), has completed two full years under the system, and all the basic objectives prescribed by the Department of Defense have been met. Major accomplishments during the fiscal year included the introduction of a new easy-to-read and easy-to-understand leave and earnings statement; the use of a new, simplified form which

permits soldiers to select pay options (monthly or bimonthly, or by cash, check to bank, check to home); and the virtual elimination of allotment errors in soldiers pay as a result of the full reconciliation of the allotment and the JUMPS-Army pay files. In the past such errors, according to Army Audit Agency reports, have resulted in overpayments of around $48 million annually. A new allotment system using the same computer hardware as JUMPS will further refine allotment operations.

A program using printouts of individual pay data from the master pay file was started in July 1972 to verify entitlement to designated items of pay, such as proficiency pay, basic allowances for quarters and subsistence, flight pay, jump pay, and medical and dental pay. The program has proved highly successful in assuring that accurate payments are made to the soldier. In proficiency pay alone, overpayments exceeding $2.1 million were detected and promptly eliminated. Additional computer edits were developed to automatically terminate payments for special entitlements when the conditions for payments no longer exist. Included in this category are such job- or duty-related entitlements as proficiency pay, hostile fire pay, foreign duty pay, and family separation allowances.

The success of JUMPS in providing prompt and accurate pay service to all soldiers and improving management of the Army's military personnel appropriation has led to the development of plans to increase the number of personnel actions involving active Army personnel covered by JUMPS and the extension of the system to retired personnel and members of the Reserve Components. The completion of these actions will give the Army full realization of the abilities inherent in a standard, automated pay system and will result in more efficient and convenient pay service to all active, Reserve, and retired soldiers.

In December 1972, major Army commands within the United States received permission to establish centralized unit fund accounting procedures at installation level. Under this concept, commanders and unit fund councils would retain their authority over the expenditures, but the burden and responsibility for administering the fund would be transferred from the commander/fund custodian to a central accounting office at installation level. By the end of the fiscal year, centralized unit fund accounting procedures had been established within Third Army and the Military District of Washington. Initial indications are that worldwide execution of this concept would result in a substantial savings in manhours.

The provisions of an Army regulation on Depot Maintenance Cost Accounting were put into effect overseas during the year, thus providing full cost accounting of depot maintenance worldwide. The system forms the base for the cost accounting system of the Office of the Secretary of Defense.

IX. Logistics

During the past several years Army logisticians have supported a comprehensive Logistics Offensive Program that has successfully met the short-term needs of Vietnam, the withdrawal of men and materiel from that country, and the development of new plans, systems, and techniques to better manage existing and emerging logistics systems. A number of actions taken during the first two phases of the program were mentioned in last year's report.

The third and final phase of the program was completed this year. It defined and harmonized the relationship between the Logistics Offensive Program and the Army's Logistics System Master Plan (LOGMAP), and it specifically dealt with the design, development, testing, and standardization of automated systems for managing the emerging logistics system. This phase was characterized by a continuing transition from a wartime to a peacetime environment and from a situation demanding quick solutions to specific problems to one that permitted the application of deliberate and incessant management efforts to determine and eliminate the causes of the problems.

By the end of the fiscal year the evaluation of a number of Phase III projects had been completed. The projects indicated that many of the immediate obstacles to providing efficient logistics support had been overcome and that greater stress could now be given to consolidating gains, tidying up the logistics battlefield, and improving peacetime logistics readiness in support of contingency operations.

Logistics Systems Development

The Logistics System Master Plan received considerable attention during the past year: a major revision was published in October 1972, an update followed two months later, and a vigorous program to improve and refine LOGMAP was begun in March 1973. A key part of this program was the approval of a change to the charter of the Army Logistic Policy Council (ALPC) in May 1973 which charged the ALPC with providing advice and assistance to the Deputy Chief of Staff for Logistics in the evaluation and development of logistic concepts, objectives, and policies designed to improve the efficiency and effectiveness of the Army's worldwide logistic system. The Logistics System Steering Group (LSSG) is a working unit of the Army Logistic Policy Council that periodically reviews logistic studies to assure the study efforts are compatible with

LOGMAP objectives and to identify studies which may be of marginal value or may represent a duplication of efforts. The group met in April to review 110 study proposals to be continued or started during fiscal year 1974.

Over the years many atempts have been made to achieve simplicity and responsiveness in the Army's logistics system, for example, the Standard Army Integrated Logistic System (SAILS), which was described in last year's report, and the Division Logistics System (DLOGS), which was expanded during fiscal year 1973 to cover all divisions within the Army except the 1st Cavalry and the 2d Armored Divisions. Information from the field, however, indicated that some recent systems changes have had the opposite effect. The Simplified User Logistics Program (SUL) was formally established in September 1972 to correct this problem through eliminating or simplifying paper work at the user level and through achieving maximum responsiveness to the user at the support level.

The philosophy of the Simplified User Logistics Program, which encompasses the entire spectrum of the logistics functions of supply, maintenance, transportation, facilities, and services, is that logistics support must come from the rear and that complexity of the system must be reduced as support moves forward to the user level. The underlying belief is that support unit commanders are responsible for insuring that sufficient and appropriate logistics support is provided to the combat soldier.

Early in the fiscal year the Defense Logistics Studies Information Exchange (DLSIE) underwent expansion to further a Department of Defense objective to improve the process of logistics research by assuring ready availability of information regarding planned, in process, and completed logistics studies and research efforts. DLSIE is now a Department of Defense repository for such information, and it has also been made responsible for distributing copies of completed logistics studies to all U.S. government agencies.

The Army continued to develop a standard Direct Exchange System that encompasses all Army-managed repair parts and assemblies at all supply levels. The system is designed to provide controlled return of reparables in order that the materiel may be made operable. When put into use, the Direct Exchange System is expected to improve cost effectiveness and materiel readiness of field units. As the current year closed, policies and procedures for a standard expanded Direct Exchange System at the retail level were being published. Testing and initial development of automated direct exchange programs are planned for fiscal year 1974. A task force will also set up standard direct exchange policies and procedures for the wholesale level.

Several actions were taken during the year to further refine Selected Item Management System (SIMS) techniques and to increase the effectiveness of the program in general. Report requirements were revised, procedures and regulatory guidance consolidated and updated, and the selection method for including items under SIMS was improved. The 6,200 items currently included in the program represent approximately 90 percent of the annual dollar demand for secondary items. The Defense Supply Agency (DSA)–Department of the Army memorandum of understanding concerning responsibilities and procedures for worldwide asset reporting for selected DSA items was changed to require all U.S. Army commands to make available to the Defense Supply Agency, to the maximum extent possible, those agency-managed items for which referral action was requested. Also, continued emphasis on referrals and redistribution has improved cost avoidance under the SIMS program from $66 million at the beginning of fiscal year 1973 to approximately $100 million by year's end, which was short of the $125 million goal noted in last year's report.

Fiscal year 1973 marked the continued expansion of the Direct Support System (DSS) whereby requisitions filled from the Army's wholesale system are shipped directly to support units in the field, bypassing theater depots. With only minor exceptions, DSS was expanded in USARPAC to include all requisitions for Classes II, IV, and IX items submitted by units in Thailand, Okinawa, Japan, Hawaii, and, until all support units were withdrawn, Vietnam. In USAREUR, DSS was expanded to include 102 out of a possible 125 units. Savings continued to accrue as stocks in oversea depots were drawn down and the amount of supplies in the pipeline reduced. In CONUS, DSS was applied on an experimental basis at Fort Bragg, North Carolina. The application of the system there is similar to the overseas experience, except that it is the installation account that is being bypassed rather than the theater depot. Plans for fiscal year 1974 include expansion of the system to twenty-one additional CONUS installations; incorporation of USAREUR depot replenishment requisitions, requisitions for missile repair parts, and a greater percentage of routine customer requisitions; and the completion of an analysis of the feasibility of including package petroleum products, certain medical supplies, and major items in the system.

Recent developments in the Army Materiel Command (AMC) Five Year Automatic Data Processing (ADP) Program, which was described in the previous report, include approval of the extension of Phases A and B of the AMC Logistics Program Hardcore Automated (ALPHA) to the Army Mobility Command and the Army Troop Support Command and the extension of Phases A, B, C, and D to the Army Missile Command. The System Project for Electronic Equipment at Depots Ex-

tended (SPEEDEX), the other major component of the AMC Five Year ADP Program, has been extended to all AMC depots. The follow-on systems functional policies and procedures, regulatory requirements, output products, and the ability of the system to satisfy user requirements have been evaluated and found acceptable.

Progress was also noted during the past year in several components that make up the Army's Logistics Management Information System (LOGMIS). Within the Integrated Transportation Management Information System (ITMIS), a transportation financial management and forecasting subsystem for over-ocean second destination movement and shipment of personal property and household goods was developed. The first phase in standardization of worldwide port operations was started when the USARPAC Standard Port System was adopted as the DA Interim Standard Port System. Work was also initiated to develop a General Functional Systems Requirement (GFSR) for an Administrative Use Vehicles Management Information System (AUVMIS). This system will provide a data base for the development of budgets and plans for the operation and maintenance of the administrative use vehicle fleet. The property disposal function of the Integrated Support Services Management Information System (ISSMIS) was transferred during the year from the Army to the Defense Supply Agency. In the laundry and dry-cleaning area an automated system was approved for programing at the Logistic Data Processing Center. Also, an automated data processing system was approved and installed in support of commissary operations, and approval was being sought to procure automated data processing support for a Central Food Preparation System at Fort Lee, Virginia.

In another LOGMIS development, standardization of software packages, user procedures, and training packages relating to conventional ammunition supply between United States Army, Europe, and United States Army, Pacific, was achieved when the Standard Army Ammunition System (SAAS) became operational in both commands. Finally, GFSR's for the army in the field and table of distribution and allowances maintenance management were developed. At year's end the two GFSR's were being consolidated into a single requirement at the newly created Logistics Center at Fort Lee, Virginia.

As fiscal year 1972 was closing, the Army issued to major commanders and heads of Army staff agencies a policy document incorporating guidelines for materiel acquisition. Appropriate commands and agencies provided representatives for a study group to develop procedures for effecting the new guidelines, and a letter of instruction was issued on 23 August 1972. Revision of pertinent regulations to bring them into line with the new guidance continued through the fiscal year. The Com-

bat Developments Objectives Guide was also reviewed, and it was concluded that the guide would be replaced by a largely automated Catalog of Approved Requirements Documents.

Materiel Acquisition

The fiscal year 1973 procurement program reflected downward adjustments resulting from the Strategic Arms Limitations Agreement, but it provided the necessary equipment to maintain the Army's required state of readiness. The table below compares the amounts appropriated by the Congress and available for the last three fiscal years.

ARMY PROCUREMENT APPROPRIATIONS

(In millions of dollars)

Appropriation	Fiscal Year 1971	Fiscal Year 1972	Fiscal Year 1973
Aircraft	202.9	106.6	122.5
Missile	955.1	1,018.3	699.5
(Safeguard)	(651.0)	(640.0)	(300.0)
Weapons and tracked combat vehicles	284.7	149.7	242.8
Ammunition and ammo production base	1,318.2	1,656.4	1,318.8
Other procurement	651.4	507.2	611.0
Total	3,412.3	3,438.2	2,994.6

The Army's aircraft procurement appropriation for fiscal year 1973 totaled $122.5 million, of which $20.1 million was for new aircraft, $58.9 million for modification of aircraft already on hand, $6.7 million for spare parts, and $36.8 million for ground support equipment, first destination transportation, and production base support. An additional amount of approximately $592 million was appropriated for customer programs, such as the U.S. Navy and foreign nations. Nearly one-half of the fiscal year 1973 appropriation (49 percent) was programed to modernize and improve the Army's existing aircraft fleet. The major action during the year in this regard was the institution of a program to convert OV/1B/C Mohawk surveillance airplanes to the more versatile OV–1D. Current plans call for the conversion of eighty-six Mohawks through fiscal year 1977. The U–X, a fixed-wing, twin-engine, utility-type airplane, was the only major new aircraft procurement programed during the past year. Discrepancies in procurement procedures caused the cancellation of the Army's initial request for proposal for the U–X in January 1973. At the end of the fiscal year the U–X program still awaited final congressional approval.

With the exception of curtailments in missile procurement authorizations for the Safeguard antiballistic missile (ABM) program, Congress appropriated sufficient funds in fiscal year 1973 to provide for both quantitative and qualitative improvements of the Army's surface-to-surface and surface-to-air missiles. In the surface-to-surface area, additional TOW and Dragon missiles entered the inventory, the Lance

system was funded at the programed level, and funds were provided for the continuation and improvement of the Pershing system. Surface-to-air development included the authorization and funding of a modification to the Nike-Hercules system and an expanded day and night air defense capability as additional improved Hawk missiles and ground support equipment were procured to replace the basic Hawk system.

The $259.5 million request for weapons and tracked combat vehicles procurement contained in the President's budget for fiscal year 1973 provided financing for tanks, Vulcan air defense guns, grenade launchers, and laser range finders and fire control selector groups for air defense guns; improvements to tanks, howitzers, and air defense guns; and support equipment and facilities. The Congress deleted $20.3 million in the following areas: Vulcan procurement, $15.2 million; advanced production engineering for the XM198 howitzer, $3.6 million; and layaway of the M60 machine gun facility, $1.5 million. Congress deleted all but $3.6 million for the purchase of 37,533 M16A1 rifles in a supplemental request of $115.6 million for weapons and tracked combat vehicles, resulting in a total of $242.8 million in appropriations for the year, which included funds to perform retrofit/production of the remaining 316 M60A2 tanks. Other major actions during the year included a projected slippage of six months in fielding the improved M60A1 tank (M60A3), because of technical problems with fire control improvements, and the approval by the Department of Defense of the development concept paper for the competitive development and procurement of 3,312 XM1 tanks, and the subsequent awarding of contracts to Chrysler Corporation and General Motors Corporation. A contract was also awarded to the Food Machinery Corporation for the full-scale development of the mechanized infantry combat vehicle.

Ammunition Procurement

The continued decrease in ammunition consumption in Southeast Asia and the progress made in building up war reserve stocks to meet the Army's acquisition objective permitted a cutback in ammunition procurement in fiscal year 1973. The elimination of hazards connected with the production of explosives and propellants, a major activity within the twelve-year program to modernize the ammunition production base, received priority treatment during the year. Pollution control was also stressed.

Other Procurement

The "Other Procurement, Army," appropriation covers such items as tactical and commercial vehicles, communications and electronics equipment, strategic worldwide defense communications systems, medical support equipment, and such other support equipment as mobile assault

bridges, construction equipment, materials handling equipment, generators, and floating equipment. The levels of the fiscal year 1973 program and the fiscal year 1974 budget request are shown below.

	Fiscal Year (in millions)	
	1973	1974*
Tactical and support vehicles	$209.6	$102.1
Communications and electronics	194.6	180.6
Other support equipment	206.8	269.2
Total: Other Procurement, Army	$611.0	$551.9

*As of June 1973.

A major development during the year was the implementation of the WHEELS Study (see Chapter VIII), which has resulted in a $1.1 billion reduction in programed procurements for fiscal years 1973 through 1978—including cancellation of the XM852 1¼-ton truck program—and an estimated life-cycle savings of $4.5 billion. Procurement plans were being developed for the acquisition of standard commercial replacements for military design vehicles, that is, 12- to 34-ton and 40-ton lowbed semitrailers and 1¼-ton trucks, which will be brought into the inventory during the next two or three years. In addition, the feasibility of leasing vehicles to support training needs of certain Reserve forces is under study.

Other significant actions taken during fiscal year 1973 included congressional approval of $23.4 million to procure commercial equipment required to provide American television programs to United States personnel in Europe (see Chapter V) and appropriation of $7.4 million in advance production engineering funds for the forward area tactical teletypewriter. The first production buy of the teletypewriter is scheduled for fiscal year 1974.

Materiel Maintenance

Depot maintenance management received special emphasis during the past year. The data input to the Depot Maintenance Data Bank at Letterkenny Army Depot was updated and validated in order to assure that the automated Army Materiel Plan—Part II, which will serve as the basic source document for depot maintenance programing, planning, and budgeting, is reliable and interfaces completely with other data systems, such as those dealing with procurement planning and cost and production reports. Also, a study was begun to determine whether—in view of reduced requirements placed on the CONUS depot system resulting from disengagement in Southeast Asia, advances in transportation capabilities and technology, recent economic developments impacting upon the dollar, and the probability that savings once realized in terms of the use of foreign labor may no longer exist—the depot maintenance facilities in Europe are needed to support the Army wholesale supply system.

The program that transfers unserviceable equipment on a selective basis to the Army National Guard for repair and subsequent use was expanded during fiscal year 1973 to include armored personnel carriers and M60 tanks. This "self-help" program contributes significantly to the Army's efforts to modernize the Reserve Component equipment fleet, provides valuable training for Guard maintenance technicians, relieves Army depot maintenance facilities of a sizable work load, and affords an appreciable savings in time and dollars.

Finally, a survey of Prepositioned Materiel Configured to Unit Sets (POMCUS) revealed that while the equipment was at an acceptable level of serviceability improvement was needed in the management of POMCUS assets. Periodic reviews of the European-based POMCUS program have been started to assure that the program is on the right track.

Aviation Logistics

The U.S. Army Aviation Systems Command hosted seventy-three representatives of the Department of the Army staff and major Army commands at the first World-Wide Aviation Logistics Conference in June 1973. A wide range of aviation logistics problems were discussed at the conference (which has replaced the Aviation Closed Loop Support Conference), and a number of actions were taken that could reduce aviation logistics costs by as much as $6.5 million. An expanded conference to include commands that did not participate this year—the Army Air Defense Command, the Readiness Command, the Strategic Communications Command, the Health Services Command, the Army Security Agency, and the Office of the Chief of Engineers—is scheduled for the spring of 1974.

A new concept for the selection of Army aircraft for depot overhaul was initiated during the past year. It is based upon an aircraft's condition and serial number rather than accumulated flying hours or the amount of elapsed time since the last overhaul. Under the new concept, an aircraft condition evaluation team develops aircraft condition profiles based upon an analysis of designated airframe parts, the over-all condition, and the status of major modification work orders. The condition profile determines the order for scheduling aircraft for depot maintenance. A related program, the fleet management system, provides for the collection, recording, and analysis of an aircraft's condition by serial number based upon data obtained through various reports and the Army Maintenance Management System (TAMMS). The full use of the fleet management system should reduce the number of annual inspections needed under the condition maintenance concept.

Project EXTEND, an interim measure taken to lessen the impact on depot maintenance facilities of large numbers of aircraft returning from

Vietnam, was terminated on schedule at the end of the fiscal year. This highly successful program furnished retrograde aircraft to users (357 first-line aircraft in fiscal year 1972 and 304 in fiscal year 1973) in a safe, reliable, and maintainable condition at far less cost and in less time than would have been possible if a complete depot overhaul had been performed.

Each company-size aviation unit has been authorized some direct support maintenance. Since experience in Vietnam, where only 20 to 25 percent of general support maintenance was handled in that country, showed that this type of maintenance could not be performed adequately in the field, a study was undertaken by the U.S. Army Logistics Doctrine, Systems and Readiness Agency to evaluate the requirement for separate direct support and general support maintenance units.

