Department of the Army Historical Summary

Fiscal Year 1980

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

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DEPARTMENT OF THE ARMY HISTORICAL SUMMARY

Fiscal Year 1980

1. Introduction

The decade of the seventies was a period of great change for the United States Army. The Army at the end of fiscal year 1970 was engaged in military operations in Southeast Asia and support of those operations necessitated deferring development of the kinds of equipment needed on a European battlefield. Organized into 17⅓ divisions, 1,322,548 strong, it was an army of draftees, predominately male, and constituted a cross section of America.

In contrast, the Army at the end of fiscal year 1980 was at peace, gradually modernizing, with its attention directed toward the plains of Europe. The active Army contained 776,536 persons, 8.9 percent of them women, organized into sixteen divisions. It was an all-volunteer force with members of minority groups, the less educated, and the poor overrepresented. Institutional change of this magnitude was bound to cause comment both in and out of the service.

Consequently, the capabilities of the Army became an issue which attracted the attention of Congress and the nation's press in fiscal year 1980. During the summer, two Senators known for their interest in defense matters sponsored legislation to reduce the size of the Army if the service failed to recruit a larger percentage of high school graduates. The salience of the issue was due as much or more to external events than internal conditions. On 4 November 1979 a mob of Iranian "students" seized the American Embassy in Tehran and held sixty-six Americans hostage, an act subsequently extolled by the revolutionary government. A rescue attempt in April 1980 by a joint task force ended tragically in the Iranian desert. On 27 December 1979 the Soviet Union invaded Afghanistan. The strategic threat to the oil suppliers of the West, the apparent shift toward a more expansionist Soviet foreign policy, and the operational audacity which led the Russians to land their lead airborne division on terrain controlled by an Afghan armored division combined with events in Iran to increase the decibel level of the dialogue in the United States.

To a certain extent the debate turned upon two phrases in the Preamble of the Constitution of the United States. Was the Army's primary function "to promote the general welfare" or was it simply "to provide for the common defense"? Twenty years earlier many Americans had believed that no dichotomy existed between the two. In 1980—a year of an energy crisis, a deteriorating industrial base,

and heightened awareness of increasing threats—fewer citizens accepted the truth of such an assumption.

During fiscal year 1980, the Army and its future were, of course, a matter of primary importance to the men who led it. The annual Army Commanders' Conference hosted by the Chief of Staff provides major commanders an opportunity to assess the state of the Army and give direction to its future. At the meeting convened in late October 1979, the Army's principal leaders focused attention on the decade of the eighties and centered their discussions on organization and structure, manning the force, management of modernization, training the force, and mobilization and deployment. Following the conference, the Chief of Staff, General E. C. Meyer, published a white paper, "A Framework for Molding the Army of the 1980s into a Disciplined, Well-Trained Fighting Force," giving his perception of the Army of the eighties.

The Army, observed General Meyer, must prepare for "the three days of war," a metaphor for the Army's threefold mission: the ability to deter armed conflict on the day before it begins, to successfully wage war on the day of battle, and to guarantee the United States and its allies "an acceptable level of security" on the day after combat ends. One of the major issues confronting the Army as it enters the decade of the eighties is that of an appropriate force structure. A European confrontation will involve masses of armor and artillery in a sophisticated electronic environment, while Third World conflicts will require anything from logistic and training support for friendly governments confronting insurgents to corps-sized or larger expeditionary forces able to fight off armored attacks. These conflicting requirements and the large area of potential conflict require the Army to place great emphasis on strategic mobility, the ability to move the appropriate forces over great distances to the theater of operations. Airlift is expensive, thus limiting the size of the force that can be moved, and has certain load limitations which prevent the movement of heavy divisions—those that contain the masses of tracked armored vehicles needed to confront a major power. Light forces, such as an airborne division, have little organic transport and are thus strategically mobile but lack equal tactical mobility. They are useful in seizing bridgeheads and for defending urban areas and difficult terrain. Medium units, usually infantry, are tactically mobile because of a large number of organic armored personnel carriers and have a significant armored killing capability. The Army must determine the proper mix between heavy, light, and medium elements. General Meyer asserted that the United States must enhance its readiness in three key areas in the near future:

1. The ability to move the active elements of the rapid

deployment force (RDF) by both sea and air;
2. The capability of active units in the United States with equipment predeployed in Europe to rapidly reinforce the North Atlantic Treaty Organization (NATO) battleline;
3. The mobilization potential of reserve units designated to reinforce NATO.

The proper force structure for the eighties is a difficult and recondite problem which has already generated considerable intellectual ferment in professional circles.

Because of budgetary restrictions and the possible restructuring of heavy, medium, and light divisions, the Army may have to integrate more reserve companies, battalions, and even brigades into active divisions not intended for rapid deployment to Europe if the service is to maintain an active force of sixteen divisions. It must upgrade the readiness of the reserve elements in logistic support roles since the Army has stripped its active force support units to enlarge the combat units of the active forces. Sustained warfare in Europe or elsewhere will require a rapid buildup of support units. Finally, to achieve a creditable deterrent the Army must develop coherent doctrine for nuclear and chemical warfare that is integrated with other tactical doctrine.

Finding young men and women willing to volunteer to serve their country and at the same time keeping the experienced noncommissioned officers (NCOs) who make any military organization work was in General Meyer's opinion "the major challenge facing the Army today." This must happen at a time when inflation is seriously eroding the economic benefits designed to induce recruiting and retention. These are immediate and pressing concerns. The Army's long-term personnel objective is to better match the abilities and interests of individuals with career specialties and at the same time to predict more accurately the specialty needs of the service.

Economic pressures and the Soviet buildup, noted General Meyer, require a very thoughtful consideration of the trade-offs involved in choosing one weapons system over another. Given a limited amount of money, would the Army derive more benefit on a future battlefield in developing complex electronic gear designed to disrupt enemy command and control or in producing a new generation of antitank weapons? The Army is seeking to develop the analytic tools needed to assist in making such judgments.

Training in the eighties will be "the priority effort of commanders." The reduction of the active component in the support role means that U.S. Army Training and Doctrine Command (TRADOC) can only provide training in forty-nine of the seventy tasks a combat soldier needs to perform to achieve the minimum

acceptable proficiency on the modern battlefield. Much of the Army's effort to teach individual skills must focus on on-the-job training within the major commands. In such a situation, the competence of NCOs becomes crucial. They are the Army's corporate memory at the level of the squad, platoon, and company. The Army has given NCO training top priority and is emphasizing unit training that will increase the cohesiveness of those small groups of men that carry an army to victory—or defeat—on the field of battle. To this end, the National Training Center (NTC) under development at Fort Irwin, California, will soon provide realistic training for heavy battalions in a modern battlefield environment. The center will also allow continuous development of air-ground tactics with the U.S. Air Force.

The decreasing amount of time between a warning and an attack makes mobilization even more crucial in the future than it has been in the past. The Army, warned General Meyer, must be organized in peace for full-scale mobilization. But certain deficiencies, some of which are beyond the Army's ability to control, prevent attainment of this objective. Currently, the Army lacks adequate numbers of pretrained manpower. The automation and communication equipment which link the existing mobilization system needs modernization and expansion. The training base will require immediate enlargement at the beginning of any mobilization. The Army must have the men and facilities available to do the job. Today it lacks them. Finally, a mobilization surge can occur only from a "warm" industrial base. Government plants in the industrial reserve can assist but most of the contribution will have to come from the private sector. American industries crucial to any mobilization, such as the steel and automobile industries, consist of aging and uneconomical plants and face a financial climate not conducive to the scale of capital investment needed for modernization. In the next ten years, these industries may well have to contract to survive. General Meyer's white paper concludes with this admonishment:

> The decade of the eighties, beginning as it does with evident hazard to critical national interests, looks to be a time of challenge, a time of continuing potential crisis. Such situations pose great dangers. For the nation prepared, they also provide great opportunities. The U.S. Army—by its preparations toward a real and visible military capability—seeks to see the nation and its values sustained through the critical decade of the 80s.

The account which follows reports how the Army met the challenges of the first year of this critical decade.

2. Operational Forces

During the five previous fiscal years, the Army had activated three divisions and two separate brigades, converted a light division to mechanized, eliminated five major headquarters, and converted 50,000 support and overhead spaces to combat. This year the Army continued to mold its twenty-four divisions (sixteen active and eight reserve component) into the mix of heavy and light forces and sustaining structure most suited to meet NATO commitments as well as potential threats outside NATO. The deployment and composition of the force is indicated in figure 1, and the combat to support distribution of the force is shown in chart 1.

Organization and Roadiness

Fiscal year 1980 was marked by growing awareness of the Army's need to develop a credible capability to deal with threats to U.S.

FIGURE 1—DEPLOYMENT AND COMPOSITION OF 24 ARMY DIVISIONS

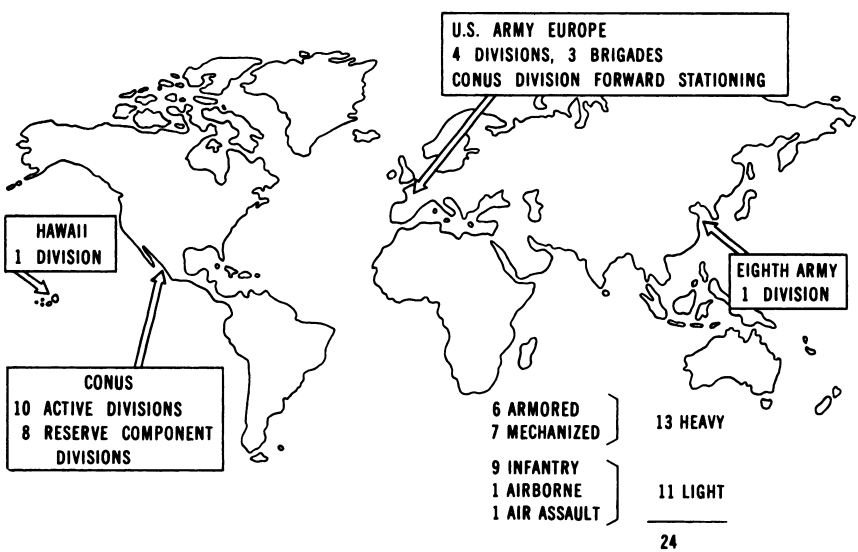
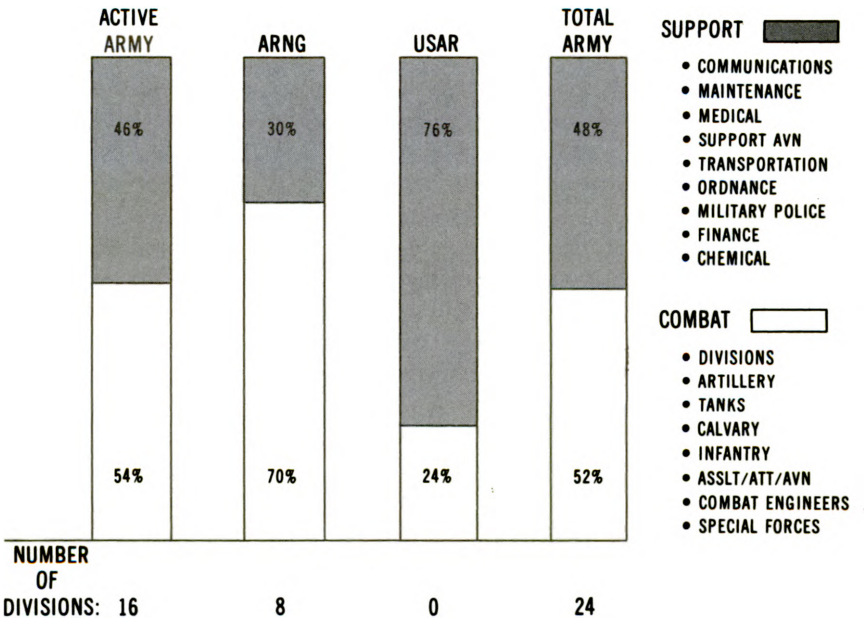


CHART 1—DISTRIBUTION: COMBAT TO SUPPORT OF ARMY FORCE STRUCTURE



interests outside Europe while still retaining the capacity to meet NATO commitments. Recognition of the need for this new capability led to the organization, after many months of planning and discussion, of the Rapid Deployment Joint Task Force (RDJTF). Viewed by some as the lineal descendent of the old Strike Command, discontinued in 1972, the RDJTF grew out of a 1977 study highlighting the need for a multiservice force which could be deployed to areas outside NATO and Northeast Asia.

The Iranian revolution, the seizure of the American hostages in Tehran, and the Soviet invasion of Afghanistan hastened the formation of the RDJTF. It was officially established on 11 March 1980 with Lt. Gen. Paul X. Kelly, USMC, as commander and headquarters in the former Strategic Air Command alert facility at MacDill Air Force Base, Florida. The RDJTF is primarily a headquarters which, when needed, would command various designated units of the four services, generally those not otherwise committed to NATO or Korea. No new forces have been added to the U.S. military structure as a result of its creation. The major Army units designated for the force are Headquarters, XVIII Airborne Corps; 82d Airborne

Division; 101st Airborne Division (Air Assault); 24th Infantry Division (Mechanized); 194th Armored Brigade; and various ranger units. The task force headquarters is a separate subordinate command of the U.S. Readiness Command (USREDCOM) but in the event of deployment the RDJTF commander would normally report directly to the National Command Authority through the Joint Chiefs of Staff (JCS).

The current focus for the RDJTF is the Middle East and Persian Gulf area and its mission is to plan, train, exercise, and prepare to deploy forces in response to contingencies threatening U.S. interests. It is not an invasion force, that is, a unit for forcible entry into a hostile country, but is structured mainly to assist nations of the Southwest Asia region in resisting aggression.

RDJTF planners estimate that the United States could have its first tactical air forces on the scene in the Middle East or Persian Gulf area within a few hours; a battalion on the ground within two days; and a brigade within one week. An airborne division could be lifted in about two weeks. The most optimistic estimate for seaborne movement of a division is thirty to thirty-five days. Whatever the deployment time, the effectiveness of the force will largely depend on the extent of logistic support provided by the "host nation" or lifted from U.S. bases.

The Army's ability to meet its commitments, whether in NATO or as part of the RDJTF, depends largely on the ability of its units to meet their deployment schedules, deploy quickly, and sustain themselves once deployed. During fiscal year 1980, however, the readiness of major U.S. Army combat units declined. In December 1979, the Army rated six of its ten combat divisions in the Continental United States (CONUS) as in category C-4 (not combat ready). Two of the units so rated, the 101st Airborne and the 24th Infantry Divisions, were earmarked for the RDJTF.

Of the remaining four divisions, three were rated combat ready but with major deficiencies. These divisions had suffered most from failures to meet recruiting goals in 1979 and from the shortage of experienced NCOs in the combat arms specialty due to assignment to Europe and the Far East.

In a move to provide more accurate and timely information on the readiness of Army units, three significant changes were made in the unit status reporting system. The first was to base personnel calculations only on those individuals assigned to a unit who are available for immediate deployment. The second was to count any equipment not actually on hand as a deficiency in equipment readiness ratings, and the third was to establish a separate rating criteria for aircraft readiness.

To further bolster readiness, the Army Chief of Staff announced a series of changes to improve cohesion and stability in U.S. based units. These moves included an end to the policy of keeping Army units in Europe and Korea at between 102 and 105 percent of strength. This would allow the withdrawal of some 6,000 NCOs from Europe and 1,000 from Korea. These experienced NCOs will be assigned to stateside divisions to beef up the readiness and training capability of the divisions. The Chief of Staff also announced longer tours of command for battalion and brigade commanders and an increase in the length of basic training from eight to nine weeks with additional advanced training as appropriate.

At the same time, the Army continued to refine its mobilization planning and techniques. As currently envisioned, mobilization—that is, the process of calling to service, preparing, deploying, and supplying combat units—is an almost unbelievably complex task involving fifty-three different mobilization stations which must man, equip, train, and deploy more than 4,000 separate military units. The Army's basic organizing program for mobilization is labeled CAPSTONE and involves the grouping of active, reserve, and National Guard units into preorganized packages each with a specific mission. For example, an Army Reserve engineer battalion might be packaged with a second Army Reserve engineer battalion, an Army National Guard engineer battalion, and an active engineer battalion to form an engineer group. All members of subordinate units in the engineer group would know in advance their wartime assignment, where to report for mobilization, and what other units would comprise their group.

To aid in mobilization under the CAPSTONE concept, Army Readiness Regions, which were responsible for the coordination and evaluation of reserve unit training, were given the additional mission of preparing for and coordinating mobilization planning for units in their region. Their names were changed to Army Readiness and Mobilization Regions (ARMRS).

Fiscal year 1980 also saw a continuation in the activation of military intelligence battalions (Combat Electronic Warfare Intelligence (CEWI)) to help the Army cope with the increasingly complex and sophisticated problems of electronic warfare. During the year, five divisional military intelligence battalions (CEWI), two in Europe and three in the United States, were activated; other divisions formed provisional CEWI type units in anticipation of formal activation as division commanders began to perceive the operational advantages of the CEWI concept. Meanwhile, the Army continued to study and test plans for a military intelligence group (CEWI), and tables of

organization and equipment (TOEs) were approved for four corps-level military intelligence groups (CEWI) to be activated in the future.

Aside from questions of readiness, the capability of the Army to quickly deploy its forces to Europe or elsewhere from CONUS was also increasingly called into question. A new U.S. transport aircraft able to carry heavy battle tanks over long distances and land on relatively short, primitive runways and fast cargo-carrying ships with the capability to unload in primitive ports were among the basic requirements for a successful overseas deployment in reasonable time, yet both systems remained in the design and budgeting stage.

Europe and the Middle East

The highest state of readiness among U.S. Army active forces in fiscal year 1980 was represented by the units composing U.S. Army Europe. In keeping with the concept of "US Army, Europe—an Army deployed," the Army continued to take measures to assure USAREUR is combat prepared. The three main elements of the concept are to relieve USAREUR of many peacetime base support functions, to provide rehabilitated and modernized base facilities, and to acquire additional facilities as necessary.

Planning continued for a community-level pilot project at Karlsruhe, Germany, involving performance of basic base support functions such as transportation, housing, driver training, and food service by commercial contractors.

In the event of a Warsaw Pact attack, USAREUR's forces and U.S. NATO allies intend to "fight outnumbered and win," in the words of an Army field manual. That they will fight outnumbered was scarcely questioned during the fiscal year but winning was beginning to seem increasingly difficult in the face of the Warsaw Pact's growing mobility, readiness, and strength and the loss of NATO's edge in theater nuclear weapons.

For the sixth year in a row, U.S. Army forces participated in NATO readiness exercises with special attention given to exercise REFORGER 80 involving the deployment and redeployment of U.S. units to Europe. Units from CONUS participating in the exercises included elements of the 2d Armored Division, a battalion combat team of the 82d Airborne Division, a battalion of the 9th Infantry Division, the 2d Battalion, 34th Armor, and an 8-inch, self-propelled field artillery unit of the South Carolina Army National Guard as well as many other Army Reserve and National Guard units. A new element introduced in REFORGER 80 was the participa-

tion of U.S. units in a large-scale British field exercise, SPEARPOINT. An airborne battalion of the 82d Airborne Division from Fort Bragg was flown directly to Europe aboard C-141 aircraft and parachuted into the exercise area.

The Pacific and Far East

This fiscal year, the Eighth Army marked its 30th anniversary of service in Korea. North Korea continued to commit provocative acts. In May infiltrators fired upon 2d Infantry Division troops who were performing civil police duties for the United Nations Command in the Demilitarized Zone. Fortunately, there were no American casualties.

Redesignation of I Corps (ROK/US) Group as the Combined Field Army (ROK/US) became effective on 14 March 1980. This change gave recognition to the fact that the 185,000 member organization was a field army in size and mission.

In June, the 38th Air Defense Artillery Brigade completed the transfer of equipment from one of its Improved Hawk battalions to the South Koreans and inactivated the unit. Plans provide for transferring assets of two other of the brigade's Improved Hawk battalions in the future.

Preparations moved forward during the year to replace the 105-mm. howitzer in two battalions of the 2d Infantry Division, and to replace the AH-1G helicopter with the AH-1S model in the division's cavalry squadron. The new howitzers will nearly triple the range of direct support artillery and permit the use of an improved family of munitions. The AH-1S helicopter will fire the TOW missile and will significantly increase the division's ability to knock out tanks. Also begun was the establishment of a military intelligence battalion (CEWI) in the division that will employ the most up-to-date equipment and procedures for near real-time battlefield intelligence.

During 1977, the Office of the Deputy Chief of Staff for Logistics had successfully established a system for the accelerated delivery of selected repair parts to certain units by shipping them by air. Called the Air Line of Communications (ALOC), the system was successfully tested for use in the shipment of supplies to Korea in 1978 and 1979. A final evaluation of the Korean ALOC conducted at the end of 1979 by a joint Army-Air Force-Defense Logistics Agency team found that the system contributed significantly to improved logistical support for the Eighth Army. It was made permanent in February 1980 and in that same month the system was extended to units in Alaska and Hawaii.

Western Hemisphere

The massive and unexpected influx of Cuban refugees into the United States, beginning in April 1980, resulted in a Presidential emergency declaration which designated the Federal Emergency Management Agency as the overall coordinator of government refugee operations. On May 3, the Secretary of the Army was designated Executive Agent for Department of Defense (DOD) activities in support of the Cuban refugees. That same day the first Cuban refugees began arriving at Eglin Air Force Base and Key West Naval Air Station, Florida. Between that date and September 30, over 43,700 refugees passed through DOD reception and processing centers at Fort Chaffee, Arkansas; Fort Indiantown Gap, Pennsylvania; and Fort McCoy, Wisconsin, at an estimated cost of almost 92 million dollars. The Army Medical Department established medical facilities at the refugee camps. About 10,000 refugees still remained at Fort Chaffee which had been selected as the consolidated facility for refugees.

As a result of damage in the Dominican Republic caused by Hurricane Allen in early September 1979, the Army dispatched helicopters, water purification units, and communications equipment from the 101st and 82d Airborne Divisions and the Puerto Rico National Guard. In October, the 193d Infantry Brigade provided medical teams, helicopters, vehicles, and communications equipment to alleviate suffering resulting from severe flooding in Nicaragua. Aid continued through February 1980.

Command and Control

As part of a major reorganization of the Army's command and control structure, the first since 1973, all active Army divisions were grouped under three corps headquarters during the fiscal year. The object of the reshuffling was to reduce the number of units which report directly to U.S. Army Forces Command.

Under III Corps at Fort Hood, Texas, were placed the 1st Infantry Division (Mechanized), 5th Infantry Division (Mechanized), 1st Cavalry Division, 2d Armored Division, 3d Armored Division, 6th Cavalry Brigade, 11th Air Defense Artillery Group, and 13th Support Command. Under the XVIII Airborne Corps were the 24th Infantry Division, 197th Infantry Brigade, 194th Armored Brigade, 18th Field Artillery Brigade, 1st Support Command, and the 36th Engineer Group. Sometime in the future, the three divisions in the Far West—4th Infantry Division, 7th Infantry Division, and 9th Infantry Division—will be grouped under an as yet undesignated corps. However,

due to shortage of personnel and funds, these three divisions will continue to report directly to U.S. Army Forces Command.

The reorganization into corps was one of a number of actions taken by the Army during the fiscal year as a result of the findings of a major Army Command and Control Study (ACCS-82) begun in September 1978 and completed at the end of 1979. In addition to the three corps plan, the study group also recommended assignment of a mobilization planning and execution mission to the Army Readiness and Mobilization Regions, a change completed by July 1980, and the transfer of basic policy-making responsibilities for mobilization from U.S. Army Forces Command to Headquarters, Department of the Army (HQDA), done in March 1980. Implementation of another recommended action, the assignment of full-time mobilization planners to major command and CONUS armies and mobilization stations, was also begun. The Army was also considering a plan for designating certain Army Reserve organizations to assume command of some Army installations in CONUS in the event of mobilization.

Chemical and Nuclear Matters

Since World War II, the United States has maintained a capability to conduct chemical warfare for much the same reason that it maintains a nuclear arsenal, that is, to deter attacks employing these types of weapons and to retaliate should deterrence fail. The production and stockpiling of chemical weapons is permitted under the 1925 Geneva protocol, which, in effect, is a "no first use" agreement rather than a complete prohibition of chemical warfare.

At the end of fiscal year 1980, the Soviet Union was estimated to have an edge over the United States of eleven to one in chemical personnel and four to one in chemical munitions. Unconfirmed but numerous and persistent reports on the use of chemical agents in Laos, Cambodia, and Afghanistan prompted the Army to take steps to upgrade its capabilities in the field of chemical warfare. The U.S. Army Chemical Warfare and NBC Defense Review Committee was established on 1 March 1980 to conduct semiannual reviews of the entire chemical warfare effort. Chemical units equipped to provide biological and chemical reconnaissance and decontamination support were added to divisions and selected nondivisional Army units in the United States and Europe. At the same time, the Army began a program to increase the level of nuclear, biological, and chemical warfare expertise in the Army. The U.S. Army Chemical School, which had closed its doors in 1972, was reestablished at Fort McClellan, Alabama, in December 1979. Also, over 3,600 chemical warfare specialists were scheduled to be added to active Army units

beginning in fiscal year 1980. Each company-size unit would receive an NCO chemical expert and each battalion a chemical officer with additional specialist officers assigned to training, doctrine, and materiel development commands. By the end of the fiscal year, almost 400 of these billets for chemical specialists had been filled, mostly in USAREUR.

While training of chemical warfare specialists went forward, research and continued development of chemical defensive equipment was accelerated. Perhaps the most critical activity was the development of a new protective mask. During October 1979, a special in-process review of the mask was conducted which resulted in a decision to proceed with development to obtain a prototype for testing. In February 1980, HQDA reserved approval authority for the development acceptance in-process review based upon the importance of the mask program. Another new item of protective equipment, the M51 Collective Protective Shelter, which provides protection for medical treatment of casualties in a toxic agent environment, was issued to Eighth Army and USAREUR.

In late 1979, a high level interagency review was held to assess the necessity for modernizing the U.S. chemical weapons stockpile. The review resulted in a recommendation to fund the initial phase of a munition production facility at Pine Bluff Arsenal, Arkansas. The facility would manufacture a 155-mm. nerve agent binary munition. Binary chemical munitions form a lethal chemical agent from nonlethal constituents by means of a chemical reaction occurring only during the flight of the weapon to the target.

The proposal to fund the binary manufacturing facility was supported by the JCS and DOD but funds for equipment were not included in the President's fiscal year 1981 budget. Nevertheless, Congress authorized and appropriated funds for the initial construction phase of the binary munitions production facility.

In response to growing concern about the effects which U.S. atmospheric nuclear tests conducted between 1945 and 1962 may have had on the long-term health of participating servicemen, the Chief of Staff directed the Adjutant General's Office to establish the Army Nuclear Test Personnel Review Program to identify all Army personnel who took part in atmospheric nuclear tests.

The program is administered by The Adjutant General with support by the Reserve Components Personnel and Administration Center (RCPAC), St. Louis, Missouri, and the United States Army Management Systems Support Agency, which provides computer facilities. The initial goal of the program is to identify all of the estimated 54,000 participants in the various tests. The task is complicated by the scarcity of records for personnel who left the service

prior to 1960. Approximately 85 percent of the records of these men and women were destroyed in a 1973 fire at the St. Louis Records Center. An attempt is under way to rebuild these records from other sources such as the FBI and the Veterans Administration. So far 50,000 of the estimated 54,000 individuals have been identified and an initial data base is expected to be completed early in fiscal year 1981.

Military Support to Civilian Authorities

As in other years, Army units were called upon to render a variety of services and support to civilian authorities from disaster relief to support of the Winter Olympic Games.

Except Cuban refugee relief activities noted earlier, demands on the Army for help in disasters and emergencies were relatively light during fiscal year 1980. In the wake of Hurricane Frederick, soldiers using Army landing craft provided ferry service between the mainland and the former resort center of Dauphin Island off the coast of Alabama, while other units provided helicopter support. In November 1979, the tiny atoll of Majuro in the Trust Territories of the Pacific Islands was flooded by wave action. Soldiers from Western Command (WESTCOM) moved in and provided medicine, food, and water purification services for several weeks. In the Far West, Army boatmen rescued cattle stranded by floods in the San Joaquin River Valley and provided communication and helicopter support during the volcanic eruption of Mount Saint Helens in Washington in May 1980. During a strike by New York City transit workers in April 1980, the Army provided 41 buses with drivers to maintain critical federal operations in the city.

The primary and presidential election campaign of 1980 brought requirements for Army support to protect the candidates. Specifically, the Army provided explosive ordnance disposal personnel to assist the U.S. Secret Service in over 1,700 bomb search missions throughout the United States.

For the 1980 Winter Olympic Games, the Army provided a wide variety of services ranging from the loan of cold weather field manuals to design, installation, and maintenance of complex communications systems. An average of 130 active Army personnel were on hand during the period of the games operating a radio communications net, acting as telex operators, assisting with medical service support, and operating a complete backup electric power system.

The backup system was soon put to the test when, on 19 February, a power failure in Lake Placid blacked out the broadcast center, the

focal point for all radio and television coverage of the games as well as the Mount Van Hoevenberg area where a number of events were in progress. Within four minutes the backup generators were providing power to those sites, enabling the games to continue without interruption.

To provide security for the Olympic Village, Army technicians installed an electronic physical security belt around the village site. The system was designed, installed, and maintained by the Army and operated by New York State Police personnel trained by the Army.

Iran Rescue Mission

On 24 April, after 5½ months of training and preparations under conditions of strict secrecy, Army personnel—along with personnel of the Navy, Air Force, and Marine Corps—participated in an unsuccessful attempt to rescue Americans held hostage at the U.S. Embassy in Tehran, Iran, since early November 1979.

Preparations for the rescue attempt had begun as early as 4 November when a special joint task force was secretly established to plan and train for the mission. During December, January, and February, elements of the force trained together at a desert training site in the western United States. By the end of March, the joint task force elements had conducted a number of training exercises and was considered ready to undertake the mission on short notice.

Eight RR-53 helicopters carrying rescue mission personnel took off from the aircraft carrier *Nimitz* on the evening of 22-23 April for a 600-mile night flight to a refueling site in the Iranian desert called Desert One. One helicopter experienced mechanical difficulties with its rotor blade and was obliged to land in the desert approximately two hours after takeoff. The crew was picked up by another helicopter, which then attempted to continue on to the rendezvous. It soon encountered a hanging dust formation which, combined with instrument failure and time delay, caused the pilot to decide to return to the *Nimitz*. An hour later, the six helicopters remaining in formation also encountered unexpected dust, but arrived safely at the desert rendezvous where they were to be refueled by C-130s. One helicopter, however, suffered a partial hydraulic failure, which rendered it incapable of continuing on to the objective. Six helicopters had been determined by the commander of the joint task force and his planners to be the minimum necessary for continuation of the mission at that point. When the commander at Desert One advised the joint task force commander of the fact that only five operational helicopters remained, the latter, with the concurrence of the

President, ordered the mission aborted and the helicopters and C-130s withdrawn.

One helicopter, repositioning itself to permit another helicopter to top off its fuel tanks for the return flight, collided with a C-130 and both aircraft immediately burst into flames. Shortly thereafter, ammunition aboard the two burning aircraft began to explode, showering several other helicopters with shrapnel and rendering at least one unfit for flight. At this point, all personnel transferred to the C-130s and departed. Eight men were killed and five others injured in the collision of the helicopter and the C-130; all others returned safely to the *Nimitz*.

3. Force Development, Doctrine, and Training

In fiscal year 1980, the U.S. Army continued in its long-term effort to develop forces with the doctrine and training essential for dealing successfully with whatever contingencies might arise in the support of national policy. The trend of events in Europe and the Third World combined with the requirements of a far-reaching program of force modernization to focus major attention on the key role of rapid mobilization in future conflicts. Hence, during the year, the Army—in shaping and altering force structure, devising new and changing old doctrinal concepts, and determining the emphasis and focus of training—concentrated on development of forces capable of mobilization and deployment with a speed and efficiency never hitherto achieved by an American army.

Force Development

The twenty-four division force structure, sixteen active and eight reserve component, remained the central element in the Total Army, comprised of all active, reserve, and civilian components. To guide in the ongoing development of this force structure as it responded to the evolving requirements of national strategy, force modernization, budgetary limitations, and other fundamental factors, the Army again employed with increasing effectiveness the sophisticated planning tools it has used in recent years.

This year, for example, the Force Management Directorate in the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) used the Total Army Analysis (TAA)—the computer-assisted method that each year develops the force structure of the Army Planning, Programming and Budgeting System (PPBS)—to project future force requirements for the 1983-87 period. The purpose was to establish for this period the need for nondivisional tactical support units, adjust projected force requirements to make them consistent with anticipated budgetary limitations, and ascertain plans for force development. The Directorate also employed the TAA to analyze the 1987 force requirements for Army 86, Korea, and integrated warfare that would involve use on the battlefield of both nuclear and nonnuclear weapons. ODCSOPS served as the proponent agency in the preparation of Army Regulation 71-11, issued in April 1980, which formalized the TAA process and established its responsibilities.

During fiscal year 1980, ODCSOPS also contributed to improving the system for establishing the relative priority status of the various elements—Program-Development Increment Packages (PDIP)—comprising the fiscal year 1982-86 Program Objective Memorandum (POM), a major tool in budgetary planning for forces development. In response to a directive from the Vice Chief of Staff, the Deputy Chief of Staff for Operations and Plans (DCSOPS), Lt. Gen. Glenn K. Otis, set up a task force which worked out a system for priority ranking of the some 760 increment packages. This then became the Army's priority list, used through various DOD reviews and by the Army staff as the basis for drawing up the fiscal year 1983-87 POM.

For several years, the Army has been endeavoring to improve its methodology for attaining the data it needs to make decisions on the size of its forces. In August 1979 the U.S. Army Concepts Analysis Agency (CAA) in ODCSOPS renewed a study project begun earlier, but temporarily suspended, on Improving the Definition of the Army Objective Force Methodolgy (IDOFOR). Phase I of the study, completed in July 1980, analyzed methods for developing alternative forces to be used in conventional theater-level warfare in Europe. Subsequent IDOFOR phases in the next two or three years will apply the methodology to other theaters and the integrated battlefield, to development of acquisition strategy for a selected force, and to analysis of the CONUS base.

Additional data for decision making on the size of Army forces was also a prime objective of the Combat-to-Support Balance Study (CSBS), undertaken by the CAA in late 1979. In August of that year the Office of the Secretary of Defense (OSD) directed the Army to conduct a joint study with OSD to determine under various conditions the appropriate size of American combat support forces in a European conflict. Since the OSD request appeared to raise questions on the balance between combat and logistic support in the Army's force structure, General Meyer directed that the Army study ascertain the proper composition and organization of tactical logistics support to be programmed for fiscal years 1982 through 1986. The study presumed a representative European conflict, involving mobilization of USAREUR forces, and taking into account tactical support needed to meet requirements for ammunition, engineers, fuel supply, maintenance, military police, services, supply, and transportation. Distribution of the CSBS is scheduled for early fiscal year 1981.

An important source of tactical combat support for the Army in the event of a NATO conflict would come from those countries, the so-called host nations, where American troops are stationed. Because of the Army's need this year to commit additional support units to the

Rapid Deployment Force (RDF) for use in non-European contingencies, it sought ways to reduce the requirements for Army units of this type in the NATO area. Consequently, the United States initiated negotiations in 1980 with the Federal Republic of Germany, the United Kingdom, and the BENELUX countries with the goal of securing from these host nations increased civil and military assistance. In planning development of force structure for the near and long term, the Army's Total TAA process applied estimates of host nation support, including that which may become available under future agreements.

During fiscal year 1980, the Army continued to employ a number of computer-oriented management and information systems to supply the data essential to TAA and related force structure planning studies. The development team for the Vertical Force Development Management Information System (VFDMIS) further expanded its facilities for providing data on Army management requirements in both peacetime and wartime by preparing a comprehensive description of functional requirements to be incorporated into the system. Meanwhile, the U.S. Army Communications Command designated its Communications System Agency as project manager to procure terminal equipment for VFDMIS and establish its telecommunications network.

In the development of the Force Development Integrated Management System (FORDIMS), efforts of HQDA slowed because of the inability of major commands to manage their manpower resources in compliance with the strict rules of the system's guidance tracking. This process is designed to provide HQDA with the means to keep accurate track of all changes in its forces and to supply information on the audit aspects of force, manpower, and dollar data in the Army's budget submission. HQDA is developing less restrictive guidance tracking with the goal in view of having FORDIMS fully operational in fiscal year 1981.

When FORDIMS becomes operational, it will function in tandem with the Structure and Composition Systems (SACS) designed to provide the Army with lists of personnel and equipment requirements for its units. When VFDMIS becomes operational, it will replace FORDIMS in this role. In September 1980, following consultation between the ODCSOPS and USAMSSA, the Army awarded a contract to the General Research Corporation to improve the Logistic SACS's (LOGSACS) Basis of Issue Plan (BOIP). The process contained in this plan can be used to determine the equipment changes required to field new weapons systems or equipment items being introduced to augment or upgrade the Army's mission capabilities.

Further enhancing the Army's ability to achieve optimum results in organizing, manning, and equipping its units to carry out their assigned missions was The Army Authorization Documents System (TAADS), developed and maintained for the ODCSOPS by the Computer Systems Command. During 1980, the Army extended Vertical-TAADS (VTAADS)—the system providing documentation for major commands and agencies—to the U.S. Army Element, Supreme Headquarters Allied Powers Europe, bringing to seventeen the total employing VTAADS. It also extended Installation-TAADS (ITAADS), the system applying the documentation program at the installation level, increasing to fifty-five the total using ITAADS. With a total of seventy-two users, TAADS has become one of the largest operational Automatic Data Processing Systems (ADPS) in the Army.

Both SACS and TAADS, as well as other existing systems, contributed significantly to the development of an automated data base for use in management of prepositioning of materiel configured to unit sets (POMCUS), the advance emplacement in Europe of equipment for divisions scheduled for rapid deployment in contingency situations. Principal users of the data base will be the Army staff, major commands, and the U.S. Army Depot System Command. Steps taken in 1980 identified POMCUS units in the LOGSACS and began changes required to standardize POMCUS and provide it with an authorization system keyed to existing systems, including TAADS, Force Accounting System (FAS), and TOE.