The Floating Army Maintenance Facility (FAMF) had continued to provide valuable aviation maintenance service at the depot level in Vietnam prior to its departure for Corpus Christi, Texas, on 31 October 1972. In addition to its primary contingency mission, for which it is held in a sixty-day readiness status, the FAMF provides a mobilization training base to maintain depot-level military skills in the force structure. The FAMF also began depot maintenance operations in February, and late in the fiscal year it was assigned to assist in a high-priority project for the Defense Nuclear Agency.

Substantial progress was made during the past year in reducing the backlog of aircraft modification work orders. The backlog, which totaled 2,900,000 man-hours at the beginning of fiscal year 1972, was reduced to 1,930,000 man-hours by the end of that year and to 1,130,000 man-hours by the end of fiscal year 1973. Much of the success was due to the employment of field contract assistance teams on a worldwide basis and the scheduling of required modification installations during depot repair and overhaul operations.

In other aviation logistics matters, action was taken to alleviate aircraft refueling and rearming deficiencies in forward areas; new Army aircraft operational readiness standards were approved; and preparations were mde to field test a new helicopter scheduled maintenance inspection concept designed to provide aviation units with increased efficiency, aircraft readiness, mission reliability, and maintenance cost savings. LOGLIFT II, second in a series of three exercises designed to demonstrate the ability of heavy lift helicopters in moving large tonnages of materiel in support of the field army—thereby reducing the number of people, facilities, terminals, and construction that would be required—was combined with LOGLIFT III and rescheduled for the third quarter of fiscal year 1974. The combined exercise will be run concurrently with the air cavalry brigade test.

Supply and Depot Operations and Management

Fiscal year 1973 Army Stock Fund obligations amounted to $2.7 billion to support $2.8 billion in sales. The sales figure remained about the same as for fiscal year 1972, but obligations were up by 8 percent, the first year-to-year rise since materiel orders reached the Vietnam War peak in fiscal year 1967. Increased obligations reflect the depletion of stocks of many items generated since the Vietnam buildup, a situation that required new procurement to meet current and projected customer demands. Despite a general decline in military strength, rising materiel costs indicated that sales were moving to a level higher than that for the pre-Vietnam period.

Obligational authority for secondary items financed by the Procurement of Equipment and Munitions, Army (PEMA), appropriation was $126 million. Increased procurement authority was required to support new equipment deployments and to satisfy a high order rate for reimbursable items.

During the period of this report, the need for special management programs established at Department of the Army level to allocate items that were in critical short supply during the Vietnam buildup, and which later proved effective in using available materiel to attain the most in worldwide readiness goals, diminished. Accordingly, the Department of the Army Allocations Committee—Ammunition (DAACA) discontinued operations, and the responsibility for management control of the few ammunition items that remained in short supply was passed to the Army Materiel Command. The Department of the Army Distribution Allocation Committee (DADAC) continued to function throughout the year, but plans call for its elimination as soon as possible. Committee actions to reduce the flow of DADAC-controlled critical materiel to U.S. Army, Pacific, subcommands met with marked success during the last half of the fiscal year, and the number of these items was reduced from 192 to 94 by year's end.

Final action had been taken by the end of fiscal year 1973 on forty-nine of the sixty-three recommendations made by the Asset Control Task Force to improve control, reporting, and accounting procedures. These included two important actions. The first was the development of a continuing balance process based primarily upon Army Materiel Command and major command transaction records to keep track of the worldwide distribution and the number on hand of some 7,000 major items, including tanks, vehicles, and radios. The new concept was undergoing testing at year's end. The second action was the setting up of a new supply loss reporting system that provides for a reduction in the number of codes required for categorizing losses and loss recoveries, expansion of the num-

ber of reportable items, and flexibility in terms of the future expansion of item coverage.

A number of actions were taken during the year to further the objective of the Inventory Control Effectiveness Program to bring the procedures and practices up to established standards. These took in revision of reporting criteria to provide for inclusion of small arms in the Selective Item Management System (SIMS); increasing and/or establishing goals for inventory accuracy, location audit accuracy, small arms inventory accuracy; and on-time posting and storage of receipts. In a related development, the Direct Support System was extended throughout the Pacific and was being tested in the United States. This system reduces operating stocks at retail divisions which arrange for direct shipment of supplies from wholesaler to consumer.

Action taken under the Care of Supplies in Storage (COSIS) Program included the publication of new guidance to improve the program's effectiveness and a reduction in the number of line items requiring shelf-life management from 15,960 to 1,521. Severe funding constraints imposed upon supply depot operations for the year have, however, limited the amount of resources available to put the program into effect.

The continuing effort to reduce and standardize the number of stock items required to support the Army progressed during the year. The number of sizes, types, and grades of items listed on the Army Master Data File has been reduced from 1,388,000 at the beginning of fiscal year 1971 to 630,094 active items by the end of the current fiscal year. An additional 332,133 items were on hand in an inactive status pending disposition. The Mobilization Reserve Stockage List (MORSL) was reduced by 4 percent during the year. The 2,585 items currently listed represent a 26 percent reduction over the past three years in an effort to achieve a more credible and defensible MORSL.

The conversion of Federal Catalog System publications from 16-mm. microfilm and printed manuals to the standard Department of Defense microfilm system—which uses microfiche at a reduction rate of 48 to 1 and compatible reader and reader/printer equipment having a 48-power magnification—registered a number of gains during the past year. Conversions were completed for the Management Data List, Supplementary Interchangeable and Substitute Item List, Army Tailored Master Cross Reference List, and the Army Master Data File Reader Microfilm System. Also, over 5,000 microfiche readers were distributed to Army customers for visual data retrieval.

Replacement of the current eleven-digit federal stock number by a thirteen-digit National/NATO stock number and the implementation of the Defense Integrated Data System was again deferred. Estimated completion date for both actions is 30 September 1974.

Substantial gains were also registered in the Integrated Materiel Management program. Continued implementation of the item management coding process resulted in the review and processing of over 92,000 items during the year, of which 51 percent were retained under Army management, 30 percent were transferred to the Defense Supply Agency for integrated management, and 10 percent were dropped. While the coding effort was under way, the Defense Supply Agency and the services developed a formula for processing Program Change Requests (PCR) to reflect the reallocation of management resources as items were transferred. One interim PCR was processed during the year, resulting in the transfer of twenty-three personnel slots to the Defense Supply Agency. An additional PCR will be processed in the coming year to conclude this program. Also, machine implementation of the Weapons Integrated Materiel Management (WIMM) process began at the start of the fiscal year and was completed by year's end. More than 1.3 million items retained by the military services for management have received a computerized WIMM designation. The Army was made the integrated manager for approximately 66 percent of the WIMM items. In a related development, a jointly developed agreement between the General Services Administration and the military services outlining the terms under which the latter would furnish wholesale supply support to other federal agencies was signed and put into use.

The major development in the integrated management of bulk fuels was the disestablishment of the Army Petroleum Center and the decapitalization and transfer of the Army Petroleum Stock Fund to the Defense Supply Agency, both actions taking place on 1 May 1973. Accountability for bulk product and financial management of worldwide bulk fuel inventories are now accomplished by the Defense Supply Agency, while the Army has retained responsibility for operating bulk petroleum terminals under its control and determining its own requirements for bulk fuels.

The success of the Integrated Materiel Management program resulted in the elimination of item management duplication for all consumable items in the Department of Defense supply system. Wholesale interservice supply support agreements are no longer required for consumable items, for under the new one-item-one-manager system, a potential customer submits a supply support request directly to the integrated manager. Long-range effects of the integrated approach should include a reduction in materiel management requirements within the Department of Defense, an increase in supply responsiveness, and simplification of supply procedures.

Integrated management concepts had a decided effect on the Army's property disposal program. At the beginning of fiscal year 1973 a force

of 1,538 military and civilian personnel were heavily committed to the orderly disposal of vast quantities of surplus property and materiel on hand throughout the world; by the end of the year virtually all of the functions and most of the personnel assigned to the program had been transferred to the Defense Supply Agency in order to achieve centralization of property disposal management functions. Functions retained by the Army under centralization were as follows: disposal of surplus property generated by the Corps of Engineers civil works program; responsibility for the Pacific Command Redistribution Agency; and, along with the other military services, reclamation and demilitarization of ammunition, explosives, other dangerous articles, and small arms weapons and parts. Reclamation and demilitarization activities will be funded by the Defense Supply Agency using monies received through the sale of surplus personal property.

The assumption of property disposal functions by the Defense Supply Agency and the issuance of a Secretary of Defense directive on 2 May 1972 instructing the transfer of the existing stockpile and future generations of scrap located in Vietnam to the Republic of Vietnam to further that nation's economic development caused a sharp drop in the Army's disposable property holdings. During the course of fiscal year 1973 the acquisition value of usable property decreased from $430 million to $47.1 million, and scrap inventories declined from 176 thousand tons to 71 thousand tons. Excess, surplus, and foreign excess personal property having an acquisition cost of $134.9 million was redistributed; another $62.4 million was donated to state agencies by the Department of Health, Education and Welfare under provisions of Public Law 152, 81st Congress, as amended; public airports received $2.2 million; schools of special interest to the armed forces received $0.9 million; and other authorized recipients received $0.1 million. Usable property with an acquisition cost of $304.4 million was sold, bringing in a return of $20.6 million, or 6.76 percent, of the initial acquisition cost. Some 210.6 thousand tons of scrap were sold for $16.4 million.

Two projects that dealt with property disposal operations and the redistribution of surplus materiel and equipment were completed and terminated during the year.

Project Scrub Clean, initiated on 1 July 1972, called for a complete reconciliation of unit property books with authorization documents and a 100 percent inventory of all unit equipment. The objectives of Scrub Clean were to identify and classify unrecorded property, repair items for which a valid requirement existed, redistribute such stock within commands, and provide disposition instructions for materials that exceeded command requirements. Under this program approximately $42.7 million in major item assets were recovered.

Project Clean was established in November 1969 to identify and eliminate stocks in overseas commands that had become excess because of the phase-down of combat operations in Vietnam, the implementation of the Direct Support System, and the sharp reduction in the number of items on Theater Authorized Stockage Lists (these were cut from 1,063,000 to 201,930 items during 1 January 1970–30 June 1973). Approximately 490,000 short tons of materiel valued at $1.6 billion were returned to the United States Army Materiel Command, and 263,900 short tons of materiel valued at $.7 billion were shipped to property disposal under this program.

Transportation

Since the official retrograde cargo program was near completion during fiscal year 1972, the movement of oversea cargo and passengers was down considerably in fiscal year 1973. The Military Sealift Command moved approximately 7,422,000 measurement tons and the Military Airlift Command transported about 118,800 short tons, both about 27 percent less than fiscal year 1972 movement levels. Efforts to reduce air cargo movements under the Airlift Challenge Program by screening and challenging requisitions for air-eligible materiel succeeded in diverting 103,012 short tons from air to surface transport during the year, resulting in savings of $67.4 million.

Passenger movements, which totaled 471,800 for the year (429,800 by air and 42,000 by sea), continued to reflect the policy of using the most expeditious means to move personnel and save man-days of travel. New port call procedures were implemented in April 1973 whereby all personnel, regardless of grade, are called directly to the embarkation point in lieu of reporting to personnel centers for processing before departure. The new procedures should enhance both the efficiency of passenger movements and traveler convenience.

There were a number of significant developments during the year in the mechanization and automation of transportation statistics and reports. Over-ocean transportation forecasting procedures were automated as part of the Automated Forecasting of Transportation Movements (AFTRAM) program. AFTRAM permits major oversea commands, the Army Materiel Command, and other Department of Defense shipping agencies to submit short- and long-range movement requirements via the Automated Data Information Network (AUTODIN). Requirement forecasts are duly reported, analyzed, adjusted as required in accordance with the latest Department of the Army policy guidance, and then developed into worldwide movement programs for the Military Airlift Command, the Military Sealift Command, and the Military Traffic Management and Terminal Service.

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Commodity unit cost statistics stored in the AFTRAM data bank are used in developing input for the Operation and Maintenance, Army, second destination transportation budget. During the past year preparation of this budget became fully automated in accordance with the Mechanization of Selected Transportation Movement (MECHTRAM) program, an automatic data processing system designed to mechanize the manual compilation of monthly statistical data relating to tonnage and passenger movements entering and leaving the continental United States. In another MECHTRAM development, the mechanization of dollar data provided, for the first time, timely worldwide over-ocean movement and unit cost expenditure information. Mechanization of work load data had been accomplished earlier.

The Army participated in a series of joint and unilateral test, evaluation, and developmental exercises and studies during fiscal year 1973 in a continuing effort to derive maximum benefits for the Army's logistics system from the evolving containerization program. In November 1972 a joint evaluation of currently available means to unload non-self-sustaining container ships anchored offshore was conducted. The technical data obtained proved helpful in developing and refining applicable operational procedures. The Army in the Field Container Systems Study (AFCSS), which is still in progress, is concerned with the design of a transportation supply system that will effectively support Army forces in overseas areas. The study will develop operational concepts and procedures required by an oversea theater container distribution system and recommend the types of equipment and units needed to make the system functional.

The transition from palletized and break-bulk cargo operations to a container system poses a number of problems, including numerous requests for new equipment from the military services to accommodate the new system, and hazards involved in transporting ammunition, which is shipped under stringent regulations. The first problem is being closely monitored under the Department of Defense chartered Surface Container Supported Distribution System, whose project manager is responsible for co-ordinating equipment requirements submitted by the military services to insure that duplication is avoided. The second is of special concern to those agencies participating in the Containerized Ammunition Distribution Systems (CADS) program. Tests employing Army-owned containers with integral restraint systems have demonstrated the benefits and economies that can be derived through using properly equipped containers to transport ammunition.

In the area of water transportation, the Army's inventory of amphibians, landing craft, and coastal, harbor, and inland waterway craft declined from approximately 1,800 at the beginning of fiscal year 1973 to 1,386 at year's end. The loss in inventory was due to the transfer

of approximately 300 watercraft to the Republic of Vietnam and the disposal of obsolete and unserviceable equipment.

The upgrading of watercraft communications and electronics, initiated during the year, is scheduled to continue through fiscal year 1975, at which time all operational watercraft will be equipped with modern communications and electronics equipment.

The Trans-Hydro Craft (1975–1985) Study was completed in April 1973 and forwarded for field co-ordination. The study recommended that existing Army lighterage be gradually replaced by a modernized landing craft, utility (LCU), a 25 to 30-ton air-cushion vehicle (ACV), a 300-ton displacement hull beach lighter, and a 60-ton fixed hydrofoil amphibian. The study further recommended that the Army's aging harbor-craft fleet, which has proliferated from its World War II origins into over seventy designs, each with numerous modifications, be replaced by eight craft capable of performing all identified harbor-craft missions.

In other transportation actions, the railway ambulance train equipment formerly assigned to the Surgeon General was declared excess, and the major portion of it was transferred to the National Rail Passenger Corporation where it will be converted for use in rail passenger service. A project was begun under the Military Standard Transportation and Movement Procedures (MILSTAMP) program to develop automated standard port operating procedures. Also, Department of the Army responsibilities pertaining to special assignment airlift and short-range forecasting of air and surface cargo were transferred to the Army Materiel Command in May 1973.

Facilities and Construction

The fiscal year 1973 Military Construction Appropriations Act, Public Law 92–547 of 25 October 1972, allocated $413,955,000 in new obligational authority for military construction. In addition, reprograming of $159 million appropriated in prior years for Safeguard System construction, $10 million in NATO recoupments, and funding approval within available resources for three projects in Germany costing $3,674,000 brought the total available for construction in fiscal year 1973 to $586,629,000.

The fiscal year 1973 military construction execution program authorized new starts totaling $1,036.4 million, but, as in fiscal year 1972, delays in congressional action on authorization and appropriation bills limited construction starts during the first half of the year to carry over projects authorized and funded in prior years. Full implementation of the program was also hindered by the escalation of building costs, which required the redesigning of a number of projects in order to reduce their size and cost. As a result, only about $472 million in new construction contracts were awarded during the year. These included sixty-six proj-

ects to improve service attractiveness, programed at $195.4 million; the new Walter Reed Army Hospital project, for which $122.96 million has been approved; major hospital additions at Fort Benning, Georgia, and Fort Eustis, Virginia, costing in excess of $113.4 million; and pollution abatement starts, which totaled about $30 million.

Cost figures for long-range military construction program requirements, excluding family housing, the Safeguard System, and North Atlantic Treaty Organization infrastructure, are set at $7.1 billion, or $1 billion less than the cost of known requirements noted in last year's report. The reduction reflects the elimination of a number of backlog replacement and modernization projects. The cost of carrying out the current backlog, which includes replacement of deteriorated or inadequate existing facilities and construction to modernize substandard permanent facilities, is over $4 billion.

In addition to the military construction program, the Army, through its Corps of Engineers, contracted for approximately $995 million in construction support to other government agencies and foreign governments during fiscal year 1973. The largest such construction effort was for the U.S. Postal Service, the cost of which exceeded $700 million. Other recipients of Army engineer construction support included the U.S. Air Force, the U.S. Navy, the National Aeronautics and Space Administration, the Department of Health, Education, and Welfare, and the Trust Territory of the Pacific Islands.

Expenditures for real property maintenance activities at Army installations came to about $1.3 billion in fiscal year 1973. Building spaces decreased by some 8 million square feet as certain facilities were discontinued, and grounds decreased by 8,100 acres because of the declaration of Army-held lands as excess. Unfinanced real property maintenance and repair at the close of the year was approximately $431 million, an increase of 14 percent above the amount for fiscal year 1972. Detailed functional system requirements for the first increment of the Integrated Facilities System (IFS), which will provide data relating to real property maintenance activities, assets accounting, and facility engineer work management to all command echelons on a rapid basis, were updated and approved. Also, preparations were begun for the prototype operation of this phase of the system at Fort Lee, Virginia, in March 1974. Initial implementation of the system at other posts within the continental United States is scheduled at the rate of four installations monthly, beginning in August 1974.

A number of changes in the status of Army installations took place during the year. Hunter Army Airfield, Georgia, was inactivated and placed in standby status; Sandia Base, New Mexico, was transferred to the Department of the Air Force; and Fort Wayne, Michigan, Fort

Hayes, Ohio, the Army Pictorial Center, New York, and Henry Barracks, Puerto Rico, were disposed of and discontinued. Announcement was made that the Charleston Army Depot, South Carolina, Valley Forge General Hospital, Pennsylvania, North Fort Wainwright, Alaska, and Fort Wolters, Texas, would be placed in an inactive status, and those portions of the installations determined to be excess to Department of Defense requirements would be reported to the General Services Administration for disposal. In addition, the Atlanta Army Depot will lose its primary mission and be redesignated as a subinstallation of Fort McPherson, Georgia.

The closure or transfer of installations and facilities are closely related to surveys on the use of Army-controlled real estate that are being accomplished in compliance with Executive Order 11508. Issued on 10 February 1970, the order provides for the identification and disposition of unneeded federal property. By the close of fiscal year 1973 over 260 installations had been surveyed. During the past year the Army, acting in accordance with legislation enacted by Congress in 1970, initiated transfers of certain excess holdings to state and local governments for park and recreational uses, totaling 1,258 acres valued at $2,015,000. Since 1971, seventy-four Army properties comprising 11,992 acres and valued at $36,753,470 have been declared excess and conveyed to state and local governments under what has become known as The President's Legacy of the Park Program.

In base development planning, Joint Staff/Services Construction Board for Contingency Operations (JSSCBCO) developed new planning criteria for the construction of utilities, maintenance, and petroleum-oil-lubricant facilities in support of joint contingencies. At the Department of the Army level an omnibus bill of materiel for contingency operations has been developed into an operational project and is being processed for staffing. In a related action, a new concept to increase the current Class IV accompanying and resupply planning factors has been recommended for inclusion in Field Manual 101–10–1. The concept is based upon phased, decreasing, multiplying factors to allow for an initial surge of construction materials during the early stages of a contingency operation. Finally, plans were completed for the redistribution of mobile cargo piers from Southeast Asia to meet worldwide contingency requirements.

Support of Operations in Europe

The Army's military construction appropriation continued to fund the United States' share of the NATO Common Infrastructure Program. Congress authorized $58 million and appropriated $48 million for the program in fiscal year 1973. At the end of fiscal year 1972, the unobligated balance for NATO infrastructure was $14.2 million. Fiscal year

1973 recoupments of $24 million plus the $48 million appropriation, less obligations, resulted in an unobligated balance of $1.7 million at the end of fiscal year 1973, excluding $20.6 million proposed for reprograming which is awaiting congressional approval.

The Office of the Deputy Chief of Staff for Logistics completed a staff study in November 1972 to determine the most effective method for increasing the amount of logistic support given U.S. forces in Europe by our NATO allies. Follow-on studies to identify specific logistical support functions that might be assumed by other NATO countries are under way. Also, multilateral and bilateral negotiations on burden sharing and offset are being conducted in an effort to reach agreements that will reduce the costs borne by the United States in maintaining military forces in Europe.

Efforts to provide a wartime line of communications through the United Kingdom and the BENELUX (Belgium, the Netherlands, and Luxembourg) countries for U.S. forces in Europe continued throughout fiscal year 1973. Support for the project was reaffirmed by the Joint Chiefs of Staff and the Office of the Secretary of Defense, but the Appropriations Committees of both the U.S. Senate and the U.S. House of Representatives effectively blocked it. At year's end, the Army, in response to a request by the Office of the Secretary of Defense, was reanalyzing the need for a new wartime line of communications within the context of the latest defense policy and force planning guidance.

Support of Operations in the Far East

Logistical support operations in the Far East during fiscal year 1973 involved three major tasks: completion of the redeployment of men and materiel from Vietnam, continued assistance to the Army of the Republic of Vietnam, and support of U.S. forces in other areas of the Far East.

The redeployment of U.S. forces from Vietnam, designated Operation Keystone, was begun in July 1969. By March 1973 fifteen separate redeployment increments had been completed as follows:

KEYSTONE REDEPLOYMENTS

Increment	Date	Name	Total Forces Redeployed	Army Forces Redeployed
I	Jul–Aug 69	EAGLE	25,000	14,369
II	Sep–Dec 69	CARDINAL	35,000	13,992
III	Jan–Apr 70	BLUE JAY	50,000	29,443
IV	Jul–Oct 70	ROBIN (ALPHA)	50,000	15,169
V	Oct–Dec 70	ROBIN (BRAVO)	40,000	38,100
VI	Jan–Apr 71	ROBIN (CHARLIE)	60,000	41,848
VII	May–Jun 71	ORIOLE (ALPHA)	29,300	15,030
VIII	Jul–Aug 71	ORIOLE (BRAVO)	28,700	21,769
IX	Sep–Nov 71	ORIOLE (CHARLIE)	42,000	35,000
X	Dec 71–Jan 72	MALLARD	45,000	36,718
XI	Feb–Apr 72	OWL	70,000	55,251
XII	May–Jul 72	PHEASANT	49,000	34,333
XIII	Aug 72	WREN	10,000	8,584
XIV	Sep–Nov 72	PELICAN	12,000	7,201
XV	Feb–Mar 73	COUNTDOWN	27,000	15,457
		Total	573,000	382,264

Operation Keystone generated $200 million in major equipment items released by departing units during fiscal year 1973 and $1.4 billion in assets through the entire redeployment period. Equipment turn-ins were used locally to satisfy a number of requirements in Vietnam, including the modernization of the Republic of Vietnam Air Force, for which over $437 million in assets was provided.

The retrograde of supplies and equipment from Vietnam continued into fiscal year 1973, although the formal program had terminated on 30 June 1972, by which time the great bulk of materiel had been removed. More than 67,000 short tons were shipped out of Vietnam during the first half of the year. At the time of the signing of the cease-fire agreement in late January 1973, slightly over 150,000 measurement tons of surface cargo and 6,000 short tons of air-eligible cargo remained to be withdrawn. This, as well as 95,738 measurement tons of equipment belonging to Republic of Korea Forces in Vietnam, was transported out by 28 March 1973. The final shipment marked the end of a two-year program instituted to insure that U.S. disengagement did not result in a large quantity of supplies and equipment being left in Vietnam. During the retrograde program, over a million-and-a-half tons of equipment were withdrawn.

During fiscal year 1973 approximately 41 percent of all Army-sponsored cargo movements and 10 percent of all passenger movements were either to or from Southeast Asia. The Military Sealift Command moved about 1,835,500 measurement tons, and the Military Airlift Command moved about 40,700 tons into the area. Major air passenger movements included the transportation of 10,700 personnel from the continental United States to support operations in Southeast Asia, 1,880 within the theater, and 34,500 Republic of Korea military personnel back to Korea following the cease-fire. An additional 39,900 Koreans were moved into the area by surface transportation before and after the cease-fire.

Approximately 6,500,000 short tons of ammunition were issued for combat forces engaged in Southeast Asia during fiscal years 1964 through 1972, of which 5,000,000 short tons (77 percent) were expended by U.S. forces and the balance by Republic of Vietnam and other allied forces. Ammunition consumption rates remained high during the first quarter of fiscal year 1973—the average monthly level was 99,000 tons, but decreased to average monthly issues of 70,000 tons during the second and third quarters. In order to provide adequate ammunition supply to allied forces, particularly those in Vietnam, a sizable pipeline from the continental United States was maintained. This was supplemented by drawing from the offshore reserve maintained in Okinawa and Japan and from U.S.-owned ammunition stocks in Korea. A sharp decrease in ammunition expenditures during the last quarter of the fiscal year—down

to less than 12,000 tons per month—required the diversion of many incoming shipments to Okinawa, Japan, and Korea in order to preclude a buildup of ammunition stocks in Vietnam that would be in excess of the level prescribed in the cease-fire agreement.

Attention in the coming fiscal year will be focused upon supplying a maximum amount of ammunition to the offshore reserve in Japan and Okinawa, to increase the Republic of Korea war reserve level to maximum fill, and to meet Southeast Asia requirements without exceeding agreed-upon cease-fire levels.

The approved Army Military Construction program for the Republic of Vietnam through fiscal year 1973 totaled $952.6 million. As of 30 April 1973, work-in-place amounted to $930.9 million, of which $10.3 million was completed during fiscal year 1973. Construction was funded by prior appropriations and was limited to nation-building efforts, such as the line of communications and military assistance service funded construction programs. During fiscal year 1973, 98 kilometers of new road construction were completed, bringing the total of completed construction in the revised 3,967 kilometer line of communications program to 3,113 kilometers. Another 292 kilometers of roads were under construction at year's end. New construction authorized during the year for the military assistance service funded program totaled $4.8 million. Through 30 June 1973, 29,380 dependent shelters had been completed. An additional 9,190 shelters were under construction. United States Army participation in this program is limited to furnishing construction materials. Actual construction is carried out by the Vietnamese.

Management of the military construction program was transferred to the Defense Attache Office of the American Embassy in Saigon in March 1973 as a result of the disestablishment of the United States Military Assistance Command, Vietnam. Construction management for operations in Thailand continued to be the responsibility of the United States Military Assistance Command, Thailand. Construction in Thailand was limited to modest improvements in troop housing and logistical and communications facilities. Funds made available for this purpose through realignments of appropriated amounts within the approved Southeast Asia military construction program totaled $2,579,200.

Supply support by the U.S. Army to the Army of the Republic of Vietnam was directed toward achieving combat self-sufficiency through large-scale materiel deliveries and improved supply posture. Requirements for direct and general support maintenance and processing of equipment for transfer were successfully met, and efforts to improve the ability of the Vietnamese Army to provide depot maintenance support of its own were maintained on schedule. This mission was accomplished in a climate of uncertainty and rapidly diminishing U.S. presence in terms

of both ground and advisory forces. U.S. Army supply support was further complicated by increased combat activity in late fiscal year 1972 and early fiscal year 1973, which required the Army to replace abnormal combat losses and to fill increased materiel needs simultaneously for an enlarged Vietnamese force structure.

In addition to meeting required levels of equipment and supplies, intensive management techniques for major and secondary items were refined to assist the Vietnamese Army in accounting for materiel and to attain self-sufficiency in that area as well. The major effort in this regard has been the development and implementation of the Republic of Vietnam Armed Forces Automated Materiel Management System (RAMMS). The basic objective of RAMMS is to improve the Vietnamese armed forces logistics system through effective processing of logistical data. In June 1972 RAMMS was expanded to support the consolidation of Vietnamese technical service base depots into a general depot complex. Early in fiscal year 1973 two subsystems dealing with management of major items and depot maintenance were incorporated into the basic system. A major expansion of the RAMMS contract was approved in December 1972 to provide for continued support of logistical management in a cease-fire environment. The present effort in the development and use of RAMMS concentrates on the critical logistical functions of finances, supply, and maintenance management. The degree to which the development of RAMMS can be completed and the effectiveness of its implementation will largely dictate the success of resource management in the absence of U.S. logistical support personnel.

The U.S. Army's depot maintenance program in the Pacific was funded at $55.6 million for fiscal year 1973. The funding level continued to be substantially higher than that for prior years because of the accrual of equipment backlogs and an increased capability to accomplish depot-level maintenance within the theater. This increased capability had shortened the time equipment is retained in the overhaul cycle, lessened transportation costs, and reduced requirements for replacement equipment. These factors and favorable labor rates make depot maintenance in the Pacific more responsive and cost effective than returning all equipment to the continental United States for depot maintenance.

Since the Vietnam cease-fire agreement in January 1973, depot maintenance facilities in the Pacific have been actively overhauling the residual unserviceable equipment generated by U.S. troop withdrawals. Following overhaul, this equipment will be redistributed worldwide to fill active Army shortages, reconstitute United States Army, Pacific, reserve stocks, and satisfy the requirements of international logistics customers. The overhaul of remaining equipment should be completed by

the end of fiscal year 1974, at which time it is envisioned that depot maintenance in the Pacific will be terminated.

The Army continued to act as the executive agent of the Project for Utilization and Redistribution of Excess Materiel in the Pacific (PURM). Under this project all military services in the Pacific report their excess materiel holdings and replenishment needs to the Pacific Utilization and Redistribution Agency for geographical redistribution. Since 1968, excess materiel with a value of over $2.8 billion has been reported, of which $407.4 million has been redistributed within the theater and $900.3 million designated for return to continental United States depots. As the current year closed, $35.8 million worth of materiel was being screened for redistribution.

Military Aid (International Logistics)

Since 1950 the Army Military Assistance Program has provided $17.7 billion in materiel and services on a grant basis to meet the urgent priority needs of allied and friendly countries. In recent years the number of grant Military Assistance programs has declined as the economic capabilities of recipient countries have improved, thus permitting them to assume an increasing share of their defense requirements. Grant aid for Greece ceased on 1 January 1973, and grant aid materiel programs were terminated for the Republic of China and Liberia on 30 June 1973.

With few exceptions, all grant aid military materiel provided to recipient countries is purchased in the United States. No funds or credits are provided under the Military Assistance Program for local procurement by recipient foreign governments or their representatives.

Army assets which are excess to approved force acquisition objectives are provided to grant aid recipients at no cost except for packing, crating, handling, and transportation charges and for rehabilitation and repair when required. These assets supplement the limited funds currently available to the Military Assistance Program. Excess materiel having an acquisition value of $202 million was delivered to recipient Military Aid Program countries during the fiscal year, well under the $555 million limit established by Congress.

The 92d Congress adjourned before enacting a Foreign Assistance Act for fiscal year 1973, but it did pass a resolution that authorized the continuance of grant aid programs through 30 June 1973 at a level of $553.1 million. Major restrictions included in the continuing resolutions were as follows: military assistance other than training in the United States was limited to forty countries; the supply of "sophisticated weapons systems" to underdeveloped countries would be prohibited with certain specified exceptions; assistance to Latin American countries was

limited to $100 million, excluding training; and assistance, including training, to African countries was limited to $40 million.

The Army materiel portion of the Military Assistance Grant Aid Program for fiscal year 1973, including excess defense articles, amounted to $661 million for twenty-one countries. In addition, undelivered balances of $743 million were carried forward from prior years, making a total authorization of $1,404 million. Deliveries during the year totaled $663 million, leaving an undelivered balance of $741 million at the end of the fiscal year.

Military assistance for Vietnam and Laos was again excluded from the fiscal year Military Assistance Program appropriation. Assistance to these countries was funded under regular military department appropriations. Support for Thailand, however, reverted to the Military Assistance Program on 1 July 1972.

During the reporting period the Republic of Korea completed the third 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 portion of the Korea Military Assistance Program was $47.8 million in new funds, a reduction of $107 million from the approved program of $154.8 million.

In other Military Aid Program developments, materiel supplied to Cambodia continued at an accelerated rate to meet urgent requirements; Jordan received tanks, armored personnel carriers, mortars, mortar carriers, rifles, and trucks; and delivery of materiel to Spain under the Spanish Base Rights Agreement continued. Also, 240 medium tanks requiring servicing and overhauls were supplied to Turkey in an "as-is" condition. An approved supply program for Laos totaling approximately $120 million in Army materiel was authorized from the regular defense budget for fiscal year 1973. Items supplied included crew-served weapons, trucks, ammunition, and communications equipment. Support for eight Latin American countries continued during the fiscal year at an estimated value of $3 million. Items supplied included helicopters, trucks, trailers, communication equipment, and repair parts.

During fiscal year 1973, the Army sold materiel and services valued at $1,847 million to fifty-nine countries and five international organizations under the foreign military sales program. Sales activities were conducted in accordance with the policy that materiel readily available through commercial sources would be sold directly by American industry to the prospective buyer.

Under the coproduction program, foreign nations may enter into bilateral agreements with the United States to assemble or manufacture major end items or weapons systems of U.S. origin. The Army participated in eleven such programs during fiscal year 1973 valued at $610.8

million, which generated expenditures for goods and services in the United States amounting to $301.3 million. Participating in the program were the Republic of China, Italy, Japan, and the North Atlantic Treaty Organization. Major items coproduced included the M113 armored personnel carrier family of vehicles, the M109 self-propelled howitzer, helicopters, wheeled vehicles, the Hawk and the 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 North Atlantic Treaty Organization. These programs provide participating countries and multinational organizations with continuous follow-on support for major end items and weapon systems of U.S. origin on a reimbursable basis. The Army provided support for conventional weapons and vehicles as well as for the Sergeant, Pershing, and Hawk missile systems totaling $173 million during the year.

X. Support Services

This chapter assembles the variety of services that provide for and contribute to the soldier's physical, spiritual, moral, social, and civic needs and well-being. Support services are used here in a generic sense. This format permits the compatible grouping of a number of subjects that were formerly covered organizationally or functionally in the personnel and logistics areas: health and medical care, religion and moral enrichment, housing, food service, commissary and post exchange, laundry and dry cleaning, clothing, recreation and morale, voting assistance and community service, and memorial affairs.

Health and Medical Affairs

As the fiscal year closed, the health of U.S. Army personnel, according to ruling indexes, could be considered excellent. The worldwide admission rate to hospital and quarters was 387 persons per 1,000 in calendar year 1972; from January through June 1973 the rate decreased to 363 per 1,000. The noneffective rate (the average daily number of active duty personnel in an excused-from-duty status due to medical causes) fell to 13.5 per 1,000 in calendar year 1972 and decreased to 9.8 per 1,000 during January–June 1973, continuing a decline begun in 1968.

The major cause of admission continued to be disease. As a group, the common respiratory diseases, influenza included, were the principal causes of admissions and noneffectiveness. The next three most important causes for admission were diarrheal conditions, neuropsychiatric disorders, and skin diseases. Prevention, early diagnosis, and prompt treatment contributed to the worldwide decrease in noneffectiveness due to disease in the Army.

Respiratory diseases were responsible for the highest loss in man-hours among recruits; they disrupted training cycles and increased training costs. Army-wide, for example, the admission rate in calendar year 1972 was 125 cases per 1,000 strength per year, considerably higher than in previous years. In September 1972, evidence showed that an antigenic shift had occurred in influenza A virus, from the so-called Hong Kong/68 strain to a new one identified as the England/72 strain. Large-scale epidemics of the new strain had not been noted in military populations except in a few instances by the close of this report period. The new virus appears to be slow moving, and existing vaccine may have limited pro-

tection. A new vaccine is needed to combat the new variant and should be available by the next flu season.

Acute respiratory disease continued to be the most common illness among recruits; the incidence rate for them in calendar year 1972 was 407.9 cases per 1,000 strength per year, up from 292.4 in calendar year 1971. Oral adenovirus vaccines of Types 4 and 7 had been administered to the recruits during the 1972 epidemic season, as in past years, but low potency of the Type 7 component appears to have reduced protection and led in part to increased rates in recruit training camps. In January 1973, new adenovirus vaccines of Types 4 and 7 were administered to recruits, reducing the incidence of respiratory disease to a rate of 272 cases per 1,000 per year for the period January–June 1973.

The pattern of meningococcal cases among Army personnel reveals that cases increased in the mid-1960s. Most were in the category identified as Type C. Following intensive research and extensive field trials, a Group C vaccine was administered routinely to all incoming Army recruits beginning in October 1971. There was noticeable reduction in meningococcal cases among immunized recruits, and the Type C disease virtually disappeared.

Until broad spectrum vaccines are available, general preventive measures will have to be relied upon to combat other types of meningitis. Efforts to produce a Group B vaccine have been unsuccessful to date. The Group A vaccine has been produced but not yet completely evaluated; infections in this category are uncommon. All in all, the incidence of meningococcal infection at recruit training sites has been greatly reduced. There were twenty-eight cases with two deaths in calendar year 1972 (most of them Group Y) and twelve cases with two deaths in the period January–June 1973. General preventive measures against respiratory diseases will be stressed to retard transmission.

Through continued research, vaccines have been developed to combat other major diseases. Penicillin, although not suitable for mass prophylaxis, is still the drug of choice in the treatment of clinical disease and remains highly effective. Prompt diagnosis and treatment with penicillin undoubtedly accounts for the continued low mortality from disease; occasional fulminating cases cannot be saved despite the great medical measures taken. In this connection, it may be noted that the use of antibiotic prophylaxis has been discouraged since the appearance of sulfadiazine resistance in the early 1960s.

Rubella caused a substantial amount of lost time among basic combat trainees. High infection rates occurred frequently at basic training sites; peak monthly rates ran as high as 240 cases per 1,000 strength per year. The over-all annual rates for rubella among trainees were considerably higher than Army worldwide active duty rates. For example, the world-

wide rate for rubella in 1971 was 10.4 cases per 1,000 per year, whereas the trainee rate for the same period was 49.4. Hence the rubella rate among basic combat trainees was ten times higher than the worldwide rate and five times higher than the continental U.S. rate for 1971 (the CONUS military population includes large numbers of basic trainees).