Accurate manpower information is essential to organizing and managing Army forces of all types. Casualty data is an important component of personnel information. Consequently, with a view to improving access to casualty data, the Chief of Staff directed the DCSOPS to devise a means to provide from a single source reliable estimates of casualty data to whomever in the Army might need it. In April 1980, ODCSOPS initiated a study of the problem, presenting guidelines as to its scope and objectives and dividing the task of carrying it out between the U.S. Army Soldier Support Center (USASSC) and CAA. The USASSC, after reviewing available computer models, recommended to the Study Advisory Group (SAG) that the Army Model Improvement Program (AMIP) be used to create a single process capable of furnishing a reliable source of analytically derived casualty data. In September, the SAG approved a revised study approach. Concepts Analysis would provide a short-term improvement for estimation of casualties at the theater level. A more comprehensive study to be completed in 1982 would aim at long-term improvement for their estimation in the AMIP.

Developed in March 1980 and presented to key military and civilian leaders in DOD, Army 90 is a briefing which presents the

Army's views on its goals and direction during the coming decade. It stresses the need for a flexible and deployable force structure that would enable the Army to fight with other services anywhere in the world and identifies the primary objectives for improvement as new organization and doctrine, increased firepower, enhanced electronics, tactical and strategic mobility, and sustainability. The briefing also describes the desired mix of heavy and light divisions and how the Army intended to use POMCUS and enhanced airlift and sealift to improve its strategic mobility. In addition, the briefing assists in preparation of the Defense Consolidated Guidance, an annual publication of the Secretary of Defense, which lays out the programming direction all the services should pursue together with fiscal guidance levels for a five-year period.

Over the next ten years, the Army will undergo the most ambitious peacetime transformation and modernization program in its history. The goal is to field modernized forces, more versatile and capable, in the 1990s. The blueprints for the Army are the TRADOC Army 86 force design studies which began in 1976 and include the heavy division (DIV 86), the infantry division (ID 86), the heavy corps (Corps 86), echelons above corps (EAC 86), and an embryonic contingency corps. These studies advance an extensive redesign of the Army's tactical and support organizations tied to new battle concepts and to the new generation of weapons programmed for the future force in the context of a projected 1986 threat. Army 86 also establishes a force development and modernization process that furnishes a new basis for future organizational review and development.

During 1979, task forces at the TRADOC centers and schools, under the direction of the U.S. Army Combined Arms Combat Developments Activity at Fort Leavenworth, Kansas, designed DIV 86, the 20,000-man heavy division. General Meyer accepted the concept in principle in October 1979 and, after modification, approved it formally on 1 August 1980. DIV 86 introduces significant innovations in its basic three maneuver brigade structure. Noteworthy were an air cavalry attack brigade, eight self-propelled 155-mm. howitzer artillery batteries, and a combined 8-inch gun and multiple launch rocket system battalion. The heavy division's mechanized infantry battalions contain four rifle companies and TOW missile companies; the armor battalions consist of four tank companies with four tank platoons consisting of three tanks apiece. DIV 86 also features composite brigade support battalions designed to implement the concept of "arm, fuel, fix, and feed forward." All these organizations were keyed to concepts of maximum firepower forward, improved command and control, increased fire support and air defense, and improved combination of arms, an increased leader-to-led ratio with smaller

and less complex fighting companies and platoons, and disruption and attrition of the enemy's follow-on echelons.

The new 17,773-man ID 86 emphasizes new technology, a strong antiarmor capability, and versatility—which includes tactical mobility, ability to survive a high intensity battlefield, and strategic mobility. Infantry divisions have the mission of attack, defend, and delay in NATO and contingency operations elsewhere. Containing three maneuver brigades, the infantry division fields eight motorized infantry battalions, two mobile gun battalions, organic brigade engineer companies, an air cavalry attack brigade, a military intelligence battalion (CEWI), and a towed artillery and multiple launch rocket system company. ID 86 limits motorized infantry battalions to three rifle companies and a TOW missile company, while the mobile gun battalion encompasses four rifle companies. The Chief of Staff approved ID 86 for planning and testing purposes together with a contingency corps structure for continued development and analysis on 18 September 1980.

Corps 86 unites corps battle and support organizations and concepts to direct the central battle while concurrently disrupting follow-on echelons; protecting rear areas; sustaining and reconstituting combat power; integrating the air-land battle; and clarifying combat service support, communications, and intelligence relationships between corps, division, and echelons above corps. General Meyer approved Corps 86 for planning as the required force for a NATO corps, numbering 85,118 at D-day to D plus 30 days and reaching 131,973 by D plus 180 days.

Finally, the TRADOC task forces completed the first phase of the EAC study laying the doctrinal groundwork and structuring the Army's echelons above corps for the Central European Theater in 1986 in the context of the integrated battlefield, joint and combined operations, and a maturing theater of operations. In the second phase of the study, the command's task forces intend to refine EAC operational concepts into doctrine and TOEs, develop modified EAC concepts and structure for operations in other areas of the world, and pursue training implications and a transition plan. On 1 August 1980, the Chief of Staff approved the EAC operational concept and organization structure for the general design of the theater army.

General Meyer directed implementation of the 9th Infantry Division High Technology Test Bed (HTTB) project and approved the design of a computer program for organizing and executing the effort on 19 June 1980. Given the standard infantry division as a base and employing the ID 86 study as a guide, the activities associated with HTTB will be directed toward developing a light division designed to facilitate rapid deployment, exploit technological opportunities, and

meet the requirement for lean, hard-hitting forces. The test bed initiative was an extension of the force structure concepts advocated in the Chief of Staff's white paper of March 1980.

Through field tests and supporting analyses, HTTB will provide an evaluation of the operational, organizational, doctrinal, and technological opportunities and concepts for enhancing the command and control, firepower, tactical mobility, survivability, flexibility, and sustainability of the infantry division, with major emphasis on improving its strategic mobility. When changes, modifications, or alternatives prove advantageous, the Army, where possible, will permanently incorporate them in the 9th Infantry Division. In any case, successful concepts, design changes, or other innovations will be exported to other Army divisions. The 9th Division, then, will begin a gradual and deliberate transition from its organization during fiscal year 1980 to that of a modern, high-technology division. The Chief of Staff has already decided to form the Air Cavalry Attack Brigade (ACAB) as part of the 9th Division. At the end of the fiscal year the Army was simultaneously pursuing three initial tasks. It took immediate action to increase 9th Division capabilities through near-term force design and modernization changes. Combined Arms Center (CAC) at Fort Leavenworth, Kansas, organized the test bed effort itself, including the establishment of a Test Group at Fort Lewis, Washington; and CAC and the Test Group planned for testing in fiscal years 1981, 1982, and 1983 through 1987, the years in which the project is programmed but not yet in the budget. New Zealand, Australia, and Canada indicated an interest in assigning officers to Fort Lewis for the test bed project.

The Army Staff began the initial stage of an analysis to determine whether the Army could afford the Army 86 units. Using the Total Army Analysis, the study will produce the total force requirement and an affordable program force from which the staff will develop transition plans. The first draft transition plan was scheduled for presentation to the major Army commands (MACOMs) for comment in January 1981. The staff plans to program Army 86 in TAA-88 and prepare a long-term statement of force objectives and funding in POM 84-88.

The fiscal year 1980 Authorization Act deleted all research, development, test, and evaluation funding for the Tactical Operations System (TOS). The committee language supported the concept for the system but not the program presented by the Army. Congress denied the funding request without prejudice. The need for a system for controlling operations and for providing essential command information remained. HQDA developed an acquisition strategy during the fiscal year which provided for a new start based on an immediate,

although limited, operation capability from which the full blown program could evolve. Accordingly, the Army submitted a Mission Element Need Statement (MENS) for the Force Level and Maneuver Control System (SIGMA), formerly TOS Operations Control and Command Support System, to OSD for approval and began introducing the Tactical Computer Terminal (TCT) in Europe to fulfill the immediate requirement for fiscal year 1980.

SIGMA provides combat commanders of corps and subordinate echelons and their staffs the means by which they can receive, store, and retrieve accurate, up-to-date information upon which to base estimates and plans. It provides direction to the control systems of fire support, air defense, intelligence, administration, and logistics, giving the commander critical information from those systems. In addition, it allows corps to communicate with subordinate units and control their maneuvers by receiving terrain, location, and status information and distributing orders to subordinate commanders.

International Agreements

Circumstance and national policy since 1945 have required the Army to act as an instrument for projecting national power overseas during peace as well as during war. Soldiers, as a consequence, have come to play a more important role in the formulation and execution of foreign policy than in the halcyon days of isolationism. They provide information about the military implications of treaties and executive agreements in the negotiation stage and operate within their confines once the agreements come into force. Often international understandings, not all of which are written, require military conversations for implementation. The U.S. Army has been engaged in staff conferences with foreign armies on a continuing basis since the opening of the meetings "on the standardization of arms" with representatives of the British services in London in August 1940. In fiscal year 1980, international agreements continued to affect the Army on the levels of both the highest national policy and the exchange of purely professional information with friendly armies.

The Senate Foreign Relations Committee reported the Strategic Arms Limitation Treaty (SALT) II to the full Senate without substantive amendment in November 1979. Following the Soviet invasion of Afghanistan in December, President Carter requested that the Senate defer its consideration of the treaty. Although the Senate continued to hold the treaty in abeyance, the importance of equitable and verifiable limitations on nuclear arms to the nation's security and foreign policies impelled continuation of the SALT process.

In December 1979 the U.S. and its North Atlantic Treaty

Organization (NATO) allies decided to follow two parallel tracks to enhance alliance security: modernization of long-range theater nuclear forces accompanied by an offer to the Soviet Union to begin bilateral talks on limitations of appropriate theater nuclear weapons leading to negotiations in the SALT III framework. The NATO decision resulted from a long process of negotiation beginning in May 1977 when the heads of state of the NATO countries concluded that their governments needed to examine theater nuclear force modernization. The Nuclear Planning Group created the High Level Group (HLG), chaired by David E. McGiffert, the U.S. Assistant Secretary of Defense for International Security Affairs, to develop theater nuclear force modernization plans for NATO. The substantial modernization and expansion of Soviet long- and short-range nuclear capability, coupled with the greatly improved overall quality of its conventional forces, prompted serious alliance concern. These trends undermined the theater balance of power and cast doubt on NATO's ability to deter war. On 12 December 1979, after intense debate, the NATO foreign and defense ministers concluded that the alliance should pursue the dual strategy. Specifically, the ministers decided to modernize NATO's long-range nuclear force by deploying 108 Pershing II launchers and 464 ground-launched cruise missiles in Europe; withdrawing 1,000 U.S. nuclear warheads from Europe as soon as feasible; accommodating the 572 long-range theater nuclear warheads within the reduced level; pursuing arms control intitiatives on long-range theater nuclear forces; and examining the precise nature, scope, and basis of adjustments resulting from long-range theater nuclear force deployments and their possible implications for the balance of roles and systems in NATO's theater nuclear force stockpile. The Soviets initially refused to begin talks, apparently hoping to divide the alliance and induce it to revoke the modernization program. When allied resolve became apparent, the Soviets agreed in July 1980 to enter talks with the United States. Preliminary exchanges were to begin in October.

The issues involved in theater nuclear force limitations were complex. Achieving an acceptable agreement promised to be slow and difficult. The United States government, however, had repeatedly expressed its belief that a proper arms control agreement would enhance national security and the prospects for peace. In that spirit, the Carter administration pledged to press for meaningful progress in theater talks and the ratification of SALT II as soon as feasible.

The government continued preparations for the second and final session of the United Nations Conference on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed To Be Excessively Injurious or To Have Indiscriminate

Effects. The International Affairs Division of the Office of The Judge Advocate General participated in two preparatory sessions in September 1978 and March 1979 and the first session of the conference in September 1979. It also provided the senior Army representative on the United States delegation to the second session of the conference which opened at Geneva, Switzerland, on 15 September 1980 and continued into October.

In 1980, TRADOC continued a U.S. Army program of staff talks with the General Staff of the Army of the Federal Republic of Germany begun in 1975. The eighth set of formal talks, held at Fort Rucker, Alabama, in April 1980, followed the format that had evolved in earlier meetings: to first seek agreement on major operational concepts; to then go on to define selected materiel items and to define and evaluate certain materiel, organizational, and operational concepts; and, finally, to cooperate in materiel, training, and logistical requirements. In September 1980, the two army chiefs of staff cosigned a concept paper on electronic warfare and a joint paper on camouflage—bringing to thirteen the number of U.S.-German formal agreements on basic military questions. German and American staff officers worked on six more concepts in 1980. The two armies looked ahead to joint operational concepts for command and control, continuous operations, armor forces in the 1990s, land battle of the 1990s, Army requirements for tactical air support, and tactical communications.

Staff talks with the British Army continued into their third year with formal meetings in Aldershot, England, in October 1979 and at Fort Monroe, Virginia, in March 1980. Conducted in a combat developments framework, the British talks sought to develop joint tactical concepts, set interoperability goals, and select materiel requirements with potential for standardization and interoperability. They also provided a forum for an informal exchange of views at the general officer level and for an annual updating of concepts of the Warsaw Pact threat and on developments in science and technology. The fiscal year 1980 discussions centered on concepts for land-air operations during the 1990s, command and control, countermobility, and Army requirements for tactical air support. A serious exchange of ideas and interests in materiel systems continued. The British remained committed to cooperative U.S.-British-German-French development of a multiple launch rocket system and their interest in the goal of interoperable automated battlefield systems continued.

The TRADOC discussions with the French Army staff went into their second year with a second round of talks held in Paris in May 1980. Less formal than the German and British conversations, the meetings with the French emphasized the exchange of ideas at the

Army level rather than the pursuit of formal agreements. The May talks centered on the French and U.S. corps concepts and on concepts for the employment of armed helicopters.

Concepts and Doctrine

Doctrine, in the military context, is the body of fundamental, authoritative principles which guide the actions of the services in their support of national objectives. Concepts refer to the underlying philosophical stance upon which doctrine is based and they are articulated primarily to provide additional clarity for doctrinal statements. Although other subjects also received attention in fiscal year 1980, the Army focused on concepts and doctrine related to mobilization and rapid deployment.

The development of this emphasis has evolved over the past four years as the Army conducted a series of mobilization exercises which revealed serious deficiencies in mobilization and deployment doctrine and procedures. During November and December 1976, the U.S. Army Forces Command (FORSCOM) conducted the Army's first large-scale mobilization exercise, known as Mobilization Exercise 76 (MOBEX 76). Post-exercise findings indicated that FORSCOM would have to narrow the span of control of the exercise and decentralize some of the operations. As a result, the command assigned additional responsibilities in both pre- and post-mobilization phases to the commanders of the CONUS armies and individual installations. Specifically, FORSCOM authorized its CONUS army commanders to review and approve reserve component mobilization plans, to grant concurrence in installation plans, and to exercise review authority in installation mobilization plans. FORSCOM also authorized those commanders to supervise the post-mobilization training of deploying units and to assist Headquarters, FORSCOM, in redistributing personnel and materiel in order to expedite training and deployment of Army units.

During October and November 1978, the existing mobilization system was again tested in Exercise NIFTY NUGGET/MOBEX 78. MOBEX 78 represented the Army's portion of a joint exercise by the Army, Navy, Air Force, and other concerned federal government agencies, which was designed to review and practice all the mobilization and deployment actions required during the first thirty days of a general war. It also served to evaluate the efficiency of the Army's corrective actions taken as a result of experience in MOBEX 76 and the implementation of its mobilization improvement program.

Following the completion of MOBEX 78, FORSCOM learned that serious deficiencies still existed in its mobilization plans and

procedures. Typical major problems underscored by this exercise—as reported upon last year—included deficiencies in existing personnel systems, mobilization station capacity, training base expansion, medical support, materiel and ammunition supply, industrial preparedness, automation and communications support, rapid reinforcement planning, manpower, and command and control capabilities. During the remainder of 1979, FORSCOM developed and carried out an updated mobilization improvement program designed to correct the deficiencies stemming from MOBEX 78, the first simulated, governmentwide mobilization since World War II.

The 1976 and 1978 mobilization exercises also revealed major deficiencies in Army staff planning which included poor planning and coordination between the active component and the reserve components, failure to tailor its mobilization plans to fit its operational plans, and poor organizational planning for the transition from peacetime to wartime. These deficiencies attracted the attention of the Secretary of Defense and the Joint Chiefs of Staff as well as the Army. During the summer of 1979, Secretary of Defense Harold Brown recognized a need to improve coordination and planning in the area of manpower procurement during mobilization. On 22 August 1979 the Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics (MRA&L) sent a memorandum to the Secretary of the Army requiring the Army to work closely with the Selective Service System (SSS) in pursuit of this goal. The U.S. Military Enlistment Processing Command (MEPCOM) is a DOD field agency responsible for operating and supporting the Armed Forces Examining and Entrance Stations (AFEES). HQDA acts as the executive agent for the DOD in all matters pertaining to the operation of MEPCOM and the AFEES.

On 21 August 1980 the director of the SSS and the commander of MEPCOM signed a Memorandum of Understanding (MOU) regarding combined examination and induction processing. During mobilization, the SSS and MEPCOM will jointly manage the flow of registrants to the AFEES in accordance with manpower requirements established by the DOD. MEPCOM and SSS began work on establishing a joint computer facility at Great Lakes Naval Base, Illinois, known as the Joint Computer Center (JCC) and scheduled to become operational in the middle of the summer of 1981. They will also establish a backup automatic data processing facility for use in the event of a major computer outage.

The JCS established the Joint Deployment Agency (JDA) on 31 March 1979. Service Memorandum 185-79 directed that JDA serve as a central coordinating authority for mobilization deployment planning and execution. It charged JDA with developing on a priority basis a system which, making use of existing arrangements, would support

deployment planning and assist concerned staff agencies and commands in managing movements and tracking deployments of units, supplies, and personnel during an actual deployment. JDA developed the Joint Deployment System (JDS) by using the Deployment Management System (DEPMAS) created by USREDCOM as its basis. Integration of the JCS Unit Status and Identity Reporting System (UNITREP) and individual reporting systems used by the service component commands of USREDCOM completed the structure of the JDS.

Prior to the development of a crisis situation, the JDS complements the deliberate planning procedures defined in the Joint Operations Planning System (JOPS) by assisting the unified commands in refining data and resolving shortfalls in their Operation Plan Time Phased Force Deployment Data (TPFDD). The JDS also provides a means via the Worldwide Military Command and Control Systems (WWMCCS) intercomputer network whereby planned deployment data can be routinely maintained to ensure that the data is accurate and up-to-date. During exercises and crisis situations, the JDS complements the crisis action system procedures defined in the JOPS and Time Sensitive Operations Procedures (TOP) by monitoring the status of unit, logistic, and personnel deployments through updates to the deployment data base by Operational Readiness Report (OPREP)-1 messages from unified commands. The JDS manages changes in transportation schedules during deployment through interaction with the Transportation Operating Agencies (TOA) and it provides the JCS with an analysis of the impact on the deployment plan when the JCS decides to change the sequence of force deployment. The JDS also gives interested staff agencies and commands continuous reports on the current status of deployment during a crisis situation. During fiscal year 1980, the Army participated in conferences to refine TPFDD for various joint plans and in maintenance procedures for other joint plans; it also took part in several exercises involving the JDS during the year.

The Army continued to focus its attention on its mobilization planning deficiencies that were highlighted by MOBEX 76 and MOBEX 78. The response to these deficiencies came at two levels—further detailed examination of the problems and, concurrently, immediate reform of those flaws that were readily apparent. CAA conceived a study of the requirements for total mobilization to satisfy U.S. strategy in a worldwide conflict focused in NATO based on the after action report on MOBEX 78, which noted a lack of detailed assessment of manpower, resources, industrial base requirements, and force requirements during sustained conflict. The main thrust of this critique suggested a need to first reexamine the total problem

rather than immediately implement specific reforms. CAA designed the Requirements for Total Mobilization Study (RETMOB) to address the question of force requirements in a sustained conflict in an analytical way and to provide a point of departure for subsequent studies addressing other complex requirements of expanding and sustaining the Army in wartime. RETMOB focused on divisional forces rather than support units and attempted to determine the magnitude of the force needed under total mobilization requirements. After making certain assumptions, the study established a theoretical force ratio between friendly and opposing forces necessary for a successful defense of Western Europe and constructed a trend line of force levels over a period of time. The study, still in progress at the end of the fiscal year, consisted of three phases. In phase one, scenario development, the U.S. Army War College Strategic Studies Institute (SSI) published a long war scenario on 1 March 1979. It focused on a protracted war which lasted for more than two years and required the United States to implement its plans for total mobilization. Phase two, scenario approval, involved refinement of the SSI study by ODCSOPS working in conjunction with CAA and the Office of the Assistant Chief of Staff for Intelligence's (OACSI) Red Team, a group of intelligence analysts who specialize in Soviet affairs and play the aggressor forces in war games. The results went to CAA on 26 June 1980. The third phase, force analysis, continued through the end of the fiscal year with a draft depicting division force requirements for Allied Forces, Central Europe, expected to be completed soon by CAA.

Army Command and Control Study (ACCS)-82 was chartered to make recommendations to improve CONUS command and control with emphasis on the transition from peacetime to wartime operations. Completed in the summer of 1979, ACCS-82 recommended development of an Army Mobilization Planning System (AMPS). The DCSOPS established the AMPS Office in his Directorate of Operations in October 1979. The new organization sought to systematize and formalize Department of the Army mobilization planning. The office would clarify major command and Army Staff responsibilities and integrate the mobilization planning done by all the major commands. It would knit together near-term and mid-range planning and ensure that mobilization and deployment planning meshed. By applying automatic data processing to the planning process, the AMPS office sought to improve the results. ACCS-82 envisioned that the office would document the planning system, fill voids in the process, resolve conflicts in guidance, and compile a comprehensive set of instructions which would provide usable centralized

guidance to all Army commands, both active and reserve components.

The instructions, the Army Mobilization and Operations Planning System (AMOPS), were scheduled for publication in four volumes beginning early in fiscal year 1981. The AMPS staff envisions AMOPS as a single, integrated planning system which will support Army participation in joint operations and deployment planning, and support mobilization and deployment planning under the Joint Strategic Capabilities Plan, the Department of Defense Mobilization Master Plan, and the Department of Defense Policy Guidance for Contingency Planning, still in draft form as of 30 September 1980. In addition, AMOPS will provide short-range, current capability planning and replace the current Army Capabilities Plan and Headquarters Department of the Army Mobilization Standard Operating Procedure, and dictate revision of selected Army regulations. Principal planning products of AMOPS will be the HQDA Mobilization Plan and major command mobilization plans, which collectively will be called the Army Mobilization Plan.

The Army also began developing the Mobilization Base Requirements Model to provide a method of determining the manpower, equipment, and force structure required in CONUS to mobilize, deploy, train, and sustain the total Army during full mobilization. The work consists of three phases. During the first phase, which ended 30 September 1980, a Department of the Army study group developed an initial design concept and defined the scope to the CONUS base. The second phase, scheduled for completion on 1 July 1981, will involve the design of a model and creation of a preliminary program. During the third phase, CAA and a private contractor will complete programming, testing, and implementing the model. The CAA anticipated completion in April 1982.

In fiscal year 1980 the Army introduced the CAPSTONE program. It aligns active and reserve component units in accordance with their wartime mission. CAPSTONE reflects the requirements of a mature European theater (D plus 90 days) and the concomitant expansion of the major commands in CONUS to train, deploy, and sustain twenty-four divisions as well as prepare for total mobilization. It is the basis for major improvements in unit planning and training for their wartime role.

The Army developed the Mobilization Personnel Processing System (MOBPERS), an automated data processing system, to assist in the preparation for and rapid execution of personnel mobilization actions and thereby correct deficiencies revealed in the 1976 and 1978 mobilization exercises. MOBEX 78 demonstrated that prepositioning

data on reserve personnel at mobilization stations greatly assisted the process. During 1979, RCPAC worked with representatives from the Office of the Deputy Chief of Staff for Personnel (ODCSPER), the Military Personnel Center (MILPERCEN), and FORSCOM to develop a set of procedures that the Army could use to mobilize the members of the Individual Ready Reserve (IRR) and to accession all reserve component personnel, both unit and IRR, to the active component data base.

The resulting system,MOBPERS, seeks to complete as many actions as possible during peacetime so that transfer of information will be minimal after M-day. It requires ODCSOPS to provide complete mobilization locator data (ALOC) and authorization (VTAADS) data to MACOMs, MILPERCEN, RCPAC, and the mobilization stations on a periodic basis. The National Guard Bureau (NGB) provides RCPAC with the mobilization requirements. RCPAC will utilize NG unit personnel data to identify the reserve component mobilization requirements. Using the total active component and reserve component requirements, RCPAC will preassign IRR members to mobilization stations based on requirements of each unit at the station. It will furnish the mobilization stations with the reserve component unit and IRR accession data. MOBPERS will generate up-to-date reports identifying shortfalls and assets for use by RCPAC, ODCSPER, FORSCOM, MILPERCEN, specialty branches, and mobilization stations. Monthly MOBPERS reports to mobilization stations will advise the installation commanders what personnel will become available upon mobilization to meet requirements to fill early deploying units and to staff installation requirements.

MOBPERS gives an installation commander a unique flexibility during mobilization. He can use the unit that MOBPERS has selected for an IRR member or change the assignment. Having the basic information prior to mobilization allows the installation commander to adjust assignment priorities as required. MOBPERS also develops a list of excess personnel by military occupation specialty (MOS) for each unit on an installation. The installation commander can reassign excess personnel, regardless of component, to other units to "top them off" prior to deploying. This procedure, called cross-leveling, has generated considerable concern in the Army National Guard for fear that Guard units could lose authorized personnel as well in the absence of written ODCSPER and FORSCOM guidance on cross-leveling limitations and procedures. During the year, the Army limited cross-leveling to units within a single installation. In fiscal year 1981 it proposes to test cross-leveling between installations.

The Army fielded MOBPERS throughout the service at an RCPAC-hosted conference conducted from 8 to 11 September 1980

in St. Louis, Missouri. The conference trained users in MOBPERS procedures; distributed MOBPERS pre-position data to mobilization stations; discussed the interrelationship between MOBPERS, the Standard Installation Division Personnel System (SIDPERS), and SIDPERS-Wartime (WT); and provided information on personnel procedures for use during MOBEX 80. The SIDPERS stores individual data about members of the active and reserve components so that it can be transferred and updated automatically without the need to fill out additional forms. SIDPERS-WT is a streamlined version of the peacetime SIDPERS. In the former the number of data items per individual is dramatically reduced.

During the year, the Army developed a program for the recall of retired Regular Army and reserve component personnel if they are needed in a future full mobilization. RCPAC worked on a data base on retired personnel. The major commands and the field operating agencies have identified CONUS positions on tables of distribution and allowance (TDAs) and mobilization TDAs that could be filled by retirees. RCPAC provided an analysis of an assets-requirements match to ODCSPER on 11 October 1979. It was one of the deciding factors to continue the Retiree Mobilization Program.

Section 672 (a)(1), Title 10 United States Code provides authority for ordering members of the Retired Reserve to active duty in time of war or national emergency declared by Congress. Section 3504, Title 10 United States Code provides that the President may order any retired member of the Regular Army to active duty. An opinion by the Office of The Judge Advocate General indicated that the Army can issue preassignment orders to Regular Army retirees, but to meet statutory requirements Retired Reservists can only be issued instructions predesignating their mobilization station. When the contingencies of Section 672 (a)(1) are met those predesignated Retired Reservists who are needed will be issued mobilization orders.

The Office of the Secretary of Defense agreed to age ceilings below which retirees would be subject to recall: general officer—64, warrant officers—62, and all others—60, excluding O-1s and E-4s and below. The Army identified retirees in three categories. In Category I, they meet age and grade criteria, were not retired for permanent disability, and retired less than five years ago. Category II retirees are the same as Category I except that they retired more than five years ago. Category III consists of all others.

HQDA Letter 601-80-2, 26 March 1980, established a revised time schedule for development of the retiree recall system and preassignment of retired Army personnel for mobilization; set up a pilot program for the issuance of mobilization preassignment orders to some Regular Army retirees beginning in May 1980 and extension

of this program during fiscal year 1981; and provided policies, procedures, and responsibilities for implementation of the fully extended program.

The pilot program began in May 1980 with the mailing of mobilization preassignment orders to 1,102 Category I Regular Army retirees preassigning them to Fort Benning, Georgia; Fort Carson, Colorado; Fort Lewis, Washington; and Fort Riley, Kansas. These orders direct when and where to report for active duty following news media announcement of full mobilization. The Army expects full expansion of this program to all Category I Regular Army officers and enlisted men and Category II Regular Army officers in January 1981. Provided that Congress establishes the necessary statutory authority, the Army will ultimately expand the Retiree Mobilization Program to include the issuance of preassignment orders to Category II Regular Army enlisted retirees and to Category I and II Army of the United States (AUS) retirees. As of 30 September 1980 the Office of Management and Budget (OMB) was reviewing proposed legislative changes to allow preassignment of AUS retirees.

In fiscal year 1980, DOD approved the program to allow retirees to augment the sixty-seven AFEES. The department directed the Army to furnish 2,626 retirees, many of whom have medical skills. As of 30 September 1981, HQDA had worked out detailed procedures with the DOD and MEPCOM. The Army expects to fill all positions identified for retirees by January 1981.

The 1976 and 1978 mobilization exercises affirmed what experts already knew: The Army lacked a workable wartime personnel replacement system. The problem was threefold in that there was a doctrinal void on how the replacement system should work, there were no units in the force structure designated to accomplish the mission of CONUS based replacement operations to support a theater of operation, and the Army had not specified which command had the responsibility to establish personnel replacement centers.

ODCSPER, in conjunction with TRADOC's Soldier Support Center, developed a CONUS Replacement Center (CRC) concept during fiscal year 1980. General Meyer directed that MOBEX 80 include a test of the concept. During the exercise, personnel identified as individual fillers would report to CRCs established at selected TRADOC installations, where they would be equipped, processed, and transported to nearby aerial ports of embarkation for movement to the theater of operations.

The great cantonments and facilities that supported the World War II, Korean War, and Vietnam War mobilizations are in the main gone from the real property inventory of the Army. The few remaining temporary World War II wooden barracks have little or no

life or utility left for future national defense emergencies. During fiscal year 1980, the Chief of Engineers initiated action to define construction requirements, project by project, for the first 180 days of a full mobilization of the force. The Corps of Engineers also reviewed and updated emergency policies, procedures, and organizations related to mobilization.

In preparation for its role in Exercise PROUD SPIRIT/MOBEX 80, FORSCOM established a separate MOBEX Task Force within its Office of the Deputy Chief of Staff for Operations in December 1979. During the remainder of the fiscal year, the FORSCOM task force attended a series of planning conferences hosted by the JCS, the Department of the Army, and FORSCOM. It prepared the FORSCOM MOBEX 80 Exercise Directive as well as a FORSCOM Evaluation Plan and associated Data Collection Plan. It also planned for and conducted FORSCOM's Installation Commander's Conference in April 1980, which centered on mobilization and FORSCOM's overall role and responsibilities in MOBEX 80, scheduled for November 1980. The task force developed a two-year cyclical model for the mobilization and deployment exercises that will use the lessons learned and issue improvements and solutions from the previous MOBEX in determining the objectives for the next exercise. In 1976, OMB published Circular A-109 which charged the services to perform mission area analyses. A mission area analysis (MAA) is an examination of the capability of an organization to perform its assigned functions. For the Army this means its ability to conduct land warfare and involves an assessment of its ability to counter the threat posed by the land forces of potential enemies at the present time, in the mid term, and in the long term. If there is a gap between enemy and U.S. capabilities in favor of the former, the question becomes one of how best to fill it. Is it a matter of changing doctrine or organization, improving existing weapons or developing new ones, or simply a question of more men and equipment? In 1979 the Department of the Army provided TRADOC with guidance on how to conduct mission area analyses and made the command responsible for twelve MAAs which encompassed its development functions. TRADOC reviewed existing studies within each mission area and began to develop a preliminary analysis, an effort the command labeled Phase I. Phase II will consist of a more comprehensive analysis. By the end of the fiscal year, TRADOC had completed six Phase I MAAs, had drafted four more, and had begun work on the remaining two.

Congress eliminated the Army's Theater Nuclear Force Survivability, Security and Safety (TNFS3) funds for fiscal year 1980, and the Army removed the TNFS3 study funds from the fiscal year

1981 and subsequent budgets. The Department of Defense directed the Defense Nuclear Agency (DNA) to support the tactical nuclear survivability programs of the services. During 1980, DNA provided $182,550 in direct support of the Army's TNFS3 program, $100,000 of which went to fund TRADOC's System Analysis Activity (TRASANA) wrap-up of the TNFS3 program. The money was used for salaries and administrative expenses. TNFS3 action groups received $82,550. A total of five action groups (Pershing, Storage Sites, Cannon, Lance, and Atomic Demolition Munition) composed of U.S. and NATO military officers, government officials, and contractor personnel met to reduce the reams of TNFS3 studies to usuable documents. The most significant effort was to determine the priority of the system corrections. At the end of the fiscal year, the Army staff was reviewing the Pershing report while the Army was planning to publish a NATO version of the report, and the MACOMs were commenting on the Cannon report which was at the Joint Atomic Information Exchange Group (JAIEG) for review prior to release to appropriate allies. ODCSOPS anticipated that the storage site report would be published in January followed by the Atomic Demolition Munition and Lance reports.

TRADOC conducted the Tactical Nuclear System Program Review (TNSPR) on 18 and 19 December at Fort Sill, Oklahoma. System Program Reviews are meetings designed to provide senior Army management consideration of critical tactical nuclear issues which require special attention. Attended by senior Army leaders from the major commands and the Army staff, the sessions were chaired by General John W. Vessey, the Vice Chief of Staff. The TNSPR began with a series of background briefings on the concept for theater nuclear weapons employment, integrated battlefield operations, nuclear stockpiling, selective release procedures, NATO nuclear operations, and the TRADOC action plan. Four panels consisting of general officers then formed to address operations on the integrated battlefield; command, control, communications, and intelligence; battle support and reconstitution; and training.

Following the program review, TRADOC prepared a summary report which the HQDA TNSPR Steering Committee reviewed. The committee recommended to General Meyer that he approve the summary report recommendations, modified to include chemical issues common to the integrated battlefield. On 18 July 1980 the Chief of Staff directed TRADOC, DARCOM, FORSCOM, and Communications Command to develop implementation plans. One month later, a Chief of Staff Memorandum ordered the appropriate Army staff agencies to also prepare implementation plans. General Vessey will chair a series of in-process reviews on both chemical and nuclear

systems to coordinate action and measure progress. Users, combat developers, and trainers will participate. The first in-process review was scheduled for 18 December 1980.

During fiscal year 1980, the alleged use of chemical agents in Afghanistan and Laos focused attention on the Soviet capability to wage chemical war and to defend themselves in a chemical environment. These events presented a need to reassess the U.S. chemical warfare policy and capability. Secretary of Defense Brown directed the Defense Science Board to analyze the problem. The study, conducted at the U.S. Naval Ocean Systems Center, San Diego, California, from 3 to 15 August 1980, sought to: define the significant element of the chemical warfare policy, doctrine, and capability of potential enemies; determine the role of the U.S. offensive and defensive chemical capabilities in both long term and short term strategies; evaluate the U.S. chemical warfare defensive posture as it relates to inhibition of operational capabilities, equipment design, proper mix of science and technology to accomplish programs and the development of requirements; define the near term and long term research, development, test, evaulation and acquisition strategies for offensive capabilities; and determine the status of our NATO allies' chemical warfare capability and how U.S. policy and posture should be coordinated. Participants in the study included representatives from all the military services, the Department of Defense, the Joint Staff, the Department of State, the Arms Control and Disarmament Agency, academia, and industry.

They concluded that chemical warfare should receive more of a focus at the level of the Office of the Secretary of Defense, the threat of chemical warfare was real and significant, the U.S. defensive chemical posture had to be improved, and demilitarization of U.S. chemical weapons was a serious issue that had to be resolved rapidly. The Secretary of Defense supported the idea of a focal point in his office and as an interim measure, pending a permanent arrangement, created an ad hoc Chemical Warfare Steering Committee with representatives from Defense, Joint Staff, Defense Intelligence Agency, and the military departments under the sponsorship of the Office of the Assistant to the Secretary of Defense for Atomic Energy. The Secretary directed the committee to recommend an organizational structure and develop a draft plan to guide Department of Defense management of chemical warfare.

On 28 and 29 May 1980 General Vessey chaired the Chemical System Program Review (CSPR) at Fort McClellan, Alabama. Five general officer panels considered the employment of chemical weapons and chemical force structure; chemical weapons systems; training; sustaining the force on the integrated battlefield; and smoke

doctrine, materiel, and training. The panelists defined the problem, conducted their analysis, and proposed remedial actions in terms of the concept of the integrated battlefield—the idea that the Army must be prepared to fight from the first day of war on a battlefield where all conventional, chemical, and nuclear weapons are employed. They produced the Chemical System Program Review Action Plan, a prioritized, time-phased blueprint for chemical readiness from the present to the early 1990s. It represented the first time that the Army had come to grips with the problems of chemical warfare and produced an action plan which moved chemical issues from the periphery and into the mainstream of preparing the Army for the modern integrated battlefield.

In cooperation with the Army, the American Defense Preparedness Association (ADPA)—a nonprofit organization composed of academicians, military officers, and industry representatives which seeks to facilitate coordination between industry and the military on critical defense problems—sponsored a symposium at Fort Belvoir, Virginia, from 30 October to 1 November 1979 on nuclear, biological, and chemical (NBC) defense systems. The Army hoped to stimulate increased interest among qualified domestic and foreign companies in NBC defense efforts. To lend emphasis to the importance with which the Army viewed chemical defense and industry's potential role, the then Under Secretary of the Army, Dr. Walter LaBerge, presented the keynote address. Dr. LaBerge suggested the following priorities: total NBC protection for all new vehicles, effective collective protection for current vehicles, introduction of cooling for the individual protective overgarment, research and development management to ensure a comprehensive and coordinated effort, special emphasis on medical support systems and effective antidotes for self-aid and first-aid, and high level involvement and follow-up to sustain momentum and a sense of urgency. ODCSOPS, which handled the Army side of the conference, expressed satisfaction with the degree of industry involvement and the candid exchange of views.

TRADOC inagurated the how-to-fight series of field manuals in 1976 with the publication of Field Manual (FM) 100-5, "Operations." With the series well along in production in fiscal year 1980, the command began planning the revision of the manuals to incorporate new doctrine based on the systems, tactics, and organizations stemming from the Army 86 Studies. The series revision would also incorporate the chemical contingencies of the "integrated battlefield," and put more emphasis on the offense, on enemy operational maneuvers besides breakthrough operations, and on worldwide contingency operations as well as NATO.