Analysis of several years of data revealed that 75 percent of rubella cases occur in the January to April period, except at Fort Ord, California, which had a high rate throughout the year. Use of the rubella vaccine was shown to be cost effective, and The Surgeon General authorized it for mass prophylaxis with basic trainees within certain guidelines; it was recommended for use during the epidemic season for posts that have experienced rates of 30 cases per 1,000 per year or more over the past five years. Care is taken to insure that rubella-vaccinated individuals are not used as blood donors for three months following the injection. Early indications are that the rubella immunization program has been successful.

A worldwide epidemic of venereal disease has been reflected in the Army, with rates of incidence rising in all of the major commands, and especially in the Far East. This has been a serious problem for U.S. forces in Korea since the war there; rates have been high in relation to other commands, peaking at 64 cases per 1,000 in September 1972. By May 1973 venereal disease in Korea had declined to 39 cases per 1,000 strength per month, the result of a concerted effort to control the problem there. While sexual promiscuity is a leading factor, the single greatest problem is the presence of up to 20,000 prostitutes, many infected with a venereal disease, near military installations. In addition to the carriers, a number of other problems exist: the increasing resistance of gonorrhea to currently used antibiotics; the incidence of infections without any symptoms, making detection difficult; the lack of a vaccine or highly effective protective measure; and the potential of driving the problem underground by the use of harsh punitive measures. Major effort has been made to preserve the credibility of the medical treatment program.

Venereal disease declined substantially among Army personnel in Korea in the past year. Traditional methods of prompt detection, case contact investigation, and education, counseling, and protective measures have been strengthened. Co-operation between U.S. and Korean authorities increased, and the Korean government instituted a number of measures to cope with the problem.

To test a new concept of providing medical services to military families outside the hospital environment, a pilot project was launched at Fort Knox, Kentucky, in July 1972. A recreational vehicle was procured, modified and equipped, and placed into service as a mobile health clinic. It makes regularly scheduled visits to military families on post,

providing health education, screening, and treatment to those not requiring a physician's attention. Army health nurses, the Army's equivalent to civilian public health nurses, assigned to the Fort Knox hospital and an enlisted licensed practical nurse, who serves as the driver, staff the van and provide the services. The mobile clinic has been enthusiastically accepted by the military families at the Kentucky installation.

In the armed forces health facilities modernization program, the Secretary of Defense indicated in a memorandum of 19 February 1972 to the three services that the medical facility replacement and modernization rate was too slow and requested that each service evaluate its requirements and submit a plan to accomplish the required modernization during the five-year period, fiscal years 1974–1978.

The Army's estimated average annual cost to accomplish this replacement, including equipment, construction, and design, was more than $170 million. As a result, a Program Decision Memorandum (PDM) was issued by the Department of Defense on 30 August 1972, which allowed The Surgeon General to program an additional $40 million for fiscal year 1974 with greater amounts added in the following years. Greater detail is shown in the table below:

Item	Fiscal Years				
	1974	1975	1976	1977	1978
	(In millions of dollars)				
Program Objective Memorandum	$37.0	$44.0	$42.0	$44.0	$44.0
Other Procurement, Army	6.0	12.2	19.5	7.5	6.0
Design	2.6	2.5	2.6	2.6	2.6
Medical Construction Program Before PDM	$45.6	$58.7	$64.1	$54.1	$52.6
PDM Add-On	$42.0	$112.0	$124.0	$144.0	$157.0
Total Army Program for Modernization of Medical Facilities	$87.6	$170.7	$188.1	$198.1	$209.6

The Surgeon General developed a five-year modernization program to meet these new levels. One of the major projects included in this program is the construction of new hospitals at Fort Campbell, Kentucky; Fort Carson, Colorado; U.S. Military Academy, West Point, New York; Fort Polk, Louisiana; Fort Lewis, Washington; Fitzsimons Army Medical Center, Denver, Colorado; Fort Sam Houston, Texas; Redstone Arsenal, Alabama, Fort McPherson, Georgia; Fort Stewart, Georgia; and Camp Darby, Italy. Also included are new dental clinics at most major installations in the continental United States and numerous alterations and additions to existing medical treatment facilites.

This program is subject to change as the Department of Defense regionalization plan for medical services is developed and put into use.

Religion

Although the strength of the Army in fiscal year 1973 was roughly equivalent to that of 1961, the size of the Army chaplaincy has increased

since that date. This is accounted for by a realistic increase in the number of chaplains in authorization documents, as well as a new awareness of the diversified role of the chaplain and his spiritual contribution in a period of social unrest and mounting problems of interpersonal relationships.

The table below shows year-end strength authorizations for the Chaplain Branch over the past twelve years. From 1,110 in fiscal year 1961, the number of chaplains rose to a peak of 1,925 in fiscal year 1969, the highest since World War II. Fiscal year 1972 closed with a strength of 40 over the authorized level of 1,491.

YEAR-END STRENGTH AUTHORIZATION OF THE CHAPLAIN BRANCH
1961–1972

Fiscal Year	Strength	Fiscal Year	Strength
1961	1,110	1967	1,850
1962	1,147	1968	1,825
1963	1,235	1969	1,925
1964	1,245	1970	1,840
1965	1,274	1971	1,662
1966	1,442	1972	1,491

In March 1973, the Chief of Chaplains sponsored a four-day Pastors' Conference for all post chaplains in the United States. Since these chaplains are the top managers of the religious program at the installation level, they represent the grass roots, senior leadership within the chaplaincy. With eighty-five chaplains in attendance, it was the first conference in the history of the chaplaincy specifically geared to the needs and concerns of the post chaplain.

With the assistance of four civilian resource leaders—a highly successful practicing clergyman, a behavioral scientist, a representative of an ecumenical organization for the development of professional competence within the ministry, and an organization development consultant—the management and development of installation religious programs were examined. In addition, selected chaplains provided information on significant program issues in which they were involved, such as community development, team ministry, and racism.

By using the group process plan and facilitators from the United States Army Chaplain School, the conferees engaged in a series of discussions on the material presented by the resource leaders. As a result, each chaplain was able to examine his own style of leadership, discover additional ways for evaluating the effectiveness of his performance as pastor, and formulate proposals for future development of the post religious program and organization.

Under the auspices of the Association for Clinical Pastoral Education, Inc., professional training is being provided to Army chaplains as a part of theological graduate degree programs and as continuing education for the ministry. Chaplain students work under the direction of

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a certified Clinical Pastoral Education (CPE) supervisor who helps them examine all aspects of their pastoral performance. They learn how to be more attentive listeners; they examine new techniques for counseling which will help people grow in self-reliance, self-respect, and confidence; they learn how to function comfortably as members of a professional team; and they learn about their own attitudes and behavior and the dynamics of interpersonal relations. This training has been so effective that a policy has been established which eventually will enable every chaplain in the Army to receive a minimum of thirteen weeks of intensive CPE experiences.

Chaplains are currently trained in accredited CPE establishments at four Army Medical centers and at the Veterans Administration hospital in Brooklyn, New York. In addition, a new model center for clinical pastoral education has been developed at Fort Knox, Kentucky, marking the first time that an entire community has been accredited as a place for training pastors.

The Community Clinical Pastoral Education program is new not only for the Army chaplaincy but also for the Association for Clinical Pastoral Education, Inc. Historically, CPE training has been most beneficial in developing the professional competence of clergymen working in institutional environments, such as hospitals and confinement facilities. Recognizing the need for similar training which takes into account all of the normal military ministerial duties, the chaplains at Fort Knox pioneered a CPE program that would provide students a typical Army community environment. During the year of four quarters of training, the students are assigned to a family (dependent) chapel, a basic training brigade, the post stockade, and the post hospital, pursuing their duties under clinical supervision.

As a result of these training programs, over seventy active duty Army chaplains have completed a one-year CPE course. Some will receive additional training and become certified supervisors, which will insure continued professional development within the chaplaincy. These men are filling key assignments throughout the world and are assisting other chaplains, line officers, and noncommissioned officers to be better counselors, sensitive listeners, and more effective leaders.

In his pastoral role, the Army chaplain's responsibility places a premium on his ability to interpret the needs of his people and his skill in translating these needs into action; therefore, in the training of chaplains significant emphasis has been placed on human relations and communications.

In the career training at the United States Army Chaplain School at Fort Hamilton, New York, a student-oriented, small group-learning procedure has been developed which enables its graduates to relate more

effectively as pastors to junior commanders and soldiers. Graduates of this course have been assisting in preparing young officers and NCOs for their leadership roles in the decades of the 1970s and 1980s. Recognizing the need to integrate principles of moral leadership, moral responsibility, and human relations into Army-wide military leadership training, the Chaplain School was designated participating proponent with the Infantry School for those aspects of leadership training. The task of enabling young officers to achieve this capacity has been assigned to chaplain instructors in the department, who conduct a class on "Leadership for Professionals." This class is devoted to a discussion of the values, beliefs, and attitudes of today's soldier. Integrity, self-discipline, moral courage, and loyalty are emphasized as ingredients of professionalism. In addition to the program of instruction at the Infantry School, these values are being taught by chaplains on the faculties of eight other Army schools and the Sergeants Major Academy.

Selected chaplains have also attended the American Institute of Family Relations, Los Angeles, California, to participate in a program which is designed to develop family enrichment and community building skills in its graduates. As a result of this training, significant community programs were developed by chaplains at Fort Campbell, Kentucky; Fort Benning, Georgia; Fort Dix, New Jersey; and Fort Ord, California. In their activities, these chaplains focus on the problem-preventing aspects of community building and the development of strong, healthy family relationships. Their goal is to improve the quality of life in the military community and reduce the need for the crisis resolution.

Communication through preaching has traditionally been an important function of all ministers. Obtaining validated spaces in homiletics and communications was an important step in providing a means whereby chaplains can sharpen their preaching skills. Thus far, four chaplains have been enrolled in graduate degree programs in communications at the University of Kansas, American University, and Princeton Theological Seminary. With this background of training in interpersonal skills, future plans call for the establishment of a program in organization development for the chaplaincy. This program will build on and integrate all those skills which chaplains have developed through their training in human relations and communications. Many preliminary plans have been made and some of the initial steps, including management training for senior chaplains, have been taken. The objective of this program is to raise the personal expertise of all command chaplains and their key subordinates in developing teamwork and producing more creative machinery for setting objectives and evaluating the effectiveness of their religious programing.

Housing and Homeowners Assistance

Over the past two years, after making a start in the fiscal year 1972 Army Military Construction Program, the Army has been moving rapidly to eliminate a long-standing problem—the shortage of bachelor and family housing for soldiers. The program received money and impetus when Modern Volunteer Army studies disclosed that unsatisfactory living conditions constituted one of the main objections to Army life.

Bachelor housing availability improved satisfactorily during fiscal year 1973 under a program approved by the Congress that authorized 16,141 new barracks spaces for enlisted men and 458 for officers, plus modernization of 53,380 existing barracks spaces for enlisted men and 70 existing spaces for officers. The President's fiscal year 1974 budget includes funds to construct 24,553 new barracks spaces for enlisted men and 285 for officers, along with money to modernize 46,896 spaces for enlisted men and 528 for officers. With continued financial support, the goal of providing adequate troop housing for all bachelors should be achieved in the late 1970s.

Notable progress was made in family housing as well. A program was designed to provide adequate accommodations for married soldiers (except trainees) either on post or in the civilian community, to maintain existing housing adequately, to provide sufficient replacement furniture overseas, and to provide government-owned clothes washers and dryers in oversea housing. The fiscal year 1974 program, a promising one, was presented to the Congress and was under consideration as the year closed. The key items and projections of the program for the remainder of the 1970s are as follows:

	Program for the Seventies After Fiscal Year 1974	Fiscal Year 1974
New units	22,100	6,135
Mobile home spaces	450	825
Improvements	$140 million ($20 million/FY 75; $30 million/FY 76–79)	$28 million
Leases	20,000 level/year (FY 79)	6,929
Deferred maintenance	$155 million	
Backlog reduction	$25 million/FY 75; $37.8 million/FY 76; $25 million/FY 77–79	$0
Furniture procurement	$78 million ($10 million/FY 75; $23 million/FY 76; $15 million/FY 77–79)	$15 million

The housing program is not without problems. Currency revaluation overseas is causing costs to increase significantly. Funds programed to reduce deferred maintenance may well be totally erased, and the backlog is expected to increase. It will be extremely difficult, if not impossible, to award construction contracts at the statutory fiscal year 1973 unit cost limit of $24,000 and still obtain desired livability features; it is proposed to increase the unit cost level to $27,500 in the 1974 budget. As the year closed, the fiscal year 1975 construction program had not been resolved, and the resources of the Five-Year Defense Program were allocated to

operation and maintenance and to meeting debt expenses. Continued revaluation overseas will further erode the overseas construction and rehabilitation program and retard progress later in the 1970s.

The following table provides a general picture of the appropriations and execution of the Army family housing program for fiscal year 1973. The differences between the program submitted to the Office of the Secretary of Defense and the actual appropriations represent adjustments by OSD and modifications by Congress.

DEPARTMENT OF THE ARMY

FISCAL YEAR 1973 FAMILY HOUSING MANAGEMENT ACCOUNT

(In millions of dollars)

	Submitted to OSD	Appropriation
New construction	$106.8	$97.1
(Units)	(4,041)	(4,166)
Mobile homes	8.9	—
(Units)	(786)	—
Trailer spaces	1.7	1.7
(Units)	(421)	(421)
Improvements	21.5	18.4
Minor construction	.9	5.4
Planning	.2	.2
Total construction	$140.0	$122.8
Operation & maintenance	234.9	228.4
Leasing	15.0	10.3
(Units)	(8,881)	(4,132)
Total operation & maintenance	$249.9	$238.7
Debt payment	47.1	47.1
Total FHMA	$437.0	$408.6

As a part of the preliminary effort to establish the Modern Volunteer Army, $311 million in new construction funds was designated to be expended during fiscal years 1971–73 to improve the soldier's environment. The 1971 portion of the construction, for which $4.2 million was allotted, was completed by the Army Corps of Engineers during fiscal year 1972; approximately 11,000 barracks spaces were rehabilitated at Fort Bragg in North Carolina, Fort Benning in Georgia, and Fort Carson in Colorado.

The $36.4 million portion of the three-year program was used for barracks, which were placed under construction by the corps during fiscal year 1972 and were partially occupied by troops during fiscal year 1973. When these barracks are completed in 1974 they will provide about 40,000 improved spaces at installations worldwide, about 28,000 at twenty-nine locations in the United States, and the remaining spaces in Germany, Panama, Okinawa, and Korea.

Approximately 73 percent of the $270.8 million portion of the three-year program was placed under construction at locations worldwide in fiscal year 1973. The remaining 27 percent is to be contracted in the first half of fiscal year 1974. Completion of the eighty-eight projects in the 1973 program will provide new barracks for approximately 17,000 men, modernize about 54,000 spaces in existing barracks, and improve the soldier's living environment by adding recreational and morale facilities.

Under the terms of the 1972–73 fiscal year offset agreement between the United States and the Federal Republic of Germany, the program to rehabilitate old German barracks complexes continued. The Army's share of this program financed by the German government was 576 million Deutsche marks. Projects were executed by German construction authorities using plans and specifications furnished by the U.S. Army Engineer Command in Europe. As the year ended, available funds had been committed and contracts were operative at thirty military barracks, and work projects had been advertised for twenty-six additional barracks and for living facility improvement at border and remote sites.

The Homeowners Assistance Program continued in fiscal year 1973. Since the program was enacted in March 1967, 10,262 applications for assistance have been received and 9,868 processed. Of the latter, 7,438 have been settled at a cost of $18.5 million, and 1,632 mortgages have been assumed for a cost of $15.7 million, for a total of $34.2 million in benefits as of 30 June 1973. Another 2,380 applications have been rejected, 767 appeals submitted, and 782 settlements made without payment.

Food Service

The two-phase plan to modernize the Army's Food Service System progressed during fiscal year 1973. The first phase was designed to improve existing dining facilities, and the second was to set up a central food preparation concept based primarily upon tests conducted at Fort Lewis, Washington, in 1971. The modernization program was funded at $16 million in fiscal year 1973 to update dining facilities and especially to improve serving lines and dining areas. Plans were developed for central food preparation facilities at Fort Lee, Virginia, and Fort Benning, Georgia.

The steep and continuous rise in food prices and in the cost of subsisting troops resulted in shortages in the subsistence-in-kind portion of the military personnel budget in fiscal year 1973. In March 1973 the Department of Defense requested that the services reduce their subsistence costs for appropriated fund dining facilities by 2½ to 5 percent. The Army directed that the field commands take action to accomplish the reduction, which became effective in dining facilities on 1 May 1973.

The program to civilianize the kitchen police (KP) function in appropriated fund dining facilities was completed during fiscal year 1973 at a worldwide cost of $66 million. The implementation was primarily by contract in the continental United States and by direct-indirect hire civilian employees overseas.

The contractual food service operation at the Tri-Service Dining Facility at Fort Myer, Virginia, continued during the year. The contract was renewed as a result of satisfactory operation. In an evaluation of

this contract facility and a military-operated dining facility at Fort Benjamin Harrison, Indiana, the results favored the Tri-Service (civilian-operated) facility.

New procedures for issuing and accounting for field rations became mandatory in the continental United States on 1 July 1972 and were phased into use in oversea commands during the fiscal year. This new Army Ration Credit System is flexible and makes it possible to tailor local menus to meet food preferences of enlisted personnel.

Commissaries

At the end of fiscal year 1973 the Army operated seventy-five stores in the United States and seventy-one overseas. Store sales totaled about $770 million Army-wide.

Commissary advisory councils at installation level, approved in 1972, came fully into operation in 1973. Comprised of members representing a cross section of authorized patrons, the councils began making recommendations concerning stockage, quality, service, pricing, and managerial operation. Because the clientele were brought into closer touch with the merchandizing operation, customer satisfaction was furthered.

An internal automated system has been installed in a hundred Army commissaries around the world to carry out such major administrative functions as inventory and stock control, procurement, accounting, and issues to troop dining facilities. At the same time, planning for the expansion of the Direct Commissary Support System to additional outlets in Europe and the Pacific was completed in September 1972. Two commissaries in England were added in that month, and nine were added in Germany in April 1973. In the Pacific, implementation began with commissaries in Hawaii, Thailand, and South Vietnam in February 1973, in Korea in April 1973, and in Japan in June 1973. The expansion of the system resulted in additional recurring annual savings of $380,000 and inventory reductions in excess of $5.3 million.

Laundry and Dry Cleaning

The systematic program to replace obsolete laundry equipment continued in fiscal year 1973, reaching a level of 80 percent completion. Obsolete and worn-out equipment is being rapidly replaced with new machinery that will maintain and improve present production levels while meeting new processing requirements created by synthetic materials. A scarcity of unskilled labor also made it necessary to acquire washing machines that eliminate almost all manpower requirements in the washroom. Garment-finishing, traditionally the largest department in the laundry operation, requires the highest employee skill for quality workmanship. A new processing device, the steam tunnel, or hot box,

has been developed that will eliminate human intervention in the garment-finishing process. Continued replacement of old and conventional laundry equipment is necessary to offset the rapid upward spiral in labor costs.

During the year new contraflow washing machines were installed at Fort Jackson, South Carolina, and Fort Lewis, Washington. They may be hopper or conveyor loaded with 100- to 125-pound modules of soiled linens as often as every three minutes, depending upon the soil content or the kind of laundry. A single operator can monitor multiple washer system units, yet assume manual command of any unit at the touch of a button.