In 1977 TRADOC began to emphasize doctrine in the development process. On 1 October 1979 the command established the Office of the Deputy Chief of Staff for Doctrine to further order and clarify the production of doctrine. TRADOC intended the new office to formulate sound doctrinal fundamentals in the form of operational concepts for placement at the base of all future Army developments—materiel, force structuring, and training as well as doctrine. In June 1980 TRADOC published the first two of these operational concepts, one on Army tactical intelligence and the second on tactical command and control. The command followed in September with an operational concept for the employment of smoke.

General Donn A. Starry, the commander of TRADOC, also moved to settle the Combined Arms Center at Fort Leavenworth into its role as the organization that would manage a larger doctrinal literature program. Encompassing the how-to-fight and how-to-support manuals and other doctrinal literature produced by the Army schools, the integrating centers, and elements within the Combined Arms Center, the program would stress the active participation of instructors who are expert in their subject matter in the actual writing.

Throughout the year, TRADOC studied and developed concepts relating to chemical warfare, electronic warfare, personnel replacement operations, the integrated battlefield, and air-land operations in the 1990s. The command examined the logistical support concept for the Army portion of the Rapid Deployment Force (RDF). Work with the U.S. Air Force's Tactical Air Command (TAC) contributed to some of the most important doctrinal work produced during the year. The two commands worked through the joint Air-Land Force Applications Agency at Langley Air Force Base, Virginia, on a variety of projects. The two services continued development of joint air attack team tactics and training, a team concept that had proved effective in providing Air Force A-10 aircraft and Army attack helicopters a much higher degree of survivability than when each operated independently. The Applications Agency prepared a draft joint counter-air and air defense interim operational concept, and representatives of the two services agreed to a joint operational concept for suppressing enemy air defense.

In May 1978 the Department of the Army Select Committee approved twenty-one logistics concepts for use in planning, policy, doctrine, and training. HQDA directed Headquarters, TRADOC, to act as the executive agent for translating the concepts into doctrine and implementing the doctrine. U.S. Army Logistics Center (USALOGC) developed and obtained approval for the implementation plan. A

Department of the Army General Officer In-Process Review (GO IPR) examined the plan in June 1980. During the review, the Army decided that the role of the U.S. Army Materiel Development and Readiness Command (DARCOM) did not include general support maintenance. At the end of the fiscal year, USALOGC was executing its implementation plan and preparing for a review of actions taken and planned for January 1981.

The U.S. Army Missile and Munitions Center and School initiated a study of munitions system support structure (MS3) in 1975 to determine the doctrine and organizational structure for conventional and nuclear ammunition support and for missile supply and maintenance support best suited for the period 1976 to 1980. The study concluded that the Army should establish ammunition transfer points (ATPs) in the brigade trains of divisional and separate brigades, replace the current direct support/general support conventional company with separate direct support (DS) and general support (GS) units, combine the existing DS and GS special ammunition companies into a DS/GS unit, create a missile support battalion to provide general support of missile systems, improve the man-machine ratio to provide increased efficiency, and incorporate the throughput of ammunition into doctrine.

Throughput of ammunition is the concept that ammunition should be shipped as far forward as possible, bypassing intermediate storage areas and supply echelons in the system rather than transporting it in successive stages, thereby avoiding multiple handling. HQDA reviewed the original study and requested that TRADOC forward additional information. The command provided a transportation impact assessment, a manpower analysis paper, and revised organizational documents. Further staff work uncovered the need to identify the source of manpower spaces for the establishment of ATPs in active component divisions. DCSOPS and DCSLOG identified the necessary trade-offs during the development of Total Army Analysis (TAA) 83-87 in August and September 1983. The Army programmed implementation of the conventional ammunition DS and GS companies and ATPs for fiscal year 1983. The development of doctrinal concepts following the completion of the original draft resulted in a new concept for missile supply that was incorporated into the echelons above corps study. Work by a variety of agencies including the Army staff, TRADOC, and the Army Logistics Center resulted in a modification of the original MS3 organizations to enhance supportability in the reserve components. DCSLOG expected final approval of a modified version of the MS3 study in early November 1980.

Training and Schooling

"In any epoch, the difference between a rabble and an effective professional Army is training," notes General E. C. Meyer. TRADOC is charged with the development of Army doctrine, organization, equipment, and training. Its mission has placed it in the middle of the controversy over the all-volunteer Army. The public debate has involved many misperceptions. A high school diploma, for example, is not an accurate indicator of intelligence, but it does imply that the graduate possesses the self discipline and motivation needed to succeed in a long term task. The real definition of quality, noted General Donn A. Starry, TRADOC commander since July 1977, is military professionalism—a combination of the virtues of competence, commitment, candor, and courage. Well designed training can promote the first trait and help establish an environment that encourages the others to flourish.

In January 1979 the Deputy Chief of Staff for Operations and Plans requested TRADOC to review the Skill Qualification Test (SQT) program and to recommend changes to streamline it, reduce administrative costs, and make the SQT a more effective training tool. TRADOC completed its review late in fiscal year 1979 and submitted its proposals to the Department of the Army. After a painstaking examination by the Army staff, General Meyer approved the proposals on 29 January 1980. The general strategy for the revised Skill Qualification Test included: shorter tests, less written work, more job orientation, emphasis on performance, concentration on current skill level only, faster feedback, and testing of common tasks. For soldiers in grade E-4 and below, the skill test would not become part of the soldier's permanent record. The Army intended to implement these changes as soon as the TRADOC schools could incorporate them. In practical terms, however, due to the long lead time in preparing tests, only some changes occurred in fiscal year 1980, the bulk are to take place in fiscal year 1981.

During the spring and summer of 1980, the SQT became a subject of intense debate in Congress. Members of the Senate and House Armed Services Committee used low performance scores on the 1978 and 1979 tests to support arguments regarding the quality of the soldiers. The Department of the Army countered by stating that the SQT was primarily a diagnostic aid in training. It was not a measure of aptitude or trainability. Poor results stemmed from a combination of factors which included the poor design of some tests, high personnel turnover in some units, and unit trainers not yet geared to cope with increased demands of the individual training system.

While the final results of the 1980 tests were not available at the end of the fiscal year, preliminary indications showed a general trend of improved scores. Commanders and NCOs understood the program better and were more comfortable with its requirements. Within ODCSOPS the results permitted the muted hope that the Skill Qualification Test program had turned the corner.

The Review of Education and Training for Officers (RETO) —which addresses all aspects of officer education, training, and professional development from precommissioning through career completion—continued with phased implementation during the reporting period. On 21 November 1979, HQDA published a detailed implementation plan which set forth Chief of Staff decisions and guidance as action requirements and target dates for Army staff agencies.

Planning continued for opening the Combined Arms and Services Staff School at Fort Leavenworth, Kansas, in April 1981 with 120 students. The course, which is designed to provide requisite staff skills for duty at division and higher level staffs, will gradually expand through 1985, when all captains will attend the nine-week course between their seventh and ninth years of service.

The Army intends to expand the officer basic courses, originally scheduled for fiscal year 1984, at the earliest possible date in accordance with the wishes of the Chief of Staff. The revised courses will last four weeks. The infantry, field artillery, military police, transportation, ordnance, signal, and chemical schools will revamp their course in fiscal year 1982. The Army will expand the remaining courses in 1983.

On 19 September 1980 the Chief of Staff approved a TRADOC proposal to retain officer advanced courses in their present format. General Meyer thereby reversed a previous decision to initiate precommand courses and short temporary duty (TDY) functional courses for captain-level training. He also directed that TRADOC provide required training for officers upon designation of a second specialty. TRADOC conducted a detailed analysis of enlisted initial entry training, the basic individual and advanced individual training which all new recruits receive when they first enter the Army. The TRADOC study concluded that training should be expanded. More training would develop a more disciplined soldier and alleviate currently recognized skill training deficiencies in the program. TRADOC proposed to expand the length of basic training and one station unit training by one week and the content of programs of instructions by two weeks. The new approach increased emphasis on soldier skills: weapons; physical training; basic rifle marksmanship;

guard duty; nuclear, chemical, and biological warfare; first aid; hand grenades; individual tactical training; and marches and bivouacs received greater attention than in the past. Three new subjects—communications, map reading, and opposing forces—were added. All the major commands (MACOMs) approved the TRADOC recommendations.

Concomitantly with the decision to expand initial entry training came a decision to make it tougher. The perception had grown in the service that standards had declined over the past few years, and a consensus had developed that existing basic training challenged women but not men. Consequently, the new soldier was not tough enough in skills requiring great endurance, strength, and stamina. For over a year prior to January 1980 the Army had experimented with MOS-related physical fitness standards in initial entry training. In that month General Meyer met with General Starry to review the situation. They agreed that the MOS-related system was too complex and was at the root of the lower standards. TRADOC would develop a standard physical training test for all soldiers but with standards adjusted for the physiological differences between men and women. The physical training standards for male trainers had to be toughened.

The revised program separated men and women trainees. At the same time, to improve cadre leadership throughout the service, it standardized two-week cadre courses for all initial entry instructors and unit trainers. It revised the instruction to establish more demanding mental and physical standards. During fiscal year 1981, TRADOC will undertake a thorough evaluation of separate male-female companies and platoons in basic training to determine the optimum level of stress needed "to enhance and enrich" the combat readiness of initial entrants.

The Army undertook a number of actions to strengthen its physical fitness program in additon to the January decisions on initial entry training. In June 1980 General Meyer approved physical fitness testing for soldiers age forty and over. Previous policy had exempted personnel over forty from the physical training test. As a safety precaution, the Chief of Staff limited the over forty test to the two mile run for at least the first year of the program. Another provision in the new policy provided for special medical screening for over forty personnel in conjunction with their biennial or annual physicals. The screening system is aimed at identifying personnel with high risk for cardiovascular disease. The Army Medical Department (AMEDD) tested it at Fort Benning, Georgia, in September and October 1979, and planned to field the final system in fiscal year 1981.

DOD directed the Army in June 1980 to conduct a physical fitness

symposium for the Department of Defense. The symposium, conducted at Airlie House, in Airlie, Virginia, from 17 to 19 June, attempted to determine what actions the services could take to improve the physical fitness of their personnel. Representatives from the services and the Office of the Secretary of Defense, and physical fitness experts from the civilian community attended. Following the symposium, the conferees gave the Assistant Secretary of Defense for Manpower, Reserve Affairs, and Logistics a list of requirements for improving the physical fitness of armed services personnel.

As fiscal year 1981 approached, the Army mapped out future directions in its physical training program. The new physical training test, scheduled for implementation in October 1980, will consist of pushups, situps, and a two-mile run. The Army staff would prepare a new field manual (FM) to replace the two current manuals (FM 21-20 for men and FM 35-20 for women). Scheduled for publication in early 1981, the new manual would also outline the over forty program. At the end of the year, the Deputy Chief of Staff for Personnel considered measures to strengthen and equalize penalties for officers and enlisted personnel who were overweight or out of shape.

In January 1980 TRADOC correctly predicted that the large number of soldiers scheduled for one station unit training in the summer would severely tax the capacity of Fort Benning, Georgia. A contingency plan developed in March called for TRADOC to provide basic individual training for infantry riflemen and then ship them to tactical units on an individual basis. FORSCOM divisions which provided advanced individual training would also become units of initial assignment. Implemented in April, the program evolved so that it became one of "train and retain." Fort Jackson no longer served as a funnel. Recruits immediately went to their division for basic individual training. The new initiative grew out of the success of the U.S. Army Recruiting Command (USAREC) in recruiting unit of choice soldiers to begin their training at the same time, remain together throughout basic and advanced individual training, and continue to serve together in the division which trained them. Virtually all FORSCOM divisions participated in the program which, when it ends in January 1981, will have involved some 3,400 soldiers. Analysis of the infantry rifleman advanced individual training program will provide valuable data for the company replacement program now under examination.

On 10 June 1980 General Meyer sent a letter to all commands which implemented the Armywide Standardization Program. The program seeks to standardize procedures followed by soldiers to maintain and operate major systems. The rationale is that uniform practices will eliminate much wasted time spent teaching soldiers local

modification of basic tasks. Phase I of the program deals with combat arms units; gunnery crew drills; nuclear, biological, and chemical procedures; combat vehicle preoperational checks; and training management. Phase II will add selected tactical features, support procedures, and further training management procedures.

The Battalion Training Management System (BTMS), developed earlier, is part of Phase I of the standardization program. BTMS identifies the critical training management tasks at each leadership level in the battalion. Beginning in February 1979 and extending into fiscal year 1980, TRADOC's Army Training Board worked in conjunction with FORSCOM to present a series of training workshops for active and reserve component officers and NCOs who had not been exposed to formal instruction in the Army's latest training concepts. BTMS consists of one seminar and four workshops conducted concurrently during one week. Topics covered include how to plan, conduct, and evaluate performance oriented training. The program's secondary aim consists of creating within the division or installation a nucleus of experts who can conduct continuing "train the trainer" workshops.

By 30 September 1980, all FORSCOM active units had received BTMS workshops and were sustaining the program with internal resources. General Robert M. Shoemaker, the commander of FORSCOM, gave the BTMS high marks.

> There is no question that this TRADOC developed, standard way to teach unit leaders how to train better is a very powerful tool. We are seeing a definite upswing in training proficiency of our leaders after they have applied the lessons learned in BTMS.

Western Command completed its BTMS instruction during the year. In May, Eighth United States Army completed BTMS cadre training, and USAREUR began its BTMS cadre training in August, anticipating completion by the end of December. The TRADOC staff prepared a draft Field Manual 25-2, How to Manage Training, which was distributed for comment in September. The manual incorporates the BTMS system and, when approved, will replace Training Circular (TC) 21-5-7, Training Management in Battalions.

The Training Management Control System (TMACS) is an automated aid to help the unit commander plan training, evaluate the benefits and resource impact of training plans, and record training accomplished and resources expended. Designed for operation by soldiers without specialized computer backgrounds, TMACS was extensively tested in the 4th Infantry Division (Mechanized), the 82d Airborne Division, and the 172d Light Infantry Brigade in 1978.

Both the Assistant Secretary of the Army for Installations, Logistics, and Financial Management and the Chief of Staff

approved implementation of TMACS throughout the Army as a common costing methodology for unit training. This means that all battalions in the service will calculate the cost of individual training events the same way by using a common list of training events: the number of miles traveled, the amount of ammunition consumed, etc. The battalion training day (BTD) will measure training intensity. The differentiation between equipment and nonequipment intensive training, measured in terms of cost per event category in a BTD, will permit increased accuracy in determining training costs. General Meyer designated the ODCSOPS as the proponent agency for TMACS, and assigned FORSCOM responsibility for fielding the system. The system should begin to affect the Army budget in 1982 and will be fully implemented during 1983.

Fiscal year 1980 marked the second full year of operation for the Training Ammunition Management Information System (TAMIS), the automatic data system that compiles ammunition expenditure data to ensure authorizations are not exceeded and to provide historical collaboration of annual requirements. Experience gained through TAMIS contributed to better balanced ammunition procurement programs in the 1981 budget and in the 1982 through 1986 program objective memorandum. In both cases procurement is less than required to provide training ammunition at historic levels. The Army extended the TAMIS to most CONUS installations during fiscal year 1980.

Constraints on training continued during the fiscal year. Ammunition shortfalls, inadequate land and facilities, and the increasing costs of fuel, parts, and moving to and from training areas reinforced the move toward greater emphasis on training devices and simulators. In addition to improving quality of training, the devices and simulators can also compensate for resource shortages.

The Army made increased efforts to ensure that training devices supporting major new weapon systems received sufficient priority to allow early delivery concomitant with placing the weapon in the field. Major Army commands procured nonsystem training devices locally at accelerated rates to sustain soldier skills between infrequent major field and live firing exercises. Local procurement supplemented the continuing Armywide efforts.

During 1980, a program objective memorandum addressed training devices and simulators in detail for the first time. It described and justified each item of training equipment costing more than $1 million in any one year. This effort helped to focus Army and Department of Defense attention on the costs, cost trade-offs, and training benefits derived from the development and procurement of devices and simulators.

Faced with a decade of modernization, the Army moved to ensure that adequate training accompanied the introduction of new equipment. Army Regulation (AR) 350-35, New Equipment Training and Introduction, published in December 1979 and effective 15 January 1980, required coordinated planning by equipment developers, Army trainers, and the receiving organizations and encouraged innovative forms of training. Because some equipment that the Army planned to introduce in the eighties would require totally new concepts and skills and because commands differed greatly in their capacity to absorb new materiel, the regulation tailored training to meet local conditions. Planning for fielding the XM1 tank and infantry and cavalry fighting vehicles during fiscal year 1980 dramatically illustrated the new policy. The plan called for variations in the receiving major Army commands but provided for detailed crew-level training of every newly equipped unit over the years of materiel fielding.

During 1980, the Army made a major shift in emphasis in aviation training. It directed the major commands to perfect techniques and tactics to meet the current threat and to undertake a vigorous training effort to support the ground commander around-the-clock, with particular emphasis on providing support during adverse weather conditions.

To accomplish this new approach in aviation training the U.S. Army Aviation Center and School at Fort Rucker, Alabama, revised the Aircrew Training Manuals to reflect increased combat oriented individual aviator tasks and iterations. The Army directed the major commands and the U.S. Army Aviation Center standardization teams to emphasize combat mission capability when conducting unit evaluations. TRADOC began to develop a realistic joint airspace management plan. U.S. Army Materiel Development and Readiness Command (DARCOM) expedited aircraft work modification orders which will improve the night vision goggle training capability. New aviators at Fort Rucker began receiving early training on meeting the threat posed by sophisticated Soviet weaponry. Instructors at Fort Rucker emphasized realistic nap-of-the-earth flying.

In fiscal year 1980 Army aviators flew over 1.2 million miles in rotary and fixed wing aircraft and over 275,000 hours in flight simulators. As more simulators become available, particularly those with visual displays, they will allow the substitution of simulator hours for flying time with no loss in efficiency but with considerable savings in cost.

Planning during the fiscal year for mobilization of the Army training base concentrated in two areas: refinement of earlier, staff generated capacity estimates and programming resources required to accommodate the training base expansion required for mobilization.

A thorough analysis conducted on an installation-by-installation basis revealed that while the mobilized training base could provide enough trainers to accept 133,000 new soldiers during the first month of mobilization, the availability of equipment and supplies might severely limit the training capability. Although the Army had sufficient equipment to accommodate this first month surge of trainees at the end of the fiscal year, other high priority claims might divert these supplies.

An exercise is planned for early in fiscal year 1981 to test equipment distribution during an emergency. Fiscal programming initiatives in the Army program objective memoranda for fiscal years 1982 through 1986 provide for substantial initial mobilization investments in supplies, planning, personnel, and equipment for the mobilization training base.

As a result of President Carter's decision to upgrade the nation's conventional warfighting capability in Europe, the Secretary of Defense directed the Army to increase the amount of Prepositioned Materiel Configured to Unit Sets (POMCUS) in Europe. Force Packaging Methodology, an Army program, provides planning levels for equipping Continental United States POMCUS units and late deploying reserve component units at levels as low as 10 and 50 percent of TOE, respectively, in order to achieve additional POMCUS and sustain the D to D plus 30 force. In October 1978 General Frederick J. Kroesen, the Vice Chief of Staff, directed the Army staff to define the impact of additional POMCUS and report it to the Office of the Secretary of Defense. The Army conducted two assessments to determine the Minimum Equipment Levels for Training (MELT) for active and reserve component units.

The purpose of active component MELT was to assess the impact on personnel, logistics, training, support requirements, and structure of a 30 percent equipment reduction and to identify approaches which would offset adverse impacts. FORSCOM conducted the assessment at Fort Carson, Colorado, from January through December 1979 and provided its report to HQDA on 19 March 1980. FORSCOM indicated that while a 70 percent equipment level can work, it does so only at high cost. Reduced equipment levels resulted in overextended resources and required intensive management of training, support, logistics, funds, personnel, and structure. MELT also caused negative training and readiness impacts due to increased turbulence and use of nonstandard techniques.

Reserve component MELT proposed to determine the minimum equipment levels required for training to achieve readiness capabilities necessary to support war plans. An ad hoc group, sponsored by ODCSOPS, conducted the assessment with major command

participation. Results indicated that no single equipment level is appropriate for all units. Many factors influence required equipment levels, including geographic dispersion, training levels, unit strength, and deployment goals. Equipment withdrawals down to 50 percent will not meet reserve component premobilization or post mobilization requirements.

On 10 April 1980 General Meyer received a briefing on the results of both assessments. The Army will continue to meet established POMCUS objectives by selectively reducing equipment levels, using the parameters determined by the MELT assessments.

During fiscal year 1980, TRADOC developed a standardized Reserve Component Noncommissioned Officer Education System to enhance the professional development and knowledge of soldiers assigned to both Army National Guard (ARNG) and Army Reserve units. Established by combining the best of current ARNG courses, Army Reserve programs (to include the primary NCO course for combat arms), and active component lesson modules, the program focuses on training required of soldiers in combat arms, combat support, and combat service support units. The Army scheduled the program to begin formally on 1 October 1980. A number of ARNG State Academies and Army Reserve Schools incorporated these programs well in advance.

The Army also completed plans during the fiscal year to acquire adequate training land for combat units stationed at Fort Carson, Colorado. The shortage of space for maneuver training has adversely affected combat readiness of these units. Combat units need sufficient space to maneuver against an opposing force over actual distances in realistic time. It is essential that each battalion be able to train at its home station to attain basic combat skills before participating in advanced training at the Army's National Training Center (NTC) at Fort Irwin, California. As early as December 1978, the Army approved studies which verified that existing maneuver training areas at Fort Carson were inadequate for mechanized training. Subsequent analyses identified two possible training sites in southeastern Colorado that are within one day's travel from Fort Carson. Both sites contain over 200,000 acres which would provide adequate space for training while preventing environmental damage to the terrain from overuse. Units at Fort Carson would travel to the area twice a year to conduct mechanized maneuvers under simulated tactical conditions. The Army will select one site and later present it to Congress for approval.

The Army developed the concept of a national training center in 1976 to provide combat battalions advanced, intensive training and objective evaluations of unit performance on a realistic battlefield.

Common scenarios, instrumented ranges and permanently stationed controllers, an operations group and opposing forces (OPFOR) will eventually provide an independent measure of Army training readiness. The Army will phase the NTC into Fort Irwin over the next four years. By fiscal year 1984, 21 FORSCOM battalions will rotate to the NTC for two weeks annually. The Center will concentrate on training at the battalion task force level. Currently under license to the California Army National Guard, Fort Irwin will become a FORSCOM installation on 1 July 1981. FORSCOM is the lead agency in planning and operating the NTC. TRADOC has a support role; it is developing the NTC training environment.

Congress provided initial funding for the NTC in the fiscal year 1980 budget. These funds provided for initial staffing of the NTC, facility rehabilitation at Fort Irwin, and some initial startup costs. The Army published AR 350-50, which details the policies and major command responsibilities, on 15 March 1980. By 30 September, HQDA had approved the staffing levels of the NTC and Fort Irwin. The Army Science Board established an ad hoc subgroup to review the second generation of NTC instruments. Its interim report, published in September 1980, strongly supported the NTC program and recommended several actions to enhance the NTC instrumentation system. The Army also established a general officer steering committee during the year to oversee the establishment of the NTC. Chaired jointly by the Deputy Commanders of FORSCOM and TRADOC, the committee also includes the director of training, ODCSOPS, TRADOC's deputy chief of staff for training, the assistant chief of engineers, the commander of the TRADOC Combined Arms Training Activity, and the commanding general of the NTC and Fort Irwin.

The Army's training for urban combat remained inhibited in fiscal year 1980 because of the lack of adequate training facilities. Approximately 10 percent of U.S. Army units in Germany had access to training facilities. In the United States local initiatives at Forts Lewis (Washington), Campbell (Kentucky), and Benning (Georgia) provided innovative training for only a small segment of the force. The Army plans to construct urban warfare training facilities beginning in fiscal year 1981 and ending in fiscal year 1986. All U.S. divisional installations as well as the Hohenfels Training Area in Germany will receive a facility. The first, scheduled for Fort Bragg, North Carolina, in 1981, received Congressional approval during the fiscal year. The urban warfare training facilities, in addition to correcting a long neglected training deficiency, will provide the experimental training necessary for the validation of doctrine, combat developments, and equipment testing.

The JCS Exercise Program is an extremely important aspect of Army training. These exercises train the Army to participate in both joint and combined operations. The Army took part in forty-nine JCS exercises during the period 1 October 1979 through 30 September 1980. Six were command post exercises, four were communication exercises, and thirty-nine were field training exercises. The latter varied in size from battalion level operations to multi-division exercises such as REFORGER in Europe and TEAM SPIRIT in Korea.

Small unit (platoon and company) exchanges with allied countries continued during fiscal year 1980. During these exchanges, which are from two to four weeks in duration, visiting U.S. or allied small units participate in operational training with host units and become familiar with each other's weapons and equipment. The active Army exchanged with Australia, Canada, Italy, New Zealand, Panama, and the United Kingdom. The Army Reserve exchanged with the United Kingdom, and the Army National Guard exchanged with Barbados, Norway, and the United Kingdom.

The Army Training Requirements and Resources System (ATRRS) is an automatic data processing system which identifies the Army's individual training requirements at any particular time at the MOS and at the course level. The training base then provides the class schedules designed to meet these needs. The major commands may then use ATRRS to fill the class vacancies.

The ATRRS underwent a major expansion during fiscal year 1980. A number of other agencies came into the system, including the Schools Branch, U.S. Army Military Personnel Center; DARCOM; U.S. Army Infantry School, Fort Benning, Georgia; U.S. Army Armor School, Fort Knox, Kentucky; U.S. Army Training Center, Fort Jackson, South Carolina; U.S. Army Field Artillery School, Fort Sill, Oklahoma; U.S. Army Military Police School and U.S. Army Chemical School, Fort MClellan, Alabama; U.S. Army Quartermaster School, Fort Lee, Virginia; U.S. Army Intelligence School, Fort Devens, Massachusetts; U.S. Army Ordnance School, Aberdeen Proving Ground, Maryland; U.S. Army Institute of Administration, Fort Benjamin Harrison, Indiana; U.S. Army Missile and Munition School, Redstone Arsenal, Alabama; U.S. Army Intelligence School, Fort Huachuca, Arizona; U.S. Army Judge Advocate General School, Charlottesville, Virginia; Defense Language School, Presidio of Monterey, California; Institute for Military Assistance, Fort Bragg, North Carolina; and Headquarters, United States Marine Corps, Washington, D.C. The inclusion of these agencies represented the second phase in the expansion of the ATRRS to all Army schools and training centers. The Army anticipated completion of the third phase in fiscal year 1981.

ODCSOPS, TRADOC, the National Guard Bureau, and several user agencies initiated several improvements to the ATRRS during the year among which is a Mobilization Training Mangement System, a subsystem of the ATRRS which allows mobilization planning from the level of the Department of the Army staff to the individual installation. The systems team in the ODCSOPS Training Directorate made significant progress on relating the ATRRS to the Automated Recruit Quota System (REQUEST), an automated data system run by MILPERCEN which USAREC uses to manage recruitment. The team began work on linking the ATRRS with the Military Occupational Speciality, Enlisted Strength, and Personnel Management Forecasting System (FORECAST), an automated data processing system in the prototype phase. The team also expanded the Quota Management System, an on-line terminal system to reserve seats in Army schools.

The Senior Services Colleges (SSC) consist of the Army War College, Naval War College, Air War College, Industrial College of the Armed Forces, National War College, and the British, Canadian, and Australian War Colleges. In fiscal year 1980, the Chief of Staff approved selection by specialty to attend the SSC. The 1980 Selection Board used this criteria to choose students for the 1981-82 academic year. The Selection Board indentifies the best qualified officers in each specialty and makes selections based on the specialty population of appropriate rank and experience in 50 percent of all selections. Minimum floors and maximum ceilings for all specialties ensure equitable distribution. The board makes the remaining selections from among the best qualified without regard to specialty. Concomitant with these reforms the Army began a gradual reduction in the years of eligibility for selection to sixteen through twenty-one years of service. It will allow exceptions "for singularly outstanding officers" with twenty-two and twenty-three years of service. This change will be complete in 1983.

The Army War College continued to work on creating a fixed site computer supported battle simulation system (wargame) for corps command groups during the year. The objective of the program is to sharpen that tactical decision making skills of Army senior commanders through conduct of two five-day exercises per year. The War College expected the program to become fully operational in 1984.

The college aimed pilot efforts toward the development of mission specific packages, a computer simulation for a specific mission, for the 1st Infantry Division (Mechanized) and VII Corps. The division level effort at Fort Riley, Kansas, resulted in a successful test of a prototype package in August 1980. This combined effort by

the War College and the contractor, Ketron, Inc., provided a good exercise of the 1st Division's emergency deployment procedures and events at Fort Riley and equipment issue in Germany. Concurrent efforts with the VII Corps focused on development of a prewar package and a war-fighting scenario. The Tactical Command Readiness Program provided the potential for major commands to analyze, through use of wargame, "real world" problems ranging from predeployment, deployment, and combat to a return to predeployment status.

In approving the Review of Education and Training of Officers recommendations in May 1979, the Chief of Staff directed that TRADOC develop and test a standardized screening vehicle for use by the Officer Candidate School (OCS), Reserve Officer Training Corps, and the U.S. Military Academy programs. TRADOC hoped to implement a perfected program by 1 September 1981. It envisioned psychometric testing, a standard medical examination, and a performance-based assessment of leadership. TRADOC developed a concept for testing the two-year ROTC program assessment program proposed by RETO. The concept called for the Army to conduct the test during the 1981-82 academic year in sixteen schools across the country. Resources for the test would come from within programmed Army resources. TRADOC also continued development on Military Qualification Standard (MQS) I for the professional education and training of cadets and company grade officers through the tenth year of commissioned service. MQS I would provide minimum qualification standards for the U.S. Military Academy, OCS, and ROTC to standardize the competency level of lieutenants reporting to Officer Basic Courses. The Army planned to implement MQS I on a test basis at all schools in the 1981-82 school year.

TRADOC conducted ROTC Basic Camp at Fort Knox, Kentucky, in three cycles from 19 May through 14 August 1980. A total of 3,266 cadets reported to the camp, and 2,901 graduated. TRADOC held the ROTC Advanced Camps at Fort Bragg, North Carolina; Fort Riley, Kansas; and Fort Lewis, Washington. Of the 7,612 cadets who attended, 7,256 graduated and 332 received commissions at the end of camp. At the request of the Department of the Army, TRADOC gave fifty-five ROTC cadets ranger training during the year. Working in coordination with the U.S. Army Infantry School, TRADOC developed a 14-day precourse of instruction in prerequisite military skills and physical fitness for ROTC cadets who volunteered for ranger training. The cadets then attended the regular 58-day ranger course at the Infantry School. Thirty cadets earned their ranger tabs.

The U.S. Army Sergeants Major Academy (USASMA) provides a

unique opportunity for selected senior noncommissioned officers to broaden their education and, in doing so, ultimately prepare for positions of greater responsibility. Until 6 June 1980, ODCSPER had both a policy and operational responsibility for the USASMA. On that date the Army transferred operational responsibility to the Commander, MILEPERCEN. ODCSPER retained policy responsibility and authority to approve the Letter of Instruction for USASMA Selection Boards, board membership, and selection board results. MILPERCEN became the office of record for the USASMA and assumed responsibility for maintaining the USASMA Policy Book, determining and announcing eligibility requirements, providing technical support to the board, and controlling and monitoring class assignments.

During fiscal year 1980, the Army devoted increasing attention to chemical operations. TRADOC established a separate Chemical School at Fort McClellan, Alabama, on 14 December 1979.

The Enlisted Education Branch, a new organization within the Office of The Surgeon General, became the focal point for all medical training issues involving enlisted personnel. Its primary responsibilities were to determine and validate the need for new military occupational specialties and additional skill identifiers and to develop training programs to support them. An additional skill identifier indicates that an individual has added training in a specialty closely related to but distinct from his military occupational specialty. At the close of the fiscal year the branch was studying several high skill areas for inclusion into new enlisted medical fields, including health physics technician, cytotechnologist, cardiac pump perfusionist, echocardiographic technician, and urology technician.

In other medical training and education actions, the Continuing Health Education Branch developed and managed a series of ninety-four educational experiences entitled "Professional Postgraduate Short Course Program," sponsored two Army Medical Department (AMEDD) national conferences to improve continuing health education opportunities offered by the Army, and successfully completed reaccreditation by the American Medical Association. Also during fiscal year 1980, the Military Schools Branch put into operation a computer-oriented Quota Management System (QMS). This effort involved preparation of solicitation documents requesting input on 177 AMEDD courses; these were distributed to twenty-six different adressees. Additional documents listing approximately 130 other Army and other federal agency courses were also distributed to eleven different addressees for input. The Army Training Requirements and Resources System (ATTRS) forms a major portion of the QMS. The

ATTRS required constant updating of all AMEDD training requirements by component and participating agencies. Graduate Medical Education continued to be a strong viable program during the past year, providing high quality training and a key incentive to the health profession recruitment and retention effort.

4. Intelligence, Automation, and Communications

Revolutionary breakthroughs in transportation, computers, and communications have drastically reduced barriers of time and distance. In the context of a dynamic and shrunken world, American military planners must rely increasingly upon sophisticated and automated systems in intelligence and communications. Dependence upon technological superiority has become more pronounced now that we can no longer assume numerical superiority of men or weapons to the members of the Warsaw Pact. Even possession of more sophisticated equipment does not guarantee qualitative supremacy for the West unless the information collected can be rapidly processed and transmitted between national leaders and tactical commanders. Toward the objective of achieving greater "interface" between strategic and tactical echelons, Army planners must constantly develop, test, and deploy new organizations and new systems.

Intelligence

Two years after completion of the Intelligence Organization and Stationing Study of 1975, the Army merged its special intelligence agency, the U.S. Army Security Agency (USASA) with its intelligence agency (USAINTA) to form the Intelligence and Security Command (INSCOM). At echelons above corps (EAC), INSCOM worked to achieve greater collaboration and coordination between the separately managed disciplines of signals, imagery, and human intelligence. As a major subordinate command of INSCOM, the Intelligence Threat Analysis Center (ITAC) produces multidiscipline, intelligence, counterintelligence, and threat analysis in support of national and Army level consumers.

Absorption of the Army's Special Security Group (USASSG) by INSCOM marked further progress toward centralizing intelligence functions at EAC level within a single command. At the end of the fiscal year, USASSG assumed a status of equality with the numbered military intelligence groups already within INSCOM. Although the Group's functions remain unchanged, INSCOM has reduced the responsibilities of that agency's headquarters and subordinated its personnel to INSCOM's headquarters. In anticipation of future collocation with INSCOM headquarters at Arlington Hall Station, Virginia, the Group has consolidated headquarters elements into a special security detachment in support of the Army staff.

At the level of corps and below, multidisciplined combat military intelligence organizations continued to be activated in support of the tactical commander. At the corps level these units will have access to national level intelligence data. What is needed in addition is one or more systems that continuously monitor the battlefield, instantly transmit useful information to the tactical commander, and enable him to request timely intelligence from component organizations of the U.S. intelligence community. In late September 1980, the Assistant Chief of Staff for Intelligence (ACSI) sponsored a Senior Intelligence Officers Conference to update discussion of various tactical intelligence programs capable of meeting such requirements.

Included among the intelligence programs discussed at the Conference was the Tactical Exploitation of National Capabilities (TENCAP). Under TENCAP, national level systems would pass information collected by imagery and signals intelligence sensors to battlefield commanders in time to be of maximum use. The Interim Tactical Elint Processor (ITEP) and the Tactical Imagery Exploitation System (TACIES) represent two related programs. Already operational, the first provides all-source electronic intelligence to units in Europe and in the United States. When fielded, TACIES will in time provide multisource imagery intelligence directly to tactical users.

Other programs being developed at the end of the year include the Intelligence, Surveillance, and Target Acquisition Program (ISTAP), the Battlefield Exploitation and Target Acquisition (BETA) program, the Joint Tactical Fusion Program which includes part of the Technical Control and Analysis Center (TCAC), the Mobile Army Ground Imagery Interpretation Center (MAGIIC), and the All Source Analysis System (ASAS). ASAS probably represents the most ambitious effort to tie tactical commanders directly into strategic intelligence sources. It is an automated processing system designed to integrate and report information from collection, location, and detection devices; to manage collection efforts; to develop targets; and to support both operations security (OPSEC) and electronic warfare. Deployed near tactical operations centers, ASAS would be manned by military intelligence battalions (CEWI) at division level and military intelligence groups (CEWI) at corps level. Once operational it would provide divisions, corps, armies, groups, and theaters a coordinated, integrated, interoperative and mutually supportive intelligence system. The Combined Arms Combat Development Activity (CACDA) plans to field an interim version of ASAS in the mid-1980s and a fully operational system toward the end of the decade.

Automated data constitutes a common element of most tactical-

strategic intelligence systems. In June 1979, the Army delivered to USAREUR a series of mobile computer complexes forming the Intelligence Information Subsystem (IISS). The IISS provides both intelligence analysts and field commanders with automated data support upon which to base decisions in a NATO battlefield environment. During the current fiscal year, the Department of the Army began equipping the mobile computer complexes with a capability to display both data and narrative messages transmitted by DOD's Automatic Digital Network (AUTODIN). Despite successes with IISS in general and the AUTODIN modification in particular, lack of funding has cancelled plans in Europe to implement the IISS program at the corps and division levels.

The Army continued to move ahead with a second major intelligence data handling project, the Army System for Standard Support Terminals (ASSIST). By achieving compatability with DOD computerized command and control systems; internetting ASSIST-supported computers, linking them to national intelligence data bases; and standardizing ASSIST computers and programs, ASSIST will improve computer terminal intelligence analyst services and telecommunications capabilities.

During 1980, the Assistant Chief of Staff for Intelligence (ACSI) distributed one ASSIST software package, prepared another, and contracted with private firms for the development of two more. The first program linked up Army terminals with an advanced telecommunication program developed by Defense Intelligence Agency (DIA). Soon to be released, a second software package will simplify the interaction between intelligence analysts and large data bases on remote host computers. ACSI also awarded multiyear contracts for the production of two new computer programs, one to improve support for intelligence analysts and one to improve the accuracy and timeliness of ground forces order of battle in Europe. In addition, ACSI upgraded such items of computer hardware as graphics-capable terminals and additional computer memory, and installed new computers at several ASSIST sites throughout the world.

Commenting on the growing tendency to rely on ADPSs and Systems Analysis to provide intelligence, Maj. David T. Twining , an instructor at the Army Command and General Staff College, observed that "automated analytical aids and electronic information systems cannot replace the judgement, expertise, and intuition of the analyst. . . ." Major Twining's observation was made in an article in the April-June 1980 issue of *Military Intelligence* titled "Strategic Intelligence in the 1980's: Reflections on a Dynamic World."

A severe shortage of highly trained intelligence personnel—collectors and analysts—constitutes a weak link in the chain connecting

strategic intelligence producers to tactical commanders. The shortage of area intelligence specialists (MOS 97 C) was especially acute with only 45 percent of authorized slots filled in 1980. To fill the vacancies the Human Intelligence (HUMINT) Division of OACSI recommended broadened entry level requirements and began reorganizing the career field to lower entry qualifications for MOS 97 C and to accomplish administrative and support duties in the field. The HUMINT Division was also studying a proposal to recruit more area intelligence specialists by offering the incentive of career progression up through E-9. In another activity, HUMINT officials briefed thirty-five Army and Defense attaches or assistant attaches on various programs for which they may overtly obtain foreign intelligence information while at their posts.

Area intelligence specialists and attaches provide useful information regarding the strength and intentions of an enemy, while terrain and weather analysts inform commanders about the physical setting upon which the drama of combat may ultimately unfold. In recent years, terrain analysts have proven so valuable that theater topographic battalions have begun preparations to deploy five-man terrain analysis teams to Army divisions. Each team will consist of one terrain analysis technician, two terrain analysts, and two cartographers. After intensive training in terrain and weather analysis, the first class of warrant officers (terrain analysis technicians—MOS 841 A) will graduate from the Defense Mapping School early in 1981. Meanwhile, the Deputy Chief of Staff for Research and Development is studying a proposal by Materiel Development and Readiness Command (DARCOM) to replace weather analysts with artillery ballistic observers instead of civilians as proposed earlier by the Army Audit Agency and a special meteorological task force. Pending resolution of the conflicting proposals, a recently rewritten meteorological plan for action will be forwarded to the Office of the Vice Chief of Staff.

Early in 1980, ACSI carried out the Technical Evaluation of Army Tactical Signals Intelligence (TEATAC) to ascertain the proficiency of signal intelligence (SIGINT) units and to help them overcome weaknesses. At the close of the fiscal year, the Army staff was reviewing the results of the evaluation.

Intelligence analysts, especially in the more technical disciplines, require frequent refresher training on the evolving state of their art. When ACSI severed the direct organizational link between the Army's Special Security Group and the special security officers (SSOs) assigned to the tactical commands, Group officials feared loss of opportunities to provide SSOs frequent and uniform training. The U.S. Army Intelligence Center and School (USAICS) has devised a series of training video cassettes to remedy the situation and shows them

quarterly to all SSOs attending USAICS. Primarily tactical in orientation, the video cassettes also cover such nontactical subjects as contractor support. After validation of the cassettes by TRADOC, USAICS will distribute the video cassettes to each of the eight subordinate special security commands for training those enlisted personnel and officers coming into the SSO system without prior schooling at USAICS.

Under Project HOMEFARER, an Army readiness training program, ACSI will provide refresher training at Fort Hood, Texas, to electronic intelligence analysts in the collection, reporting, and processing of electronic intelligence data. Other intelligence personnel continue to receive training in foreign languages. Under the sponsorship of FORSCOM, instructors from the Defense Language Institute Foreign Language Center assigned to various posts throughout the country will provide military intelligence linguists refresher training in Russian, German, Korean, and Chinese.

In the wake of the Vietnam War and the Watergate scandal, public attention has focused on perceived misuse of intelligence collection techniques against citizens and organizations in the United States. Since 1978, Executive Order 12036 and implementing directives have sought to curtail domestic intelligence targeting, and restrict Army participation only to situations requiring coordination with the CIA and the FBI, and only then under procedures established by the Secretary of Defense and the Attorney General to protect the citizens' right to privacy.

From 1974 to 1980, Army guidance governing the use of such electronic surveillance techniques as wiretapping, monitoring, and eavesdropping—collectively known as WIMEA—had failed to discriminate between the collection of intelligence information and the use of items such as extension telephones and tape recorders in an Army office environment to monitor conversations between previously warned individuals. Because this ambiguity occasionally hampered the clandestine use of WIMEA in bona fide intelligence or counterintelligence operations, the Army subsequently published distinct and separate guidelines governing each activity.

The 1978 Presidential executive order reflected not only concern for citizens' right to privacy, but also citizens' right to know. Since 1978, the trend toward granting greater public access to government defense information has encouraged similar openness within the defense community itself. DOD officials are seeking realistic alternatives to the extraordinarily stringent protection customarily afforded "compartmented" or special security information. In May 1980 a DOD manual discussing the protection of SSO installations in the field called for controlled access consistent with the layout and

barrier desires of the commander or G-2 and the common sense dictates of combat realities. Video cassette programs explicating the new policy of common sense and flexibility prompted closer relations between SSOs and the tactical commanders they support. Similar guidelines call for more liberal and timely distribution of sanitized imagery and signals intelligence to aid tactical commanders in contingency planning, target intelligence, realistic tactical training, and better all-source intelligence analysis.

The Counterintelligence Directorate also enhanced public access to defense information by expediting the processing for classification reviews and security clearances. During fiscal year 1980, three security specialists processed over 7,500 requests to review documents for proper classification, an increase of 2,000 or 37 percent over the last fiscal year. The Counterintelligence Directorate also established a full-time position for a specialist to review Army information security procedures.

The inordinately large number of military personnel arriving in major commands overseas without proper clearances concerned ACSI. To improve this situation, clearance procedures were refined to shorten responses by the Central Personnel Security Clearance Facility. The Investigative Standards Working Group of the National Foreign Intelligence Board's Security Committee, with the participation of the Counterintelligence Directorate, produced publications to ensure propriety and sufficiency of personnel security investigations. By accelerating processing of data into the Defense Central Index of Investigations/Joint Adjudication Clearance System (DCII/JACS), the Defense Investigative Service will make clearance information available to consumers several days earlier than under the present system.

The Soviet invasion of Afghanistan prompted President Carter to cut back high technology scientific exchanges with the Soviet Union, reducing the number of Soviet scientists entering the United States annually by half. With regard to friendly countries, the Army's disclosure of defense information continued. This year the Foreign Liaison Directorate of OACSI received 9,442 visit requests, 1,618 of which were of a classified nature, and 1,605 requests for documents and information of which 731 were for classified material. Six hundred twenty-one foreign national personnel were accredited to conduct business directly with subordinate U.S. Army agencies and commands. There were 375 U.S. industrial requests for export of Army information under munition licenses.

In September, the Chief of Staff and his West German counterpart established a bilateral framework from which operational plans will be drafted to produce electronic warfare interoperability between

their two armies. In late 1979, the United States and the Saudi Arabian Government signed an agreement whereby the Army, in collaboration with the Air Force, would establish a Joint Intelligence School at Riyadh to teach Saudi military personnel various aspects of tactical intelligence and imagery interpretation. A technical assistance field team planned to inaugurate the first class of students in April 1981.

Under the Army Automation Security Program (AASP), promulgated by AR 380-380 in 1977, the Counterintelligence Directorate allotted to classified automated data the same priority of protection afforded to classified information produced by more conventional means. In an effort to enhance awareness of automation security at every level, ACSI has linked AASP to similar programs within the national intelligence community, DOD, and the Army's major commands. Within the Army specifically, ACSI has incorporated the AASP in planning, programming, and budget cycles as well as into battlefield automated systems and regulations governing systems design development. Thus far, only lack of funding retards the optimum implementation of the Army's automation security program.

Automation

While it is true that machines may never entirely supplant human analysts and decisionmakers, automation can enhance geometrically the speed and the capacity by which they collect, store, evaluate, retrieve, and disseminate information. For greatest utility automated systems must extend vertically between echelons and horizontally between commanders at the same echelon. In addition to interoperability, such systems must comprise standard, easy to replace components, so that the systems can withstand the shock of attack and the surge of wartime computer activity.

The Army meets most automation needs by contract with private industry. Through commercial and government publications, the Army's Computer Systems Selection and Acquisition Agency (USACSSAA) advertises its requirements for new hardware and invites competing firms to bid. Economies of scale in computer mass production have lately permitted firms to offer significantly reduced prices to the Army. To facilitate the acquisition process, the Office of the Assistant Chief of Staff for Automation and Communications (ACSAC) provided four seminars in fiscal year 1980, each offering step-by-step guidance to Army officials and representatives of the contracting firms. Combining good business with public service, the Army has tried whenever feasible to select the best offers from

minority-owned small businesses. In 1980 the USACSSAA paid out $2.2 million to such firms, a fourfold increase over fiscal year 1978.

Early in 1980 the Assistant Secretary of the Army for Installations, Logistics, and Financial Management tasked ACSAC with responsibility for developing and implementing a Combat Service Support Automation and Communications (CSS A/C) transition plan comprehensive enough to meet the CSS needs of every echelon from theater down to division for the next six years. He approved the resultant concept, and will use it as the master plan for future CSS A/C proposals and for improved interoperability of standard Army systems. In coordination with the Army staff and major commands, TRADOC will develop a comprehensive, integrated transition plan which an Army automation and communications steering committee will review annually before inclusion into the Army Command and Control Master Plan.

The Army has made significant progress toward the automation of several systems that implement interoperability between strategic and tactical echelons worldwide and between installations and agencies within the United States. In January 1980, the U.S. Army Communications and Research Command (CORADCOM) initiated a two-year pilot project, known as the Automated Tactical Frequency Engineering System (ATFES). Making use of the latest minicomputer technology available within the DOD's Electromagnetic Compatibility Analysis Center (ECAC), ATFES will define, develop, and implement automation of spectrum management planning and engineering systems at every echelon. Field testing will be conducted before 1982 by 5th Signal Command, 7th Signal Brigade, and Signal Corps personnel of the VII Corps and the 3d Infantry Division.

In late 1979, as part of the Corps Interim Upgrade System (CIUS), ACSAC replaced the IBM 360/40 computers at four corps headquarters with the new van-mounted IBM 370-138 mobile computers. Replacement of the fifth system at Fort Lee, Virginia, followed in January 1980. The new computers have high reliability, multiprogramming capabilities, and greater capacity than the models they replaced, and will alleviate computer saturation caused by the surge of data input and information requests during wartime.

After extensive training, ACSAC classified the prototype Decentralized Automated Service Support System (DAS3) as standard, and authorized production of seventy-one systems to replace the NCR 500 systems in the Army's inventory for direct and general support units since 1968.

The Army also employs computer systems in a non-tactical capacity to manage its real property inventories. The Integrated

Facilities System (IFS) will help Army managers to monitor the life cycle management of real property resources through design, construction, operation, maintenance, and disposal. The IFS encompasses three modules: the Facilities Engineering Management System, the Real Property Maintenance Activities System, and the Asset Accounting System. The Asset Accounting System combines physical inventory and technical reporting of facilities to aid facility inventory managers; the Facilities Engineering Management System supports the facilities engineer with daily operational information; and the Real Property Maintenance System covers reporting of installation level operation and maintenance requirements, status, and performance. With fifty-four systems operational and four more in production, the IFS was near completion and by the end of 1981, the systems will be operational in Japan, Korea, Europe, and the United States.

The Facilities Engineering Supply System (FESS), currently under development, will automate the requisitioning and control of facilities engineering supplies, and will interface with IFS by providing material cost, both by job and job phase. Installation of fourty-four FESS minicomputers will take place by 1982.

The Base Operating Information System (BASOPS) represents another outmoded non-tactical automated system scheduled for replacement. Designed to support installation management, BASOPS is a standardized, fixed-station, multi-functional computer with hardware that has become too old, too saturated, and too expensive to maintain. Operating at nearly total capacity, BASOPS cannot expand its workload two or threefold to absorb the surge of data processing that would result either from interface with newer systems or from mobilization. Under Project VIABLE (Vertical Installation Automation Baseline), ACSAC will eventually replace BASOPS hardware with a more versatile ADP resource of significantly larger workload capacity. Meanwhile, ACSAC has designated a task force to upgrade BASOPS temporarily by means of the following interim measures: reutilization of existing hardware, the addition of high speed tape drives and computer channels, and the possible use of commercial teleprocessing resources to siphon off certain work requirements.

In the rush to automate or upgrade existing systems, the Army recognizes the need for allowing field commanders and staff agency heads some flexibility in the development and operation of new systems. A new version of AR 18-1, Army Automation Management, along with thirteen supporting technical bulletins, emphasizes the need for commanders and managers to exercise such initiative, but only after extensive planning and full use of project management techniques to assure validity of requirements generated and full accountability for the systems developed.

Communications

From the strategic level of national command authorities, through the Joint Chiefs of Staff to the unified and specified commands, and ultimately to the Army's tactical units, intelligence and command decisions must travel through a variety of communications systems. Such systems support day-to-day operations and, during periods of tension, provide early warning of impending hostilities. The ability of commanders to monitor the situation and allocate resources depends upon the survivability and interoperability of communications systems at every level.

At the joint strategic level, the WWMCCS, pronounced "Wimex," has attracted considerable notoriety. In late 1979 two journalists wrote disturbing reports on the outcome of PRIME TARGET, an exercise designed to test WWMCCS computers under simulated wartime conditions. The exercise linked up computers in the U.S. Atlantic Command, European Command, Readiness Command, Tactical Air Command, and the National Military Command Center. During the test, computer shutdowns in each command frustrated attempts in a majority of instances to obtain or send information. The journalists attributed the massive failures to inability of the WWMCCS outmoded hardware to handle surges of "combat-related" message traffic, and seemed to indict the entire system for what was, in fact, the failure of one of its subsystems. A brief description of that subsystem may help to place the results of PRIME TARGET in perspective.

The WWMCCS information system consists of automated data processing equipment, interlinked computer networks, and message handling systems. Six percent of the WWMCCS budget, $140 million, is spent annually for the information system, mostly for operation and maintenance of existing systems, the rest for development of better systems for the 1980s and 1990s. The Automated Data Processing (ADP) program of the WWMCCS information system encompasses thirty-five Honeywell 6000 series computer systems and related equipment located in twenty-seven major command headquarters. Responsibility for overall use of the ADP system lies with the Communications, Command, Control, and Intelligence (C3I) Systems Directorate of the JCS.

The Honeywell computers primarily support the National Command Authority plus a wide range of military operations: contingency and integrated operations plans; military, air, ground, and sealift management; nuclear stockpile control; warning correlation; crisis and force deployment planning; and tactical air operations planning. Since the decision in the 1960s to use Honeywell 6000s, WWMCCS officials in the C3I Directorate have sought to improve

the exchange and processing of data among WWMCCS command centers by standardizing and improving both ADP hardware and software. WWMCCS officials realized that the ADP program could only support WWMCCS to the extent that ADP equipment at all command centers was compatible, that data communications links provided a direct connection ("real time") relay whenever necessary, that computerized data formats were common, and that all components of the system's configuration and operation were efficient.

In the wake of the journalistic exposes, the General Accounting Office (GAO) conducted a thorough analysis of the WWMCCS ADP program and found that, despite the cumulative expenditure to December 1979 of $1 billion on the ADP program, DOD had not and could not make the program operate efficiently without changing the program's management, structure, and direction. GAO found the present management structure so complex and fragmented that no single organization or individual had a complete overview of the program or centralized responsibility for its funding, budgeting, and management. GAO thus blamed organizational flaws and mismanagement for development of incompatible software and the installation of hardware in sites that could not survive direct attacks. GAO specifically attributed ADP's poor performance during PRIME TARGET to the selection of outmoded Honeywell computers.

Spokesmen for the C3I Directorate disputed the GAO's findings on several points, especially the contention that the ADP program was the hub of the command and control system. Defense officials maintained that they had not devised the ADP program to generate execution orders for military operations nor to warn the President, directly, of impending crises. Although an ADP system at the North American Air Defense Command (NORAD) does process missile warning data, alternate means to process and display such critical information exist at the National Military Communications Center, an alternate communications center, SAC Headquarters, and the Aerospace Defense Command headquarters.

Important though the ADP computers are to WWMCCS, they comprise only 6 percent of the system's overall resources. Command centers and communications and missile warning sensors make up the other 94 percent. Nonautomated electrical and voice communications that link command with operational units remain the most important part of the system. Computers and data communications are important to WWMCCS, but they are not sufficient by themselves, nor are they the heart of the system.

Even before GAO issued its report, the Army staff took measures to centralize overall supervision of the Army's portion of WWMCCS under one bureaucratic roof by transferring responsibility for

WWMCCS functions from DCSOPS to ACSAC. Among the functions for which the ACSAC now holds responsibility is the Army's WWMCCS Intercomputer Network (ARWIN). The Army designed ARWIN to tie in with the WWMCCS Intercomputer Network in support of the Army's intelligence, personnel, logistics, and operations systems. This provides Army decisionmakers with an integrated information and management system to support essential missions—contingency planning, readiness management, and mobilization, deployment, and sustainment of Army forces—with increased data accessibility, accuracy, relevancy, and timeliness.

Unlike WWMCCS, the Navstar Global Positioning System (GPS) represents a comparatively noncontroversial strategic communications system. Despite changing or adverse weather or lighting conditions, the Army must be able to navigate and position its weapons systems in battlefields anywhere in the world. By use of eighteen space satellites, several tracking stations, and ADP equipment, the Navstar GPS will provide accurate three dimensional position and velocity information to suitably equipped users anywhere on earth. Such information will facilitate strategic command and control, more timely maneuver of combat and support units, more accurate direction of firepower, and more efficient logistical support. The system should be fully operational in 1987.

Under the supervision of the Defense Communications Systems (DCS), the Army also contributes to another strategic communications project, the Digital European Backbone (DEB). The DEB is a multi-stage improvement effort to digitalize all DCS transmission links in Europe. DEB will provide terrestial wideband digital connectivity, including alternate routing transmission, restoral, and reconfiguration between subscriber locations and Defense Satellite Communication System (DSCS) terminals in Italy, West Germany, and the United Kingdom. Work in Italy has already been completed. Meanwhile the Army is developing new radio equipment to be integrated into the DEB links.

To save money and personnel, the ACSAC will collocate facilities of the Defense Special Security Communications System (DSSCS) and General Service Telecommunications Centers at forty-eight sites throughout the world. Four new consolidations were completed in fiscal year 1980 bringing the total up to twenty-two. When completed, the program will save the Army one hundred military spaces and $2.5 million annually.

In late December 1979 the United States sent a sixty-five man delegation, including one Army representative, to the Worldwide Administration Radio Conference in Geneva. Sponsored by the International Telecommunications Union (ITU), the conference enter-

tained proposals to revise ITU radio regulations governing the worldwide allocations of the radio frequency spectrum for the next two decades. As a result of thorough preparation and lobbying, the Army achieved its basic objectives at the conference, and will be able to meet all anticipated future requirements.

In the field of tactical communications, command, and control, potential adversaries are constantly modernizing and improving their capabilities. To offset such advances the services must develop, acquire, and deploy communications systems that allow for increased standardization and interoperability between tactical units of all services and our NATO allies. Within the DOD, three programs will enhance communications and command and control system interoperability and standardization: the Joint Interoperability of Tactical Command and Control Systems (JINTACCS), the Joint Tactical Information Distribution System (JTIDS), and the Army Data Distribution System (ADDS).

From July 1979 through September 1980, the services tested the compatibility and interoperability of their tactical intelligence communications systems using intelligence standards described in JINTACCS. Using leased communication circuits, the operators connected their test facilities to the Joint Interface Test Facility (JITF) at Fort Monmouth, New Jersey; and, by means of twenty separate message formats, successfully exchanged combat intelligence information. Subsequently, the intelligence standards were forwarded to Commander in Chief, Atlantic (CINCLANT) for use during the JINTACCS intelligence operational effectiveness demonstration held in conjunction with that command's annual exercise, SOLID SHIELD.

Service representatives completed development of all five segments of the Technical Interface Design Plan—Test Edition (TIDP-TE): intelligence, amphibious and air operations, operations control, and fire support. Meanwhile, refinement of the JINTACCS Message Element Dictionary (MED) continues. The MED contains descriptions of over 5,000 data items to construct 122 messages within the five segments of the TIDP-TE.

Under the Joint Tactical Communication Program (TRI-TAC), each service is developing certain items of telecommunications equipment for use by all services in the 1980s. The Army is now preparing for production digital group multiplexers, a modular record traffic terminal, and two automatic switches—the AN/TTC-39 Circuit Switch and the AN/TYC-39 Message Switch. Once in distribution, the switches will facilitate speedy, secure, and reliable transmission of tactical command and control messages, data, and voice communications.

On January 24, 1980, the United States and the Federal Republic

of Germany signed an agreement for joint development of another piece of TRI-TAC equipment, mobile subscribers. While both governments sought to iron out the details of joint development in a memorandum of understanding, the government of the Netherlands asked permission to join the program. The mobile subscriber system comprises terminals to be installed in vehicles, aircraft, and communications shelters; access units connected to automatic digital switchboards; and centrals which will provide automatic retransmission for the system. Once developed, the mobile subscribers will replace most of the multichannel devices currently being used in the division area and will provide mobile, secure voice, and record communications for division and brigade operators.

Impressed by the Army's contribution to the TRI-TAC program, the Secretary of Defense on September 17, 1980, designated the Army as executive agent for "post deployment configuration management and control of software" for all TRI-TAC equipment and also executive agent for communication within the Tactical Nuclear Weapons Forces in Europe. In the latter capacity, the Army will procure new high frequency radios and complete the European Command and Control Console System. The console system will include a secure record communication capability. By fiscal year 1981, the Army should complete the first of three phases for implementation of its new tasks on behalf of the Tactical Nuclear Weapons Force.

The proliferation of automated systems on the battlefield made it necessary to develop communications equipment capable of passing the information generated to command personnel for decisionmaking or to weapons systems operators for fire control. Some of the automated systems requiring such data distribution include the Man Portable Air Defense (MANPAD), Short Range Air Defense (SHORAD), High to Medium Air Defense (HIMAD), Tactical Fire Control (TACFIRE), and All Source Analysis Systems (ASAS).

An Army survey of various data distribution schemes revealed, however, that two communications systems well along in engineering development could be integrated into a single or "hybrid" system capable of supporting the automated battlefield system for a fraction of the cost needed to develop an entirely new system. Known as the Position Location Reporting System (PLRS), the first system was designed jointly by the Army and the Marine Corps to provide users at the division level with precise position location and navigation information, unique identification, and limited preassigned digital data message exchange. PLRS equipment includes a master unit which could be located in a van shelter and user units which could be employed in manpacks, surface vehicles, helicopter, or fixed wing aircraft. Comprising the second part of the hybrid system, the Joint

Tactical Information Distribution System provides airborne and ground station users with secure jam-resistant communications. More powerful than that of the PLRS user unit, the JTIDS terminal may be used throughout an army area, and is suitable for use aboard the Airborne Warning and Control System (AWACS).

In 1979 the DOD approved the Army's proposal to integrate the PLRS and JTIDS into the Army Data Distribution System or PLRS-JTIDS hybrid (PJH). Following field testing of the hybrid system, the Army plans to issue an ADDS set to each division. Once operational, ADDS will provide a secure, jam-resistant, mutual interference free data distribution system offering expanded data communications, identification, position location and navigation ,reporting, airspace management, and weapons control features to tactical commanders.

In an age where satellites, sophisticated radios, and computers dominate both strategic and tactical communications, telephones still account for the bulk of the Army's day-to-day administrative and logistical communications. Whether in cooperation with other governments or defense installations within major U.S. metropolitan areas, the Army seeks to upgrade and maintain existing telephone systems.

In 1978 the Department of Defense and the West German Ministry of Posts and Telecommunications signed a memorandum to upgrade the European Telephone System (ETS). The Army will procure 117 new electronic digital telephone switches. The Army has already purchased six of the advance design switches and plans to obtain eighteen more in the next year. In addition, the Army fielded 704 automatic telephone switchboards to all divisions, except those on duty in the Republic of Korea; and distributed touch-tone phones down to brigade level.

Within the United States problems of duplication and obsolesence characterize the defense telephone system. In a number of metropolitan areas where large concentrations of DOD installations exist, each installation normally operates its own telephone system and uses obsolete 1950-vintage switching equipment. Since telecommunications are essentially the same for all services, the DOD has established the Defense Metropolitan Area Telephone System (DMATS) to consolidate, standardize, and automate wherever possible. Analyzing the situations in New York, Boston, San Diego, and Norfolk, DOD study groups have concluded that consolidation and modernization will ultimately net DOD annual savings in each area of up to $1 million.

Under DOD direction, the Army will implement the DMATS program in Boston, Salt Lake City, Atlanta, Detroit, and Carlisle. In the Boston area, the Army has awarded a ten-year lease for consolidated

service to the New England Telephone Company. Consolidated service will embrace Fort Devens, Hanscom Field, South Weymouth Naval Air Station, and the majority of defense-related activities within the area encircled by Boston's "beltway," Interstate Highway 495. For the Boston area alone, DMATS is expected to save DOD $439,000 per year.

During the past fiscal year, the Army has joined the other services and our NATO allies in a concerted effort to expand combat power by means of improved intelligence, automation, and communications programs, equipment, and personnel training. In an age when potential adversaries can draw upon seemingly limitless stocks of men and conventional weaponry, Army commanders must anticipate enemy moves and counter those moves with all the speed and precision our technology will allow. The ongoing technological revolution in computers and communications systems on land, sea, air, and in space, requires constant modernization and automation. Whenever possible, the Army tries to conserve money and manpower by upgrading and consolidating existing facilities and organizations. In many cases, however, the Army must work with private contractors to develop new systems and new hardware.

The last two decades represented a learning period in which the Army experimented with a plethora of systems, computers, and communications devices in various commands and at different echelons. The last two or more fiscal years heralded a decade of consolidation and standardization. Military organizations and units do not operate in a vacuum. Wars of the future will require instant communication of vital information between strategic and tactical commands throughout the world. Improved interface between organizations and interoperability of their data processing and communications systems can attain fruition only when all organizations and echelons literally communicate on the same wavelengths. The most sophisticated communications devices and computers, however, serve only to "aggregate ignorance with precision" when left to insufficient or untrained hands. Coping with a chronic shortage of highly-trained manpower, the Army diligently strives to update old skills and cross train its personnel in new ones.

5. Manning the Army

In his State of the Union address, delivered before a joint session of Congress on 23 January 1980, shortly after the Soviet invasion of Afghanistan, President Jimmy Carter announced his decision to reinstate registration for the draft. The President's registration plan, issued on 8 February 1980, included women as well as men. While calling for resumption of registration in order to save critical time in the event of mobilization, President Carter reiterated his position in support of the All-Volunteer Force and in opposition to a peacetime draft.

The President had the authority to resume registration of men, but legislation was required to authorize registration of women. Congress also had to provide the funds needed to revitalize the Selective Service System and finance the registration program. Whereas last year the House of Representatives had defeated a draft registration proposal by a wide margin, this year the funding request was passed 58-34 in the Senate and 234-168 in the House. Congress, however, declined to grant authority for registration of women.

In accordance with a presidential proclamation signed on 2 July 1980, men born in 1960 were required to register during the week of 21 July 1980 and registration of males born in 1961 began on 28 July 1980. Registrants reported to post offices in the United States and U.S. embassies or consulates overseas to fill out a form with their name, address, date of birth, and Social Security number. No classification or physical examination was made at the time of registration, and no draft cards were issued. Each registrant was required to keep the Selective Service System informed of any subsequent change of address.

Although opponents of peacetime draft registration mounted a well-organized campaign and the constitutionality of males-only registration was challenged in the courts, the registration proceeded smoothly. On 4 September 1980, the Director of Selective Service announced that 87 percent of the eligible population had registered on time and another 6 percent had registered by 22 August, for a compliance rate of 93 percent and a total of 3,593,187 registrations, and still counting as late registrations continued. Registration of males born in 1962 was scheduled to take place the week of 5 January 1981. Thereafter, young men will be required to register upon reaching their 18th birthday.

Registration clearly improved the Army's capacity for rapid personnel mobilization in a future emergency, but it provided no manpower for today's Army. According to the Chief of Staff of the Army, "manning the total force is the major challenge the Army faces today." In his white paper of 25 February 1980, General Meyer also stated:

> In the near term we must focus our attention on the special problems of recruiting and retaining sufficient numbers of qualified personnel to meet our immediate needs. In the longer term we must develop a more effective personnel management strategy, one which more accurately identifies requirements and better articulates resources necessary to satisfy those requirements. We must recruit and retain those personnel who possess the motivation and qualifications necessary to make a positive contribution to the Total Force. And we must recruit and retain them in the numbers necessary to man the structure required in the 80s and 90s.

Military Strength

On 30 September 1979 the strength of the active Army was 758,356, more than 15,400 short of the congressional authorization; on 30 September 1980 it was 776,536, only 500 below the strength authorized by Congress. This gain of 18,180 represented a major recovery from last year's large recruiting shortfall and was achieved by substantial increases in both enlistments and reenlistments. Full recovery, however, is not anticipated until 1981, when this year's new recruits complete their training and enter Army units. During fiscal year 1980, the force structure was manned on the average at 97.5 percent of authorizations, with an average undermanning of 17,000 for the year. The following table provides a breakdown of active military strength as of 30 September 1980.

	Authorized Strength	Actual Strength
Officers	98,717	98,218
Enlisted Personnel	673,944	673,943
United States Military Academy Cadets	4,375	4,375
Total	777,036	776,536

Enlisted Personnel

Although more than a million volunteers have enlisted in the active Army since the draft ended on 30 June 1973, recruiting has become increasingly more difficult. Last year, enlistments fell about 17,000 or 10.7 percent short of the objective. The other military services also experienced recruiting problems. In fact, none of the serv-

ices was able to meet its accession goals in fiscal year 1979. The Army, however, had the largest recruiting shortfall.

Several factors contributed to the Army's recruiting problems. The combined impact of inflation, repeated pay caps, and loss of the G.I. bill reduced the competitiveness of military service in the labor market. Meanwhile, the number of those eligible to serve continued to decline. At the same time that competition from colleges and the private sector for the shrinking pool of young people of ages 18 to 22 increased, the resources devoted to the recruiting effort decreased. In constant dollars, the Army's recruiting budget for fiscal year 1979 was 28 percent below the 1974 level.

In an effort to reverse the negative recruiting trends, the Army submitted an amendment and two reprogrammings to this year's budget requesting additional recruiting funds. The following table shows actual Total Army recruiting resources, in millions of dollars, for fiscal year 1980, including those provided by the budget amendment and reprogrammings.

	Active Army	Army National Guard	Army Reserve	Total
Military Pay	123.4	30.9[a]	22.3[a]	176.6
Civilian Pay	20.4	1.8	6.0	28.2
Enlistment Bonus	39.8	9.1[b]	3.0[b]	51.9
Advertising	53.3	4.3	12.6	70.2
Recruiter Aides	17.6	2.1	.7	20.4
Recruiter Support	40.8	3.1[c]	9.3[d]	53.2
Total Dollars	295.3	51.3	53.9	400.5

[a] Includes man-day spaces of part-time recruiter aides; excludes retention NCOs.
[b] Includes enlistment bonus and educational assistance.
[c] Does not include telecommunications; includes vehicle leases.
[d] Includes telecommunications.

With these additional resources, the Army was able to exceed its overall enlisted accession objectives for the fiscal year, (see table on p. 77). The active Army recruited 173,228 men and women, over 31,000 more than last year. Despite the large gain in total enlistments, the number of recruits with high school diplomas fell about 13,000 short of the target. This year only 54.3 percent of enlisted accessions with no prior service were high school graduates, compared to 64.1 percent in fiscal year 1979. Congress, however, has stipulated that 65 percent of next year's non-prior service accessions must have high school diplomas. Therefore, increasing enlistments of high school

	Non-Prior Service (NPS) Accessions	NPS High School Diploma Graduates*	Prior Service (PS) Accessions	Total
Active Army				
FY 80 Program	157,800	98,800	15,000	172,800
Actual Achievement	158,179	85,825	15,009	173,228
% of Program Achieved	100.2%	86.9%	100.3%	100.2%
Army National Guard**				
FY 80 Program	52,000	28,600	43,197	95,187
Actual Achievement	50,314	30,706	46,772	97,080
% of Program Achieved	94.9%	107.4%	108.3%	101.5%
Army Reserve**				
FY 80 Program	24,549	14,729	34,598	59,147
Actual Achievement	25,931	13,999	33,509	59,448
% of Program Achieved	106.0%	95.0%	96.8%	100.5%

*Figures for the reserve components include individuals with General Educational Development (GED) equivalency certificates and high school seniors.

**Achievement figures for the reserve components reflect preliminary data and may vary somewhat from official figures when they become available.

diploma graduates has been established as the primary recruiting objective for fiscal year 1981. Congress has also imposed limitations on future recruitment of Category IV personnel—individuals who score in the lowest acceptable category on the Armed Forces Qualification Test (AFQT).

During fiscal year 1980, the Army's recruiting program focused on quantitative rather than qualitative goals in order to compensate for the large 1979 shortfall. Enlistment criteria were adjusted to accept a larger portion of the available market. There was a special effort to improve recruiting of individuals with prior military service. Extending enlistment bonus eligibility and reducing enlistment tours from four to three years resulted in 15,049 prior service accessions, a gain of 2,177 over the previous year.

Because of the increasing difficulty in recruiting women during fiscal years 1978 and 1979, the Army equalized the enlistment eligibility standards for men and women effective 1 October 1979. This change significantly enlarged the female market, and recruiting results for the first quarter of the fiscal year exceeded the objective by 32.5 percent. After the initial surge in female enlistments, however, recruiting once again became difficult. By the end of the year, female accessions were approximately 1,000 below the objective, although more women enlisted in the active Army than ever before.

In addition to changing the entry standards, the Army took a

number of other actions to increase female enlistments. For example, more women participated in the hometown recruiter aides program, under which outstanding young soldiers are assigned on temporary duty to their hometowns to assist local Army recruiters. There was a review of advanced individual training programs to identify training opportunities that women desire. The Army also allocated $1,166,000 for advertising specifically designed to appeal to women, with particular emphasis on nontraditional skills. This figure was almost double the $599,000 allocated for female oriented ads in fiscal year 1979. Most recruiting ads, however, had a combined appeal to men and women.

The U.S. Army Recruiting Command gained a total of 845 military manpower spaces this year. The budget amendment increased the number of recruiters by 570. Subsequently, Congress authorized another 271 NCOs (one for each recruiting area) and also added 24 officers to USAREC's Programs, Analysis and Evaluation Directorate in order to expand its market analysis capability. Furthermore, the entire Army actively supported the recruiting effort. Personnel from other commands conducted displays, answered questions, provided speakers, and furnished assistance to USAREC as requested. This outpouring of help greatly improved the overall effort and contributed to the success of this year's recruiting program.

Recruiting objectives for fiscal year 1980 were approved in three separate accession structure plans: for the active Army in August 1979, for the Army Reserve in October 1979, and for the Army National Guard in January 1980. Starting next year, however, there will be a single accession structure plan for the Total Army, which will set quantity and quality goals, establish enlistment controls, coordinate recruiting strategy, and consolidate resource planning. This new approach should help all components to work together more effectively in a declining recruiting market.

An important recruiting incentive is the Enlistment Bonus Program, authorized by Congress in 1972 to encourage enlistments in critical military occupational specialties. The Army has proposed a legislative change that would raise the maximum bonus from $3,000 to $5,000, allow payment of bonuses for initial periods of active duty shorter than four years, and make permanent the authority to award enlistment bonuses on a selective basis. By the end of the fiscal year, Congress had not completed action on this proposal. As of 30 September 1980, the Army offered enlistment bonuses in 35 military occupational specialties: 11 at the $3,000 level, 11 at the $2,500 level, 12 at the $1,500 level, and 1 at the $1,000 level. Enlisted bonus payments for the year totalled $39.8 million for the active Army,

$11.2 million for the Army National Guard, and $4.3 million for the Army Reserve.

At the request of Congress, the Army tested a two-year enlistment option last year. Because the results were inconclusive, a modified test was designed to better determine the effectiveness of this option. Beginning on 4 December 1979 and running for one calendar year, the revised test encompasses 92 percent of the country—excluding only the geographic areas serviced by Armed Forces Examining and Entrance Stations in Seattle, Spokane, Little Rock, Shreveport, Milwaukee, Albany, Manchester, and Portland—which serve as the test control group. During the test period, the two-year enlistment option will be available to 12,500 applicants.

The Recruiting Command's Special Investigation Task Force—organized last year to conduct a full-scale, command-wide investigation into recruiting malpractice—completed its work and was disbanded on 28 December 1979. The USAREC Enlistment Standards Directorate assumed full responsibility for any further investigation of recruiting irregularities and for the administrative processing of the task force's relief cases. As a result of the special investigation, 5 officers and 388 noncommissioned officers were relieved from recruiting duty, including 165 individuals who held supervisory positions. Not all of those relieved were directly involved in malpractice; some were relieved for failure in leadership. By the end of fiscal year 1980, the USAREC commander had reviewed 355 of the 393 cases and reinstated 95 persons. Eighty of the 260 recruiters whose relief was upheld by the commander have petitioned the Army Board for Correction of Military Records to further review their cases. Although the Army took prompt corrective action, the widespread recruiting malpractice generated unfavorable publicity and serious criticism of the recruiting program.

Another problem that received a great deal of attention this year was the controversy surrounding the tests used to measure the mental ability and trainability of potential recruits. During congressional hearings on military posture, Robert B. Pirie, Jr., Assistant Secretary of Defense for Manpower, Reserve Affairs and Logistics, expressed doubts about the validity of the norms used in the thirteen tests constituting the Armed Services Vocational Aptitude Battery (ASVAB). He raised particular questions about the three tests, known collectively as the Armed Forces Qualification Test, by which prospective enlistees were placed in one of five mental categories to provide a measure of their aptitude for success as soldiers. There was accumulating evidence, Mr. Pirie reported, that the AFQT used since 1976 was "misnormed" or imperfectly calibrated and, as a result, was

producing inflated scores at the lower ability levels. Thus the armed forces were inadvertently enlisting considerably more persons belonging in the lowest acceptable mental category (Category IV) than intended or, of course, reported. Later, when the test scores were properly normed, they showed that 46 percent of Army recruits in fiscal year 1979 and 52 percent in fiscal year 1980 belonged in Category IV. The Department of Defense totals for the same years were 30 and 33 percent, respectively. The extent of the problem prompted Congress to pass legislation restricting the percentage of Category IV enlistees the military services could accept in the future. The number of Category IV recruits will be limited to an all-service average of 25 percent in fiscal year 1981. The following year it will be restricted to no more than 25 percent for each service, and will be reduced to 20 percent in fiscal year 1983.