Official laundry and dry-cleaning instructions were revised during the year to bring them into line with new practices and procedures designed to modernize the system and improve services to patrons. In the latter regard, a number of steps were taken. All installations proceeded with conversion to hanger service for patrons using the payroll deduction method of payment. The traditional method of pressing, folding, wrapping, and tying each bundle of garments was being discontinued in favor of placing the finished garment on a hanger and in a polyethylene cover. Pickup stations at convenient points were being designated near large troop concentrations. Automatic data processing equipment is being used to prepare rosters of personnel using payroll deduction for laundry service.

Finally, an automatic central supply system for the washing department was installed at Fort Polk, Louisiana, and Fort Dix, New Jersey. The new equipment using liquefied materials allows savings af about 40 percent over the conventional use of dry materials and eliminates the need for hard-to-hire and trained washmen. These two pilot operations will be carefully evaluated before the system is expanded to other Army laundries.

Clothing and Personal Equipment

In August 1971, the Army Uniform Board voted to conduct a test of wash-and-wear (durable press) khaki uniforms: shade 445 (65 percent polyester/35 percent rayon) and shade 443 (50 percent polyester/50 percent cotton). Both uniforms were tested by the U.S. Army Infantry Board at Fort Benning, Georgia, during May–October 1972. Although both passed the limited serviceability tests, the batch-type method used in dying the polyester/rayon uniform resulted in color variances, and there was some doubt as to whether the textile industry could meet Army requirements.

By the close of the fiscal year a decision on selection was at hand and the estimated supply date for a new uniform was being considered

against the availability of stocks of the current cotton khaki uniform for the interim period.

Wash-and-wear durable press uniforms that contain a blend of polyester fibers and cotton or rayon fibers tend to retain oil and grease. Since the fatigue outfit is a duty uniform, its exposure to oil and grease is more pronounced than that of wash-and-wear khaki, particularly for drivers and maintenance personnel. Thus different types of washing formulas are required, and home-type washing machines are not considered to be satisfactory for fatigue uniforms exposed to oil and grease.

The advent of double-knit fabrics and their wide acceptance by the public resulted in an Army Uniform Board recommendation, approved by the Chief of Staff, to authorize uniforms of double-knit material for optional purchase and wear. The U.S. Army Natick Laboratories began to test uniforms using two polyester/wool blend fabrics. The test will establish a list of acceptable certified manufacturers of the material and uniforms.

The armored vehicle crewman helmet T–56–6 was found to be a health hazard because of its failure to lessen the effects of sound. The helmet is also bulky, cumbersome, and uncomfortable. A new helmet was placed in development in December 1968, complementary to the main battle tank (MBT70) development, when a Gentex Model DH–132 was identified as a candidate to meet the Army's requirement. Sixty were delivered to the Army in August 1972 for test, and the helmet was accepted for procurement in November 1972.

Decorations

With the transition from a wartime to a peacetime situation, Army awards policies and practices were reviewed during fiscal year 1973, and several actions were taken to strengthen the integrity and significance of awards. Guidance was published that would limit end-of-tour awards to exceptional cases, and the approval structure for meritorious service and achievement awards was revised to insure maximum equity and consistency among the major commands.

Heraldic Activities

During fiscal year 1973 the Institute of Heraldry, U.S. Army, furnished heraldic services to the Army and to other military departments and government agencies. New and modified symbolic devices and services were required to meet organizational changes and functional realignments. The 1973 Army reorganization required substantial design, research, and development of heraldic items such as insignia and flags.

The Institute of Heraldry furnished advice and information on a wide range of subjects to a wide range of users. At the request of the

Australian government, for example, a compilation of the U.S. Army heraldic program and related data were furnished to help that country evaluate its own heraldic system. The institute also responded to numerous inquiries from the White House, Congress, and other government agencies concerning history and protocol governing the flag of the United States.

The institute developed tools and prototypes to put a plan approved in 1972 into effect to cover the cost of distinctive unit insignia from appropriated funds. This entails lending tools and prototypes to manufacturers as well as certification for manufacture. As a result of these new procedures, insignia of better quality are being furnished to the soldier at reduced cost.

During the year the Institute of Heraldry launched several studies pertaining to materiels and processes used in the manufacture of symbolic items in order to improve them, make them more satisfactory to the user, and reduce cost. One study addressed the use of substitute materials for all types of heraldic items—including gold and silver—to offset drastic cost increases. Another concerned the development of new tools for Medal of Honor pendants to correct problems in the enameling process. Still another sought a more economical method of manufacturing flags for Army units. And a fourth explored ways of improving existing items: development of a two-piece flag staff that could be more easily shipped and development of a one-piece construction of Oak Leaf Clusters and Silver Stars in multiples of 2, 3, and 4 as optional purchase items.

The diversity and magnitude of the institute's work are reflected in the year's statistics: 125,000 items were inspected, 500 items were designed, 2,300 drawings and paintings were completed, 1,100 items were certified, and 500 specifications were completed.

Morale and Recreation

The Army has an active and varied program to sustain soldier morale. The program embraces arts and crafts, sports, outdoor recreation, music and theater, libraries, recreation centers, and dependent youth activities in their broadest connotations. The nature and scope of the program has changed through the years. In 1942, for example, the War Department established a morale program for troops under the title "Interior Design and Soldier Art"; its primary mission was to enhance buildings and grounds. By 1944 this program was renamed "Arts and Crafts," and it provided classes in the arts for soldier recreation. During ensuing years the metamorphosis continued as the name and concept shifted from "Manual Arts" to "Handicrafts" to "Hobbies." In 1952 it was redesig-

nated the "Army Crafts Program," and finally in 1973, it was returned to its earlier title "Arts and Crafts Program."

The Army Arts and Crafts Program was established primarily to provide soldier participation, and it has operated on that premise for over thirty years. In October 1972 it was expanded to include families of military personnel and retirees; under this status and staffing, it will serve the military community with a more balanced and diversified program of arts and crafts. A Cooperative Education Project established in March 1973 will expand arts and crafts services through technical vocational courses for military personnel; laboratory-type facilities of arts and crafts will be used by the General Educational Development Program to develop and enhance skills throughout the military establishment.

In the library area in fiscal year 1973, a special procurement of books on race relations was made which totaled $220,800 and consisted of two parts: one of fifty-eight books for post and military school libraries and equal opportunity offices at major command and subordinate command headquarters and the other of twenty-one paperbound books for distribution to company-size units not having easy access to a library.

Under the Army Music and Theater Program, two prototypes of a showmobile were procured in 1973 and placed at Fort Leonard Wood, Missouri, and Fort Bragg, North Carolina, for test. The four-wheel-drive vehicles are self-contained and self-powered, and each is equipped with an electric generator, sound system, theatrical lighting system, stage drapes, and a hydraulically operated stage. The prototypes may be procured by commands or installations that want to expand their mobile programing capability.

In August 1972 the Army Theater Arts Association, a worldwide organization, met in San Francisco, California, as a full division of the American Theater Association, to participate in a program that included a lecture on drug control, a demonstration in the art of makeup and use of stage materials, and a seminar on the American Music Theater.

To introduce talented young and academically trained specialists into the various professional occupations encompassed within the core programs of Army Recreation Services—music, theater, youth activities, library science, arts and crafts, and recreation centers—a Student Internship Program was developed to encourage commanders to propose student internship programs to colleges, universities, professional schools and institutes, and vocational schools accessible to commands, agencies, and installations.

Fiscal year 1973 was a period of substantial progress in the development of the Army's Outdoor Recreation Program. In October 1972, for example, the Department of Defense authorized such outdoor recreation facilities as beach bathhouses, skeet and trap shooting facilities,

lodging (cabins, cottages, domitories), marina support buildings, equipment centers, pavilions, riding stables, and travel camps of a size compatible with the population to be served (military and varying percentages of dependent and retiree populations). A director position for the Army Outdoor Recreation Program was established, Army travel camps were procured for thirty-four Army installations in the continental United States and Alaska, and a recreation and travel guide was published that provided detailed information on camps, lodging, recreation information centers, and other support services available to Army travelers.

An important element of the morale picture is the Army band. At the end of fiscal year 1973, 2,779 Army bandsmen, 62 warrant officer bandmasters, and 23 band officers were authorized. WAC personnel were authorized to enlist for bands other than the 14th Army (WAC) Band. Operational control of the U.S. Army Element, School of Music, Naval Amphibious Base (Little Creek), Norfolk, Virginia, was transferred to the Continental Army Command on 31 December 1972, and the 9th Army Band in Alaska and the 266th Army Band (the last in Vietnam) were eliminated.

The Army's sports highlight of fiscal year 1973 was the 1972 Summer Olympic Games in Munich, Germany. Included among the 446 members of the U.S. Olympic Team were 33 active duty Army athletes and 2 Army Reservists. The thirty-five Army representatives comprised 7.9 percent of the U.S. team and won 8 Olympic medals: 3 gold, 2 silver, and 3 bronze, about 8.5 percent of the 94 medals won by the United States. The 1972 Army Olympic medalists are listed below.

Gold

Pfc. John Williams, USA	Archery (new world record)
Maj. Lones Wigger, USA	Free rifle
1st Lt. John Writer, USAR	Small-bore rifle, three positions

Silver

Capt. Lanny Bassham, USA	Small-bore rifle, three positions
Pfc. Tim Michelson, USA	Rowing, 8-oar crew

Bronze

Sp4c. William Schmidt, USA	Javelin
2d Lt. Thomas Hill, USA	High hurdles, 110 meters distance
Pfc. Arnie Robinson, USA	Long jump

Major command welfare budgets for fiscal year 1973 reflected an $83 million backlog in unfunded construction for new morale, welfare, and recreational facilities. The magnitude of this requirement indicated that these community support facilities were not being given a high enough priority for funding through the regular military construction program. Departmental regulations gave major commanders wide latitude in programing the construction of new recreational facilities to

be financed by nonappropriated funds. With no dollar limits on approval authority, major commanders were limited only by the amount of welfare funds available for construction and the requirement to adhere to Army standards and the approved master plan. Thus projects were funded from nonappropriated resources rather than being considered for appropriated funding through the military construction program. The concept of providing morale, welfare, and recreation facilities for the soldier and his dependents with appropriated funds supplemented by nonappropriated funds was in large measure reversed; nonappropriated funds were carrying the big load. In the fall of 1972 it was decided to commit $20 million of the Army Central Welfare Fund to finance construction of priority morale, welfare, and recreation facilities. New procedures were developed for coming years that would eventually bring such facilities into the Army military construction program.

Education

During fiscal year 1973, four separate studies were made of the General Educational Development Program (GED). Between June 1972 and January 1973, the Academy for Educational Development in New York City analyzed and evaluated the Army Prodischarge Education Program (PREP) in the continental United States and Europe. Through actions based largely upon report recommendations, PREP was expanded from about 9,000 enrollments in fiscal year 1972 to over 50,000 enrollments in fiscal year 1973.

Between June and October 1972, the University of California at Los Angeles analyzed the Army's Transition program at selected installations in the continental United States. As its name implies, the Transition program helps to prepare military personnel for their return to civilian life as productive citizens. UCLA recommended that Transition counseling be moved back into a vocational education program, a concept fundamental to career education as conceived by the Office of the Secretary of Defense.

In February 1973 Dr. William A. Gager, Jr., Administrator of Academic Affairs for the Florida Division of Community Colleges, completed a study entitled "Future Programs Directions and Suggested Systematic Management Practices for the Army General Educational Development Program." From his recommendations evolved a new philosophy of decentralized management and program planning based on Educational Services Plans at each installation.

The three evaluations were integrated into a study of Army Educational Services. This study concluded that the General Educational Development Program should be revitalized and expanded to meet volunteer Army requirements. It was recommended that an educational

system be designed, developed, and implemented that would expand and integrate associated but currently separate subprograms now under GED; that GED management functions be decentralized so that each installation commander sets his goal and documents his program in an annual education service plan; that a budget be instituted based on management indexes, such as cost data and performance factors for the major GED programs; that a reporting system be developed based on management indexes and functional subelements used in the budget system so as to provide a statistical, automated data base for effective management of the educational system cycle; that AR 621–5 be rewritten to reflect the final application of systems designed to GED; and that a publicity and public relations program be developed for GED to improve communication with the civilian academic world at all levels.

In the early months of the fiscal year a Serviceman's Opportunity College (SOC) concept drew attention. The SOC is a community or junior college that recognized the need to aid servicemen and servicewomen in quest of higher education. Generally, in order to meet this need, such an institution has an admissions policy that is related to the life conditions of service personnel, eliminates seemingly artificial barriers (such as residency requirements) which hinder the educational process of the service person, and provides special services and programs that meet the distinct needs of service personnel.

Each SOC subscribes to ten criteria, embracing virtually every concern a service member might have regarding his education; these criteria are developed co-operatively by community college educators and educational leaders from the Department of Defense and each military service. As the year closed the SOC concept was well under way and comprised more than a hundred participating institutions.

In the area of educational achievement, one might have expected service personnel participation in educational activities to decrease as the size of the Army diminished. Such was not the case. The following table compares educational achievement between fiscal years 1972 and 1973:

Activity	Fiscal Year 1972	Fiscal Year 1973
High school completions	88,488	109,860
College completions	94,751	126,809
Technical-vocation MOS	48,974	84,018
Correspondence courses	20,099	26,157
Language courses	34,148	39,457
Test administered	869,577	951,878

Participation in educational programs within the Army has never been as high as it was for fiscal year 1973.

The Overseas Dependents' Schools System is operated by the military departments under the policy direction of the Assistant Secretary of Defense (Manpower and Reserve Affairs). The system is divided into three

geographical school areas for operation and administration: European, Atlantic, and Pacific. The Secretary of the Army is assigned responsibility for the operation and administration of all dependents schools in Europe and for providing educational opportunities through the use of adequate tuition-fee (contract-type) schools in the European area, which includes the countries in Europe, Africa, and Asia to 90 degrees East Longitude. During the 1972–73 school year (fiscal year 1973), an estimated total of $116,267,000 was expended from the Operation and Maintenance, Army, appropriation to provide for 116,681 Department of Defense students at an average cost of $996 per pupil. Approximately $112,424,000 of the above amount was used for educating about 112,711 students in Army-operated schools at an average cost of $997 per pupil and $3,843,000 for providing educational services for about 3,970 students in tuition-fee-type schools at an average cost of $968 per pupil.

A close liaison has been maintained with the U.S. Office of Education, Department of Health, Education, and Welfare, concerning the operation of the nine Army-operated, on-post Section 6 schools (under the provisions of Public Law 81874, as amended) in the continental United States. During the 1972–73 school year (fiscal year 1973), $15,920,000 was expended from funds provided by the Office of Education for an estimated 19,350 dependent children who attended the above schools at an average cost of $823 per pupil.

Although the decision was made to discontinue the U.S. Army Merit and Special Scholarship Program, effective with the granting of scholarships in 1972, the contract with National Merit Scholarship Corporation contains provisions requiring that scholarships granted in prior years be supported. During fiscal year 1973, sixty-five Army dependent children were awarded U.S. Army Merit Scholarships and sixty-eight were awarded U.S. Army Special Scholarships. These children began college in August and September 1972. During fiscal year 1973, the Department of the Army provided stipends to these children and to 466 other children who were awarded scholarships previously and were in the second through fourth year of college, in the amount of $438,850.83.

During school years 1970–71 and 1971–72, 1,111 U.S. Army Educational Assistance Loans were made under the provisions of the Federally Insured Student Loan Program. These loans were made from the Army Central Welfare Fund and totaled $1,381,761. Discontinuance of the loan program was announced on 20 April 1972.

Community Service and Voting Assistance

On 26 July 1972, a group of Army Community Service (ACS) volunteers was received at the White House by Mrs. Richard M. Nixon.

The volunteers presented the First Lady with an ACS-Volunteer uniform and plaque and designated her an honorary ACS Volunteer.

To improve the quality of service provided by ACS centers, emphasis was placed during the year on increasing the professionalism of the staff. To support this objective, the Fifth Annual Worldwide ACS Workshop, attended by over two hundred volunteers, focused on opportunities and challenges for the integration of human services. Also during the year, two cycles of the ACS orientation course were conducted and seventy-seven staff members completed the two-week course.

During the last half of calendar year 1972 the Army employed the Federal Voting Assistance Program to insure that all eligible Army personnel, oversea Army civilian employees, and dependents were informed, advised, and encouraged to register and vote in the general election by the absentee process. Unit voting assistance officers and counselors were appointed throughout the Army to perform this function. The high point was Armed Forces Voters Day, 15 September 1972, when an all-out effort was made to see that all eligible persons were contacted and informed about registration and balloting for the presidential election. A number of major actions were taken by Headquarters, Department of the Army, to maintain emphasis, gain command support, and provide current voting information to the field, including personal letters to the commanders of major Army commands, signed by The Adjutant General, circulars, messages, telephone calls, and sample surveys, reports, displays, posters, news items, film shorts, and fact sheets. To check the effectiveness of the program, departmental staff personnel visited posts and units and the DA Personnel Management Team interviewed 3,500 military personnel in sixty units. Final test and analysis of the program will be reflected in post-election voting sample surveys by the Department of Defense and the Department of the Army in November 1972 and February 1973 respectively. The results of the DOD survey will be published in the Ninth Report on the Federal Voting Assistance Program late in 1973.

Memorial Affairs

Army deaths dropped sharply in fiscal year 1973 as American participation in combat operations in Vietnam diminished and U.S. troops were withdrawn from the country. In the twelve-month period of July 1972–June 1973, the Army provided mortuary service for 3,400 deceased. Those returned to the United States from overseas were received at three ports of entry: Oakland, California, Fort Hamilton, New York, and Dover Air Force Base, Delaware. The Army operated ten mortuaries in foreign countries where there were appreciable numbers of Americans on duty. Posts, camps, and installations in the continental United States

were authorized to arrange for mortuary services with civilian funeral establishments.

As the war receded, plans were made for future search and recovery of bodies in former battle areas. As the cease-fire took effect and two of the Army-operated mortuaries in Vietnam were closed, a United States Joint Casualty Resolution Center was established at Nakhon Phanom, Thailand, to resolve the status of missing U.S. personnel. The center conducted search and recovery of bodies throughout Southeast Asia through arrangement with the Four-Party Joint Military Commission. On 24 March 1973, a Central Identification Laboratory was activated at Camp Samae San, Thailand, as an element of U.S. Army Support, Thailand, and placed under the operational control of the center, to support that part of its mission related to recovering the bodies of deceased servicemen in Southeast Asia.

In addition to the recovery program in Southeast Asia resulting from current operations, twelve bodies were recovered from World War II battle areas. The bodies of two persons, one in Holland and the other in Germany, were discovered by road construction crews; both were identified and returned to the United States for burial. A B–24 airplane that had been lost in New Guinea in July 1943 was found, the ten crewmen were identified, and their remains were returned to the United States for disposition in accordance with the wishes of the next of kin.

In the operation of the National Cemetery System, the interment work load was heaviest at cemeteries located in heavily populated areas. The Long Island National Cemetery, New York, had the largest number of interments during the year. At Arlington National Cemetery, Virginia, work continued in accordance with the master plan developed for that installation at the nation's capital. Master planning was begun at Jefferson Barracks National Cemetery, St. Louis, Missouri, and at Williamette National Cemetery, Portland, Oregon. Master planning was being developed for Fort Snelling National Cemetery, St. Paul, Minnesota, and Fort Logan National Cemetery, Denver, Colorado.