Meanwhile, the Office of the Secretary of Defense (OSD) had undertaken the development of a new ASVAB that would provide valid aptitude measurements. Handling the project was a working group composed of policy experts from the Office of the Deputy Chief of Staff for Personnel of each service, test psychologists from the Service Research Laboratories, and members of the Military Enlistment Processing Command (MEPCOM). Policy guidance was provided by an OSD Steering Committee, chaired by the OSD Director of Accession Policy and composed of the Directors of Military Policy/Personnel Management of the four services and the MEPCOM commander.

The Army's view of the ASVAB, as indicated by the congressional testimony of Secretary of the Army Clifford Alexander, was that all thirteen tests should be used to measure prospective performance to help put recruits in the right military specialties, and that the AFQT not be the determinant of whether a person was or was not intelligent and a qualified soldier. Placing a person in a "mental category" on the basis of a single score made on the AFQT was considered an injustice to the individual. Therefore, in June 1980, the Army ordered that the AFQT scores of all soldiers enlisted since 1974 be removed from unit personnel files.

In March 1980, both to influence the development of the new ASVAB along the lines of the Army viewpoint—in particular to ensure that the aptitude areas developed in the new battery had a valid correlation with job-related requirements—and to review and improve other performance indicators, the Chief of Staff established a Skill Requirements for MOS Working Group. Chaired by an officer in the Office of the Deputy Chief of Staff for Personnel, the group included representatives from other Army staff agencies, Materiel Development and Readiness Command, Training and Doctrine Command, the Military Personnel Center, Recruiting Command,

and the Army Research Institute. By year's end, the group had largely achieved its objectives. It was the Army's assessment that the new ASVAB and the aptitude areas that would be derived from it were valid, and the new test battery was set for introduction in October 1980. The working group also had under development a Performance Indicator Model for tying job performance to aptitude areas and thus identifying the performance potential of persons seeking entry into the Army. To continue the work of improving testing and the use of test results, and thus institutionalize the concept of the Skill Requirements for MOS Working Group, manpower spaces for that function were allotted to ODCSPER on a temporary basis, effective 1 October 1980.

Although recruitment has been the greatest challenge since the end of the draft, another key aspect in manning the all-volunteer Army is retaining sufficient qualified soldiers to support the enlisted career force (soldiers with more than three years of service). The Army's reenlistment program is oriented toward this end with specific objectives by skill and year of service.

In fiscal year 1980, the active Army surpassed its aggregate reenlistment objectives by 3 percent as a result of achieving 112.6 percent of the first term objective and 99.6 percent of the career objective. This was the third consecutive year that the Army exceeded its reenlistment goals. The total number of reenlistments, 82,186, and the first term reenlistment rate of 50.6 percent surpassed any given year since the beginning of the volunteer era and contributed to an increase in the career force of about 10,000 soldiers since the previous year.

Reasons given for the success of the reenlistment program included command emphasis and involvement, the state of the national economy, the Selective Reenlistment Bonus Program, the expansion of RETAIN (the automated reenlistment and assignment system) to Europe, and the implementation of the CONUS-to-CONUS reenlistment option. This popular option, which had been tested last year, was reinstated, effective 1 November 1979, after a four-year absence. It allows a first term soldier stationed in the CONUS to reenlist for another CONUS station of his choice, provided a vacancy exists at that post in the appropriate grade and MOS. Soldiers are guaranteed at least twelve months in their new assignment. The Army will break the option contract only if a soldier changes his primary MOS or is promoted before arrival at the new station.

Although this year's reenlistments were sufficient to meet aggregate career force needs, some retention problems persisted. For example, the steady decline in retention of middle-grade, mid-career NCOs, primarily E-5s and E-6s with five to twelve years of service,

has not been reversed. Nor has the Army been able to retain enough soldiers in certain critical skills, particularly in the combat arms. To counter these problems, the Army developed several changes in the reenlistment program for planned implementation starting in fiscal year 1981.

The proposed changes included extension of the CONUS-to-CONUS reenlistment option to E-6s and below with fourteen or less years of service for selected locations, revision of the Selective Reenlistment Bonus Program to encourage retention of middle grade NCOs, especially in the combat arms, and expansion of the reenlistment NCO force. Also, the reenlistment objective system was revised to increase emphasis on mid-career NCO retention. Under the new system, the Army will move from two categories—first term and career—to three categories—first term, midterm (career soldiers with ten or less years of service), and career (soldiers with over ten years of service). A test of the three-part reenlistment objective system, including the new midterm category, began on 1 July 1980.

This year the Army completely revised its Enlisted Force Management Plan (EFMP) as it projected force requirements into the decade of the 1980s. For the first time, the plan addressed the Total Army, projecting the needs of the active Army, Army National Guard, and Army Reserve out to 1987 and outlining the management strategies necessary to sustain the objective force. The plan emphasized the career force of the active Army, projecting a Top 5 grade content of 273,500 to lead an enlisted force of 680,000. The Top 5 figure represented an increase of 14,500, which was projected because of the requirements needs generated by force modernization and improved retention rates among career personnel. The objective set for the Army National Guard was a fully manned force at the authorized peacetime level of 390,000. This level represented an increase of 71,000 over the fiscal year 1980 end strength and included a Top 5 grade increase of 5,000. For the Army Reserve, the objective was a fully manned peacetime force of 226,000, an increase of 60,000 that included a Top 5 grade increase of 25,000. In addressing Total Army needs, the plan stressed retention beyond reenlistment and included transfer to the Army Reserve as part of a soldier's life cycle. The table below gives the enlisted strength by grade as it stood at the end of this fiscal year.

Grade	Strength
E-9	3,745
E-8	13,190
E-7	45,417
E-6	74,286
E-5	119,439

E-4	168,255
E-3	99,127
E-2	65,920
E-1	84,565
Total	673,944

In the recent past, an increasing number of commanders expressed dissatisfaction with the regulation requiring E-5 personnel serving enlistments for which grade and service waivers had been granted by local commanders to submit requests for subsequent waivers to the Commander, Military Personnel Center, for approval. They considered this requirement a burden on themselves and the soldiers concerned. This year, General Court-Martial Convening Authorities received the right to approve waivers for reenlistments of three years each to permit soldiers in grade E-5 a maximum of twenty years service. They also received access to a soldier's official military personnel file as a means of reviewing past and current performance in determining whether retention was warranted.

The Army made several changes in its enlisted promotion and reduction policy during the year. It revised the method of computing E-4 promotion capability, not only to simplify the method, but also to provide more equitable opportunity for promotions to grade E-4 among units and to increase the Army's E-4 strength. Under the new rules, only soldiers in grades E-3 and E-4 with fifteen or more months of service are included in the computations used to determine the number of E-4s allowed in each unit. Under the present system for promotions to grades E-5 and E-6, the Army uses a standardized 1,000-point promotion worksheet to measure a soldier's qualifications. As a result of the elimination of evaluation reports for E-4s, commanders are now authorized to grant up to 150 promotion points for a soldier's job performance, which enlarges the role of the commander in the promotion system.

The changes in the Army's reduction policy all involved reductions for civil convictions. Under the new provisions, an individual sentenced to death or to confinement for one year or more is automatically reduced to grade E-1. Persons sentenced to confinement for more than thirty days but less than a year and those who receive suspended sentences to confinement for one year or more will be considered for reduction. Soldiers convicted of less severe offenses who receive lesser sentences may also be considered for reduction. Reduction boards are required in all cases except those involving mandatory reductions, although the boards may be waived by individuals in grades E-5 and above.

A historical analysis of first term attrition data has revealed the

key influence of education levels of soldiers at their time of entry into the Army. The attrition rates for soldiers with high school diplomas tend to be much lower than the rates for those without them. Because the Army, in order to meet manpower requirements, accepted a greater proportion of non-high school diploma graduates among its male accessions in fiscal years 1979 and 1980, it now projects a slight increase in the male attrition rate. The attrition rate for first term female soldiers, which in the past has stood from 5 to 20 percentage points higher than that of equally educated males, is also expected to rise further because of the acceptance of non-high school diploma graduates in substantial numbers during fiscal year 1980. The table below shows past and projected three-year first term attrition rates (as percent of accessions) by education level and sex among the enlisted accessions for fiscal year 1976 through 1980.

Sex	Education Level	Accession Year FY 76	FY 77[1]	FY 78[1]	FY 79[1]	FY 80[1]
Male	HSDG[2]	27.5	27.4	25.5	22.9	22.9
Male	NHSDG[3]	49.4	49.0	44.0	43.6	43.6
Male	All	37.4	37.4	31.1	31.1	34.1
Female	HSDG[2]	39.8	43.1	43.9	44.3	46.6
Female	NHSDG[3]	54.9[4]	57.3[4]	53.7[4]	52.2[4]	59.2
Female	All	41.4	45.2	44.5	44.5	48.5
All	All	37.8	38.5	32.9	32.9	37.3

[1] Forcasts based on current data (as of 30 September 1980).
[2] High School Diploma Graduates.
[3] Non-High School Diploma Graduates.
[4] Basic Army policy denied enlistments to NHSDGs; a small percentage of GED certificate holders were enlisted (10% of female accessions during FY 76 and FY 77 and 5% and 1%, respectively, during FY 78 and FY 79).

Because of a critical need to increase the size of the Individual Ready Reserve (IRR), the Army last year developed criteria for transferring certain enlisted first term attrition losses to the IRR instead of discharging them. Such transfers would retain in the Total Army all individuals of potentially useful service under conditions of full mobilization. The Army implemented the new transfer policy effective 1 October 1979.

Officer Personnel

Both the authorized and the actual officer strength of the active Army increased during fiscal year 1980. The congressional authorization rose from 96,290 to 98,717 while the actual number of officers on

active duty grew from 96,889 to 98,218. The following table breaks down the actual officer strength on 30 September 1980.

Commissioned Officers	
General Officer	432
Colonel	4,463
Lieutenant Colonel	11,040
Major	15,840
Captain	28,453
First Lieutenant	11,284
Second Lieutenant	13,344
Total	84,856
Warrant Officers	
CW-4	1,403
CW-3	3,978
CW-2	5,142
CW-1	2,855
Total	13,378
Grand Total	98,218

The Army's general officer strength, which reached a post-World War II high of 521 in 1968, had declined since then to 432, as shown in the table above. The reduction in the early 1970s reflected the decrease in total officer strength because, by law, the authorized number of general officer spaces is related to the number of commissioned officers on active duty. More recently, however, the general officer ceiling has been reduced even further, at first through OSD policy and then by action of the Senate Armed Services Committee, as expressed in successive Defense Appropriation Acts.

The Fiscal Year 1978 Defense Appropriation Authorization Act required DOD to reduce general officer authorizations by 6 percent, from 1,141 to 1,073, by the end of fiscal year 1980. The services absorbed a 2 percent cut in fiscal year 1978, down to a total of 1,119 (432 for the Army). Further reductions were postponed while the department conducted a general officer requirements review, which validated the need for more, not fewer, general officers. The Senate Armed Services Committee nevertheless insisted on the additional 4 percent reduction, although it agreed to defer the effective date of the cut. On 8 September 1980, President Carter signed the Fiscal Year 1981 DOD Authorization Bill, which postponed until 30 September 1981 the remaining 4 percent reduction in general officers of all services, including the Army.

This year active Army officer accessions totalled 10,874, com-

pared to 9,662 in fiscal year 1979. There was a substantial increase in warrant officer procurement, which rose from 1,130 to 1,879. Once again, the Reserve Officers' Training Corps (ROTC)—with 4,077 accessions—was by far the largest source of new Army officers. The following table breaks down fiscal year 1980 officer accessions by source.

Source	
United States Military Academy	903
Reserve Officers' Training Corps	4,077
Officer Candidate School	709
Voluntary Active Duty	194
Direct Appointment	882
Medical, Dental, and Veterinary Corps	926
Nurses and Medical Specialists	509
Warrant Officers	1,879
Other*	795
Total	10,874

*Includes administrative gains such as recall from retired list and interservice transfer.

For the sixth consecutive year, ROTC enrollment increased. The opening Army Senior ROTC enrollment for school year 1979-80 was 63,667 (47,736 men and 15,931 women). A total of 6,527 Army ROTC scholarships were in effect during the year: 2,346 four-year, 2,573 three-year, 1,475 two-year, and 133 one-year scholarships (the 27 scholarships over the legal number were allowed only because of previously authorized leaves of absence). On 24 September 1980, the President signed legislation increasing the number of Army ROTC scholarships from 6,500 to 12,000. The additional scholarships, which will be phased in gradually, should attract large numbers of highly qualified applicants, thus increasing the quantity and improving the quality of future Army officers.

The same legislation included several other important provisions. It authorized scholarship recipients to serve their obligated tour of duty in the Army National Guard or the Army Reserve; provided ten scholarships annually for each of the six military junior colleges hosting Army ROTC; extended the scholarship eligibility age for persons who had served on active duty for the period served, but not to exceed four years; removed the limitation on the number of scholarships for two-year ROTC program cadets; and required reimbursement from scholarship recipients who voluntarily terminated their involvement in the ROTC program.

In an effort to attract more college students to the program, the Army allotted $4.9 million to ROTC advertising this year. ROTC ads stressed the benefits of the program: leadership and management ex-

perience, physical and intellectual challenge, financial assistance, scholarship opportunities, and the prestige of serving the country as an Army officer. The ads depicted ROTC as an integral part of the total campus experience, emphasized service in the reserve components as an important role for newly commissioned officers, and promoted the Simultaneous Membership Program. This voluntary program, initiated last year, permits eligible enlisted personnel assigned to a troop program unit of the Army National Guard or Army Reserve to enter the advanced course of the ROTC program and eligible ROTC advanced course cadets to enlist in and serve as officer trainees with ARNG and USAR units. Approximately 1,800 ROTC cadets were enrolled under the Simultaneous Membership Program during fiscal year 1980. It is estimated that about 350 of these would not have otherwise enrolled in ROTC. Once the program stabilizes, about 900 students who would not otherwise enter Army ROTC are expected to enroll each year, and some 750 additional officer accessions per year are projected starting with fiscal year 1983.

Because of the great importance of ROTC in providing new Army officers, the Chief of Staff, on 18 October 1979, approved a concept to expand the ROTC production base. The plan was designed to eliminate the critical and growing shortage of reserve component officers, to increase officer accessions for the Total Army, and to reduce the vulnerability of the ROTC program to the adverse trends projected for the 1980s. The trends included a 15 percent decline in the college-age population; a significant population shift out of the eastern and central states where Army ROTC is strongly concentrated; and the closing of 300 to 500 schools of the approximately 2,000 accredited undergraduate institutions due to the combined effects of the shrinking and shifting manpower pool, diminishing enrollments, rising costs, and inflation.

The five-phase plan, scheduled to begin in school year 1980-81, envisioned opening a series of extension centers (small ROTC instructional units with three officers and one NCO) and elevating the most productive centers to full host detachment status (five officers, four NCOs, and one civilian) when they demonstrated their potential for increased officer production. Forty-one extension centers were opened in fiscal year 1980. According to the plan, the sixteen most productive units will be expanded to host status in 1982 and additional extension centers will be established at new schools and the most successfull of these eventually will also become host detachments. At the same time, nonproductive ROTC units will be disestablished. An important feature is the assignment of one USAR or ARNG officer to each of the Army's current 279 host detachments as well as the new detachments generated by the expansion program. These officers

should significantly assist the professor of military science in his mission of recruiting, training, and commissioning officers for the reserve components. This major expansion of the Army ROTC program, and other approved initiatives, should increase ROTC production from the present level of 6,500 officers annually to 10,500 by 1985, with most of the 4,000 additional officers going to troop program units of the Army Reserve and Army National Guard.

In a continuing effort to improve the professional development of commissioned officers, the Army made several changes in its Officer Personnel Management System (OPMS) during fiscal year 1980. One specialty was added, another deleted, and nine specialties were revised. There were major revisions in the aviation, communications-electronics, personnel, and automatic data processing specialties. In addition, plans were approved for changes to be implemented next year involving OPMS specialties in the fields of engineering, intelligence, atomic energy, transportation, and maintenance.

A special task force reviewed the policy issues that were impeding the implementation of the revised career pattern for commissioned aviators. It conducted a complete review of aviation requirements and authorizations, identified Army staff elements responsible for monitoring operational and nonoperational flying positions, revised the accessions policy for the aviation and aviation materiel management specialties, and incorporated the provisions of the Aviation Career Incentive Act into the Army's aviation management program.

In order to manage the officer force within the end strength and resource constraints projected for the 1980s, the Director of Military Personnel Management, ODCSPER, directed the Officer Strength Management Branch to develop an Officer Force Management Plan by the end of fiscal year 1981. The objectives of the plan are to determine the strength and composition (by grade and skill) of the officer force for Total Army manpower requirements and to establish appropriate personnel policies that will enable the Army to fill these requirements. A more specific goal is to develop an officer corps that exists to lead and manage the Army in time of war and to prepare the Army during peacetime for that eventuality. The branch was also given the mission of formally studying officer retention in order to improve retention management and to determine if there is, in fact, an officer retention problem. The study was limited to Army officers managed by the Officer Personnel Management Directorate (OPMD) of the Military Personnel Center (OPMD manages all officers except those in the Army Medical Department, the Chaplains Branch, and the Judge Advocate General's Corps). A review of fiscal years 1977 to 1979 showed that the loss rate for OPMD commissioned officers has leveled off since 1977 and has remained steady at about 9.6 percent

for the past three years. An examination of attrition at traditional career milestones—completion of initial obligation, ten years active commissioned service, and twenty years active federal service—did not indicate a general exodus of highly qualified personnel. Although a shortage of captains was projected, this was a result of the reduction in accessions during the 1973-76 period and was not a retention shortfall. Attrition of aviation warrant officers, however, was identified as a serious retention problem. That problem lies primarily in reduced retention among initial obligation aviators. A comparison of fiscal year 1976 and 1979 statistics revealed that losses among aviation warrant officers with less than three years of service more than doubled. There was also a significant increase in the losses of aviators with six to ten years of service. The Warrant Officer Division of OPMD has taken numerous actions to retain quality warrant officer aviators and to ameliorate their losses.

Actions to improve officer retention in general include greater stability, increased compensation, counseling by the chain of command, and an improved officer personnel management system. Army officer retention is subject to continuous evaluation. During fiscal year 1981, for example, the Army plans to analyze retention of officers in underaligned specialties at the ten- and twenty-year points in their careers as well as retention trends among minority and female officers. In addition, the Army Research Institute will conduct a study on officer retention objectives.

As of 30 September 1980, the active Army had a shortage of 3,740 OPMD captains. This figure was much lower than the original projection of 5,900. The gap was narrowed because of several initiatives undertaken in 1980, including the Recall to Active Duty Program, the Selective Continuation Program and, most important of all, the decision to reduce the time-in-service requirement for promotion to captain to four years. The Army expects to eliminate the shortage of captains in the near future by projected accessions from recall and by floating the promotion point to captain as necessary to achieve and maintain the authorized strength level.

In January 1980 MILPERCEN decided that a program for the voluntary call to active duty of reserve officers would be required to meet yearend active duty commissioned officer strength levels. Initial estimates were that the active Army would need to access or retain 687 company grade officers during fiscal year 1980; half of this total was to come from the Recall to Active Duty Program. A message announcing the program was dispatched to all Army units on 8 February, and another message was sent to all public affairs officers and editors of Army newspapers and journals on 20 February. Meanwhile, on 13 February, 48,000 letters were mailed to individual

reservists. By the end of the fiscal year, the Reserve Components Personnel and Administration Center had processed 1,004 applications. Of this total, 535 officers were selected and 486 actually reported for active duty. An additional 561 applications were on hand for processing to fill accessioning requirements for fiscal year 1981.

Approximately 400 reserve component majors, captains, and warrant officers were retained on active duty this year as a result of the newly implemented Selective Continuation Program. Initiation of this program constituted a significant change in the Army's "up-or-out" temporary promotion policy. Provisions of the voluntary program allow selected reservists who possess skills in specialties with shortages to be retained in grade even though they have twice failed promotion selection and would normally be involuntarily separated from active duty. Selected officers are continued for a period of three years or until they are eligible for retirement, whichever comes first. They are also considered for promotion during the period of continuation; if they are promoted, all terms of the continuation agreement become void. The Selective Continuation Program does not apply to Regular Army officers, since their separation after twice failing permanent promotion selection is mandated by law. Provisions contained in the proposed Defense Officer Personnel Management Act would eliminate the current dual promotion system and make the Selective Continuation Program available to all Army officers, regardless of component.

The Defense Officer Personnel Management Act (DOPMA) is the result of a 15-year joint effort by DOD and Congress to update laws pertaining to the appointment, promotion, separation, and retirement of commissioned officers of all the military services. In both the 94th and 95th Congress, the House of Representatives passed a bill which essentially expressed the officer management concept proposed by DOD. In November 1979, however, the Senate passed a radically different version of the bill, one totally incompatible with DOD goals. It reduced the field grade officer strength by 20 to 30 percent, established an inflexible grade table for general officers, and outlined a program that offered a rather pessimistic future for junior officers. The Military Compensation Sub-Committee of the House Armed Services Committee held hearings on the Senate proposal in April and May 1980. Army leaders and other Defense officials testified that the Senate version of DOPMA would have an adverse impact on readiness and stated that having no DOPMA at all would be better than coping with the restraints of the Senate bill. In September 1980 Senate and House staffers, working with representatives from DOD, finally reached a compromise. The Office of the Secretary of Defense and all the services, including the Army, expressed their support of the DOP-

MA compromise bill and their hope for its passage before the end of the 96th Congress.

Medical Personnel

The authorized officer end strength of the Army Medical Department (AMEDD) for fiscal year 1980 was 15,657, compared to 15,223 for fiscal year 1979. Most of the increase was in the Medical Corps authorization, which rose from 4,201 to 4,402. The actual AMEDD officer strength increased during the year from 15,729 to 16,035, with the largest gain in the Medical Corps. Although the number of Medical Corps officers rose from 4,403 to 4,627, at the end of the year there still was a shortage of 646 physicians, or 12 percent of the Army's minimum peacetime objective of 5,273. The following table compares the authorized and actual AMEDD officer strength by corps on 30 September 1980.

	Authorized Strength	Actual Strength
Medical Corps	4,402	4,627
Dental Corps	1,821	1,834
Veterinary Corps	365	371
Medical Service Corps	4,818	4,834
Army Nurse Corps	3,801	3,894
Army Medical Specialist Corps	450	475
Total	15,657	16,035

In its continuing efforts to improve recruitment and retention of medical personnel and reduce the critical shortage of physicians, the Army supported legislative proposals which resulted in stabilized and improved compensation for health professionals. Effective 1 October 1979, Public Law 96-107 authorized significant changes in the Variable Incentive Pay Program for physicians, and on 1 July 1980, Public Law 96-284 completely restructured the Special Pay Program for medical officers. In addition, a DOD directive expanded the scope of the Continuation Pay Program for dentists.

Legislation enacted this year also increased the monthly stipend for participants in the Armed Forces Health Professions Scholarship Program (HPSP) from $400 to $485. This 21 percent increase represented a substantial financial benefit to HPSP students, making the program more competitive with those offered by other federal agencies. Future stipend increases will be on an annual basis, comparable to the present system of annual pay raises for civilian employees of the federal government. Throughout the year, the

Army continued its effort to obtain permanent tax exemptions for HPSP scholarship stipends.

Since the end of the draft, HPSP has been a major procurement source of Army physicians. This year 1,761 students participated in the program. There were 504 graduates, including 383 physicians, 61 dentists, 31 veterinarians, 22 optometrists, and 7 psychologists. The Army selected 778 new scholarship recipients out of 1,356 applicants. By the end of the fiscal year, all of the Army's 1,850 HPSP positions were fully committed. This was the first total fill in the history of the program.

About half of this year's 763 Medical Corps accessions were HPSP graduates. The corps' procurement effort was successful, although the number of physician volunteers dropped below 300 for the first time in three years. Over one-third of the 294 volunteers entered active duty graduate medical education programs and will serve as fully qualified Medical Corps officers when their training is completed. These graduate programs provided esential internship and specialty training to physicians entering military service directly from medical school and are attractive recruiting and retention incentives. During fiscal year 1980, the Army filled 401 out of 408 internship spaces in its First Year Graduate Medical Education Program.

The Uniformed Services University of the Health Sciences in Bethesda, Maryland, graduated its first class from the School of Medicine in June 1980. Fourteen members of the Class of 1980 entered Army graduate medical education programs in July. Meanwhile, fifty new students who are obligated to serve in the Army after graduation entered the university. As of 30 September 1980, the university had a total of 416 students, 161 of whom were designated as Army participants. Next year, the university will provide 24 physicians for the Army, and that number will increase to 60 per year by fiscal year 1985.

The physicians' assistant training program at the U.S. Army Academy of Health Sciences at Fort Sam Houston, Texas, accepted two classes of 60 each this year. The first group will enter active duty in fiscal year 1981. Beginning in 1982, this program will produce 120 warrant officer physicians' assistants a year. Recruitment of civilian-trained volunteers, however, will continue until the military training program can meet the need. In fiscal year 1980, the Army recruited 18 civilian-trained physicians' assistants and also 15 biomedical equipment repair technicians, for a total of 33 warrant officer accessions.

The Dental Corps acquired 197 new officers in fiscal year 1980. Of these, 117 were direct volunteers and 64 entered through HPSP. The Veterinary Corps, with a total of 54 officer accessions, ex-

perienced a high degree of success in procuring volunteer veterinarians, as a result of an aggressive recruitment effort by special counselors. The Army Medical Specialist Corps—which consists of occupational therapists, physical therapists, and dietitians—met all of its procurement objectives for the year, acquiring a total of 38 officers.

A vigorous recruiting effort resulted in 425 accessions for the Army Nurse Corps (ANC). This accomplishment was particularly noteworthy, because increased competition from the civilian sector has made recruitment of nurses more challenging. An accelerated accession program, which allowed a graduate nurse to enter the Army after writing the state board examination for licensure as a Registered Nurse but before receiving the results, produced 178 accessions this year. ROTC provided 35 officers in this category. The number of nursing students enrolled in ROTC programs continues to grow, and new initiatives to encourage greater participation in ROTC are being developed. Therefore, the ANC expects a significant increase in ROTC accessions in the next five years.

USAR nurse strength was only 56.4 percent of the requirement at the end of the fiscal year. On the other hand, nurse strength in the Army National Guard stood at 90 percent of the requirement. In the active Army, ANC strength decreased slightly during the fiscal year from 3,907 to 3,894. It surpassed the authorized strength of 3,801, but remained far below the recognized requirement for active duty nurses, which has been estimated at about 6,000. As of 30 September 1980, only 4 percent of ANC officers had less than a baccalaureate degree, 81 percent of the corps had bachelor's degrees, and the remaining 15 percent had a masters or higher degree.

During fiscal year 1980, the Army established a nationwide recruiting network to aid procurement of USAR AMEDD officers other than nurses. Initially staffed with 23 USAR officers on special active duty tours, the network will be expanded to almost twice that size in fiscal year 1981. By the close of the reporting period a significant upward trend in net USAR physician strength had been attained.

This year the Army Medical Department initiated a number of actions to alleviate specialty shortages in the Medical Service Corps (MSC), particularly in the fields of optometry, clinical psychology, nuclear medical science, and sanitary engineering. A significant change was the enlargement of the AMEDD personnel procurement officer network, which permitted selected officers to concentrate their recruitment efforts on the needs of the MSC. More than half of the 424 MSC accessions came from the ROTC and another 35 percent from volunteer applications.

There was also an important change in the MSC command policy. In the past, command of field hospital units was limited to lieutenant colonels and promotable majors who were in the health care administration career field or who were graduates of command and staff level training. As of 4 June 1980, all MSC officers in the administrative specialities, who are in the grade of major (promotable) or lieutenant colonel, are eligible to compete for command of field hospital units. Officers in the allied science specialties may request to be considered for command. This change in eligibility criteria will give the MSC Command Selection Board a significantly larger population from which to select the best qualified officers. Furthermore, it will provide an opportunity to enhance the professionalism and knowledge of the best officers within the corps who, later in their careers, may be assigned to the highest positions within the Army Medical Department but who, without this change, would be denied the opportunity to command. Improved personnel management practices that provide opportunities for continued professional growth are among the most effective initiatives undertaken by the Army to attract and retain physicians and other health professionals.

Women in the Army

Fiscal year 1980 was a significant year for women in the Army. For the first time enlisted men and women had the same entry standards, and the first group of women graduated from the United States Military Academy at West Point. The Secretary of the Army and the Chief of Staff reported in their joint posture statement to Congress: "Women have taken their rightful place alongside men in what were once considered non-traditional skill fields and share increasingly in the Army's leadership."

The debate over the proper role of women in the military services continued and became more heated when President Carter included women as well as men in his plan for peacetime draft registration. Both houses of congress rejected registration of women, but the constitutionality of the all-male draft registration program has been challenged in the courts. The Supreme Court is expected to hand down a decision on this controversial issue in the near future.

The number of women in the active Army increased during the year from 62,017 to 69,338. Of these, 7,496 were commissioned officers, 113 warrant officers, 61,351 enlisted women, and 378 cadets. As of 30 September 1980, women comprised 8.9 percent of active Army strength. In addition there were 16,740 women in the Army National Guard and 29,131 women in the Army Reserve.

Women were permitted to serve in 94 percent of all specialties and

in any unit except battalion-sized or smaller units of infantry, armor, cannon field artillery, low altitude air defense artillery, and combat engineers. Approximately 59 percent of the spaces in the force structure could be filled by either men or women; the remaining 41 percent were open to men only. The restrictions on assignments for women reflected the Army's policy against using women in positions that were likely to involve direct combat.

Female participation in the Army's precommissioning programs continued to increase. ROTC enrollment rose to 15,931 in the 1979-1980 academic year, and 1974 women received commissions through ROTC in fiscal year 1980, an increase of 157 since last year. Officer Candidate Schools commissioned 126 women this year, compared to 103 in fiscal year 1979.

The United States Military Academy graduated 62 women with the class of 1980. Andrea Hollen, who was first among the graduating women, ranked tenth in her class of 905 cadets and was selected as a Rhodes scholar. The graduating female cadets were assigned to various specialties, including field artillery, air defense artillery, engineers, aviation, signal, quartermaster, ordnance, transportation, military intelligence, and military police. With the exception of infantry and armor, the women were integrated into the various branches of the army roughly in the same proportion as the men. At the end of fiscal year 1980, there were 378 female cadets at West Point, representing about 8.5 percent of the cadet corps.

In 1977 OSD directed the Army to increase the number of women on active duty to 80,000 by fiscal year 1985 and then changed again to 87,500 by fiscal year 1986. These decisions were based on the knowledge that the population of males eligible for military service would be declining during the 1980s and on the assumption that it would be easier to recruit women then men, a theory supported by the relative ease with which female recruitment goals were achieved in the early years of the all-volunteer force. In 1978 and 1979, however, the combined effect of increasing annual female recruiting objectives, denying enlistments to women without high school diplomas, and requiring women to enlist into nontraditional skills as well as a tougher recruiting environment created unexpected difficulties. Although the Secretary of the Army lowered the minimum score required on the Armed Forces Women's Selection Test first from 59 to 50 and then from 50 to 31, recruiting of women became increasingly more difficult. In fiscal year 1978 the active Army reached 99.5 percent of the female recruiting objective, but the following year it was able to achieve only 91.5 percent of the goal.

As a result, enlistment eligibility criteria for men and women were standardized effective 1 October 1979. Thus female high school

diploma graduates may enlist if they score 16 or higher on the entrance test; women without a diploma must score 31 or higher. This change produced a substantial initial surge in female enlistments, but later in the year recruiting again became difficult and female active duty accessions fell about 1,000 short of the goal. Nevertheless, this year more women joined the Army than ever before.

Although female soldiers have made and are making many meaningful contributions, there are issues and problems associated with women in the Army. A major problem is the rising attrition rate among enlisted women. Statistics show that the three-year attrition rate of first term female soldiers is 5 to 20 percent higher than for their male counterparts. Female attrition rates have increased over the past two years and are expected to increase further because of the acceptance of non-high school diploma graduates, who were not enlisted in large numbers until fiscal year 1980. Several studies are under way to determine causes for attrition among first term soldiers, including an examination of attrition by military occupational specialty and by installation.

Another issue of deep concern to the Army is sexual harassment. The Secretary of the Army and the Chief of Staff, in a joint message sent to the field on 4 January 1980, reaffirmed the Army's full commitment to a policy that upholds the human dignity of all military and civilian personnel. The Chief of Staff also directed the Inspector General to investigate allegations of sexual harassment and mistreatment of women. The Army's policy makes it clear that improper sexual treatment should be dealt with swiftly and fairly. Commanders are responsible for educating and informing their soldiers and for enforcing Army policy.

The Vice Chief of Staff issued a talking paper on treatment of women in the Army, which was discussed during a conference with all major commanders. The Chief of Staff's weekly summary to commanders and staff officers also covered this subject. Pre-command courses for brigade and battalion commanders include briefings on sexual harassment, and TRADOC has been requested to integrate educational material on improper sexual treatment into existing blocks of instruction for officers and enlisted personnel. The Office of the Inspector General has investigated incidents of sexual harassment on a number of Army posts and will continue to make inquiries during routine worldwide inspections. Trend data on improper sexual treatment of women will be collected over an eighteen-month period beginning in October 1980 and will be thoroughly analyzed. Such actions indicate that the Army is making every effort to overcome, minimize, and solve this problem.

Although current issues naturally have top priority, there is also a continuing effort to give official recognition to women who have served in the past without receiving proper credit. The Department of Defense Civilian/Military Service Review Board, which is responsible for determining what organizations will receive retroactive credit for active military service, is one medium through which this is being done. Each of the services, including the Army, has review boards to determine whether individuals claiming membership in these organizations are entitled to honorable discharges and veterans' benefits. Last year the Army's Individual Service Review Board approved the applications of thirty-five former telephone operators who served with the American Expeditionary Forces during World War I as civilian employees of the Signal Corps. This year the board recognized another fifteen women from the same group.

The DOD review board considered the case of the Women's Army Auxiliary Corps (WAAC) of World War II. This organization was the predecessor of the Women's Army Corps (WAC), but because it was an auxiliary rather then a component of the Army, it did not have full military status. On 6 March 1980 the board decided that women who served in the corps between May 1942 and September 1943 were entitled to credit for active military service. By the end of the fiscal year, the Army received 1,378 applications from former WAAC members. Thirteen separate boards convened and approved 679 applications. The requests received so far, however, represent only a fraction of the estimated population of 20,000 potential WAAC applicants.

Military Manpower and Personnel Management

Among the Army's efforts to improve unit cohesion and stability, one manpower management proposal was to eliminate directed military overstrengths, which are manpower authorizations within the Department of the Army staff, staff support agencies, and field operating agencies to meet requirements for which no spaces are budgeted or documented in The Army Authorization Documents System. Because most of this overstrength manning is provided by officers and noncommissioned officers, eliminating the practice would return needed leadership as well as a large number of soldiers to troop units. The decision, however, was only to reduce the practice, not eliminate it, since the Army had to retain some flexibility to respond rapidly to unprogrammed manpower requirements.

During fiscal year 1980, the Systems Affordability, Analysis and Review Team in ODCSPER evaluated the manpower implications associated with the new materiel, weapons systems, and organizations

resulting from the Army's modernization program. The team also performed manpower and personnel affordability analyses and participated in the Army System Acquisition Review Council's decisions for the Patriot, M1 Abrams Tank, Infantry Fighting Vehicle and Cavalry Fighting Vehicle, Black Hawk Helicopter, Multiple Launched Rocket System, Cannon Launched Guided Projectile, Army Scout Helicopter Improvement Program, Joint Tactical Communications Program, and Mobile Subscriber Equipment.

In an effort to improve military personnel management, TRADOC last year developed a new training course for battalion adjutants (S-1s) and a pilot program for testing the augmentation of the S-1 with a battalion administrative officer (BAO). The training of battalion S-1s, and brigade adjutants as well, began in November 1979, and the field test to determine the desirability of a BAO began in January 1980. The BAO concept will be evaluated during the coming fiscal year, and contingent upon supportive findings, the Army will attempt to obtain sufficient spaces over a five-year period to provide a battalion administrative officer for every TOE battalion. Plans have also been made to expand personnel management training at the Soldier Support Center to include Directors of Personnel and Community Activities and Assistant Chiefs of Staff, G-1, Personnel, starting early in fiscal year 1981. All of these efforts are part of the Army's plan for the institutionalization of the broad concept of personnel management.

Last year, the Army developed a new definition for borrowed military manpower (BMM),which in the past has been described as soldiers who perform recurring or constant work in a unit other than that to which assigned. Now more narrowly defined, BMM is "the use of military manpower from a TOE unit to perform duties within a TDA (tables of distribution and allowances) activity where a MACOM approved manpower requirement exists but for which no manpower space has been authorized. Additionally, BMM may be employed in those cases where manpower spaces have been authorized but the positions are unencumbered." A Department of the Army message transmitted the new definition to the field in January of this year. The more narrow definition should reduce the use of borrowed military manpower, which in recent years has averaged between 14,000 and 16,000 man-year equivalents, or a division's worth of soldiers. The Office of the Inspector General has accepted BMM as a special item of interest for the fiscal year 1981 inspection schedule.

An enlisted military occupational speciality is considered space imbalanced when overseas authorizations exceed 55 percent of the total number of spaces in the MOS. Soldiers holding space imbalanced MOSs tend to have much shorter CONUS tours between

overseas assignments than the Army average. Since frequent overseas tours are a major reason for leaving the service, the retention rate for soldiers with space imbalanced specialties is among the lowest of any group in the Army. In an effort to alleviate both cause and effect of the problem, the Army last year prepared a program offering incentives to soldiers with space imbalanced MOSs to extend their overseas tours, which, in turn, would decrease overseas replacement demands and permit longer CONUS tours. While enabling legislation for the program was being staffed within DOD, the House Armed Services Committee added the same incentive provisions to another bill, the Military Pay Allowances Benefits Act of 1980, also known as the Fair Benefits Package. At the end of the fiscal year, the legislation had been passed by the House and was pending in the Senate.

Continuing last year's review of the pros and cons of reducing overseas tours for all first term, three-year enlistees to eighteen months, the Army placed the first phase of the tour reduction into effect at the beginning of fiscal year 1980 by introducing an enlistment option that guaranteed an eighteen-month tour in Europe. It was estimated that full implementation of the eighteen-month tour concept would cost $51.6 million a year. In considering the impact of full implementation on personnel turbulence, morale and discipline, unit cohesion and stability, first term attrition, and reenlistments—as well as costs—the decision was that the gains would decidedly outweigh the losses. The second phase of the overseas tour reduction will begin on 1 October 1980.