During the year there were 36,422 interments in the eighty-four cemeteries operated by the Department of the Army, 11,528 of them in Long Island National Cemetery alone; Williamette, Fort Snelling, Arlington, and Jefferson Barracks were next in order with burials in the 2,000 to 3,000 range.

Culpeper National Cemetery in Virginia and Knoxville National Cemetery in Tennessee were both closed except for interments of combat fatalities in gravesites previously reserved or under the single gravesite policy. This brought to forty-two the number of national cemeteries under the jurisdiction of the Army that have been closed except for the special categories.

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As an example of the magnitude of the task of identifying the graves of decedents, 190,380 headstones and markers were procured during the year, 48,254 of marble, 64,749 of granite, and 77,377 of bronze. Of the total, 34,995 were for national and post cemeteries, and 155,385 were for placement in private cemeteries.

In recent years a number of bills have been introduced in the Congress to transfer the operation of the National Cemetery Systems to the Veterans Administration. An acceptable bill was passed by the 93d Congress and signed by President Nixon on 18 June 1973. The National Cemeteries Act of 1973 (PL 93–43) transfers the operation of the system from the Army to the Veterans Administration effective 1 September 1973. Eighty-two of the eighty-four cemeteries are included; Arlington National Cemetery and the Soldiers' Home National Cemetery, both at the nation's capital, were left under Army jurisdiction.

The Army has been traditionally involved in the funerals of prominent Americans from the standpoint of its cemeterial responsibilities and its ceremonial role. In fiscal year 1973 the Army participated in the State funerals of former Presidents Harry S. Truman and Lyndon B. Johnson, whose deaths occurred just a month apart: Mr. Truman died on 26 December 1972 and Mr. Johnson on 22 January 1973.

XI. Research and Development

Within the past five years a pronounced movement away from the traditional, unquestioning acceptance of new technology has taken place. Congress and a better informed, more technically literate public are active participants in the debate over the social effects of technology. The scientific community, itself, is questioning the expected uses of its discoveries and has exhibited a general reluctance to accept new technology without analysis and discussion of its effects on society, the environment, and future generations. Behind this questioning trend is the increasing complexity and the global effects of modern technology and its by-products.

All these factors have led to a demand for a more thorough, systematic analysis of technological advances, with attention given to their social as well as economic effects. Environmental impact statements are good examples of this process, which has come to be called "technological assessment."

The Department of the Army, a major contributor to technology by virtue of its considerable expenditures for research and development (R&D), took steps during fiscal year 1973 to alert its personnel, particularly in the Army research and development community, to the continuing need for assessing the impact of Army science and technology. Responsibility for providing methodology and policy guidance in this area resides in the Office of the Chief of Research and Development, which, at year's end, was conducting a technology assessment on the effect of lasers. Other actions included an Army-wide Technology Assessment Conference, which was held in October 1972. Attending were technical directors, commanding officers, and other high-ranking individuals representing all the Army's research and development laboratories. Following the conference, the Army Materiel Command held a "teach-in" on technology assessment and established a group with responsibility for guiding the efforts of the Army Materiel Command in this area.

Program and Budget

The reorganizations, base consolidations, and closures announced during fiscal year 1973 because of the phase-out of U.S. military presence in Vietnam and the phase-down of the U.S. Army to a peacetime configuration had a relatively small impact on the Army's research, development, test, and evaluation (RDT&E) program. The gradual but steady decrease in the number of military and civilian man-years ex-

pended in this area over the last several years continued: civilian man-years, which totaled 26,871 for fiscal year 1973, were down by 423 from one year ago, and military man-years, which totaled 8,015, were down by 458 from the fiscal year 1972 level. These decreases reflect the President's economic decisions during fiscal year 1973.

The fiscal year 1973 RDT&E appropriation was for $1,829.032 million, in new obligational authority, of which $4.481 million was transferred to the Defense Mapping Agency to support functions previously performed by the Corps of Engineers. An additional $61.5 million was carried over from the end of fiscal year 1972 balance—$1.5 million in reimbursable accounts receivable and $60 million in Safeguard funds—making a total of $1,886.051 million available in fiscal year 1973. Financial reports of 30 June 1973 indicated that by the end of the fiscal year all but $91.8 million in RDT&E funds had been obligated. The unusually high obligation rate (over 95 percent) reflects the command emphasis during the last two years on prompt execution of approved programs and the gradual implementation of incremental funding concepts throughout the entire RDT&E program.

The Office of the Chief of Research and Development (OCRD) submitted a fiscal year 1974 RDT&E budget request totaling $2,396 million to the Army's Budget Review Committee in August 1972. OCRD proposed increases for the rising funding requirements associated with tactical weapons systems, including increased pay costs, price escalation, and programed increases that normally occur as a weapon system progresses through the developmental cycle.

Following reviews by the Budget Review Committee, the Office of the Secretary of Defense, and the Office of Management and Budget, a revised request for $2,109 million in RDT&E funds was included in the President's fiscal year 1974 budget, which was submitted to Congress in January 1973. Final congressional action on the request had not been completed at the close of the fiscal year.

R&D Management and Organization

A number of changes in policies and procedures were implemented during fiscal year 1973 as new materiel acquisition guidelines were converted into research and development management improvements. These changes stemmed from decisions to decentralize most of the control over development programs from Headquarters, Department of the Army, to the Army's materiel managers and to tailor management structures to the characteristics of a given system. Three of the most significant policy changes are summarized below.

To shorten the development time for a system, operational testing will be conducted earlier than ever before, will be closely linked to development testing, and will be spread out over the development cycle so that test results will be available before key decisions have to be made. As a general rule the development contractor will receive the first production contract, a policy that will not only save time, but will also clearly fix responsibility for problems encountered during the production phase. Production engineering and planning, formerly done toward the end of the development, will now be started in the early stages of development.

A second major policy change provides for the full funding of each priority development project. Implementation of this policy meant that projects for the advanced attack helicopter, Army battle tank, mechanized infantry combat vehicle, surface-to-air missile development, and utility tactical transport aircraft system received complete funding during fiscal year 1973, but as a result cuts were made in the financial support given to other projects.

Finally, a policy was approved that calls for the inclusion of unit production cost goals in the development contracts of all new major weapon systems and those existing systems not yet in production. Performance characteristics stated in terms of allowable bands and schedules may be traded off during production to meet the cost goals established, but contractors may lose their contracts if the goals are not met.

During RDT&E the Army strives to reduce the maintenance costs of military weapons and equipment systems and to increase their reliability and availability. Recent actions taken in this regard include directing increased identification of reliability, availability, and maintainability issues; identifying resource requirements in program decision documents; and increasing the use of "reliability growth" techniques to enable management to track the technical performance characteristics of a system.

In laboratory management, the Army, following a successful Department of Defense pilot project in which four Army laboratories participated (described in last year's report, started its own Reconciliation of Workload, Funds and Manpower (REFLEX) experiment. Thirteen laboratories are participating in the Army version of REFLEX, which unlike the Department of Defense project, is designed to accommodate possible fluctuations in civilian manpower levels, partially through a REFLEX personnel pool. Besides giving laboratory directors greater flexibility and responsibility, REFLEX should improve program planning and the integration of work load, funding, and manpower.

In a related development, plans were approved for the extension, in fiscal year 1974, of the single element funding concept to the exploratory development programs of the Army Materials and Mechanics Research

Center, the Tank-Automotive Command, the Electronics Command, the Weapons Command, and the Aviation Systems Command. Under this concept, which will give laboratory directors additional flexibility in allocating available resources, one or more complete program elements are assigned to a specific laboratory, and the separate exploratory development projects within each element are combined into a single project. For example, prior to single program element funding, exploratory development by the Army Missile Command was funded under twenty-one projects in seven program elements. Now with single program element funding, most of these projects came under one program element and are handled as a single project called Missile Technology.

Acting upon a recommendation made by a special defense-wide study group that had examined current funding policy at major test and evaluation support centers, the Army in January 1973 decided to require users of nineteen such facilities to make reimbursement for the direct cost of testing and evaluating their product. Implementation of this policy is scheduled for fiscal year 1975 and will involve the following Army centers: Aberdeen Proving Ground, Dugway Proving Ground, White Sands Missile Range, Electronic Proving Ground, Yuma Proving Ground, and Kwajalein Missile Range.

The establishment of a technological overview function in the Office of the Chief of Research and Development in late fiscal year 1972 has led to better use of the over-all technology base as it relates to requirements, planning, coupling, resource allocation, technology assessment, and technology transfer. Of particular note is the progress made in structuring and managing the technology base as a coherent unit, and in utilizing the computer data base, which has been used extensively in financial management, for technology management as well. Considerable technological documentation put into the computer data base is now available for technical management.

Another overview action is the Corporation Report, a review of the technological base similar to reports for top management in large corporations. The Corporate Report for fiscal year 1972 indicates that in return for expending about $350 million on the technology base the Army avoided potential costs of over $500 million. During the coming year a second Corporate Report covering fiscal year 1973 will be completed, and techniques that have been developed for the technological overview function will be refined.

The Research Directorate, OCRD, was reorganized during fiscal year 1973. The directorate was consolidated within the Pentagon, and personnel were reduced 50 percent (114 to 56). Also, the U.S. Army Research Office at Department of the Army headquarters level was elim-

inated, and the Army Research Office in Durham, North Carolina, was redesignated the U.S. Army Research Office.

The sale of the Research Analysis Corporation (RAC) to the General Research Corporation in September 1972 ended RAC's status as a federal contract research center. Future contracts for Army studies will be awarded competitively. Procuring and monitoring contracts to support research and development studies, handled previously by the U.S. Army Research Office, has devolved upon the Harry Diamond Laboratories under the guidance of the Coordinator of Army Studies.

Research Activities

The Army Scientific Advisory Panel formed an Ad Hoc Group on Ground Combat Vehicle Mobility in May 1972 to study requirements and promote technological advances. The *ad hoc* group, which submitted its final report on 25 May 1973, found that Army decision-making for ground combat mobility could be improved through the development of co-ordinated simulation models. It also found that the experimental validation of the many analytical models, now in the Army inventory, was slighted. At year's end the recommendations of the *ad hoc* group were under study.

During the period of this report major research was conducted on the medical and social aspects of drug abuse. In medical research the chief objective was to improve field screening and hospital diagnostic laboratory tests for the detection of drugs in patients, especially morphine, amphetamines, and barbiturates. A urine screening program was established throughout the world, using laboratory techniques adapted from biochemistry research, that is, free radical assay tests for morphine and a gas and liquid chromatography test for amphetamines and barbiturates. Such sensitive serological procedures as radioimmune assay and hemaglutination inhibition were examined for possible use in the mass screening of personnel. Research on the social aspects of the use of drugs centered on the effectiveness of Army drug abuse education programs and the identity of military units having high and low drug abuse rates. Tentative findings indicate that the effectiveness of the drug abuse education program has been limited but might be improved if integrated with the Army's over-all handling of human relations.

Tests conducted during the past year under the Department of Defense Food Research Development Testing and Engineering Program have shown that flexible containers are as reliable as metal cans for packaging the Army's field rations are lighter by nearly 25 percent. Field testing is scheduled for fiscal year 1974. Scheduled for prototype testing by Army and Marine units is an alternative method of field feeding that makes use of a 1½-ton trailer with mounted standard equipment.

Active research programs in military construction continued at the four major research and development centers—the U.S. Army Construction Engineering Research Laboratory, the U.S. Army Engineer Waterways Experiment Station, the U.S. Army Cold Regions Research and Engineering Laboratory, and the U.S. Army Engineer Power Group. These research programs, costing $6.9 million this past year, are directed at improving the design, construction, operation, and maintenance of Army facilities. Research was also done on special problems such as cold region adaptability, environmental quality, and hardened facilities.

Major advances were made in military construction research and development during the past year in the development of the following: a computer-based design and construction progress reporting system, industrialized construction for military construction use, a method and equipment for testing the strength of wet portland cement concrete, a computerized simulation technique for planning and scheduling air cargo handling facilities that will lead to greater operating efficiency, and more practical construction applications for fibrous reinforced concrete that is stronger and more durable than conventional reinforced concrete. To improve facilities in cold regions, a new roofing system known as the protected membrane roof was demonstrated successfully, and a new economical concept for secondary sewage treatment, the floating tube settler, was developed. An extensive program was begun during the year to improve environmental quality protection in the construction and operation of military facilities. This program is closely co-ordinated with other Department of Defense agencies, the Environmental Protection Agency, and other federal, state, and private organizations. A design and cost simulator was developed that will predict the type and cost of hardened facilities needed to withstand the destructive effects of various nuclear weapons.

Substantial progress was made during fiscal year 1973 in the Army's Military Engineering and Topographic R&D program, especially in the development of new and improved design criteria and construction techniques to support Army combat operations; development of the technology base for the topographic sciences to meet the military geographic information requirements and the mapping, geodesy, and survey responsibilities of the Defense Mapping Agency and the Army; and advanced and engineering development of new survey and mapping equipment and techniques for the army in the field.

For geodetic and tactical positioning, development of a new geodetic reference system was completed, as well as an evaluation of the Doppler Translocation System. Tests indicate that the Doppler system, which used the Navy Navigation Satellite, has potential in meeting the Army's tactical position requirements.

Major topographic mapping activities included the initiation of studies on using holography for accurate terrain measurements, the start

of the development of an all-electronic scanning capability, and the completion of the mechanical design and fabrication of an advanced automatic compilation system. Also the results of a sensing arrays study were applied to the design and testing of a reseau measuring system that holds promise for the measuring sciences. Investigations on photosensitive materials identified four types of photosensitive layers that are believed worthy of further laboratory experimentation. Mathematical techniques for smoothing and manipulating topographic data were developed and tested on the Semi-Automatic Cartographic System.

A principal objective of the Army's military geographic information (MGI) research and development program is to overcome deficiencies in the field and to meet both current and projected needs for the collection, reduction, analysis, storage, retrieval, and display of terrain data. Emphasis was given to the use of remote sensors for the rapid acquisition of terrain data and the application of automatic data processing techniques. In this regard, development continued on the Automated Image Data Extraction System (AIDES) and the Army Terrain Information System (ARTINS)—formerly the Engineer Terrain Information System (ENTIS). Research on the relative merit of color, multiband, and panchromatic imagery has led to advances in the development of new methods for the rapid and efficient collection of data. In other MGI activities, progress was made in the development of designs for special topographic products to disseminate data; studies were undertaken on design methodology, test and evaluation methodology, and symbol effectiveness; and preliminary designs of topographic products for infantry and airmobile operations and the employment of battlefield sensors were completed.

Research and development on the effects and applications of nuclear and chemical explosives was directed toward barrier and denial operations and aids to military construction. During the past year, a series of field tests to determine the relative effectiveness of TNT, ammonium nitrate, and slurry explosives were concluded. Sponsored by the Defense Nuclear Agency and the Office of the Chief of Engineers, a chemical explosive cratering test consisting of six one-ton shots and one eighteen-ton shot was carried out at Fort Peck, Montana. The test confirmed the validity of both the irridium tracer fallout simulation technique and the computer modeling code for designing a chemical explosive simulation of a nuclear explosive. It also made it possible to predict crater dimensions for unstemmed nitromethane shots. Although new chemical explosives and blasting agents currently used in the private sector offer great potential for military construction and barrier and denial operations, their military application will be limited until appropriate equipment and technology can be developed and until techniques now in use, which rely on outdated ammonium-nitrate cratering canisters, TNT, or com-

position C–4, and which are inefficient or unwieldly for use in bulk explosive applications, are replaced.

Plans for rapid deployment and buildup of Army forces make essential the timely construction of base and line of communications facilities in the theater of operations. To achieve such timeliness, the Army, during fiscal year 1973, studied the impact of a newly devised logistics support system on port development requirements. This study provides improved guidance to military engineers in the design and construction of port and harbor facilities, the identification of parameter requirements for soil stabilization, and the effects of repetitive loadings on chemically stabilized soils. Also, an interim analysis of various methods of excavating frozen soil was completed; the analysis showed that mechanical or flame-jet cutting methods are the most promising. Continuing research on the use of ground-based and remote sensors for locating buried ice and coarse-grained soils indicates that selected wave lengths in the infrared spectrum appear capable of subsurface surveillance.

For line of communications facilities, Army R&D people improved the design criteria and construction techniques for the rapid building of roads, airfields, and heliports required in the theater of operations by a deploying Army. These improved criteria and techniques will replace existing ones, which are inefficient, outdated, and inadequate. Advances were made in the development of a computerized program to determine the capacity of road networks. A computer code for evaluating approach and departure clearances at airfield runways was developed and incorporated into the automated airfield site selection system. Procedures were developed to predict the time required for land-clearing and the application of soil stabilization methods. Results of the demonstration test on a one-half-mile section of membrane encapsulated soil layer (MESL) road at Fort Hood, Texas, have been excellent. Also, tests of experimental sections of insulated expedient roads were concluded in Alaska. These tests will produce the criteria for theater of operations road designs in cold environments where it is desirable to prevent the melting of permafrost.

Existing design standards and construction techniques for protective structures do not meet the requirements of a modern, mobile Army—the construction effort the structures require is too large, and the protection they afford military personnel and materiel against the effects of conventional and nuclear weapons is too small. Measures to alleviate both shortcomings are under way. During fiscal year 1973, live-fire tests were completed at Aberdeen Proving Ground, Maryland, to develop the basics of design criteria for expedient stand-off (triggering) screens. A series of full-scale and half-scale aircraft revetments and half-scale expedient troop shelters were tested. Research continued on the dynamic loads

transmitted through various coverings for field fortifications. Testing also continued on determining the resistance of frozen soils and compacted snow to the penetration of shell fragments and small-caliber projectiles. This data will establish criteria for the use of these materials in the construction of protective structures in cold environments. Preliminary investigation has demonstrated the feasibility of rapidly constructing fiber-reinforced concrete hemispherical shells with a reusable inflatable forming technique.

The *ad hoc* Department of Defense Structures Technology Council (STC) was formed in October 1972 to assess the department's structures technology program. The STC will revise the Structures Technology Coordinating Paper and plan for a military-industrial structures technology conference in late 1974.

The rapid growth of the Army's high energy laser program at several Army Materiel Command laboratories led to the establishment, during the past year, of the Army High Energy Laser Program Office (AHELPO). Since its inception, the new office has been identifying technological issues which are critical in the application of laser systems and directing the attention of involved Army laboratories to them. For laser detection and laser countermeasures, the Army Materiel Command has recommended a program for the integration of research and exploratory development activities. The management issues involved had not been settled at year's end.

Development

Building upon the technology base provided by earlier programs, the Army started to develop a new artillery-locating radar program, the AN/TPQ–37. In late fiscal year 1972, contracts were awarded to Hughes Aircraft Company and the Sperry Rand Corporation for the development of two AN/TPQ–37 models. The models will undergo competitive developmental and operational testing, after which one contractor will be selected for initial, low-rate production.

As the developer of the TRI–TAC (see Chapter V) Automatic Switch (AN/TTC–39), the Army awarded competitive prototype design contracts to two contractors in June 1972 for an eighteen-month period. This was followed by an eighteen-month engineering development phase with procurement of eight switches for testing. In June 1973, the development program was revised so that sixteen engineering development models would be procured and four refurbished models would be provided for operational evaluation in August 1976.