Until this year, a soldier planning to retire could submit his retirement application no sooner than six months before the requested retirement date. Since the normal requisition cycle for overseas assignment is beyond six months, many soldiers planning to retire were sent overseas before they could apply and had to complete their overseas tours before they could retire. A change introduced this year allows the submission of a retirement application up to thirteen months before the requested retirement date. The additional time gives MILPERCEN sufficient advance notice to prevent applicants from being selected for overseas duty.

For some time, Congress has expressed concern about the number of military dependents overseas. Evacuation of dependents, especially from Europe, in case of an emergency has been of particular concern. The Army's position has been, and continues to be, that dependents should be permitted to accompany active duty military personnel to all stations where environmental and strategic conditions are suitable. In an attempt to allay congressional concern, USAREUR, in January 1979 began an exercise program for dependents that included evacuation rehearsals. Nevertheless, in this year's Defense

Authorization Act, Congress established a worldwide ceiling of 325,000 command-sponsored military dependents overseas for the entire DOD, effective as of 30 September 1980 (the act neither limited nor withdrew support from unsponsored dependents). The Army's worldwide ceiling was 168,000, of which 159,000 applied to dependents in Europe. Although opposed to any ceiling, the Army, as required, reduced the number of dependents to these totals by the end of the fiscal year.

Civilian Personnel

The civilian work force is an integral part of the Total Army. Although civilians do not participate in the combat role, they perform a wide range of functions that are essential to the readiness of the Army. Civilians have specialized knowledge, skills, and experience that are not available in the uniformed force, provide continuity of administration and operations, and do many jobs more economically than they could be done by military personnel. In short, civilians free soldiers to be soldiers by performing nonmilitary tasks necessary to support combat forces. At the present time, the Army has one civilian employee for every two soldiers in the active force.

At the annual Army Commanders' Conference held in October 1979, the Chief of Staff of the Army directed all commanders to give special attention to the civilian work force, and in his white paper of 25 February 1980, he urged each military manager to take an active interest in the professional development of civilian personnel. Furthermore, the joint statement of the Secretary of the Army and the Chief of Staff on the posture of the Army included the following comment: "We must recognize that our civilian workforce is a critical element in the readiness equation and it must be adequatley supported as such."

The Army's civilian strength decreased slightly during fiscal year 1980, from 359,100 to 358,900. The yearend strength excludes employees hired in support of Cuban refugees who do not perform Army functions and whose pay is reimbursed by the Federal Emergency Management Agency. Actual civilian end strength chargeable against the Department of the Army, including employees in support of Cuban refugees, was 360,500.

The OSD required the Army to convert 3,200 full-time permanent civilian positions to temporary in fiscal year 1980 and an additional 2,500 in fiscal year 1981, for a total of 5,700. The Army accomplished this primarily by changing the employment category of dependent hires occupying indirect hire positions from full-time permanent to temporary. Reasons for this categorical change included the temporary nature of such appointments and the high

turnover rate of dependent personnel. The Federal Employees Part Time Career Employment Act of 1978 requires another personnel accounting change. Starting in fiscal year 1981, for strength ceiling purposes, civilians on permanent appointment who work part time will be counted as fractions of full-time positions, based on the number of hours they are scheduled to work. Currently, each part-time employee is counted in the same manner as full-time employees. This change should make more jobs available to people who are unable to work full time.

The Department of Defense Appropriation Authorization Act for 1978 required a six percent reduction in the number of civilian employees at grades GS-13 and above by the end of fiscal year 1980. The Department of Defense Authorization Act for 1981 (signed on 8 September 1980) amended the 1978 Act, requiring a four percent reduction by 30 September 1982. OSD, however, advised that the full six percent cut will be completed by 30 September 1981. The Army was successful in its fiscal year 1980 reduction program, being 220 positions below its assigned ceiling of 18,891. Nevertheless, another 200 positions will have to be cut by the end of the next fiscal year.

The Army seeks to control personnel costs by preventing any increase in the average grade of GS-7.56. The importance of this achievement is apparent when one realizes that each one-tenth grade increase costs the Army an estimated $48 million annually. The Army has the lowest average civilian employee grade among the military departments.

The Army also continued its efforts to expand opportunities for women and minority groups in the civilian work force. During fiscal year 1980, women rose from 35.4 to 36.8 percent of total civilian strength, while minorities rose form 18.1 to 18.8 percent. At the GS-13 level and above, minorities increased by 5.7 percent and women by 13.3 percent, even though the total number of employees in these grades increased by only 1.4 percent. Whereas last year the Army met five of its ten affirmative action goals, this year it reached seven of the ten goals. Nevertheless, the number of discrimination complaints continued to increase. In order to curb the drain on staff time and resources caused by increasing complaints, especially legal class actions, emphasis was placed on early settlement of grievances and preventive measures through affirmative action initiatives.

The new special programs—the Federal Equal Opportunity Recruitment Program (FEORP) and the Severely Handicapped Recrutiment Program (SHARP)—were implemented this year as part of the Army's Affirmative Action Program Plan. The former is a governmentwide effort to increase representation of minority groups and women in all occupations and grade levels so that their percent-

age among the employees of an organization at least equals their representation in the nationwide central labor force (the central labor force consists of all persons 16 years of age and older, except those in the armed forces, who are employed or are seeking work). The Assistant Secretary of the Army (Manpower and Reserve Affairs) is responsible for carrying out this program throughout the Army. He has directed each command and activity to prepare its own FEORP plan and to designate a responsible official at an organizational level sufficient to assure full management support for the program.

The purpose of the SHARP plan is to increase the number of employees with severe handicaps (for example, blind, deaf, and amputees). Because there are so few severely handicapped persons in the federal work force, the initial objective is to increase that number rather than to achieve full representation in all occupations and grades. The Army's goal for fiscal year 1980 was to hire three severely handicapped individuals for every two hundred new employees.

The Civil Service Reform Act (CSRA) of 1978 introduced numerous changes in civilian personnel management. One major change was the creation of the Senior Executive Service (SES) to replace virtually all "supergrade" positions (GS-16, 17 and 18) in the federal government. Although the Army was authorized 356 SES positions, only 257 were filled when conversion to SES took place on 13 July 1979. Two hundred fifty-four executives opted to convert.

The Department of the Army Performance Review Board convened on 15 September 1980 to review the personnel files of highly rated SES employees for bonuses of up to 20 percent of base pay which are provided for in the Civil Service Reform Act. As a result of the restrictions, only 52 SES members were eligible to receive bonuses. No awards, however, had been announced by the end of the fiscal year.

In addition to annual bonus payments, SES members may receive Presidential Rank Awards for sustained exceptional performance. The statute provides that one percent of SES employees would be eligible for Distinguished Presidential Ranks (cash awards of $20,000 each) and five percent for Meritorious Presidential Ranks (cash awards of $10,000). Presidential ranks were awarded for the first time in fiscal year 1980. Of the twenty-six nominations submitted by the Army, OSD forwarded twenty-two to the Office of Personnel Management (OPM) for review. OPM, however, indicated that only about 60 percent of the nominations would be forwarded to the President recomending approval. Finally, three Distinguished and twelve Meritorious nominations were approved. The winners of the Distinguished Rank Awards were honored at a White House ceremony on 9 September 1980, and on 25 September 1980 the

Assistant Secretary of the Army (Manpower and Reserve Affairs) presented the Meritorious Rank Awards at a ceremony in the Pentagon.

Last year the OSD restricted the upward adjustment of senior executive base pay above the Executive Schedule (ES)-4 level. A memo transmitted for comment on 25 July 1980 stated that the authority to set the initial salary or any subsequent upward adjustment to the ES-5 or ES-6 level would remain with OSD. The Army raised objections in its reply, but under current policy OSD retains this authority. A related problem is the legislative ceiling on executive base pay. The ES-5 level compensation ceiling will remain at $50,112.50 annually, even though General Schedule salaries will increase by 9.11 percent at the beginning of the first pay period in October 1980.

Continuing pay ceilings which prevented SES salaries from keeping pace with the rest of the work force and limitations on the number of performance-based bonuses and cash awards promised when federal executives joined the SES undermined confidence in the new system and made retirement more attractive. Fifty-five Army SES members retired during fiscal year 1980. This unusually large number of retirements among the Army's top civil servants was, in the words of the Director of Civilian Personnel, "a staggering loss of talent and experience."

Another important feature of the Civil Service Reform Act is merit pay for supervisors and managers in grades GS-13 through GS-15.The OSD approved the Army's merit pay plan in May 1980, but OPM withheld approval because the plan assured full comparability with General Schedule pay increases to all employees rated "fully successful." After removal of this provision, OPM approved the Army plan in August 1980. The revised plan and advance copies of a forthcoming Army regulation on merit pay have been distributed to commands and activities throughout the Army.

The Civil Service Reform Act also provided for a general performance appraisal system (GPAS) covering General Schedule and Wage System employees who are not in the SES or under the merit pay system. When fully implemented, it will involve four basic processes: preplanning performance objectives, in-progress review, annual performance appraisals, and linking performance appraisal to other personnel decisions. The OPM formally approved the Army's GPAS plan on 5 September 1980. By the end of the fiscal year, a GPAS regulation had been coordinated with the Army staff, major commands, and unions with national consultation rights, and had been forwarded to the Assistant Secretary of the Army (Manpower and Reserve Affairs) for approval. The basic concepts in the regulation were subjected to an administrative test involving approximately

1,800 military and civilian personnel at four major commands, representing a cross section of the employees and supervisors who will be affected by the new system.

Preimplementation training will be conducted in two phases. Training for military and civilian supervisors in the identification of major and critical job elements, development of performance standards, and counseling of employees began in December 1979. After the regulation is approved, training and orientation will begin for all covered employees and their supervisors. The GPAS is scheduled for Armywide implementation by 1 May 1981.

The Federal Labor Relations Authority (FLRA), created under the Civil Service Reform Act, took an expansive view of the scope of bargaining, handing down decisions which increased the area in which agencies were required to negotiate. For example, PX privileges, day care centers, and performance standards were declared negotiable. Unfair labor practice charges also increased as a result of the reform act. Unions filed over 2,200 unfair labor practice charges in the first nine months of operation under the act, as compared to a fraction of that number before. The trend continued in 1980.

The Army faced a major problem with the composition of union bargaining units under the reform act. The statutory definitions of supervisors and management officials, who may not be included in bargaining units, are basically the same as before, but they are now also used as criteria for inclusion in the merit pay system. Therefore, the Army had to file petitions to exclude a large number of managers and supervisors who had previously been included in bargaining. This resulted in charges of "union busting" and was expected to require months of costly hearings.

The number of Army employees in bargaining units declined for the fourth consecutive year—from 222,543 in 674 units to 218,882 in 673 units. This decrease was apparently caused by continuing reductions in civilian strength rather than by any trend away from labor union representation. The Army again presented four courses in labor relations for executives, each attended by about forty persons. The purpose of these courses was to provide commanders and other top manageers with the goals and objectives of the Army labor relations program, to examine the labor relations process and associated responsibilities of the commander, and to develop awareness of current future trends in the program.

During fiscal year 1980, Army personnel improved the efficiency of operations by their numerous suggestions and achievements, which resulted in benefits to the government in excess of $74.3 million. Of this total, $48.8 million was savings from adopted suggestions of

military and civilian personnel. Under a special program established by President Carter in October 1977, a presidential letter of recognition is presented to government employees for suggestions or special acts which result in savings of $5,000 or more. This year 492 Army personnel (61 soldiers and 431 civilians) were recognized under that program. Their combined efforts produced savings of over $22.5 million. Two of the individuals (a sergeant serving in an ordnance company in Germany and a DARCOM civilian employee also received Presidential Management Improvement Awards for suggestions resulting in savings of over $2.8 million.

6. Human Resources Development

As the Chief of Staff concluded in his white paper, manning the total force is the main immediate challenge facing the Army. One of the requirements in answering this challenge is a more effective personnel management strategy that gives full attention to those aspects of personnel management falling in the category of human resources development. As General Meyer further pointed out, concerned leadership and attention to the needs of the individual will be the chief determinants of the Army's success in recruiting and retaining its soldiers. "Positive leadership, retention of the tie between the soldier and his leadership over time, concern for the individual, and improved quality of life," he said, "offer the framework within which esprit and cohesion are built."

The scope of human resources development includes leadership and discipline, accident prevention, job and career satisfaction, human relations, alcohol and drug abuse prevention, counseling, physical and mental well-being, community services, and maintenance of law and order. This chapter summarizes the Army's activities in these areas during fiscal year 1980.

Leadership and Motivation

This year the Army continued to advance the quality of leadership and management practices through its Organizational Effectiveness (OE) program, a military adaptation of behavioral features and management practices taken from the technology of organizational development used in industry. The OE 3-10 year plan developed last year was implemented in November. This plan, which changes the focus of the OE effort from human relations and behavioral issues to a broader total systems and complex organizations approach, provides guidance in seven functional areas: program management, resources and manpower structure, personnel selection and assignment, research, evalution, education and training, and information. Heretofore, an OE Program and Policy Office within the Office of the Deputy Chief of Staff for Personnel (ODCSPER) and a consulting office in the Office of the Chief of Staff handled the management of OE matters. In support of the plan, these two agencies combined their resources in July under the Management Di-

rectorate in the Office of the Chief of Staff to focus the OE process more sharply on the key issues affecting the Total Army.

Leadership quality in the Army advanced in several major areas this year. An Army-wide Leadership Conference was held in February 1980, and a draft Leader Development Plan (LDP) was distributed which has had wide ranging impact on how the Army designs, unifies, and presents its leadership training. "Human Readiness Report 5," published in August, discussed trends in various dimensions of human resources development and the potential impact of those trends on human readiness to train, deploy, and fight. Concepts and basic principles dealing with sexual harassment were introduced in the Pre-Command Course and other leadership courses, and a message clearly delineating Department of the Army policy in this area was sent to the field.

A number of actions involving the leadership aspects of military personnel management moved forward during this period. Refinement of the Battalion Administration Officer concept was completed and actual field test involving forty battalions were begun in several major commands. The year-long test will be completed in March 1981 with detailed evaluation expected in May or June. A six-week course for Army battalion and brigade adjutants (S-1s) was begun at Fort Benjamin Harrison, Indiana. The course focuses on normal administrative duties, and also puts heavy emphasis on the Troop Preparedness Estimate, an instrument designed to make the S-1 a Personnel Management Officer in addition to a personnel administrator. Preparations were well along for the pilot G-1/DPCA (Assistant Chief of Staff, G-1/Directors of Personnel and Communication Activities) Course at Fort Benjamin Harrison, scheduled for presentation at the beginning of fiscal year 1981.

To support the Total Army approach, the Army Staff Council (ASC) met on 2-3 May 1980 to consider the development of a more effective management process for the Army staff (ARSTAF). The ASC recognized that successful performance of ARSTAF missions requires that the staff share common organizational values, support common objectives, and have a means by which progress as a corporate body toward accomplishment of common objectives can be assessed. The meetings resulted in the establishment of the Performance Management on the Army Staff (PMAS) program—a top-down approach based upon a linked set of value-based leadership practices and result-oriented management procedures to provide clear direction and to guide and monitor ARSTAF performance. These results were documented in Chief of Staff Memorandum (CSM) 80-5-28, which was nearing publication as the fiscal year ended.

In 1979 and 1980 sample surveys of Headquarters, Department of the Army (HQDA) personnel were conducted to assess attitudes concerning quality of work life. Survey results were presented to the ASC which adopted an action plan to effect management improvements by top Army managers, agency heads, civilian personnel managers, and operating officials. The plan included a standard survey to assess the HQDA organizational climate and provide a basis for developmental efforts in primary staff.

An important element of motivation and—as the Chief of Staff pointed out in his white paper—a vital ingredient of the Army's recruiting message is a positive image of service to the nation. To sharpen awareness and develop a fuller understanding of the Army, its people, and its programs among both the American public and the Army membership, the Army in July inititated a Public Affairs program at the HQDA level to tell the Army story through various avenues. One effort was a Senior Communicators Workshop designed to make top leaders better spokesmen for the Army. Another effective feature of the program involved visits to the field by national media representatives to see Army operations firsthand. A similar campaign fostering recognition of the need and value of service to the nation was opened in December. Serving as the center piece of the campaign was a "National Day of Recognition" ceremony conducted on 22 December at halftime during the 45th annual Sun Bowl football game in El Paso, Texas. At that occasion, the armed forces paid joint tribute to General of the Army Omar N. Bradley in recognition of his outstanding service in both military and public life over a period of more than 64 years. National television and all armed forces television stations carried the impressive ceremony.

Quality of Life Program

The Army's Quality of Life Program consists of efforts to upgrade the living and working conditions of its soldiers and their families and thereby develop a military community environment that fosters the dedication and cohesiveness essential to combat effectiveness. The program is thus based on a reciprocal commitment: the Army to the soldier and the soldier to the Army. Major areas involved in the upgrading efforts include pay, housing, work facilities, community support facilities, health care, and safe and healthful living and work environments. Since fiscal constraints do not permit the achievement of all improvement goals simultaneously, the Army give priority to those efforts of greatest potential benefit to the soldier, and in fiscal year 1980, concentrated on meeting the needs of its deployed forces.

A reorganization during the year transferred the Quality of Life

Office from ODCSPER to the Office of The Adjutant General. In meeting its responsibilities for monitoring the needs of the soldier and coordinating Army efforts to meet them, the Quality of Life Office used its surveys and assessments to support congressional testimony, to strengthen budget justification, to identify new endeavors that should be made, and to assist in establishing priorities among competing quality of life efforts. The focus of its activities was on improving the life of the soldier and his family, a major factor in improving recruitment, retention, and personal readiness.

Pay, Leave, and Travel

Adequate pay is obviously a principal ingredient of a quality of life that is commensurate with the dedicated service demanded of Army members. That military compensation was decidedly inadequate was the finding in a study begun in fiscal year 1979 and completed in October of this year by the Army, the other services, and the Office of the Secretary of Defense. Since 1972, the study disclosed, the real buying power of military pay had fallen as much as 20 percent below that of comparable civilian wages. Collectively, the yearly housing expenses of military personnel exceeded their allowances for quarters by $600 million, and they absorbed about $1 billion a year in unreimbursed expenses while making permanent reassignment moves for the convenience of the government.

The Congress partially addressed the study's findings this year following receipt of President Carter's proposal of a raise in federal civil service general schedule salaries. After considering his pay agent's recommendation that these salaries be increased by an average of 13.49 percent to regain pay comparability with the private sector, the President proposed an increase of 9.11 percent. Since Congress did not disapprove the proposal, the 9.11 percent raise was set to become effective at the beginning of the first pay period in October 1980.

The law for determining a military pay increase states that it be the same average percentage increase granted for civil service salaries; but this year, Congress suspended the linkage and in the fiscal year 1981 Defense Authorization Bill established an 11.7 percent military pay raise. The bill became law on 8 September, with the pay increase scheduled to go into effect on 1 October 1980. The percentage of increase will be applied to basic pay, basic allowance for quarters, and basic allowance for subsistence with no reallocation among them. Left unchanged was the Executive V level compensation ceiling of $50,112 per year that had been placed on senior military members and civil servants. Consequently, the basic pay of

major generals with twenty or more years of service and officers in higher grades will remain limited to that amount. Other provisions of the authorization bill increased enlistment and reenlistment bonuses, authorized reenlistment bonuses for service members with ten to fourteen years of service and for members of the Individual Ready Reserve, raised the amount of temporary duty per diem reimbursement, increased the allowance for moving house trailers in connection with permanent changes of station, and established a family separation allowance for service members in grades E-1 to E-4.

Other legislation responding to recommendations in the military compensation study was the Military Personnel and Compensation Amendment Act of 1980 (Nunn-Warner Amendment), which became law on 8 September. A principal provision of the act authorized a variable housing allowance to help defray high housing costs in CONUS; service members not living in government quarters and stationed in areas where the average cost of housing exceeds the average basic allowance for quarters by fifteen percent or more are eligible for this allowance. Also eligible are service members stationed outside the CONUS whose dependents reside in areas within the United States where average housing costs exceed the average basic allowance for quarters by fifteen percent or more. As the year closed, the Army was establishing rates for variable housing allowances in the various high cost areas of the United States. Payment of the allowances was expected to start with the end of month pay for October 1980. Other compensation improvements provided by the Nunn-Warner Amendment included an increase in mileage reimbursement from 10 cents to 18.5 cents a mile in connection with permanent changes of station and a 25 percent raise in flight duty pay for all aviators and enlisted crewmembers.

In the matter of travel, the Army took steps during the year to eliminate, or at least minimize, a potential hardship facing Army members assigned to the Nome and Bethel areas of Alaska during the months of September through April. During this period, they might wait as long as eight months for delivery of their privately owned vehicles because the Nome and Bethel ports are closed to shipping due to ice conditions, with no alternative for delivery since road and rail networks do not reach those areas, and the airlift of private vehicles is prohibited by law. Among ways explored for handling the problem, the most promising was a Military Personnel Center program by which Army members destined for the Nome and Bethel areas would be assigned only during the summer months. This would allow the concurrent shipment of their vehicles.

Since August 1978, Department of Defense air passengers departing from four air bases in Europe for return to the United States

have been able to obtain a coordinated U.S. Customs Service-U.S. Department of Agriculture customs inspection. This facilitated their return since they were not routinely reinspected upon arrival. This year the same customs preclearance program was expanded to include air bases in Panama, Korea, Japan, and the Philippines, and is scheduled for further expansion in fiscal year 1981.

Morale, Welfare, and Recreation

In June 1980 the Vice Chief of Staff established the Army Morale, Welfare, and Recreation Review Committee. The committee is chaired by The Adjutant General with membership consisting of the Deputy Chiefs of Staff for Personnel from Training and Doctrine Command (TRADOC), Forces Command, and Materiel Development and Readiness Command; the Chief of Staff of Eighth Army; and the Deputy Adjutant General and the Sergeant Major of the Army. The committee meets semiannually to review nonapproriated fund (NAF) budget and construction requirements submitted by the field and to make recommendations on the allocation of NAF dividends received from the Army and Air Force Exchange Service system and other sources. The committee also assists in developing NAF program budget guidance and participates in resource management reviews dealing with execution of the Morale, Welfare, and Recreation budget for both nonappropriated and appropriated funds. The committee's first meeting was held in Hawaii, 15-17 September 1980.

As part of its effort to upgrade the quality of life of soldiers and their families, the Army some years ago established the Army Community Service. Its programs add important substance to the Army's pledge to "take care of its own." Major community service activities this year included restructuring the Consumer Affairs Program, improving the Army Child Advocacy Program, and further development of Child Support Services.

The Consumer Affairs Program was restructured on 9 July. Through this program, persons affected by DOD-sponsored legislation, regulations, policy decisions, and program actions have an opportunity to voice their views with a guarantee that their views will be considered in the decision-making process. The Child Advocacy Program currently involves the Army in the prevention, identification, reporting, and treatment of child maltreatment on installations. This year the Office of the Secretary of Defense expanded the program into a Family Advocacy Program which the Army will implement. In Child Suport Services, the Army currently has 281 child care programs (159 day-care and 122 preschool) in operation. HQDA efforts

to improve these services this year included the addition of an education program specialist as child support services manager and two manpower spaces to provide an outreach capability.

The Army also contributes to the well-being of soldiers and their families by meeting their leisure-time needs. This it does through sports programs and outdoor recreation; libraries; community and skill development activities, which include arts and crafts, music and theater, dependent youth activities, and recreation centers; a professional entertainment program; and clubs.

This year Army members competed in thirteen interservice sports events—winning five and finishing second in six, third in one, and fourth in another. Participating with an armed forces team, an all-Army team, and as individuals, Army members also competed in nineteen national events. In *Conseil International du Sport Militaire* competitions, armed forces teams that included Army members participated in ten events—placing first in two, second in two, and third in another. Of thirty-six Army members competing in final Olympic trials in various sports, thirteen were selected as members of U.S. Olympic teams.

In expanding outdoor recreation opportunities in Europe this year, the Army funded some $300,000 worth of recreational equipment for the Armed Forces Recreation Center in Germany. In the United States, a $600,000 outdoor recreation complex was completed at Fort Campbell, Kentucky. Included in the complex was the first Nature Center to be constructed on an Army installation. This center was funded under provisions of the Sikes Act, which allocated $2 million a year to DOD for wildlife projects.

In the Federal Library Information Network there were by the end of the year thirty-eight library systems enrolled for shared cataloging and interlibrary loan. In its Book Acquisition Program, the Army purchased 179,585 clothbound books for libraries Army-wide, obtained 24,588 paperbound book kits for distribution to military personnel without access to libraries, and placed special orders for 13,339 Spanish language and reference books with funds made available late in the year. It also developed spot announcements for broadcast by the Armed Forces Radio and Television Services and produced quarterly publicity packages for use in marketing Army library services.

Among the Army's community and skill development activities is a biennial competition for the award of the Irving Berlin Trophy, a perpetual trophy donated to the Secretary of the Army by Mr. Berlin in 1956. It is awarded to the major command in the United States and to the major command overseas scoring the most points over a two-year period for programming to provide outlets for talented Army

personnel and to encourage entertainment by the soldier for the soldier. This programming involves all the forms of variety entertainment, including production and technical aspects. In the United States, first place this year went to TRADOC. Overseas, the winner was the Eighth United States Army.

The Army also encourages participation in the annual Parade of American Music, a competitive national project sponsored by the National Federation of Music Clubs and the American Society of Composers, Authors, and Publishers. The judgment of Army entries in the 1980 parade produced a total of 246 awards.

Each year the month of May is designated as American Theater Month as a means of giving theater artists encouragement and recognition and of increasing the skill development opportunities for talented soldiers and their dependents in all aspects of theatrical production. Acknowledged as major command winners this year were three dramatic entries, four musical theater entries, and one showcase entry. Portfolios of these winning productions will be on display next year in New York City at the Lincoln Center for the Performing Arts.

The Armed Forces Interservice Chess Championship tournament is held annually at the American Legion's Hall of Flags in Washington, D.C., to allow service teams to compete for the Thomas Emory Trophy and for individual recognition in a mental skill activity. For the second year in succession, the Army Chess Team won the competition.

The Army Photography Contest is conducted biennially in even numbered years to recognize both amateur and professional military photographers and to afford them an opportunity to have their work judged by a team of prominent photographers. In the contest held this year at Fort Bragg, North Carolina, 72 winners were selected from 467 entries. These winners will be entered in the interservice contest to be hosted by the Army at Fort Meade, Maryland, in December 1980.

It is the purpose of the Armed Forces Professional Entertainment Program to provide live professional entertainment for military personnel stationed in remote overseas areas. This year the program was sufficiently funded to provide all of the shows requested by overseas commanders. More than a hundred show units were on tour. A special effort to find celebrity shows to tour over the Thanksgiving-Christmas-New Year holiday season resulted in highly successful trips to Korea by television star Suzanne Sommers, and by the Dallas Cowboys Cheerleaders, and a tour of the Mediterranean area by the Miss America Pageant Show.

Army bands engaged in a full schedule of music activities

throughout the world during fiscal year 1980 in support of troop morale, community relations, and recruiting. They gave symphonic and jazz concerts and performed at parades, social occasions, ceremonies, and funerals. In a significant change to the Army Band program, band officers, who heretofore were excluded from the Officer Personnel Management System (OPMS) and received band assignments only, were brought into the system and began taking on second specialties and receiving assignments outside the band program. This change is expected to create better assignment flexibility and should provide officers involved with well-rounded, career enhancing experiences. Army band members in the field grades could opt for exclusion from the OPMS dual specialization policy and remain in the same specialty for the duration of their career.

The Army Club System made considerable progress toward its five goals for operations in 1980—upgrading the appearance and amenities of facilities, improving food programs and services, enhancing management professionalism, increasing member and patron participation and satisfaction, and ensuring financially sound activities.

Membership clubs had fiscal year 1980 sales of $174.6 million, up 8.8 percent from fiscal year 1979. Revenue was $239.6 million in fiscal year 1980, a 9.0 percent increase over the prior year. Net income for the year has enabled clubs to undertake a large scale facility improvement program. Army package beverage stores had total revenue of $169.30 million for the year compared to $158.29 million in 1979. Net income was $37.69 million in 1980, up 15 percent from $32.77 million for the previous year. These figures include $46.72 million total revenue and $19.64 million net income by the USAREUR Class VI Agency and $106.76 million revenue and $16.93 million net income by club system-operated package beverage stores.

Equal Opportunity

No less so in the Army than in the general society, a genuine equality of opportunity based on ability, merit, and fitness is of decided importance to the quality of life. The Army's fourth annual assessment of its equal opportunity program, completed in May of this year, indicated substantial progress in identifying and eliminating institutional discrimination and the residual effects of past discrimination. Areas showing favorable achievements for women and minorities included recruitment and accessions, selection rates for promotion, command, and career schooling and other career development. Also, complaints of discrimination were low and substantiations few. Emphasized by the latest assessment, and by past

ones, was the fact that an effective equal opportunity program is a reflection of the personal, direct, and continuous involvement of commanders at all levels, and it was this point that received particular stress this fiscal year as the Army intensified affirmative actions management by requiring more command attention and unit participation.

Of continuing concern to the Army are the areas that still showed imbalances at the end of the year. Imbalances still existed in the area of recruitment and accessions and in the areas of discipline, separations, and utilization of skills as well. The number of black cadets at the United States Military Academy remained below the enrollment goal. Minorities continued to be overrepresented in Army confinement facilities and among individuals separated from service under less than honorable conditions. The representation of women and minorities also remained somewhat imbalanced in various officer and enlisted career fields. However, the Army does not consider this condition to be indicative of discriminatory practices for an individual's opportunity to serve in any given career field is based upon Army requirements in conjunction with individual qualifications and personal preferences. So, while the Army strives to achieve a proportional representation, the realities of opportunity virtually prevent the proportion from becoming a perfect one.

Education

The Army took several steps during the year to further its Continuing Education System by which it provides both on-duty programs and off-duty educational opportunities for the personal and professional development of soldiers. A basic improvement was the revision of Army Regulation 621-5, which sets forth the policies governing the system. At year's end, the revised regulation was being reviewed by the Army staff and major commands.

A recent addition to the system, the Basic Skills Education Program, showed clear evidence of success this fiscal year as well as last year. For commanders, this is the primary on-duty program for helping enlisted personnel to achieve military skill qualification, improve duty performance, and continue career growth. The program originally had a three-phase structure, two of which were introduced last fiscal year. The first phase, conducted during initial entry training, provides soldiers with basic instruction in reading and arithmetic or, for persons whose native language is other than English, instruction in English as a second language. The second phase, conducted at permanent duty stations, is geared to raise reading and computational skills to the ninth grade level and to teach other skills, in

cluding English as a second language, needed by soldiers to perform duties through the rank of sergeant (E-5) at MOS skill level 2.

As a result of recommendations from the Assistant Secretary of the Army (Manpower and Reserve Affairs) for improving the basic skills program, TRADOC this year produced a plan for the systematic identification of specific Army requirements in basic skills and the development of new curricula for MOS basic skills, military life coping skills, learning strategies, and English as a second language. TRADOC will develop these curricula, and the Army Research Institute will evaluate them.

What was originally the third phase of the Basic Skills Education Program was initiated this year. Now known as the Advanced Skills Education Program, it is conducted at permanent duty stations to assist noncommissioned officers in meeting their responsibilities as supervisors, managers, and administrators at MOS skill levels 3, 4, and 5. As an integral part of the Army Continuing Education System, the advanced program is tied in with the off-duty Servicemembers Opportunity College Associate Degree program to the extent that college level credit may be awarded for the completion of an advanced skills course.

The associate degree program comprises technical curricula designed to support specific MOSs and warrant officer career management fields, and accredited civilian schools offer the courses at Army installations. The schools award credit for competencies achieved by students during the course of their military service, and they allow students to continue their degree programs regardless of military transfers. As of the end of this year, the Army had accepted fifty-seven schools to offer degree programs at sixty-nine installations in the United States. These numbers will increase and the program will be extended to Europe and the Pacific and Far East during the next fiscal year.

To obtain information for curriculum development and alternative methods of instruction for soldiers needing instruction in English as a second language, the Army in August of this year opened a Pilot Resident English as a Second Language Program at the Defense Language Institute's English Language Branch, Lackland Air Force Base, San Antonio, Texas. The program will provide twenty-six weeks of language instruction and some familiarization training in military subjects to 200 soldiers who have not yet entered basic training. The soldiers in the program were selected from volunteers who scored below 70 on the English comprehension level test. The program will be evaluated by tracking the participants through their first enlistments and comparing their success rates with those of a control group of soldiers eligible but not selected to participate in the pro-

gram. The Army expects that this pilot effort will provide basic information needed for developing a preenlistment English language training course.

Twenty-nine states now permit military personnel and their dependents to attend state colleges and universities as residents for tuition purposes. This eliminates the higher tuition fees they otherwise would be charged as nonresidents. In July of this year, the Chief of Staff asked the governors of the other twenty-one states for support in establishing the same policy within their jurisdictions. Most of the governors had responded by the end of the year, although none of their states had yet formally granted the resident status requested at that time.

The Veterans Educational Assistance Program (VEAP), established by Public Law 94-502 in 1977 to replace the G.I. Bill, is a contributory program that enables all soldiers to build funds for their future education. Soldiers monthly contributions to their funds are matched $2 for $1 by the Veterans Administration.

Public Law 94-502 also authorized the Secretary of Defense to contribute money to a soldier's fund as an enlistment incentive. Under that authority, the Army opened a recruiting experiment early in fiscal year 1979 in which it offered incentives, or "kickers," in amounts of $2,000, $3,000, and $4,000 for two-, three-, and four-year enlistments, respectively, in selected skills. To qualify for one of these fund increases, an individual had to be a high school graduate, score at least 50 on the Armed Forces Qualification Test, and enlist in one of the specialties included in the experiment. During the recruiting test last year, the Army raised the kickers to $4,000, $5,000, and $6,000, and then in December of this fiscal year, reset them at $2,000, $4,000, and $6,000. Toward the end of this year, test results indicated that kickers in the $2,000 to $6,000 range had no more than modest drawing power. The Army consequently sought and obtained approval to test the use of significantly higher kickers. In the new test, scheduled to begin on 1 October 1980 and run for one year, the Army will offer $8,000 for a two-year enlistment and $12,000 for an enlistment of three or more years.

While continuing with VEAP testing, the Army also drafted a legislative proposal for noncontributory education benefits administered and funded by the Veterans Administration that would replace the current program. As proposed, the bill would make education benefits available to all military personnel as a reward for honorable service and, in that sense, amounts to a readjustment measure. But its provisions also include other recruiting and retention incentives. Military personnel could take advantage of the benefits after one year of service and, after longer service, could

transfer unused benefits to dependents. Service members also would have the option of establishing contributory funds for the education of dependents. For active duty personnel, the benefits would consist of monthly stipends of $400, and would be earned at the rate of 1½ months of benefits for each month of service up to a maximum of 36 months (four school years). Reserve and National Guard members would earn benefits at half the active duty rate and would not be offered the dependent education options. As of the end of this fiscal year, the Army's proposal was under review by the other services.

Alcohol and Drug Abuse

The Army's Alcohol and Drug Abuse Prevention and Control Program conserves manpower through prevention, identification, education, rehabilitation, and treatment. It thus has a direct bearing on morale, safety, and combat readiness.

In the education phase of the program, military personnel, civilian employees, and their dependents receive instruction in scheduled classes, information briefings, periodic orientations, and community involvement activities. Receiving instruction this year were 542,535 military personnel, 180,225 civilian employees, 1,572 military retirees and 38,104 dependents.

During the year, 24,008 active duty military personnel entered treatment programs for alcohol abuse. These programs involved 55 medical facilities, 2 residential facilities, and 180 nonresidential facilities, and occupied a full-time staff of more than 1,600 military and civilian members. Of all individuals completing their treatment during the year, 18,217, or 75.9 percent, returned to effective duty.

Accident Prevention

For a second fiscal year in succession, the number of accidents, fatalities, and disabling injuries decreased among both military and civilian personnel. The total number of accidents was the lowest since 1976, and the total number of fatalities was the lowest ever recorded. The number of privately-owned vehicle accidents and the number of fatalities among military personnel also stood at record lows. At a rate of 2.41 mishaps per 100,000 flying hours, Army aviation accidents also fell to a new low.

These sharp declines were direct results of the additional support given to the Army Safety Program beginning in fiscal year 1979. To further increase the effectiveness of the program, an Army-wide Safety Directors' Conference, hosted by the Army National Guard Safety Office, convened in May at Edgewood Arsenal, Maryland. The

theme of this action planning conference was "Safety Supports Force Readiness during the 1980's," and its goal was to develop an integrated Army Safety Program 5-10 Year Plan. Several features of the plan were scheduled for implementation in fiscal year 1981.

Discipline, Law Enforcement, and Military Justice

The general improvement in Army discipline since the beginning of the volunteer era six years ago waned somewhat during fiscal year 1980. Worldwide, crimes of violence had decreased 19 percent since the end of fiscal year 1974, but had increased by 9 percent in the past year. Crimes against property had decreased by 9 percent since fiscal year 1974, but had increased by 4 percent since fiscal year 1979. Marihuana use and possession had decreased by 13 percent since fiscal year 1974 and had decreased by 9 percent since fiscal year 1979. Other drug offenses had decreased by 33 percent since fiscal year 1974, and had decreased by 12 percent since fiscal year 1979. AWOL rates had dropped 53 percent since fiscal year 1974, but had risen 9 percent during the past year. Desertions had also dropped 52 percent since fiscal year 1974 but registered an 8 percent increase this year over 1979 levels. The average prisoner population had risen 47 percent since the end of fiscal year 1978 and had increased by 31 percent in the past year.

This year's court-martial statistics were as follows:

	Convicted	Acquitted	Total
General	1,244	109	1,353
Special	4,039*	411	4,450*
Summary	3,148	319	3,467
Total	8,431	839	9,270

*In 901 of the special court-martial cases, the approved sentence included a bad conduct discharge. Also imposed during the year were 151,371 nonjudicial Article 15, UCMJ punishments.

The indiscipline index at Table 1 below provides a comparison of quarterly rates for offenses, punishments, and separations less than honorable since the beginning of fiscal year 1976.

Over the twelve-month period ending 30 November 1979, 83,196 U.S. military and civilian personnel and their dependents were charged with offenses resting within the exclusive or primary jurisdiction of foreign tribunals. Of the offenses charged against Army members, 16,874 were subject to the primary jurisdiction of foreign courts. The Army obtained waivers of jurisdiction in 16,477 of these cases, which amounted to a waiver rate of 97.6 percent. Of U.S. personnel confined in foreign penal institutions during the twelve-month period, 78 were Army personnel, civilians, and dependents.

This year the Army completed a worldwide test of the U.S. Army Trial Defense Service (TDS), a new, independent organization for military defense counsel prompted by a common perception among soldiers of a conflict of interest on the part of counsel under the existing system. The evaluation of the TDS after limited testing last year at sixteen TRADOC installations was that it had proven to be operationally sound and had met all mission requirements. The primary purpose of the expanded test this year was to measure the ability of the TDS to handle larger mission requirements in more diverse organizations, particularly in combat and combat support units. Evaluations of the expanded program by commanders, staff judge advocates, military judges, and defense counsel lay before the Chief of Staff for final decision as the year ended.

Several times this year, as during the last, the Army was sued because of its elimination policy for homosexuality. The Army considers its position that military service and homosexuality are incompatible to have a substantial rationale. It regards homosexuality in Army units as likely to be prejudicial to discipline, morale, mutual reliability, and good order. Further, since the living and working conditions of Army units are based on unit requirements rather than personal choice, there would be a forced integration of homosexuals and heterosexuals that could be deleterious to organizational climate and unit performance. Nor would homosexuals in leadership positions be likely to command the respect and obedience required of soldiers for effective unit performance. In the Army's judgment, there would also be a significant erosion of public confidence in and respect for the Army if homosexuals were allowed to serve. In sum, because of its mission requirements and the unique environment of the battlefield, the Army considers it not only proper and correct but also essential that it be able to impose restrictions on whom it selects for service. In any case, because of its vital mission, the Army does not consider its units to be the place to test the social values and effects of homosexuality. The Army is confident that its policy in regard to homosexuals will withstand judicial challenge.

Significant changes in Army Regulation 27-10, Military Justice, became effective in August 1980. These changes gave The Judge Advocate General authority to grant limited exceptions to the regulation when military exigencies required them; made clear that special courts-martial empowered to adjudge bad conduct discharges could be convened only by an officer exercising general court-martial convening authority; eliminated the review of denials of applications for the deferment of sentences to confinement; removed the requirement that service members referred to trial by general or bad conduct special courts-martial undergo mental evaluations; authorized com-

TABLE 1—INDISCIPLINE INDICATORS, WORLDWIDE
(rate per 1000)

FY	Qtr	AWOL	DFR*	Crimes of Violence	Crimes Against Property	Marihuana Use and Possession	Other Drug Offenses	Total Courts-Martial	Non-Judicial Punishment	Separations Other Than Honorable
76	1	13.8	5.0	2.14	22.72	6.11	2.06	3.83	52.24	7.47
	2	9.2	3.7	1.75	22.04	6.45	1.82	3.33	45.72	6.11
	3	11.0	3.2	1.65	20.44	8.61	1.61	3.18	51.87	6.05
	4	11.6	3.5	1.66	22.79	8.04	1.53	2.92	53.05	6.02
77	1	10.4	3.7	1.58	19.48	7.60	1.38	2.71	50.58	4.66
	2	9.5	3.4	1.43	18.23	8.08	1.48	2.85	54.16	4.83
	3	12.7	4.5	1.51	19.28	7.33	1.47	2.34	54.84	4.32
	4	14.4	5.1	1.76	21.81	6.90	1.22	2.44	54.50	4.45
78	1	8.7	3.4	1.56	19.97	6.52	1.19	2.41	47.53	4.20
	2	10.1	3.3	1.49	17.91	7.32	1.42	2.51	51.87	3.99
	3	10.4	3.9	1.51	18.19	7.36	1.29	2.51	52.47	3.68
	4	11.2	4.8	1.48	18.58	6.91	1.19	2.46	48.52	3.74
79	1	7.8	4.2	1.36	18.15	6.60	1.42	2.23	45.03	3.57
	2	10.3	4.2	1.44	17.66	7.23	1.49	2.47	49.16	4.28
	3	9.4	4.4	1.49	18.88	7.52	1.79	2.72	51.29	4.72
	4	10.5	5.2	1.61	19.66	6.62	1.71	2.47	47.54	3.97
80	1	7.9	4.6	1.61	17.91	5.95	1.47	2.64	45.31	3.69
	2	10.9	4.8	1.56	18.18	6.95	1.45	2.96	48.56	4.52
	3	10.5	4.9	1.55	19.59	6.98	1.54	3.36	51.66	4.27
	4	12.3	5.3	1.74	21.43	5.59	1.16	3.10	51.34	4.21

*Dropped from rolls. An administrative action whereby an absentee is dropped as a deserter from the strength of an organization.

manders to administer oaths for military justice purposes, including search and seizure and apprehension; set forth the authority of a military judge to issue orders for the interception of oral and wire communications; and revised procedures for notifying an accused of the appellate decision on his case by the Court of Military Review.

One other important change made in the regulation refined a revision made last year that authorized commanders to file records of minor punishment in unit records only or in official military personnel files, which gave them control over whether these records would be available to promotion and school selection boards. As established last year, commanders exercising special court-martial convening authority were to determine the filing in those cases involving enlisted personnel in grades E-1 through E-5, and commanders exercising general court-martial convening authority were to make the determinations in the cases involving enlisted personnel in grades E-6 through E-9, warrant officers, and officers. Under the latest change, if the punishment is minor (as defined by the regulation), the filing determinations will be made by the commander imposing the punishment and his decision will be final. As a result, commanders now have greater flexibility in imposing minor punishment without imposing long-term effects on a soldier's career.

Revisions of the Manual for Courts-Martial made this year brought the military law on evidence into conformance with that of the federal courts. As of 1 September 1980, courts-martial were to be tried under newly-written military rules of evidence that essentially mirror the federal rules. Unlike the latter, however, the military rules provide specific rules of privilege and codify in part the law of self-incrimination, confessions and admissions, search and seizure, and eyewitness identification. Of particular significance, the revised manual includes guidelines for military inspections, which bear on the privacy rights of service members. Also newly set forth is a procedure for determining the mental responsibility of an accused.

In November 1979, President Carter signed Public Law 96-107 amending Articles 2 and 36 of the Uniform Code of Military Justice. The amendment to Article 2 ensured that the military services have courts-martial jurisdiction to try all offenders who have voluntarily submitted to military authority, have performed military duty, and have received military benefits. It also eliminated a court-imposed denial of court-martial jurisdiction in cases of recruiter misconduct that resulted in the fraudulent enlistment of an accused service member. The Article 36 amendment simply clarified the fact that the President's rule-making authority in court-martial procedures extended to pre-trial and post-trial proceedings.

In January 1980, a Department of Defense legislative proposal

(H.R. 6298) was introduced in the House of Representatives to reform the Court of Military Appeals and establish it as a court under Article I of the Constitution and independent of the Defense Department. As it is now constituted, the Court of Military Appeals consists of three civilian judges appointed by the President, and is the highest appellate court in the military justice system. Key provisions of the legislative proposal increase the size of the court to five members, ensure the judges fifteen-year terms, and allow discretionary review of the court's decisions by the U.S. Supreme Court. Passage of the bill by the House was expected within a short time as this fiscal year closed.

7. Support Services

Support services help to sustain the morale of soldiers in time of peace. The continuing erosion of some fringe benefits for military personnel made the attraction and retention of good personnel more difficult in fiscal year 1980. Nevertheless, the Army did provide services and benefits that were attractive and, within the limits of its budget, sought to improve the quality of life in the service whenever possible. These support services, which ranged from health care to heraldic morale boosters, also included two items that are always of great importance to soldiers—food and housing.

Health and Medical Care

Total Army expenditures for medical services for all appropriations totalled $1,648.2 million in fiscal year 1980, an increase of $72.0 million above the preceding fiscal year. The increase resulted primarily from the military and civilian pay raises authorized by Congress, the continuing escalation of health service costs for Army beneficiaries both in Army medical treatment facilities as well as from civilian sources, and a rise in the level of purchases of medically related equipment. The table below compares Army expenditures for medical services in fiscal years 1979 and 1980, in millions of dollars.

Appropriation	FY 79	FY 80	Percentage of change
Military Personnel, Army	578.5	640.2	10.7
Operation & Maintenance, Army	725.8	828.0	14.1
Research & Development, Army	73.0	91.5	25.3
Military Construction, Army	145.0	20.3	−86.0
Other Procurement, Army	43.7	56.2	28.6
Reserve Personnel, Army	10.2	12.0	17.6
Total	1,576.2	1,648.2	4.6

During the 1980 fiscal year, the number of physicians on active duty continued to increase, with a gain of 5 percent from fiscal year 1979. As a result, there was a 2 percent increase in Army Daily Patient Load, and a 7.3 percent increase in clinic visits. The downward trend in average length of stay for hospital inpatients continued, with a decline from 7.1 to 6.9 days.

The Army Medical Corps ended the fiscal year with an increase of 224 officers over fiscal year 1979. The 1980 end strength of 4,627,

while an improvement over recent years, was short of the minimum peacetime objective of 5,273 physicians. At the current rate of increase the Medical Corps expects to achieve the 5,273 level by fiscal year 1985.

In spite of the continuing improvements in total numbers, the specialty mix lacked balance with an obvious impact on patient care. Based on the ideal specialty distribution of the 5,273 objective, substantial staff shortages existed in twenty-four Corps specialties during the fiscal year which are listed in alphabetical order in the table below.

Specialty	5,273 Staff Objective	1 Oct. 80 Staff	Number Short	Percentage Short
Anesthesiology	91	66	25	27.5
Cardiology	72	42	30	41.7
Dermatology	71	49	22	31.0
Emergency Medicine	148	14	134	90.5
Family Practice	662	159	503	76.0
Flight Surgeon	124	90	34	27.4
General Surgery	192	156	36	18.8
Infectious Disease	39	16	23	60.0
Internal Disease	238	206	32	13.4
Medical Oncology	31	14	17	54.8
Nephrology	28	18	10	35.7
Neurology	54	38	16	29.6
Neurosurgery	21	16	5	23.8
Nuclear Medicine	37	21	16	43.2
Ophthalmology	60	57	3	5.0
Orthopedic Surgery	184	99	85	46.2
Otolaryngologist	62	31	31	50.0
Pulmonary Disease	46	22	24	52.2
Radiology	120	94	26	21.7
Rheumatology	16	6	10	62.5
Thoracic Surgery	41	25	16	39.0
Urology	68	50	18	26.5
Vascular Surgery	8	3	5	62.5
Physician Assistant	565	345	220	38.9

There were less dramatic shortages in specialties other than those listed above, while general medicine, pediatrics, hematology, endocrinology, and pathology exceeded the objectives set for them; the 5,273 distribution objectives dramatically lowered the previous requirements for these specialties. By 1985 the Army Medical Department (AMEDD) expects shortages in family practice, emergency medicine, radiology, nuclear medicine, thoracic surgery, infectious disease, orthopedics, urology, and otolaryngology. All other specialties should be at or above their projected strength level. However, current trends in the health care industry may alter the situation either positively or negatively for the various specialties. Ac-

cordingly, the Medical Department will monitor changes and update the projections as needed. The specialty resource mix will always require intricate planning and ongoing adjustments to meet current health care work load demands. Some imbalance will persist; and the Medical Department must manage its impact carefully. In this context, fiscal year 1985 projections are based largely on graduate medical education entrances and graduations with resulting obligated service commitments. Consequently, retention will continue to be the key to sustained success in meeting Army strength objectives.

During fiscal year 1980, The Surgeon General recommended, and the Vice Chief of Staff of the Army approved, a new policy on self-aid and first aid for nerve agent casualties. Three separate atropine and three separate oxime (2 PAM-chloride) auto-injectors will replace the current nerve agent antidote known as TAB. The new policy will supersede TAB auto-injectors with three atropine auto-injectors issued to the individual soldier. The Medical Department will issue separate oxime auto-injectors as soon as they become available.

Physical therapists with advanced specialty training in sports medicine and the evaluation of musculoskeletal injuries participated in the screening program of 300 Army personnel over forty years of age at Fort Benning, Georgia, prior to implementing a six-month physical fitness training program. In addition to participating in the over forty screening program, the Army therapists provided specific recommendations regarding the individual training exercises for the under forty years old group. By having this group of sports-minded medical professionals contributing to the program, The Surgeon General anticipates the creation of an improved physical training program which will contain safeguards to prevent musculoskeletal injuries.

A physical therapy officer participated in REFORGER 80 exercises. An analysis of the number and type of training injuries seen at clearing stations during this exercise will provide needed information relative to the rate of return to duty, need for evacuation, effectiveness of physical therapy evaluation and treatment at division level, and future programs for prevention of injuries.

In August 1980 the Army Nurse Corps assigned the first complement of ANC officers to the U.S. Army Medical Department Activity (MEDDAC) at Fort Irwin, California, which the Army reactivated to support the National Training Center, the large maneuver area in California. Approximately fifty Nurse Corps officers participated in AMEDD support activities for the Cuban Refugee Mission. These officers, representing Forces Command (FORSCOM) and Health Services Command (HSC) units, served at Fort Chaffee, Arkansas; Fort

Indiantown Gap, Pennsylvania; and Camp McCoy, Wisconsin, from 24 May to 28 August 1980.

In 1980 Congress directed the Department of Defense to appoint the Department of the Army as executive agent for DOD veterinary activities in food inspection services, animal care, zoonoses control, and support to research and development activities requiring veterinary medicine specialties. The plan for reorganizing veterinary functions limited the employment of veterinarians within DOD to those functions which require a doctor of veterinary medicine degree and consolidated within the Army the personnel management of uniformed veterinarians. The consolidation of veterinary services included the discontinuance of the Air Force Veterinary Service on 31 March 1980 and the transfer of its veterinary functions to the Army. The plan established a goal of a 10 percent reduction in total veterinary positions within DOD by 30 September 1980. Ultimately consolidation would mean the civilianization of 102 positions in veterinary medicine research and development through conversion to the civil service and the substitution of 158 other uniformed allied health professionals for veterinarians. Over a five-year transition period, fiscal year 1981-85, this will result in the elimination by attrition of 327 uniformed veterinarians or 49 percent of the fiscal year 1979 authorization.

Veterinarians assigned to the U.S. Army Medical Research and Development Command are actively engaged in research in such areas as: health hazard assessment of military weapons systems; infectious disease and medical defense against biological warfare; combat trauma; heat, cold and altitude stress; and chemical defense. The Army has rarely recruited a fully trained veterinary research scientist. The needs are filled by training young veterinary officers after their initial tour of duty. Thus, through a long-term civilian graduate training program and preceptorship programs in pathology and laboratory animal medicine, many veterinary officers in research and development have acquired a doctor of philosophy degree or board certification or both.

The passage of legislation to control exposures to noxious substances and to minimize possibilities of developing and fielding drugs and vaccines with adverse effects is increasing the national demand for the technical expertise to develop information required by industry and federal regulating agencies. The Good Laboratory Practices Act and Toxic Substance Control Act created a demand for veterinary pathologists and laboratory animal medicine professionals that exceeds the total number of specialists available in the country as a whole.

The Department of Defense and the Department of Agriculture

held a joint exercise in Puerto Rico from 17-23 May 1980 as part of the Emergency Animal Disease Eradication Program. The exercise simulated the mobilization and disease eradiction measures conducted under the 1965 Memorandum of Understanding between the Departments of Agriculture and Defense should a foreign animal disease be introduced into the United States. The scenario covered a ninety-day period which began by the introduction of African Swine Fever into Puerto Rico through the feeding to swine of pork scraps contaminated with the fever. The military support under the supervision of an Army veterinarian would assist the Department of Agriculture task force through professional and technical expertise; air, ground, and water transportation; and other forms of logistical support. The first hand experience received by Army veterinarians from their participation in such joint exercises will ensure competence and expertise in the event of a crisis caused by the introduction of foreign animal disease into the United States.

The U.S. Army Natick Laboratories began testing the conclusions obtained from a systems analysis of hospital food service operations at Moncrief Army Hospital, Fort Jackson, South Carolina. The testing included in-house bulk food preparation and freezing, and patient tray delivery systems designed to reduce labor and errors while improving the overall quality of food items. This study is designed to develop the most cost efficient and qualitative food preparation and patient service system for adaptation to all Army hospitals.

In recognition of the need to update the equipment and staffing of TOE units, the Office of The Surgeon General initiated efforts to standardize and procure new kitchens for field medical feeding missions. To augment these efforts, the Academy of Health Sciences completed an analysis of TOE food service staffing requirements. In order to further identify all problem areas, this year a full-time dietitian was assigned to support REFORGER 80. Additionally, three dietitians were deployed with medical units in support of Cuban refugee camps.

During fiscal year 1980, standardization of cardiopulmonary resuscitation (CPR) practices moved forward. The Army accepted a CPR kit developed by AMEDD in cooperation with industry. The kit is frequently identified as SPARK (Systematic Pulmo-Cardiac Anaphylaxis Resuscitation Kit). Its contents, based on standards established by the American Heart Association's Steering Committee on Cardiopulmonary Resuscitation, includes essential drugs which are prediluted in color-coded medicine cartridges with injecting syringes, standard physiologic monitors, intravenous starter pack, and an airway management section. The Defense Medical Materiel Board standardized the Army-sponsored kit with the Navy and Air

Force Medical Services. AMEDD should complete the evaluation of functional suitability, durability, and reliability of SPARK for use in field medical treatment facilities by early 1981. If successful, the Army will include the kit in authorization documents for TOE medical units.

Procurement of the most up-to-date medical equipment constitutes yet another way in which the Medical Department seeks to provide high quality patient care. During fiscal year 1980, the department obtained General Electric 8800 full-body Computerized Tomography Scanners for the William Beaumont Army Medical Center, the Madigan Army Medical Center, the Brooke Army Medical Center, and the Letterman Army Medical Center. AMEDD procured a head scanner for the Dwight David Eisenhower Army Medical Center. The department also procured and issued seventy-five Low Capacity, 30MA, X-Ray Systems to high priority field medical units to replace the 2MA apparatuses which did not meet U.S. Army standards or needs in a combat zone. To support the low capacity systems, AMEDD replaced seventy-five unsatisfactory manual, spring-driven X-ray film processing units with electrically operated Radiographic Paper and Developer Assembly Processing Machines.

The Medical Care Support Equipment (MEDCASE) program provides equipment funding for the Army Medical Department worldwide. The fiscal year 1980 program totalled $56.2 million, an increase of $12.5 million over the $43.7 million fiscal year 1979 program. This increase is primarily applicable to the replacement and modernization line partially offset by decreases in other lines as shown in the table below which lists program funding in million of dollars.

	FY 79	FY 80	Change
Expansion and New Installation	18.3	18.1	– 0.2
Pollution Control	.6	.4	– 0.2
Replacement and Modernization	24.1	37.2	13.1
Drug Abuse	.1	.1	0.0
Clinical Investigations	.6	.4	– 0.2
Total	43.7	56.2	12.5

During fiscal year 1980, the Department of the Army published AR 40-65, Review Procedures for High Cost Medical Equipment. This tri-service regulation details policy for the preacquisition review of requests for medical equipment costing over $100,000. At the same time AMEDD began a test of "turnkey" purchases of major items of equipment (the successful bidder not only delivers and installs the equipment but also prepares the site if site preparation is necessary).

AMEDD made a concerted effort to improve nonstocked supply

support to overseas units. As a result, the department obtained a reduction of approximately 25 percent in the length of time between the placing of an order and the receipt of the shipment. The Surgeon General expects that this trend will continue for the immediate future.

The Medical Department initiated actions to improve support in Europe by pre-positioning equipment for reserve component general hospitals, increasing medical pre-positioning of materiel configured to unit sets (POMCUS) units for the Central Army Group and the Northern Army Group, and additional forward stationing of corps level medical units. In anticipation of the implementation of the new policy concerning nerve agent antidote, the Surgeon General positioned atropine auto-injectors at installation medical supply activities in CONUS, the U.S. Army Medical Materiel Center, Europe, and the 6th Medical Unit (Supply Optical and Maintenance) in Korea for issue to forward deployed and Army Rapid Deployment Force (RDF) units.

Since the initiation of the AMEDD Automation Program in the 1960s with the acquisition of second generation computers, the program's prime objective has been to provide technological state-of-the-art automation support. To accomplish this objective, AMEDD has fully exploited technological advancements within the computer industry and developed strategic plans accordingly. This has resulted in the planned acquisition of mini and micro data processing technology. As a long range goal, AMEDD directed its automation efforts during fiscal year 1980 toward satisfying information requirements in four general areas: command and staff, clinical and health care administration, the battlefield, and medical research and development.

The Medical Department took several significant actions during fiscal year 1980 within this general policy framework. It replaced second generation automatic data processing (ADP) equipment at five medical centers with minicomputers, acquired and used extensively mini and micro data processing technology in support of diverse medical research and development activities, and continued its support and participation in the functional requirements development phase of the Tri-Service Medical Information Systems (TRIMIS) program. The Surgeon General expects the benefits for the Army derived from the Department of Defense TRIMIS program to increase greatly beginning in 1981.

The Department of Defense completed pilot testing of the Uniform Chart of Accounts (UCA), a cost accounting system for fixed medical treatment facilities of the three military services to provide consistent financial and operating performance data to managers

who are responsible for health care delivery, and began implementation of the UCA on a worldwide basis. By the end of the year, thirty-nine medical facilities had implemented UCA and submitted their reports to DOD. Nine facilities are scheduled to implement the UCA in fiscal year 1981.

The Federal Health Resources Sharing Committee (FHRSC), chaired by the Director of Health Care Operations in the Office of The Surgeon General, has identified the obstacles to sharing patient services between the Department of Defense, the Veterans Administration, the Public Health Service, and other federal departments. The major obstacle is conflicting agency regulations with respect to reimbursement for services. Concurrent with the FHRSC study, Senator Percy introduced legislation entitled "The Federal Health Resources Sharing Act of 1980." Close coordination between the FHRSC and Senator Percy resulted in a bill which is generally acceptable to all member agencies. The Senate passed the Percy bill in September 1980. Congressman Beard has introduced a similar bill in the House of Representatives. AMEDD hopes that these congressional initiatives will result in a public law by the spring of 1981.

Religion

The Army chaplain provides for the religious and moral needs of the military community, assists commanders in keeping the policies and practices of the command in conformity "with strict moral, ethical, and humanitarian" conduct, helps active and retired military personnel meet their religious and moral problems, and has responsibility for the religious education and the pastoral care of the individuals he or she serves. In particular the chaplain stresses the welfare of the soldier and conducts specialized religious services, including services of worship, religious missions, retreats, marriages, and baptisms.

To assist in the procurement and retention of Catholic chaplains and to improve ministry to Catholic personnel, the Chief of Chaplains requested a study by a senior Catholic chaplain. The Deputy Chief of Chaplains conducted a study from January 1979 to May 1980 on ministry to Catholic personnel in the Army and in June 1980 presented his findings to the Chief of Staff of the Army and the Military Ordinariate.

As a result of the study, the Chief of Chaplains approved the following actions to procure and retain Catholic chaplains and to improve ministry to Catholic personnel: design of a hometown procurement program for Catholic chaplains; use of auxiliary and contract chaplains more extensively; acceptance of ordained deacons as

chaplains if endorsed by the Military Ordinariate; provision of educational programs for commanders, chaplains and laity in Catholic ministry needs; revision of staff regulations to ensure that unmarried chaplains have an opportunity to compete for a two bedroom unit; and provision of additional opportunities for lay ministry.

The Chief of Chaplains Minority Ministry Training Program for fiscal year 1980, also known as the Cleveland Project, was held in Cleveland, Ohio, on 21-30 September 1980. Using model oriented training, the program sought understanding of the problems faced by members of minority groups, their cultural backgrounds, and the influence of their culture on their family and job environments. Ten chaplains participated in a multicultural education project by each spending two nights with different ethnic families in the Cleveland area. In addition to the experiences acquired by actual live-in situations with "adopted families," the training also consisted of seminars and workshops.

In 1979 the Chief of Chaplains decided to assign a senior chapel activities supervisor to the Office of the Chief of Chaplains (OCCH) for matters regarding chapel activities specialists. Following a manpower survey in 1979, the Director of Management, Office of the Chief of Staff, Army, recommended an E-9 position with OCCH, and in August 1980 the Military Personnel Center assigned an E-9 chapel activities supervisor to OCCH. Responsibilities of this new position include recruitment, retention, training, job satisfaction, and developing policies for increased utilization and career management for chapel activities specialists.

Two third year Harvard Law students filed a civil action for declaratory and injunctive relief challenging the constitutionality of the U.S. Army's Chaplain's Corps in the case of *Katcoff* v. *Alexander*. On 20 August 1980 the district court denied the Army's motion to dismiss holding that the plaintiffs had standing to sue as federal taxpayers, that the court had jurisdiction to consider the challenges, and that a ruling on the constitutionality of the chaplaincy cannot be made without a fully developed factual record.

Casualty and Memorial Affairs

The Army's mortuary work load during fiscal year 1980 totalled 2,086 deceased persons. Local mortuaries, working under contract, prepared the remains of 1,161 active duty personnel and their dependents in CONUS. Six Army-operated mortuaries overseas handled 925 bodies. In Europe the Army recovered and identified the remains of 2 soldiers from World War II, 1 from Austria and 1 from Italy.

As a result of the Panama Canal treaty, the Army assumed opera-

tional responsibility for the Panama Canal Commission Mortuary—located at Ancon, Panama—on 1 October 1979. The mortuary, staffed with three morticians, prepares approximately 350 remains each year.

The Central Identification Laboratory, Hawaii (CILHI), continued to support Commander in Chief, Pacific (CINCPAC) mortuaries and the Joint Casualty Resolution Center (JCRC) by identifying remains. In addition, the laboratory conducted search and recovery missions to New Guinea, Wake Island, Tarawa, the Philippines, Guam, Enewetak, Mili Atol, and Pelilieu. The laboratory located 108 bodies, identified 12 casualties of World War II, and designated 1 body as an unknown World War II casualty. It classified the balance as Japanese, Filipinos, and four unrelated portions of bodies. The laboratory continued to receive visits from congressional delegations and members of veteran and funeral service associations.

On 26 December 1979 the Army transferred responsibility for graves registration to the Troop Support Division, Office of the Deputy Chief of Staff for Logistics (ODCSLOG) and the U.S. Army Troop Support Agency (TSA). The Services Branch of the Troop Support Division assumed responsibility for policy implementation, while the TSA at Fort Lee, Virginia, performs field operations.

The Arlington National Cemetery dedicated the first 5,000 niche section of its columbarium for cremated remains on 26 April 1980. Eventually, the columbarium will contain 50,000 niches. Located in the southeast section of the cemetery about half a mile from the Memorial Gate, it is one of the few active columbariums and the only one of such magnitude. Because of space limitations, ground burial is restricted. The criteria for interment in the columbarium are more liberal, and extend to all honorably discharged veterans. Ground burials in Arlington and the Soldier's Home National Cemetery during fiscal year 1980 totalled 2,745; cremated remains inurned in the columbarium numbered 427.

The Casualty Services Division of The Adjutant General's Center processed 927 active duty deaths, 6,494 retiree deaths, and 973 cases involving very seriously ill and seriously ill individuals in overseas commands. It also handled 738,000 records of emergency data in addition to processing 206 deaths of service members who died within 120 days of separation, discharge, or retirement.

During the period 1 October 1979 to 30 September 1980, The Adjutant General's Center completed four individual case-by-case reviews under the Missing Persons Act for the service members reported as prisoners of war or missing in action in Southeast Asia. It declared 1 prisoner of war, 2 men missing in action, and 1 man missing (nonhostile) to be dead.

Housing and Homeowners' Assistance

Fiscal year 1980 was a year of retrenchment in the area of housing and homeowners' assistance. The Office of Management and Budget (OMB) eliminated the new construction program. The Congress cut the minor construction account for the Army to $500,000. It became apparent early in the year that the cost of repair to fire damaged units, which utilizes the minor construction account, would exceed this amount. Accordingly, the Corps of Engineers withheld the money from the major commands to permit the prioritization of projects toward the end of the fiscal year. OMB eliminated the Improvement Program and the Energy Conservation Investment Program, both parts of the Family Housing, Maintenance, Repair, and Improvement Program.

Leased housing gives an alternative means of providing shelter for military sponsors with dependents. In CONUS leasing is employed to house personnel on detached duty. In foreign countries it is primarily conducted through the build-to-lease method because of existing housing shortages. As of 30 September 1980, the Army had approximately 1,876 domestic leases and 9,042 foreign leases in its family housing inventory.

In fiscal year 1980 the Office of the Chief of Engineers (OCE) began development of the Housing Operation Management System (HOMES). The objective of the system is to provide improved management capabilities for family, bachelor, and transient housing and offpost referral. The Corps began initial planning to modernize existing system capabilities and establish modular development of HOMES. It awarded a contract to identify and analyze the benefits of incorporating the OCE proposed maintenance, repair, and improvements in standards and procedures into the HOMES development package.

During fiscal year 1980, the first seventeen interns in the Army's Housing Management Career Program completed their two-year internship and received assignments to Fort Bragg, North Carolina; Fort Carson, Colorado; and Fort Sill, Oklahoma. The Chief, Position and Pay Management Branch, Department of the Army Civilian Personnel Division, determined in March 1980 that major command housing managers at Headquarters, FORSCOM, TRADOC, and DARCOM should be classified in the Housing Management Series (GS-1173) in grade GS-14. In August 1980 Headquarters, USAREUR, also established a senior housing manager, GS-1173-14. The first series 1173, GS-15 Army Housing Management position was established on 6 July 1980 as Chief, Housing Management Branch,

Army Housing Management Office, within the Office of the Chief of Engineers.

As executive agent for all military services, the Army paid $1.3 million under the Homeowners' Assistance Program to 103 applicants as a result of base closures and realignment actions. Mortgage assumptions on twenty-seven of the thirty-one properties acquired totalled $732,004 for the fiscal year.

Food Services

There were many new initiatives in the Army Food Service Program during fiscal year 1980. The Department of the Army hosted a major food service conference at Fort Lee, Virginia, from 4-7 March 1980 to review current operational requirements and to plan for improved food service. Attended by more than eighty food service professionals from the other services, the major Army commands, the U.S. Army Troop Support Agency, and the Quartermaster School, the conference focused on innovations by the other services and the major commands, changes in regulations, new programs under development, and reserve component support and mobilization planning. The conference's fifty-two major recommendations for improvements included the development of the fast food concept of operation for dining facilities, renewed emphasis on the dining facility modernization program, improvements in the Table of Distribution and Allowances (TDA) dining facility staffing criteria, upgrading of the eighty-two officer specialty, "Subsistence Management," and expedited implementation of the automated headcount program.

The Troop Support Agency developed a new, comprehensive concept of design and operations for Army dining facilities to ensure that new facilities would be modern, assure efficient diner flow and work patterns, and incorporate the most up-to-date energy efficient measures. Design features included increased seating, the capability to accommodate more self-service equipment, modern decor, and inside queuing.

On 2 November 1979 the Army Deputy Chief of Staff for Logistics solicited the personal support of the MACOM commanders to bring the dining facility modernization program, created in 1974, to a successful conclusion. In response FORSCOM submitted a prioritized dining facility modernization program to the Department of the Army which encompasses eighty-four dining facilities costing $80 million over a five-year period beginning with fiscal year 1983. The

plan resulted from a joint review by the TSA and FORSCOM of command-wide dining facilities. At the close of fiscal year 1980, 223 dining facilities throughout the Army required modernization under this program.

The 1980 Military Construction, Army (MCA) program—a line in the budget in which new projects costing more than $50,000 are placed, requiring specific Congressional approval before they are implemented—included the modernization of the dining facility at Fort Richardson, Alaska, at a cost of $611,000. The year also witnessed the construction of two new dining facilities, one at Fort Stewart, Georgia, and one in Germany, at a cost of $2,608 million.

The Troop Support Agency prepared a major study on TDA dining facility staffing during the year. The study noted that staffing, not increased since 1950, was inadequate to support substantial increases in the variety of fare on Army menus and the modernization of the dining facilities since the early seventies. The changes have resulted in sixty- to eighty-hour work weeks for TDA dining facility staffs. The study recommended a 12 percent increase in food service specialist personnel over a three-year period to correct the situation. FORSCOM was actively reviewing the study at the end of the fiscal year. The command had tentatively approved increases in administrative support and baking personnel and requirements for extended hours, extra serving hours, and field feeding as criteria for future staff increases. Onsite reviews of this problem will form the basis for future corrective action.

During fiscal year 1980, five operational Food Management Assistance Teams operated out of the Troop Support Agency. They provided dining facility management and technical assistance to active Army and reserve component commands and installations and to food service personnel worldwide. During the year, they visited sixty-nine active Army and reserve component commands and installations, including lengthy trips to Germany, Hawaii, Alaska, Puerto Rico, and the Far East. The teams assisted 8,240 food service personnel at 603 dining facilities. A total of 252 reserve component dining facilities and 1,736 food service personnel, representing twenty separate brigades or divisions from sixteen states, received aid from the teams. In addition, they provided help for the operation of newly constructed or modernized dining facilities.

On 4 August 1980 the Department of Defense directed the Army to develop a general testing and implementation plan for an automated headcount system that will be compatible for use by all service dining facilities. By the end of the fiscal year, the Army Staff, the major Army commands, and the other services were reviewing a

functional description and economic analysis of the plan developed by the Troop Support Agency.

The Quartermaster School submitted a final report on the Combat Field Feeding System in August 1980 and briefed key Army staff agencies in August and September. The report recommended use of the T-ration—a fully prepared, shelf-stable, heat-and-serve ration, modular kitchen units, and paper plates and other disposables in place of the messkit. The study observed that the new system would improve food service mobility, flexibility, sanitation, and responsiveness while reducing personnel, fuel, and water requirements. The Quartermaster School asserted that the system would be cost effective, reduce annual operating costs by a projected $210 million, and cut life cycle costs by 26 percent for a mobilized force of 1.1 million. TRADOC developed plans to bring the Combat Field Feeding System into the Army in 1987, two years earlier than originally projected. The force development testing and evaluation test was tentatively scheduled for mid-1982.

Natick Laboratories continued to develop a replacement for the M1945 Mobile Field Bakery. Emphasis was placed on an automated bakery system to produce bread similar in quality and appearance to the commercial product in CONUS.

At the end of the fiscal year, the Army operated 1,104 dining facilities worldwide (557 CONUS and 547 overseas). Of these, sixteen were free-standing specialty or shortorder facilities and five were officers' field ration dining facilities. During the year, the Army served 336,157,004 meals valued at $271,004,058. The single garrison bread bakery in Berlin and the single Central Pastry Kitchen at the Aberdeen Proving Ground continued in operation.

The International Food Service Executives Association presented the 12th Annual Philip A. Connelly Awards for excellence in the Army food service at their 79th Annual Convention in Los Angeles, California, on 19 August 1980. The winners were Service Battery, 4th Field Artillery, 9th Infantry Division, Fort Lewis, Washington, for the best small dining facility (serving 200 or less); Headquarters, 2d Brigade, 5th Infantry Division, Fort Polk, Louisiana, for the best large dining facility (sustaining 201 or more); B Company, 2d Battalion, 1st Brigade, 7th Infantry Division, Fort Ord, California, for the best field kitchens; and Service Battery, 3d Battalion, 197th Field Artillery, New Hampshire Army National Guard, Somerworth, New Hampshire, for the best Army National Guard field kitchen; and the 28th Maintenance Company, 99th Army Reserve Command, Altoona, Pennsylvania, for the best Army Reserve field kitchen.

Commissary and Subsistence Supplies

During fiscal year 1980, Congress, the Office of the Secretary of Defense, the Department of the Army, and marketing organizations focused considerable attention on Army commissary operations. Efforts to improve the management and operation of the commissaries through Project Impact paid large dividends as the number of "out of tolerance" stores decreased significantly.

As of 30 September 1980, the Army operated seventy-one domestic commissary stores and seven annexes. During the year, two additional stores opened in Panama (Balboa and Coco Solo) and two annexes opened in Germany (Wildflecken and Neckarsulum). A domestic annex located at Fort Wadsworth closed. The Army will open an additional store on 1 October 1980 at the National Training Center, Fort Irwin, California, and two more annexes in Germany at Fischback and Kirchgoens later in fiscal year 1981.

The Deputy Chief of Staff for Logistics continued the expanded scope of the Command Inspection Program, originally increased significantly during fiscal year 1979 to obtain better operational effectiveness. The Troop Support Agency Staff Director and command inspection teams, composed of approximately thirty personnel from four directorate and two special staff offices, visited each field office and sixty-four stores.

During fiscal year 1980, troop issue specialists or trained food management team members made management assistance visits to sixty-one installations. They found that the majority of the troop issue subsistence activities were providing good support. The most prevalent discrepancies uncovered included: errors in computing the basic daily food allowance (BDFA), failure to properly requisition or reduce prices for "B" ration rotation items (canned items prepared and served by food service personnel in the field), establishing improper prices for locally procured items, and improperly performed inventories by the Troop Issue Subsistence Activity (TISA) and disinterested inventory teams.

The Commissary Specialist Intern Program completed its third year in fiscal year 1980. By the end of the year, nine of the twenty interns hired had completed two-year training programs and were filling positions in the Troop Support Agency or in the field offices. One intern resigned after completion of the training program. At the end of the year, ten interns were in the program. The Troop Support Agency planned to recruit seven additional interns during fiscal year 1981.

On 24 April 1980 Department of the Army and Defense Logistics Agency (DLA) representatives signed a Memorandum of Understand-

ing (MOU) delineating specific command, control, and operational relationships between the Army and DLA elements in the supply of subsistence in Europe during peace and war. It provides that the DLA element, the Defense Subsistence Region-Europe, will come under the operational control of the U.S. Army, Europe, at an early stage of mobilization and will collocate with the Theater Army Materiel Management Center. The agreement stipulated that the dominant service in areas external to central Europe will requisition from and be supported by the Defense Personnel Support Center. The Army and the DLA agreed on issues relating to personnel, equipment, and funding requirements and directed follow-on detail planning.

The new Meal, Ready-to-Eat, Individual (MRE)—developed to replace the Meal, Combat, Individual (MCI)—reflects breakthroughs in technology that significantly increase the acceptability, portability, and overall utility of the standard combat meal for U.S. troops. With flexible packaging replacing metal cans, the new meal accomplishes a weight reduction of more than 36 percent compared to that of the MCI without impairing durability. The MRE's components can be easily carried in pockets. Each meal weighs approximately 1.2 pounds and provides one-third of the daily food allowance, including an average of approximately 1,200 calories. Following successful service tests by the Army and Marine Corps in which soldiers consistently expressed strong preferences for the test meal over the standard MCI, the Army adopted the MRE as standard in 1975. By 30 September 1980, the Defense Personnel Support Center had begun large scale procurement with three prime contracts, each for eight million meals.