During the past year, the advanced development phase of the Remotely Monitored Battlefield Sensor System (REMBASS) was extended by approximately eighteen months; entry into the engineering development phase will be delayed until the middle of fiscal year 1975 instead

of early in fiscal year 1974. The expanded advanced development effort will be concentrated mainly on target recognition and position location. Validation testing and cost and operational effectiveness analysis will also be stressed.

Work continued on laser designator units capable of being handheld, ground mounted, or borne by helicopters. Tests have demonstrated the military potential of using such designators with direct and indirect fire weapons. Advanced development efforts for ground- and airborne-precision laser designators continued, while the handheld laser designator entered engineering development. During the period of this report the Army was designated lead service for the development of all ground laser designators.

Fiscal year 1973 marked the start of development of a low-cost, remotely piloted vehicle that will provide laser designations of tank-size targets out to the range of supported laser-guided weapons and conventional artillery fire. This vehicle will help to offset an intensified air defense threat that would make the loss rate of manned aerial systems unacceptable. The first phase in the development of the Remotely Piloted Aerial Observer/Designator System, which will extend into fiscal year 1975, will determine the feasibility of this weapon.

Deficiencies that emerged during field testing of the Tactical Fire (TACFIRE) Direction System prototype led to modification of the total package procurement contract in this, the lead system in the Army Tactical Data Systems (ARTADS). A revised TACFIRE development schedule calls for the correction of these deficiencies, the concurrent development of new items, and another series of development and operational tests to begin in late fisal year 1974. Development continued on two others members of the ARTADS family—the Tactical Operations System, which is proposed as a division-level computer assisted command and control system, and the Air Defense Command and Coordination System, AN/TSQ–73, which underwent research and development acceptance tests during the reporting period.

The Army ended the problem-plagued Cheyenne program in August 1972 and replaced it with a new advanced attack helicopter development program, for which Congress appropriated $20 million in fiscal year 1973 funds. By year's end, contracts had been signed with two firms for a competitive fly-off program, but authority to proceed with the program was held in abeyance until estimates of the design-to-cost goal of the contractors could be refined and additional cost reductions identified.

The Cheyenne/TOW association noted in a discussion of the Advanced Aerial Fire Support System in last year's report was replaced by the Cobra/TOW program. In March 1973 the first fully integrated Cobra/TOW prototype aircraft was flown, and the first TOW missile

accuracy firings were made. Operational tests are scheduled for fiscal year 1974. The TOW thermal night sight continued in advanced development and will enter a 27-month engineering development phase during the coming year.

For the heavy lift helicopter (HLH) development program, the design of all advanced technology components was completed on schedule, within program costs, and without significant technical problems. The first full-scale blade and spar were fabricated, and a fly-by-wire flight control system tested. A 400-hour test program of the engine was completed by the contractor two and one-half months ahead of schedule, within costs, and met or surpassed all performance requirements. In midyear the HLH program was expanded to include the construction prototype which is scheduled for flight testing in August 1975. Major efforts on the prototype have been confined to detailed design of the fuselage, landing gear, crew station, and other items not provided for under the advanced technology component program. The engine development program, expanded to meet the needs of the proposed prototype, was mainly confined to the detailed design of subsystems and a power management system.

Airframe development contracts for the Utility Tactical Transport Aircraft System (UTTAS) were awarded to Boeing Vertol and Sikorsky Aircraft in August 1972. By the close of the fiscal year the contractors had completed design layouts, released detailed drawings, and subcontracted for long, lead time hardware. Wind tunnel testing, computer simulation of aircraft handling qualities, and building of the static test model, ground test vehicle, and flyable prototypes had begun. Tests of the General Electric T700 engine, which will power the UTTAS, indicated that horsepower output did not meet specifications. Efforts to correct the deficiency, including the redesign of the power turbine, have been started. Congressional action reduced by 50 percent the number of flyable prototypes each contractor may build. As a result the Army expects to fall short of its reliability and maintainability goals for the UTTAS program.

Two joint Army-NASA development projects moved forward during the past year. Feasibility and predesign studies were completed for the Rotor Systems Research Aircraft (RSRA) and a request for proposal released to industry. Following an evaluation of contractor responses to a request for proposal for the Tilt Rotor Research Aircraft, two firms were selected to conduct detail design studies. After the designs were submitted and analyzed, one of the firms, Bell Helicopter, was selected to fabricate two prototypes for flight testing. Contract negotiations with Bell were under way at the close of the reporting period. Also, the joint

NASA-Army Tilt Rotor Project Office was established at Ames Research Center, Moffett Field, California.

In other helicopter development matters, detail design and fabrication of the advancing blade concept aircraft continued. The initial fifty-hour qualification run of the propulsion system was completed, and at year's end the aircraft was undergoing final preparation for its first flight, which is expected early in fiscal year 1974. Also, the new initiative aerial scout (NIAS) program, which had been progressing satisfactorily with prototype delivery scheduled for November 1973, was terminated in November 1972 when Congress disallowed the necessary funds to continue. A new program is being formulated that will provide an aerial scout vehicle capable of performing scout and target acquisition missions as the teammate of the advanced attack helicopter.

A number of advances during the year marked the continuing development of the Pershing surface-to-surface missile system. Developmental testing of missile and power station improvements, including a new static inverter, digital guidance, and a newly configured power station, was successfully concluded in June 1973. A two-year development and testing program was begun for two ground support equipment items—the Sequential Launch Adapter Switching Kit and the Automatic Azimuth Reference System. Also, tests conducted under the radar area correlation research and development program have demonstrated the feasibility of providing a highly accurate terminal homing capability for long-range surface-to-surface missiles such as the Pershing.

Development testing of the Improved Hawk air defense guided missile system was completed in August 1972, and conversion of Hawk air defense artillery battalions to the modification got under way two months later. The Improved Hawk, which utilizes an automic data processor to lower system reaction time, provides defense against slow- and high-speed and low- and medium-altitude targets.

As the replacement for the Improved Hawk and Nike-Hercules systems, SAM–D completed its first year of full-scale development. System demonstration tests of the SAM–D program, which is on schedule and within programed costs, are scheduled to begin in May 1974. During the year the Chief of Staff approved recommendations contained in a SAM–D capability study that called for the deletion of research and development and procurement funds for the nuclear warhead, the start of research and development for an improved nonnuclear warhead, and the use of SAM–D within the continental United States.

In other missile system actions, product improvement programs for both the Chaparral and Vulcan continued, the Shillelagh product improvement program was completed, and engineering development of the Stinger man-portable air defense system proceeded according to sched-

ule. Also, development testing of the nuclear capability of the Lance surface-to-surface missile system was concluded, and shipment of equipment to the first tactical Lance battalion was begun in June 1973. Testing of the nonnuclear Lance warhead was reinstituted in December 1972, with development scheduled for completion in the first quarter of fiscal year 1975.

The XM1 tank program, successor to the terminated XM803 (MBT70) tank development program, moved forward during the past year with the beginning of a 34-month prototype validation phase, for which Chrysler and General Motors received cost-plus-incentive-fee contracts totaling $155.1 million.

Progress was also noted in the mechanized infantry combat vehicle (MICV) program and the armored reconnaissance scout vehicle (ARSV) project. Four operational seminars conducted on the MICV gave design engineers an understanding of how the vehicle will be used and maintained in the field and allowed logisticians the opportunity to influence vehicle design early in the development phase. A number of trade-offs in vehicle performance and characteristics were made to simplify and reduce production costs. Also, testing of major subsystem components was begun. The year's major development regarding the ARSV was the assembly of prototype vehicles by the Lockheed and the Food Machinery Corporations.

An exploratory development prototype of a launcher designed to fit the M16 rifle and fire a soft, nonlethal ring airfoil projectile was successfully demonstrated during the past year. The launcher and projectile system will enter engineering development during fiscal year 1974. Availability of such a weapon would be useful in situations calling for less than lethal force, such as civil disturbances. As an intermediate between rifle fire and riot batons, it could be expected to deter rioters with its stinging effect.

In general combat support, development was completed on a number of items, including the Lightweight Camouflage Screening System, Woodland Version, a dry membrane which appears to be a major breakthrough in the development of a reverse osmosis water purification process, and a cradle for carrying the bridge erection boat on the ribbon bridge transporter. Assembly of a prototype reverse osmosis water purification set was completed and preliminary testing initiated, and work continued on the competitive contracts for validation prototype models of the Family of Military Engineer Construction Equipment (FAMECE). For a new bridge erection boat, five proposals were submitted by American and European firms, but none offered significant advantages over the current model.

A number of actions were taken during the year dealing with scatterable mines. The XM56 helicopter-delivered antitank mine system went into developmental and operational testing, the XM718 artillery-delivered antitank mine system entered the engineering development phase, and advanced development of a scatterable mine surface dispensing system continued. Conversion of the standard M15 antitank mine to an underwater mine was canceled, as was the requirement for an artillery-delivered antipersonnel mine with a random time self-destruct feature. A joint Army, Navy, Air Force, and Marine Corps plan for the development of aircraft-delivered scatterable mines (target-activated munitions) was prepared and submitted to higher authority late in the fiscal year.

Development work on mine neutralization included feasibility testing of a new ground-to-ground antimine system, evaluation of testing for a helicopter-delivered antimine system to determine its military potential, and engineer design tests of the mine-clearing plow, which will be mounted on the M60 tank. Also, the use of dogs to detect explosive substance by smell was evaluated, thermal-imaging mine detectors were evaluated and improved, development of a vehicle-mounted road mine detector continued, and field testing was conducted on a man-portable radar radiation surface mine and booby trap detector. Work continued on the Countermine Systems Study, the objectives of which are to determine the mix of equipment and techniques to provide the soldier with the best available countermine capability.

For individual combat protective clothing and equipment, type classification was completed on a number of items, including the combat vehicle crewman helmet, lightweight individual combat clothing and equipment, and the aircrewman cold weather clothing system. A new chin strap was developed for use with the M1 helmet, and contracts were awarded for the development of four prototype models of an improved suspension system for the M1 helmet with liner. An improved, lightweight conventional munitions vest was developed and will undergo feasibility and product improvement testing in fiscal year 1974.

In other development activities during the year, the evaluations of the Vehicle Rapid Fire System (Bushmaster) prototypes developed by three competing firms, which were noted in last year's report, were completed in June 1973; development was completed on the Batch Interface Detector, the 50,000-gallon petroleum-fabric-collapsible tank, and the Forward Area Refueling Equipment System (FARES); contracts were awarded to procure hardware for the Tactical Multi-Leg Mooring System; and development was terminated on the Supply Handling Conveyor System. Also, the scheduled type classification of the XM509 eight-inch dual-purpose projectile has been delayed, and the XM710 105-mm. ROOK projectile and the XM587/XM724 continued in engineering development.

Advanced Ballistic Missile Defense

The United States and the Soviet Union concluded the first phase of Strategic Arms Limitations Agreements, including an Antiballistic Missile (ABM) Treaty, in May of 1972. The agreements limited significantly the deployment of certain offensive and defensive strategic weapons systems and permitted modernization of advanced ABM systems, but they placed only minor restrictions on ballistic missile defense research and development. The agreements therefore had little actual impact on the Army's ABM development program.

During fiscal year 1973, the Army broadened its technological base to support the development of a high-velocity, advanced ABM capable of intercepting an intercontinental ballistic missile (ICBM) in the exoatmosphere. The FAIR II flight test program was started to obtain target and background signature data, study was done on the feasibility of developing nuclear-hardened homing sensors capable of functioning in the outer reaches of the atmosphere, and the possibility of nonnuclear exoatmospheric intercept was investigated.

Live testing of designation and discrimination algorithms against re-entering objects continued at the Kiernan Reentry Measurements Site, Kwajalein Missile Range. Detailed designs were completed for a 5,000-element solid state phased array radar, and a contractor was selected to construct the radar at Kwajalein Missile Range. The new radar will validate the use of solid state, modular technology in future ballistic missile defense radars and will provide a unique range research instrument for the development and testing of new discrimination techniques. The preliminary version of a System Environment and Threat Simulator (SETS) that tests battle scenarios, which include re-entry vehicles, decoys, radar clutter, nuclear effects, and the engagement of interceptors, was completed and installed on the Combat Developments Command's 7600 computer at the Advanced Ballistic Missile Defense Agency Research Center, Huntsville, Alabama. Plans have been completed to "game" SETS against system software on a fourth-generation vector computer to measure the interaction of data processing hardware and software against postulated threats.

Other development efforts during the year included construction of a laboratory model of a new dome radar antenna that will provide hemispheric coverage from a single planar array antenna face, initiation of a program to use high-power lasers as ballistic missile defense radars, and completion of four successful Minuteman Special Target program flights that provided new data for the development and validation of advanced re-entry discrimination techniques. Also, a Technology Application Panel composed of experts from both government and industry was formed to

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identify new ballistic missile defense concepts and technology. The panel canvassed numerous laboratories and uncovered several promising ideas that are currently under evaluation.

International Research and Development

During the past year, the United States entered into an agreement with the United Kingdom, the Federal Republic of Germany, Denmark, and the Netherlands to conduct joint tests on the efficiency of Hawk missile site camouflage. Also, discussions were begun with the United Kingdom regarding the possible use by the British of a unique artillery projectile developed by the United States.

The joint U.S.-Italian research effort on high-strength, ductile aluminum alloys and related casting methods has yielded several important dividends. These include a new final thermal mechanical treatment process for wrought, high-strength aluminum alloys that will increase their strength by 20 to 25 percent over conventional heat treatments without a significant loss of ductility, and an intermediate thermal mechanical treatment process that will produce wrought aluminum alloys with a much finer grain size than commercially produced aluminum alloys of equivalent strength, and from 3 to 35 percent better ductility.

In other international research and development matters, the Army finished its evaluation of the British Rapier and the French-German Roland II low-altitude air defense systems, thus completing a series of evaluations that had been initiated earlier with the French Crotale system. TEAL XVII, the annual American, British, Canadian, and Australian (ABCA) armies conference on standardization, was held during 14–18 May 1973 at the Royal Military College of Australia. Also, in December 1972, the Office of the Chief of Research and Development took over the international standardization functions previously performed by the Office of the Assistant Chief of Staff for Force Development.

XII. Civil Works and Special Functions

The Army has certain civil responsibilities which it is uniquely qualified to carry out. For varying periods of time it has administered the nation's civil works program, the Panama Canal, and a civilian marksmanship program, among other things. The Army has also been heavily involved through the years in emergency and environmental activities.

Civil Works

The Army's civil works responsibility, administered through the Corps of Engineers, dates back a century and a half and today involves nationwide development of water resources, including planning, design, construction, operation, and maintenance of works for navigation, beach erosion control, flood control, hurricane protection, hydroelectric production, water supply and quality control, recreation, and fish and wildlife enhancement, all as authorized by law.

In fiscal year 1973, $1.95 billion was appropriated for civil works, an increase of $363 million over the previous year's appropriation. All major appropriations were increased. Funds were approved for construction on 272 projects, including 31 new construction starts, and 143 planning projects, 49 of which are planning starts. Projects with the largest construction allocations were Lower Granite Lock and Dam, Washington; Libby Dam–Lake Koocanusa, Montana; Dworshak Dam and Reservoir, Idaho; Smithland Locks and Dam, Illinois, Indiana, and Kentucky; and New Melones Lake, California.

During the year the Corps of Engineers lost some older missions and acquired some new ones. Public Law 92–500 revised and amended the initial Federal Water Pollution Control Act. Authority to issue permits for the discharge of pollutants into navigable waters of the United States was transferred from the Corps of Engineers to the Environmental Protection Agency (and ultimately to the states); however, the corps will still review discharge applications to determine the impact upon navigation and anchorages. The corps retained its regulatory authority with respect to the discharge of dredged or fill material.

In the wake of flood-producing storms, Congress in 1972 passed the Dam Safety Act, authorizing the Secretary of the Army through the Chief of Engineers to undertake a national program of dam inspection. The corps is preparing an inventory of all the dams in the United States and will formulate a comprehensive national program for the inspection

of the nation's dams and regulation of their design, construction, and operation. The recommendations will include a division of responsibilities between federal, state, and local governments and private interests.

The dam inventory will list the name, location, type, year completed, purposes, height, and impounding capacity of those dams of artificial barrier which are twenty-five feet or more in height or have an impounding capacity of fifty acre-feet or more (including wash water retention dams for coal-mine operations, of the type that collapsed on Buffalo Creek in West Virginia in 1972).

Of great assistance in the inventory are photographs and tapes acquired by the National Aeronautic and Space Administration Earth Resources Technology Satellite No. 1. The black and white near-infrared imagery shows a high contrast between land and water, and water bodies with a surface area of about eight acres or more may be identified. At the Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi, a computer automatically extracts the approximate surface area and geographic location of water bodies from computer-compatible satellite tapes.

Guidelines are being developed to aid in the determination of whether a dam and its impoundment constitute a danger to human life and property. Results of these activities will be reported to the Congress by 1 July 1974.

Five pilot studies which seek ways of reaching high standards of waste-water quality on a regional basis neared completion during the year. Regions under study were the Merrimack Basin in New England, the Cleveland-Akron area in Ohio, the Chicago metropolitan area, the Detroit metropolitan area, and the San Francisco Bay area. Alternative plans developed through the studies may be used by the involved states and cities as a basis for requesting construction grants from appropriate federal agencies. The plans include three alternative methods or combinations of treatment: chemical, biological, and land. Various alternatives are presented for using these methods singly or in combination. The public would be urged to participate in selecting the appropriate course of action in a given area. The studies show promise for developing for Congress and other public and private groups some sound indications of the cost of cleaning up polluted waters, as well as the cost of not cleaning them up.

In the course of these waste-water management studies, it became clear that in urban areas all water and water-related resource problems must be viewed in a single or systems context. This led to a Corps of Engineers Urban Studies Program to formulate actions to solve urban water problems and help solve related urban problems.

Under this program Corps of Engineers assistance has become available, when authorized by the Congress, to study and solve a wide range of water-connected problems. Areas in which the corps' planning, development, and management capabilities might appropriately be applied include urban flood control and flood plain management; urban water supply; waste-water management planning; regional harbor and waterway needs; bank and channel stabilization; lake, ocean, and estuarine protection; and outdoor recreation and open space recreational planning. When these areas, which the corps has analyzed in individual studies for a number of years, are treated as part of an urban study, many alternative solutions present themselves for achieving regional and local objectives as well as for solving strictly water-oriented problems. In the urban study, the beneficial and detrimental effects of the alternatives are evaluated, but the corps generally refrains from recommending specific courses of action on waste-water management, since responsibility lies with state and local officials. Recommendations are usually confined to those aspects of urban studies pertaining to the corps' civil works responsibility. In fiscal year 1973, sixteen urban studies were funded.

Environmental Protection and Preservation

The Army's responsibility in environmental protection and preservation involves both civil works and military programs. In civil works, passage of the National Environmental Policy Act in 1969 affected Corps of Engineers staff attitudes, broadening them from concern primarily with economic and engineering considerations to a balanced awareness of economic, environmental, social, and other factors of public interest.

To accommodate environmental considerations, the corps modified the designs of about one-third of the 500 projects under construction or about to be constructed. In almost a third of 200 studies of potential projects, alternatives first proposed were changed significantly to minimize the impact on the environment. Of 103 completed projects that were evaluated, operation and maintenance procedures were changed in 43 percent for environmental reasons.

The Corps of Engineers has hired persons trained in environmental, social, and many other nonengineering fields to determine and evaluate the public's interest in environmental matters; the corps also encourages and assists other staff members to attend university courses in environment. Consultants are used widely to study projects and obtain data useful in appraising alternative courses of action.

Because effective planning and project evaluation depend upon accurate and timely environmental information, the corps is exploring approaches for the collection, compilation, and use of comprehensive

information for water resources activities. To this end, the corps has outlined an environmental information system comprising reconnaissance and project inventories, base-line studies, and program monitoring. Four pilot reconnaissance inventories for Vermont, Washington, and North and South Carolina were in progress during fiscal year 1973. These are designed to provide an environmental "early warning system" to identify significant resources and amenities that make up man's physical, biological, and cultural environments and should be preserved, protected, or approached with careful deliberation in the planning, development, and management of water and related land resources. The inventories will provide environmental information for the public and for corps co-ordination with other government agencies. They will be published in atlas form, with features such as game trails, caves, and other geological, ecological, and historical features indicated on the maps.

One of the largest and most significant civil works research and development efforts ever taken on by the Corps of Engineers was in progress under the auspices of the U.S. Army Engineer Waterways Experiment Station. It is a broad study to determine the impact of one of the corps' oldest and most extensive activities—dredging the nation's waterways and harbors. The corps is charged with keeping 22,000 miles of waterways and harbors open for navigation, at an annual cost of over $100 million. As a result of natural erosion and poor land conservation practices, river channels accumulate and transport sediment. When an authorized navigation channel becomes too shallow, the corps must deepen it by dredging. The dredged sediment may be deposited in another part of the river away from the channel, on the land, or in special diked disposal areas. Today, dredging presents several problems, among them the high cost of transporting dredged materials and the expense of lessening the undesirable environmental effects of deposited materials, problems that have caused the corps to undertake the dredging study.

The study is a five-year investigation having two primary objectives: to determine the environmental impact of dredging and disposal operations and to develop technically satisfactory, environmentally compatible, and economically feasible dredging and disposal alternatives, including the use of dredged material as a manageable resource. Among the broad areas of research are open-water and land disposal, new disposal concepts, productive uses of dredged materials, the reuse and multiple use of disposal areas, and techniques and equipment for dredging and disposal and for treating dredged materials. Research is undertaken by contract, by interagency agreement, by fund transfer to other Corps of Engineers offices, and within the Waterways Experiment Station. To

maintain a high degree of objectivity, the corps employs technical consultants in many areas.

In military programs, the Army during fiscal year 1973 stressed the objectives of the National Environmental Policy Act of 1969 by undertaking to control air and water pollution at Army installations and by considering the environment in normal planning and decision-making. Until recently the decision-maker weighed primarily the operational and cost factors of various alternatives in selecting a course of action; now the environmental factor is added to the equation and changes are made to lessen environmental impact. During the past year, environmental impact statements were required of eighteen activities, involving complex construction projects, the demilitarization of munitions, and selected research and development projects.

An education and training program has been started to increase the Army's awareness of environmental issues and the Army's responsibility to control pollution and protect the environment. Environmental subjects have been added to the curricula of most officer service schools, information is provided to the soldier through the Command Information Program, and special environmental workshops have been held for managers and engineers.

Air and water pollution at Army installations is gradually being controlled through the construction and modernization of sewage treatment plants, incinerators, and heating plants. Approximately $200 million has been provided or budgeted to meet current standards. Because stricter emission regulations are being imposed by the states, additional dollars will have to be set aside in future budgets.

Pollution controls for mobile equipment, primarily vehicles, are keyed in large measure to what automotive manufacturers can do to produce clean engines. As the year closed, no major problems were foreseen in meeting emission standards in new equipment for the 1973–74 models. The major difficulty is anticipated for 1976, when emissions are to be reduced 90 percent over what they are today. The Army Materiel Command has been working closely with engine manufacturers and investigating new engine designs to obtain improved fuel consumption and lower emissions. Tests are under way to identify the pollutants produced by the older engines and determine what modifications are needed. Testing is also proceeding on the use of low-lead gasoline in military vehicles.

Solid waste disposal for the most part has offered no major problem. The sanitary landfill, which the Army has used for many years, is now regarded as ecologically safe for domestic wastes. On the other hand, the disposal of explosive contaminated wastes, pesticides, and toxic chemicals presents unique problems. More sophisticated and safer pro-

cedures will have to be adopted now that ocean dumping is not considered an ecologically acceptable method.

The other side of solid waste disposal is the requirement to salvage materials that can be returned to the manufacturing process. While current efforts are at modest levels, the Army has sharply increased the use of retreaded tires and rebuilt automotive components. Useful chemicals have also been recovered as a by-product of the extensive munitions demilitarization program.

Some Army posts have established recycling centers similar to those found in civilian communities. Others have co-operated with local community organizations in joint programs. These measures, along with successes recorded under the Army's Domestic Action Program, once again show the Army's interest in protecting the environment.

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.

While preserving such landmarks, the Army has also attended to post beautification—making installations more attractive and progressive. In the multimillion-dollar barracks and family housing program, for example, there has been a deliberate departure from traditional construction. In addition, land and forest management and fish and wildlife programs are being emphasized.

Environmental activities in progress also include research and development related to pollution control. Under examination are packaging material subject to deterioration, vehicle and aircraft emission standards for Army equipment, water and waste-water treatment procedures, and engines with low fuel consumption and low emission, such as the stratified charge engine for the ¼-ton truck.

In September 1972 the Deputy Under Secretary of the Army was designated as the Army's focal point for environmental matters, and an Army Environmental Council, composed of representatives of general officer and equivalent rank from the Army secretariat and the General Staff, was established. Simultaneously, an Army Environmental Committee to support the council was formed of staff officers from the agencies represented on the council. The council and committee by year's end had prepared environmental assessments and impact statements and an information booklet on the provisions of the National Environmental Policy Act, formulated a study plan to analyze solid waste procedures and opportunities for waste recycling on Army installations, undertaken a feasibility study of a demonstration project for sludge disposal at Joliet Army Ammunition Plant in co-ordination with

the Metropolitan Sanitary District of Greater Chicago, and developed an over-all Army Environmental Program.

The Army Audit Agency also surveyed pollution control and environmental protection activities at eleven installations, identifying a number of accomplishments as well as deficiencies.

Emergency Operations

Fiscal year 1973 was marked by the most sustained series of emergencies in many years. Throughout the year one or more of the Engineer districts was on a natural disaster alert, and at least one 24-hour emergency operations center was open and functioning. By 30 June 1973 a major disaster had been declared at least once in thirty-nine of the contiguous forty-eight states, and an earthquake had wrought havoc on the Island of Hawaii. Fifty-six major disasters were declared, one of which was tropical storm Agnes, an emergency that involved the Army extensively through its civil works and military roles.

Occurring in June 1972, Hurricane Agnes took more than a hundred lives and left widespread devastation in six northeastern states: Maryland, Virginia, West Virginia, New York, Pennsylvania, and Ohio. When the hurricane turned inland causing extensive flooding, the Emergency Operations Center of the Office of the Chief of Engineers was activated as the major communications center and situation room. The center stayed in continuous operation from the last week of June until the first week in September 1972. Meanwhile more than four hundred Corps of Engineers disaster fighters were assembled as a provisional district headquarters at Wilkes-Barre, Pennsylvania. The Susquehanna District was assigned to carry out emergency work directed by the Office of Emergency Preparedness, while the North Atlantic Division Engineer co-ordinated recovery efforts by eight engineer districts along the east coast. The Susquehanna District's work included site preparation for mobile homes, emergency housing repairs, debris removal, demolition of hazardous structures, repair of public utility systems, and construction of temporary bridges.

In early August 1972, the first increment of some forty senior Engineer noncommissioned officers arrived in Wilkes-Barre to assist in contractual arrangements for emergency housing repairs. Through daily contact these engineers established excellent relations with local citizens, and their assistance was widely recognized and appreciated. Joining the engineers in the so-called "mini-repair" program were Navy Seabees, who restored electrical service to flood-damaged homes, and Air Force personnel, who inspected and repaired mobile homes and houses.

Corps of Engineers expenditures, under Public Law 91–606, to repair

the damage caused by Hurricane Agnes reached $150 million. In addition, the corps incurred $7 million in administrative costs.

The military role in the Hurricane Agnes emergency was as substantial as the civil works involvement. Active and Reserve Component units of all military services responded. By the afternoon of 22 June 1972, Army National Guard units in Virginia, Maryland, Pennsylvania, and New York had been called to state active duty. The First U.S. Army opened a 24-hour emergency operations center at Fort Meade, Maryland, on that day and dispatched officers to the hardest hit areas to co-ordinate with the regional field representatives of the Office of Emergency Preparedness and with local authorities. Anticipating that in the hardest hit regions would be designated as major disaster areas, the Army's Directorate of Military Support conferred with the Office of Emergency Preparedness, which then asked the Army and the Department of Defense for support not available through the Red Cross, the Salvation Army, National Guard units, and other local, state, and federal agencies.

On 23 June 1972 the President declared portions of Florida, Virginia, Maryland, Pennsylvania, and New York as major disaster areas. The severest flooding occurred in Harrisburg and Wilkes-Barre, Pennsylvania, and in Elmira and Corning, New York. These areas received most of the support provided by the Department of Defense. Over 2,000 citizens were rescued by helicopters in the Wilkes-Barre area alone. Active and Reserve forces flew numerous missions over the flood areas to rescue stranded families. Light amphibious reconnaissance boats patrolled swollen streams, and military vehicles surveyed flooded streets and transported disaster victims to Reserve centers, armories, and other relief shelters, where they were provided with food, clothing, bedding, and medical supplies.

Besides evacuating victims, transporting supplies, and assisting store owners to relocate their stocks, military vehicles transported potable water from purification units to distribution points, primarily in Richmond, Elmira, Corning, and Wilkes-Barre. Navy construction battalion personnel and Air Force civil engineers combined forces with the Army engineers to restore power lines to hospitals and shopping centers, repair plumbing, heating, and electrical systems in damaged homes, and establish services in trailer parks constructed to aid flood victims.

Military resources assigned to emergency operations were withdrawn piecemeal beginning early in August and extending until projects were completed or other federal agencies replaced military elements. By 29 December 1972 all military support had ended.

The mild winter of 1972–73 brought unseasonable rains and early run-off from melted snow that produced record water levels in the Great Lakes and the watershed of the Mississippi River. Because the ground

was saturated, each succeeding rainfall flowed off quickly into tributaries, the Mississippi, and the lakes. Lake levels exceeded long-standing record heights, and the Mississippi filled and crested twice along its entire length, setting new records at many localities.

To provide emergency shoreline protection against flooding along the Great Lakes from Chicago to Buffalo, Operation Foresight was started on 15 December 1972. Water levels on the Great Lakes in the fall of 1972 indicated generally that springtime levels would exceed those that had been recorded over a long period of time, and the prospects inspired numerous pleas for assistance from shore property owners. It was predicted that Great Lakes levels would remain above average during the spring of 1973 as a result of excessive rainfall over the basin reaching back to September 1970. Although erosion of the lake shore occurs during all water stages, it is accelerated during periods of high water and storm.

Under Operation Foresight, while local officials were obtaining permits and rights of entry, preliminary designs for flood protection were developed for specific sites and conditions. Construction was in progress as the year closed, and while costs were estimated to be on the order of $26 million, it was expected that almost $90 million in potential damages would be avoided by the preventive work.

Two problems presented themselves as Operation Foresight proceeded. One, there was a natural reluctance among property owners to have their access to the shore obstructed, and little urgency prevailed in areas that had not yet been touched by rising waters; local authorities, therefore, had difficulty in obtaining releases. Two, even in areas where there was an interest in protection, it was found that temporary measures would be inadequate and could only be made effective as a part of a formal project programed with appropriated funds. Time was critical. If the work was to be fully effective, it would have to be completed by the end of September 1973. As of the end of June, close to half of the eligible projects had been started and many had been completed.

In the Mississippi River basin, flooding started early in the spring of 1973 after several months of abnormal rainfall, extended into the summer, and led to unprecedented water levels that caused over a billion dollars in damage. At the outset engineer divisions and districts moved quickly to activate emergency operation centers and cope with the developing situation. In March 1973, heavy rains over the Yazoo River basin in Mississippi, culminating in a ten-inch rainstorm, produced flash flooding that filled the Sardis, Enid, and Grenada reservoirs and caused water to overflow emergency spillways for the first time since construction.

As the crest of water moved down the Mississippi toward New Orleans, special measures were required to protect the city and its regions. Bonnet Carre spillway, thirty miles above New Orleans, was opened for the fourth time in history to drain off a portion of the high waters. In the second week of April, the overbank drainage structure was opened for the first time since construction, as were ten bays at the Morganza floodway control structure a few days later. Before the water subsided, twenty control bays had been opened. The control system of the Mississippi River and its tributaries did its job, but non-federal levees were taxed beyond their capabilities and failed. Louisiana National Guard units raised the levees and the floodwall at Morgan City but were called away when strong gulf winds raised tide levels and caused backwater flooding in lower Louisiana. Active Army troops were called in to patrol Morgan City Harbor to remove floating debris, raise the floodwall with flashboards, and build up the front-line levees with mud-box construction and sandbags.

Even as the floodwaters of the lower Mississippi began to fall, severe rains coupled with mild temperatures that melted snow in the upper Mississippi Valley signaled a second emergency. On 28 April 1973 the Mississippi rose to 43.23 feet at St. Louis, Missouri, 13.23 feet above flood stage and an all-time high. At Vicksburg, Mississippi, the river stayed above flood stage for eighty-nine days and set a new record for the average four-month flow. Record stages were set as far downstream as Cape Girardeau, Missouri, but the control system again performed well.

In addition to the National Guard elements from Louisiana, Missouri, Illinois, Iowa, Mississippi, and Arkansas that took part in flood control operations, the 62d Engineer Battalion from Fort Hood, Texas, was engaged in operations, primarily in the Morgan City area. Also, the Fifth U.S. Army provided a tactical raft, buses, tractors and trailers, and other equipment to rescue some 6,882 citizens when the town of Portage Des Sioux, Missouri, was isolated by the floodwaters.

The flood fight was terminated in mid-June 1973, and it was well into the summer before the Mississippi River returned to its banks. Approximately 13,600,000 acres in eight states had been flooded. Damage was estimated at over a billion dollars, and if Army Engineer flood control structures had not been in place, it is likely that another ten million acres would have been flooded, with damages of more than $15 billion. The emergency fund requirement for the 1973 flood in the Mississippi River basin was close to $50 million.

In March 1973, the Army provided four helicopters and crews to assist the Department of the Interior in a streamflow study in the Hell's Canyon area of the Snake River on the Idaho-Oregon boundary.

In July 1972 the Army's Disaster Assistance Relief Team (DART) concept got its first operational test when severe floods struck Central Luzon in the Philippines. At the request of the Philippine government and the U.S. ambassador, the Security Assistance Force (Asia) (formerly the Special Action Force) became the first to deploy DARTS. Elements from Okinawa comprising 123 persons and 75 pieces of major equipment were deployed by Air Force cargo planes on 21 July 1972. Operations continued to 13 August; seven teams, of twelve men each, were employed to provide area coverage. Over a million pounds of food was distributed, 305,000 inoculations were given, 27,953 patients were treated, 2,933 persons were evacuated, and 36 Filipino military personnel were trained in various skills. The assistance was recognized on 14 August 1972 when President Ferdinand Marcos of the Philippines presented his nation's Presidential Distinguished Unit Citation to all DART participants.

Promotion of Rifle Practice

The National Board for the Promotion of Rifle Practice (NBPRP) was organized in 1903 to encourage rifle practice with military-type weapons for citizens who are not reached through the training programs of the active components of the armed forces. Marksmanship programs sponsored by the board are conducted by the Director of Civilian Marksmanship.

The current civilian marksmanship program is open to boys between the ages of twelve and nineteen. The Army lends .22-caliber rifles to participating clubs, provides .22-caliber ammunition and small-bore targets, and awards qualification badges.

A new marksmanship program was started in fiscal year 1973 to train promising young shooters for possible participation in international shooting activities conducted by the active services. Participants are selected from National Junior Championship matches and Honorary All-American Collegiate teams and train as a team for approximately two weeks.

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 1972, a total of 67 teams, including 37 civilian teams, and 1,000 shooters 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 1973 to $159,000, and the increase permitted the Director of Civilian Marksmanship to continue support of civilian marksmanship programs at levels authorized by Army regulations.

XIII. Summary

Fiscal year 1973 will be notable in Army history as the year in which the Vietnam War—the longest conflict in American history—ended. On the operational side, the United States disengaged, transferred remaining responsibility to the South Vietnamese, and withdrew from the theater of war. On the institutional side, the Army contracted to postwar strength, reached the zero-draft phase line, moved well along toward all-volunteer status, and in general converted from wartime to peacetime operation.

It has been estimated that upwards of three and a half million Americans served in Southeast Asia from January 1961 through June 1973. Of this cumulative total, somewhere on the order of 2,600,000 served in South Vietnam, the bulk of them Army. At the peak of the U.S. involvement, there were well over half a million Americans in South Vietnam, more than 360,000 of them Army personnel. The task of ending that commitment—of training and equipping the host nation to take on the entire combat burden, of disengaging from field operations, of redeploying the troops, and of redistributing immense stores of materiel—was completed in fiscal year 1973 following the cease-fire produced by long years of fighting, pacification, military assistance, and diplomatic negotiation.

With a rapid turnover of personnel because of short tours and a two-year draft obligation, the Army was not able to field a major combat force on the far side of the world without disrupting assignment and rotational patterns, skill distribution, training, and worldwide readiness. During the Vietnam War these problems were heightened initially by the steady expansion of the conflict and the Army, and later by the steady contraction of both. Stability became possible only with the cease-fire, complete withdrawal from the war, and a return to fixed peacetime strength levels. All three of these circumstances occurred in the closing half of the fiscal year.

For the Army, stability meant continuity rather than inactivity. With the return to peacetime conditions it became possible to stabilize training, education, assignment, leadership, expenditures, and morale, among other things. Organizational weaknesses exposed by the war will soon be corrected as force structure changes begun in fiscal year 1973 continue into fiscal year 1974.

After several years of national and institutional effort, the draft was eliminated and the Army neared its goal of an all-volunteer force, despite

the gradual disappearance of draft motivation and a suspension of draft calls in the final six months of conscription authority. The task in fiscal year 1974 and beyond will be to offset the loss of the remaining draftees and to maintain the Army's authorized strength solely with volunteers.

A combination of inducements has helped to bring the goal of an all-volunteer force within reach. Improvements in pay, housing, bonuses, assignment patterns, and recreation went far to encourage existing personnel to re-enlist. These factors, along with a major recruiting campaign and a variety of unit and area enlistment options, produced new volunteers, although at considerable cost. One of the hard facts of national defense today, indeed, is the high cost of building and maintaining a volunteer force. By necessity and by inclination, the Army has earmarked a large proportion of the funds appropriated for national defense for so-called people-related costs. It is unlikely that this will change.

All of the factors outlined above—the end of the war, withdrawal from Vietnam, reduction in size, elimination of the draft, all-volunteer composition, stability of operation, improvements in compensation, enhancement of living conditions, the transition to peace—opened the way for the development of a fully trained, well-disciplined, thoroughly professional Army. Barring unforeseen interruptions, the coming year will be one in which the United States Army can concentrate on that goal.

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