In 1975 the Department of Defense approved a recommendation by a joint service study group that the services adopt a centralized management system for commissary stores. The Army's automated data processing system was not sophisticated enough to support centralized management, and the Department of Defense had placed a moratorium on purchasing new data processing equipment. DOD did, however, permit the Army to upgrade existing equipment. Headquarters, United States Army and the Troop Support Command (TROSCOM) reviewed all systems and concluded that the Automated System for Army Commissaries (ASAC) 360E showed the most potential for future development. After extensive work by TROSCOM and the Computer System Command (USACSC), the Army deployed the expanded system, designated ASAC 360 Plus, to the southeast region during fiscal year 1976. The following year USAREUR conducted field tests on the system, which it passed. In October 1977, ASAC 360 Plus became the system of record in

Europe. It became fully operational in support of all five commissary regional offices in 1980.

ASAC 360 Plus provides a totally automated financial management system interface for supply transactions and better control of inventories which provides commissary officers greater flexibility by allowing multiple deliveries during the month. In turn, this reduces on-hand inventory levels and eases the problem of inadequate warehouse space. The whole system depends upon access to accurate and up-to-date source data. The Army Commissary Computer Entry Store System (ACCESS) should meet this need. During 1980, the Army let a contract to acquire automatic data processing equipment for ACCESS, scheduled for completion during the 1981 and 1982 fiscal years.

Laundry and Dry Cleaning

Of the Army's forty-seven laundry and dry cleaning facilities, private contractors by the end of the year provided the personnel and management for twenty-one plants, seven more than were operated under commercial contract last year. The continuing implementation of this practice was the principal subject of a seminar in July at Fort Hood, Texas, which was attended by all laundry and dry cleaning managers, laundry staff officers, and newly-appointed contracting officers' representatives. The Chief of Staff meanwhile directed the conduct of triannual cost analyses at all Army laundry and dry cleaning facilities to determine whether commercial contract or in-house operation is more cost effective.

In addition to arranging the regular visits made to the Army's forty-seven plants by management specialists to promote greater operating efficiency, the Office of the Deputy Chief of Staff for Logistics this year assumed responsibility for monitoring mobile laundry and bath units worldwide. Most visits to mobile units were made during the summer months to Reserve and National Guard units in the field.

Clothing and Personal Equipment

The Army Uniforms Board consists of eleven members: The Deputy Chief of Staff for Personnel, who is the chairman; eight other general officers; the Sergeant Major of the Army; and the senior female officer in the Office of the Deputy Chief of Staff for Personnel. The board meets periodically to consider uniform changes, to include those proposed by an advisory panel of young officers and enlisted

soldiers, and, in turn, sends its recommendations to the Chief of Staff for final decision.

As a result of deliberations this year, the Army will replace the winter-weight and summer-weight green uniforms for both men and women with green uniforms that can be worn year-round. The change to a single fabric can save the Army several million dollars a year. Also approved for adoption was a zip-in liner for the black windbreaker adopted last year and, as an optional purchase item, a part-wool, gray-green shirt heavier than the standard gray-green shirt approved earlier. In addition, the Chief of Staff gave approval for the procurement of desert camouflage uniforms. These uniforms will be available for issue to Rapid Deployment Forces in fiscal year 1982. Issue of brown underwear, handkerchiefs, and towels in addition to white, and a color change of the cardigan sweater from green to black received approval, and tests of the brown combat boot and a standard athletic shoe were okayed. As the fiscal year closed, a request for approval for airborne units to wear maroon berets had just been submitted.

Policies and procedures for requisitioning and controlling clothing issued to components under the "issue in kind" system were adopted and published in AR 700-84, Issue and Sale of Personal Clothing. The implementation date for these procedures was 15 September 1980.

Also initiated last year was the transfer of Clothing Sales Stores operations to the Army-Air Force Exchange System. Details of the transfer in Europe were worked out this year, with the actual transfer set to take place on 1 October 1980. The worldwide transfer was scheduled to take place early in fiscal year 1982.

Heraldic Activities

The Institute of Heraldry continued to meet the need for symbolic items of the Army and the other armed services and agencies of the government. Its activities included research, design, development, standardization, and technical services. Emphasis continued to be placed upon research which would result in less costly alternate materials in the development of new items and the review of specifications to determine if changes to be made would have the effect of broadening the procurement base. During the year, there was an increase in the services performed for non-Army agencies in comparison with fiscal year 1979. The following statistics reflect the accomplishments of the Institute: design of 454 items; completion of

2,321 paintings and drawings and 168 sculptured items (molds, models, and casts); the development of 170 items (some new and some modified), which were placed in the procurement system; and the inspection of 179,000 items for quality during visits to fifty-three post and base exchanges. In addition, the Institute performed 1,700 research and engineering support actions to assist the Defense Personnel Support Center and other government procurement agencies.

8. Reserve Forces

During fiscal year 1980, the Army National Guard (ARNG) and the Army Reserve (USAR) achieved increased readiness, due in large part to improved training, increased full-time manning, added incentive, closer ties with the active Army, and more effective management support. Personnel strengths of the ARNG and USAR were significantly below wartime required levels throughout the year. Continued shortfalls in personnel and certain equipment items essential for training hampered progress, but not enough to call into question the increased reliance placed upon the reserve components in developing the total forces required to achieve an adequate defense posture for the 1980s. This role was affirmed in an extensive study on the roles, missions, manning, equipping, and training of the ARNG and the USAR made within the Office of the Deputy Assistant Secretary of Defense (Reserve Affairs). The resultant report, "Review of the Guard and Reserve: A Framework for Action" (ROGAR), was published in December 1979. It upheld the traditional military policy of the United States, which was defined as follows:

> Reliance on Reserve Forces continues the "common defense" militia concept which has existed from pre-Revolutionary War times. A democratic nation is protected best by a minimum level of standing armed forces which can be augmented promptly in time of crisis by trained citizen-soldiers.

Force Structure

The reserve components provide approximately 53 percent of the Total Army's combat battalions, 65 percent of its deploying forces, 60 percent of the Army's service support structure, and 70 percent of the Army's deploying medical assets. Changes within the troop program of the Army National Guard (ARNG) and the Army Reserve (USAR) reflect refinements made in the Total Army's 24-division requirement, but are kept to a minimum and are carefully planned so as to avoid as much unit turbulence as possible and to minimize the effect changes in organization and mission have on readiness, training, and morale.

During the past year, the ARNG completed the conversion of signal units to provide a preliminary step toward the integrated tactical communications system. Renewed emphasis on nuclear and chemical preparedness led to the activation of two nuclear,

biological, and chemical companies. Two additional TOW light antiarmor battalions were organized, bringing the total of these organizations, which are unique to the ARNG, to three. Organization of a fourth battalion is planned early in fiscal year 1981. Also, two airborne infantry battalions were deleted and four military history detachments were added to the force structure.

Major organizations in the Army National Guard as of 30 September 1980 are shown below:

Major Combat Units

5 Infantry divisions	3 Armored brigades (sep)
1 Infantry division (mech)	4 Armored cavalry regiments
2 Armored divisions	2 Special forces groups
10 Infantry brigades (sep)	1 Infantry group (arctic recon)
8 Infantry brigades (mech) (sep)	

Separate Headquarters

17 Engineer groups (cbt), HHC	1 Signal command, HHC
2 Medical groups, HHD	2 Signal brigades, HHC
2 Signal groups, HHD	2 Military police brigades, HHD
2 Military police groups, HHD	1 Air defense artillery brigade, HHB
4 Support groups, HHC	1 Support command (corps), HHC
8 Area support groups, HHC	1 Transportation brigade (COSCOM), HHC
4 Engineer brigades (cbt) (corps), HHC	20 Field artillery brigades, HHB
2 Corps artillery, HHB	1 Field depot, HHC
3 Medical brigades, HHC	1 Armor brigade, HHC

The ARNG also has approximately 151 separate battalions and numerous separate companies and detachments in the fifty states, the District of Columbia, Puerto Rico, and the Virgin Islands.

The Army Reserve had 30 unit activations, 25 unit inactivations, and 60 unit conversions during the past year. These actions were part of a phased program to upgrade the USAR's combat service support capability, modernize equipment, and improve the Army's combat to support balance.

The reorganization and consolidation proposal of the Aviation Requirements for the Combat Structure of the Army III (ARCSAIII) study initiated during fiscal year 1978 was near completion at the end of fiscal year 1980. Army Reserve aviation unit activations during fiscal year 1980 included the 305th Combat Support Aviation Company, Headquarters and Headquarters Detachment of the 311th Aviation Battalion, and the 336th and 374th Medical Detachments (Helicopter Ambulance).

At the close of the fiscal year, the USAR troop basis contained ap-

proximately 3,200 company and detachment-size units. Major organizations in the structure were:

19 USA Reserve commands	1 Infantry brigade
12 Divisions (training)	1 Infantry brigade (mech)
2 Maneuver area commands	1 Infantry brigade (light)
2 Engineer commands	2 Transportation brigades
1 Military Police command	3 Military Police brigades
1 Theater Army area command	2 Engineer brigades
3 Civil Affairs commands	2 Medical brigades
3 Corps support commands	4 Hospital centers
3 General Hospital commands	103 Hospitals (miscellaneous)
9 Maneuver training commands	60 Separate battalions

Strength

Building upon the reversal of declining strength noted in last year's report, the numbers of men and women in the Army's reserve components continued to grow during fiscal year 1980. The ARNG and the USAR exceeded their overall enlistment objectives, the success of bringing in nonprior service personnel compensating for a slight shortfall in the recruitment of veterans. Both components also met the 50 percent objective set for reenlisting first termers. The ARNG exceeded its objective of reenlisting 68 percent of eligible careerists; however, the USAR failed to meet its 80 percent goal in this area by a couple of points. The table below shows the strength of Selected Reserve manpower programs, in thousands, at the close of the fiscal year.

	Paid Drill Strength		Wartime	Peacetime Objective
	30 Sep 79	30 Sep 80	Strength*	Strength*
ARNG	345.5	366.5	436.4	418.0
USAR	189.9	202.6	276.5	260.1

*End FY 80 program

Assigned ARNG strength rose each month during fiscal year 1980, reaching 368,254 (37,287 officers and 330,967 enlisted personnel) by 30 September 1980, a gain of 21,280 from the previous September. Enlistments rose to 97,086 which was 102 percent of the objective and an increase of 12,236 over fiscal year 1979 results. Some 51.8 percent were new to the Army, while 48.2 percent were veterans. The continued emphasis on incentive programs and other enlisted options has led to a trend of more nonprior service enlistments as compared to prior service ones. This trend is expected to continue.

Reenlistments and extensions numbered 83,136, a 3,029 gain for

the year over fiscal year 1979. This was a reenlistment-extension rate of 68.2 percent, compared to a goal of 65 percent and a rate of 64.6 percent for 1979. Officer accessions for the year came to 5,952. State officer candidate schools supplied 1,467 new officers and approximately 1,800 cadets were participating in the Simultaneous Membership Program.

Minority strength in the ARNG also increased. The Minority Officer Recruiting Effort helped achieve a gain of 349 minority officers for the year. Progress achieved on the enlisted side brought total minority gains to 4,087. Despite this numerical increase, the percentage of minority members in the ARNG actually declined during the year. As of 30 September, minority strength was 95,023 (3,100 officers and warrant officers and 91,923 enlisted personnel), representing 25.8 percent of assigned strength. Black strength totalled 61,524 (1,443 officers and warrant officers and 60,081 enlisted personnel), forming 16.7 percent of the ARNG's assigned strength on 30 September 1980. Hispanics accounted for 7.1 percent and other ethnic minorities represented 2 percent of the Guard's strength.

The ARNG gained 2,206 women members over the course of the year. Entrance requirements for women were made the same as for men at the beginning of the fiscal year and at the end of the year guardswomen strength was 16,740 (1,357 officers and warrant officers and 15,383 enlisted personnel). Women comprised 4.6 percent of the ARNG's assigned strength.

During fiscal year 1980, the National Guard Bureau developed new policies and plans to increase the number of minority group members in the National Guard technician work force, where representation was low. At the close of the fiscal year, 7.3 percent of ARNG technicians were members of minority groups and 7.8 percent were women. In a related development, new opportunities to hire minorities and women were created through the full-time manning program. By 30 September 1980, 12.5 percent of all appointees to fill full-time manning positions were minorities and 12 percent were women.

The favorable strength trend in the ARNG was due in large part to bonuses and incentives which form the Selected Reserve Incentive Program (SRIP) initiated in fiscal year 1979 to improve manning levels in early deploying units. The program includes an enlistment cash bonus, enlistment education assistance, and a reenlistment and extension cash bonus. High priority units representing 15 percent of the ARNG's authorized enlisted structure offered all three of these bonuses, while only the enlistment and education bonuses were offered by units representing 35 percent of the Guard's enlisted structure. Units that participated in the SRIP increased their strength at a

higher rate than other ARNG units. A significant contribution to the efforts to increase ARNG strength is the development of a professional full-time recruiting force authorized by Congress in fiscal year 1978.

During the year, the ARNG continued to meet the minimum standard of enlisting not more than 18 percent of nonprior service personnel falling in mental category IV. Since fiscal year 1978, these enlistments have averaged less than 10 percent of the total. At the same time, mental category I and II enlistments continued to rise steadily. The number of high school seniors entering the ARNG also continued to grow, attributed in large measure to the split training option and enlistment incentives. The ARNG also maintained the minimum standard of enlisting not more than 45 percent non-high-school graduates—only 39 percent of the year's enlistments were in this category.

The ARNG initiated several new officer procurement programs during the year. One involves contacting junior officers and warrant officers leaving active duty and encouraging them to join the Guard. The College Student Officer Program (CSOP) authorizes state adjutant generals to enlist college sophomores at non-ROTC colleges into state OCS programs, and should be particularly helpful in recruiting officers from minority colleges. The Chaplain Candidate Program for recruitment of seminary and theological students was expected to ease the shortage of chaplains.

The ARNG Medical Department Officer Accession Program, initiated in March 1979, continued to have a beneficial effect in reducing the Guard's shortage of medical officers. At the beginning of the fiscal year, only 43 percent of ARNG medical authorizations were filled; by the end of the fiscal year, the number of medical corps officers on board had risen to 46.5 percent of authorized strength.

The ARNG Military Physician Assistant (PA) Program, initiated in October 1975 to substitute warrant officer physician assistants for Medical Corps officers in maneuver organizations, also continued to have a significant effect in compensating for the short supply of military Medical Corps officers. At the beginning of the fiscal year, only 44 percent (114) of the ARNG physician assistant authorizations (261) were filled; by the end of the fiscal year, the number of warrant officer physician assistants on board had risen to 53 percent (138) of authorized strength.

ARNG enlisted losses for the year were 74,031, the lowest number since fiscal year 1974, and 18 percent below projections. Enlisted losses continued the downward trend from the alltime high of 135,200 experienced in fiscal year 1976. Losses through attrition were down from the previous year due to new management initiatives in

this area, but continued at an unacceptable rate. New loss definitions will go into effect early in fiscal year 1981 that should reflect more clearly the reasons for attrition and promote more effective management.

After several years of decline, the trend for increased paid drill strength in the Army Reserve established in fiscal year 1979 continued. Strength rose from 185,753 in September 1978, to 189,990 at the end of fiscal year 1979, and reached 202,627 on 30 September 1980. Although unprogrammed losses continued to climb, reenlistments improved significantly, and, as shown in the table below, USAR enlistments during fiscal year 1980 surpassed objectives in every category but prior service which had become increasingly more difficult as the active Army increased its retention requirement, thus reducing the available prospects.

	NPS* Males	NPS Females	NPS Total	Prior Service
Programmed	16,437	8,112	24,549	34,598
Enlistments	19,509	8,430	25,939	33,509
Percent Achieved	106.5	103.9	105.7	96.9

*NPS—nonprior service

As in the ARNG, the Selected Reserve Incentive Program was also a significant factor in the improved USAR strength picture. A total of 3,995 recruits entering the Army Reserve received enlistment bonuses and another 34 got enlistment educational assistance. Three-year reenlistment bonuses went to 1,323 soldiers while another 3,086 received six-year bonuses. On 1 June 1980, 103 new units were added to the SRIP, bringing enlistment or reenlistment bonuses to approximately 59 percent of the USAR force structure.

Eligibility for an enlistment incentive requires an individual to be nonprior service with a high school diploma, to have verbal and math scores of 31 or above on the armed services vocational aptitude battery, and to enlist in a designated selected reserve unit for six years. An eligible enlistee may select a $1,500 cash bonus—$750 of which would be paid upon completion of initial entry training, and the remainder in three installments—or educational assistance of up to $2,000 paid at $500 per year. To be eligible for reenlistment bonuses, a reservist must reenlist in a designated unit for three or six years, must have participated satisfactorily for one full year prior to reenlistment, and must have less than nine years service at reenlistment time. The bonus is $900 for three years and $1,500 for six years.

At the beginning of fiscal year 1980, the Department of the Army criteria for transferring certain obligated members to the Individual

Ready Reserve (IRR) for retention as mobilization assets were incorporated in Army regulations governing separation of enlisted personnel. The changes apply to eleven categories of ARNG and USAR unit separations. Guardsmen who are fully trained may be transferred to the Inactive National Guard (ING). This action resulted in the transfer of 1,433 members to the IRR and 654 members to the ING and an increase of ING strength, which stood at 5,534 on 30 September 1980.

In March 1980, the Department of Defense policy providing for transfer to the IRR instead of involuntary active duty for failure to participate satisfactorily in unit drills was implemented. Enlisted personnel who have not completed twenty-four or more months of active duty are considered by a board of officers. If separation is recommended, they may be transferred to the IRR for the balance of their statutory obligation, at which time they will be discharged, normally under conditions other than honorable.

These changes, along with the test of direct enlistments into the IRR, which was extended, and encouragement of Standby Reserve members to transfer to the IRR, helped increase IRR strength for the second year in a row. IRR strength as well asthe status of the Standby Reserve is shown below:

IRR	Strength	Change
Officer	38,709	+ 194
Enlisted	167,440	+4,152
Standby		
Officer	18,467	−4,785
Enlisted	940	−6,352

Prior to fiscal year 1980, Army mobilization planning had assumed that some percentage of the total pool of Regular Army retired personnel and retired reservists would be recalled upon full mobilization. During fiscal year 1980, however, the designation of mobilization tables of distribution and allowance positions for mobilization to be filled by retirees and the creation of automated retiree files progressed to the point that a tentative match of retirees to wartime positions could be made. Once the capability to make the retiree match had been achieved, it was no longer necessary to show the entire retiree pool in the historical summary, since the potential retiree recall would be on the basis of match. By the end of the fiscal year, the Army retiree/position match was 69,249 (23,884 officers and 45,365 enlisted).

In August 1979, the Office of the Secretary of Defense formed the Reserve Compensation Task Force to provide a new evaluation on the

effectiveness of compensation in attracting and retaining reserve component members. Although not completed by the close of the fiscal year, preliminary findings indicated that demographic trends would mean fewer available enlistees and that the private sector would provide intense competition for them; that reserve component personnel strength requirements could not be met by minor increases in compensation—Rand Corporation and OSD studies show that a 100 percent pay increase would boost accessions by only 20 percent; and that retirement benefits were not an effective incentive for attracting enlistees.

Concurrently with the formation of the OSD task force, the Office of the Deputy Chief of Staff for Personnel began work on developing an analytically supportable Army position for reserve component compensation. After ODCSPER completed its initial research, a Department of the Army Reserve Compensation System Reform Analysis Team was formed to continue the work. The team concluded that the current Reserve Component pay system was adequate to attract enlistees; that the nonprior service enlistment bonus should be doubled to $3,000, the payment schedule revised, and the educational bonus raised; that a proposed revision of the federal military leave program not be supported since it would seriously erode net income of soldiers whose primary employment was with the federal civil service; that ARNG and USAR unit commanders should receive compensation for extra time they give to unit administration; that reserve component personnel be given an inactive duty training travel allowance; that the net income of guardsmen and reservists should be increased through tax incentives or wage differentials; and that factors such as training, promotion potential, leadership, support of family and friends, and job satisfaction were more important in accounting for unprogrammed losses than the current pay system.

Responding to these conclusions, the Army increased the educational bonus and recommended to OSD that revisions to the federal leave program not be supported; that unit commanders be compensated for extra time spent on administrative tasks; and that an inactive duty training travel allowance be authorized. ODCSPER will work closely with OSD to ensure that any changes recommended pertaining to reserve component retirement not cause a loss of mid-career personnel, that the value and awarding of retirement points not be changed, and that accrual withdrawal of retirement monies be optional for reserve component members.

The various studies on reserve component compensation conducted during recent year indicate that the bottom line for reform is in the area of the value of retirement benefits as an effective incentive

for enlistments and reenlistments. The two sides to this argument address the dilemma of a retirement system which economists claim has marginal appeal to young enlistees but has been criticized for providing excessive benefits to recipients at age 60.

During this fiscal year, the Army acted to promote participation in the reserve components by soldiers leaving active duty. In the past, information on ARNG and USAR service was made available during actual separation processing. A total of fifty-five in-service recruiters (twenty-three ARNG and thirty-two USAR) conducted separation briefings on reserve service on twenty-five Army installations in the United States. Another five ARNG and three USAR in-service recruiters provided information to separating soldiers in Europe. Because of the limited number of in-service recruiters contrasted with the high yearly volume of separatees, the Army could not provide reserve component information to every eligible separating soldier. This fact spurred action to invest active Army commanders with the responsibility to advise separating soldiers on ARNG and USAR service prior to their departure for separation points. The new policy will become effective in fiscal year 1981.

To support this effort, the Army approved changes to the reenlistment NCO course of instruction so that Reserve Component subjects would be covered, directed that the reenlistment regulation be revised, approved the assignment of additional in-service recruiters in Europe, and approved the establishment of a pilot program in Korea with three in-service recruiters.

The congressionally directed test of the reserve component technician program noted in last year's report was concluded on 30 June 1980. The purpose of the test was to determine the feasibility of using reserve component personnel on full-time active duty in lieu of dual status civilian technicians who were also members of the units they served. The ARNG and USAR attracted sufficient personnel to meet their conversion goals (3,161 ARNG positions and 1,276 USAR positions), although there was some difficulty experienced in attracting personnel to wage grade positions, especially in the USAR.

After evaluating the test results, the Army recommended to OSD that additional conversions be made in fiscal years 1981 and 1982, that permanent technicians retain upward mobility opportunities and be permitted to convert to full-time military status if their performance was above average, and that consideration be given to providing incentives to attract and retain wage grade personnel. At the close of the fiscal year, OSD was awaiting the result of an independent analysis of the services evaluation reports that Management Consulting and Research, Inc., was conducting.

Personnel Management

Attrition, the unprogrammed loss of individuals before they complete their term of service, continued to be a major problem this year, although overall losses for both components dropped sharply. An improved attrition management program which included increased command emphasis on resolving individual problems and voluntary counseling to augment the mandatory counseling already in effect throughout the chain of command was developed to help solve the problem. Training policies were also modified to enable individuals to meet business and family responsibilities and at the same time fulfill their military obligations, and greater attention was given to community involvement and employer support.

In May 1980, the National Guard Bureau inaugurated its Organizational Effectiveness (OE) program to further the systematic military application of selected management and behavioral science skills to improve the effectiveness and performance levels of National Guard organizations under conditions of peace or war. Developed in consonance with the Army's OE policies, the program is staffed by eighteen OE Staff Officers (OESOs) of the ARNG who support National Guard units in the forty-eight contiguous states and the District of Columbia from regional OE centers at Edgewood, Maryland; Little Rock, Arkansas; and Portland, Oregon. Three additional OESOs are assigned to National Guard Bureau headquarters to provide direction and supervision and OE support to the bureau.

The Long Tour Management Program for Army Reserve officers and enlisted men was expanded during fiscal year 1980. Approximately 1,000 officers and 3,000 enlisted personnel were receiving effective centralized management support under this program by the close of the year. The DOD Authorization Act of 1980 provided that all USAR participants in the Long Tour Management Program convert from special active duty for training to active duty in active Guard/Reserve status. During August 1980, all participants in the program were informed of the change and offered the option to accept or decline the conversion. The conversions were accomplished by the close of the fiscal year.

The Reserve Components Personnel and Administration Center (RCPAC) put the Duplicate Social Security Number Record System into operation in March 1978. The system was developed to purge duplicate strength recording in the various classification of ready reserve strength. During the initial stages of the Deep Purge program, when procedures were being refined and reconciliation actions had not yet been reflected on rosters, the number of duplications climbed,

and reached 1,439 cases a month in 1978. By early fiscal year 1980, about 1,200 duplications a month were being identified and reconciled.

A shortage of qualified personnel led to rescheduling the initial implementation of SIDPERS-USAR from August 1980 to August 1981. The first of three phases, Module I, will include all of the original SIDPERS-USAR functions except for error suspense procedures, VTAADS interface, unit manning rosters, automated orders, JUMPS-RC pay processing, and historical retirement credits data accountability. Modules II and III, scheduled for implementation in August 1982-83 and August 1983-84, respectively, will add these additional functions.

In addition to the modular implementation, the modified plan uses the existing Reserve Personnel Information Reporting System (RPIRS) as the development baseline. Under this plan, RPIRS processing and distribution functions will be centralized at RCPAC by January 1981. Improved processing procedures, revised programs, and additional features will then be added to RPIRS to create SIDPERS-USAR Module I. The modified plan also provides a system interface branch at each Army and a small System Interface Division at RCPAC instead of one large system interface division at RCPAC. Collectively, they will handle all inputs, outputs, and system support requirements.

Fully implemented during fiscal year 1979, the Officer Personnel Management System-USAR (OPMS-USAR) provides intensive professional development guidance, appropriate mobilization training, and personalized management to more than 97,000 USAR officers. The Enlisted Mobilization Training and Management System—USAR (EMTMS-USAR), initially implemented in fiscal year 1978, provided similar services to more than 20,000 enlisted members of the IRR in fiscal year 1980. Both systems are intended to ensure that the USAR has sufficient trained reservists, with the proper skills, to meet Army mobilization requirements. Each managed reservist has a personnel manager who guides his career, provides professional development advice and guidance, and, in the case of members of the IRR, arranges appropriate schooling and/or mobilization skill training (counterpart training) with units of the active Army. Fiscal limitations this year required the Officer and Enlisted Personnel Management Directorate (OEPMD) to constrain its IRR mobilization training program. To ensure the most equitable spread of limited training funds available, the average mobilization training tour length was reduced to twelve days. Experience over the past three years has shown that twelve days of training are inadequate for most individuals. The nineteen-day average is considered to be the minimum

essential to provide effective mobilization training. RCPAC planned to expand EMTMS-USAR to cover a total of 40,000 IRR enlisted personnel during fiscal year 1981. All enlisted IRR personnel should come under EMTMS's centralized management by fiscal year 1985.

During the year, the efficient utilization of reserve components personnel resources continued to be enhanced by MOBPERS, an automated system developed to correct deficiencies uncovered during mobilizaiton exercises in 1976 and 1978. Specifically, MOBPERS matches ARNG and USAR strength files with authorized strength files provided by ODCSOPS. The matchup facilitates adding reserve component personnel to the active Army data base upon mobilization by identifying and pre-positioning location and authorization files at mobilization stations on a monthly basis during peacetime.

RCPAC uses MOBPERS to develop the entire unit and personnel status for all reserve component units by installation. Shortfalls are remedied by earmarking IRR personnel as fillers. The installation commander where the filler would report upon mobilization could either place the individual in the unit with the vacancy or elsewhere. By having the basic information prior to mobilization, the installation commander can adjust assignment priorities as required.

MOBPERS also provides a list of excess personnel by MOS for each unit on an installation. The installation commander under the current concept can reassign excess personnel, regardless of component, to other units. This cross-leveling procedure has been and remains a volatile issue for the ARNG, which fears that ARNG units could be stripped of not only excess but authorized personnel as well.

The Office, Chief Army Reserve (OCAR), continued development of the Army Reserve Management Information System (ARMIS), a comprehensive data processing hardware and software management tool, during the year. The system will provide omnifunctional data appropriate to the OCAR mission; extensive pertinent information for analyses, processing, and management review; and a necessary capability to communicate with the Army staff and major commands concerning the Army Reserve. Previously, OCAR relied on hard copy recurring reports received from Army staff agencies and the field. While valuable in defining the status of personnel, forces, or facilities, the fixed format of each report coupled with the inability to combine listings, except manually, introduced an unacceptable level of difficulty in providing effective and timely management analyses of USAR programs. ARMIS should rectify this situation.

Basic ARMIS hardware was installed in May 1979 for use as a development tool. This hardware consists of a Data General Eclipse M/600 minicomputer with related tape and disk subsystems, a high-

speed line printer, visual display terminals, and printing terminals. Basic applications software was available for limited OCAR use in April 1980. The system was secured for limited processing of classified data in September 1980. A high-speed communications link to U.S. Army Management Systems Support Agency (USAMSSA) is being installed (expected completion date is March 1981). This high-speed communications link will make available to OCAR users the full resources of the USAMSSA for support of information requirements and will preclude duplication of resources.

Equipment and Maintenance

Both the ARNG and the USAR increased their inventories of major equipment items during the year, but serious shortages that were hampering training continued to exist. The initial equipment goal for the reserve components, as identified in the ROGAR study, was to provide each unit with an initial issue of wartime equipment that was combat serviceable.

The following chart shows the overall equipment status of the ARNG at the close of fiscal year 1980.

Equipment Level	Dollar Value (Standard Prices)
Requirement (mobilization)	7.2 billion
Authorization (premobilization)	6.7 billion
On hand assets	5.0 billion
Percent fill (mobilization): All assets	69 percent
Percent fill (authorization): All assets	75 percent

Modernization of ARNG equipment during fiscal year 1980 was marked by completion of both the M88 Medium Recovery Vehicle and 27FT Bridge Erection Boat upgrade programs. Completion of the ongoing M109 series howitzer modernization program is scheduled for 1983. The year also marked the start of a program to convert all gasoline-powered M113 armored personnel carriers in the Guard's inventory to diesel power. To date, 3 percent of the fleet has been converted to the A2 version and returned to ARNG units. These programs represent approximately $15.6 million in equipment upgrade and have resulted in improved readiness for deployable assets in the ARNG inventory.

Implementation of the Division Logistics System (DLOGS), an automated property accounting system, has been an ongoing project in the ARNG since 1972. Eight divisions and seventeen separate brigades currently use DLOGS on property book procedures with one separate brigade scheduled to convert in December 1980. In addi-

tion, thirteen separate brigades perform Class IX procedures on the DLOGS. One minicomputer used with the Decentralized Automated Service Support System (DAS3) is operational in the ARNG and more are scheduled to be phased into nondivisional direct support/general support units starting in fiscal year 1982. By the end of fiscal year 1983, thirty-nine of seventy-one eligible nondivisional direct support/general support ARNG units should be automated with the DAS3 hardware. Divisions and separate brigades will begin receiving DAS3 hardware in fiscal year 1984. Some 63 percent of the units eligible to receive DAS3 are not covered by the current program.

Public Law 96-328, enacted in 1980, allows the Secretary of the Army to prescribe uniform property accountability provisions for all components of the Army and to remit report of survey liability for ARNG personnel. A major feature of this law radically alters the conditions under which a state may be held liable for loss, damage, or destruction of National Guard property. Effective 1 October 1980, the effective date of PL 96-328, only property losses occurring as a result of the performance of state missions can be charged to the states.

Major equipment items issued to the Army Reserve during the year were valued at $44,234,064 as compared to $63,560,859 for fiscal year 1979 issues. An anticipated increase in the inventory of major items as more modern equipment is introduced has been nullified to a large extent due to diversions or withdrawals made in support of an expanding overseas pre-positioning program.

All RU-8D aircraft in the Army Reserve's 138th Army Security Agency company have been replaced by the newer RU-21 aircraft. Planned redistribution of UH-1 and OH-58 helicopters was delayed because of unit activations and UH-1 helicopter shortages. The obsolete USAR fixed wing fleet remained an area of major concern. Funding constraints precluded purchase of replacement aircraft for the USAR—though many of these fixed wing aircraft were becoming increasingly difficult to maintain making them only marginally safe for aviator training and mission support flights.

Army Reserve equipment assets at the close of fiscal year 1980 are shown below.

Equipment Level	Quantity	Dollar Value (millions)	Percent on hand Quantity	Value
Requirement (mobilization)	1,570,024	3,706.3	59	37
Authorization (training)	1,122,097	2,498.5	82	56
On hand assets	924,685	1,387.2		

Facilities

The fiscal year 1980 Army Reserve construction program totalled $30.0 million. This represents a decrease of $7.1 million from the

fiscal year 1979 budget. Coupled with the $31.7 million in carryover from prior year programs, a total of $61.7 million was available for obligation. Of the total available, $44.6 million was obligated, leaving $17.1 million to be carried over into fiscal year 1981. The construction program for fiscal year 1981 is $43.2 million. The total requirements have increased from $338.4 million at the end of fiscal year 1971 to $800 million. In addition to continued cost escalation, this increase is associated with additional projects which have been identified to replace obsolete or deteriorated facilities.

Existing USAR facilities, ranging from permanently constructed training centers to leased structures of varying adequacy, are used to the maximum. In terms of adequacy, 60 percent of the existing facilities are considered to be inadequate. Long range military construction plans provide for replacement of inadequate facilities, expansion of existing facilities to meet space requirements, and replacement by government-owned facilities of those leased or donated buildings which are either inefficient to maintain or are not adequate to meet needs. New construction—as well as the expansion, alteration, or rehabilitation of existing facilities—is required to provide the facilities needed for effective operation and training.

The Office, Chief Army Reserve and FORSCOM were working together to develop the Facilities Assets Catalog and Tracking System (FACTS) during the year. The new system is designed to promote efficiency and economy in Army Reserve facilities management. It will replace the USAR Facilities Inventory Report, which was judged to be poorly designed, poorly programmed, deficient in organization and documentation, unreliable, and dependent on excessive use of automated resources to produce management information.

The FACTS system, which should be fully operational in 1981, will be located at the FORSCOM Data Processing Installation (DPI) at Fort McPherson, Georgia. A local component of FACTS will be established at each CONUS Army DPI. FACTS will consolidate USAR facilities data into a single, centrally controlled inventory and management information system which will support major command and OCAR requirements. FACTS management reports will contain information about USAR facilities and the units stationed at the facilities. The reports will locate the facility geographically, provide space utilization data, and contain relevant budget history. FACTS will contain no automated decision-making applications, nor any classified or privacy sensitive data.

The ARNG military construction program received $23.7 million in new obligational authority in fiscal year 1980, a decrease of $28.5 million from the fiscal year 1979 appropriation. Another $1.1 million in carryover funds brought the amount available to $24.8 million.

Obligations for the year were $19.9 million, 80 percent of the amount available. During the year, contracts for 32 major projects and 28 minor ones were awarded. Twenty-two of the major project contracts, which cost $15.6 million, were for armories.

The backlog of ARNG construction projects increased by $4 million during fiscal year 1980 to $740 million: $367 million for armory replacement, additions, alterations, or rehabilitation (523 of the Guard's 2,791 armories were considered inadequate); $128 million to bring 189 of 1,841 administrative and logistical facilities up to acceptable standards; $156 million for 179 projects at ARNG training sites; and $89 million for minor construction and planning.

Training and Readiness

Forces Command implemented two new initiatives during fiscal year 1980, the Army CAPSTONE Program and the Intensive Management Force List, both of which are designed to improve readiness and mobilization and enhance planning and training efforts based upon wartime missions.

The Army CAPSTONE Program (short title: CAPSTONE) has five major objectives: (1) to align units of all components to meet USAREUR wartime requirements and the needs of the CONUS sustaining base; (2) to provide the basis for developing training and planning associations for the units in each package so that a unit can train and plan in peacetime with the organization it will operate with in wartime; (3) to provide a clearly defined organizational format for force planning; (4) to provide the basis for developing active Army and reserve component programs for POMCUS, modernization, training, and increased readiness; and (5) to define the basis for mobilization stationing of deploying and nondeploying units. FORSCOM distributed implementing instructions to the field in August 1980. All active, reserve, and guard units received notification of their wartime missions as prescribed under Capstone. All organizational associations indicated in the new program were formalized by the end of the fiscal year.

The second new FORSCOM administered program, the Intensive Management Force List (IMFL) provides additional support in meeting reserve component operational and logistical objectives by prioritization of units according to mission importance. Unit categories covered are Rapid Deployment Force, Army; Roundout; Minimum Essential; Risk Reduction; Quick Fix Force; and POMCUS Backup Force. Units within these categories are intensively managed and receive priority in the allocation of resources.

The Affiliation Program has, for the past several years, proved of

value in assisting reserve component units in improving their readiness and deployment posture. The program started in fiscal year 1980 with ninety-three battalions (seventy-seven ARNG and sixteen USAR) and sixty-seven company/detachment-size units (seventeen ARNG and fifty USAR). Removal of three ARNG battalions from the program during the year resulted in an end of year total of ninety battalions and sixty-seven company/detachment-size units. Phase II of the expansion program scheduled for fiscal year 1980 was dropped back to fiscal year 1981 pending realignment of European wartime missions and development of the Capstone Program.

The Full-Time Manning (FTM) program whereby additional full-time military personnel (ARNG, USAR, and active Army) are attached to early deploying and essential nondeploying reserve component units has been most successful in helping ARNG and USAR commanders improve unit training, logistics, and unit mobilization planning and preparation. The majority of FTM personnel are located in company, battalion, and brigade-size units. The large majority occupy training, administration, supply, and maintenance positions. The fiscal year 1980 program originally called for the assignment of 2,765 active Army personnel, 1,108 guardsmen, and 1,060 reservists to FTM positions, but cancellation of the withdrawal of the 2d Infantry Division from Korea led to a reduction of active Army FTM slots to 1,070. The Total Army Analysis (TAA) 82-86 and FORSCOM's Intensive Management Force List formed the basis to further identify units and expand the FTM program from the fiscal year 1980 requirement to the level projected for fiscal year 1986. The expansion will be modified as required to reflect ARNG and USAR recruiting success, readiness improvements, and mobilization capability enhancements resulting from this year's program.

The ARNG participated in the Rapid Mobilization for Direct Deployment to POMCUS (RAMDEP) study, a two-year effort to be completed in December 1980. The study, an outgrowth of the Guard's Preparation for Overseas Movement/Preparation for Overseas Replacement (POM/POR) exercise in 1978, will evaluate State Area Commands and will ascertain the capability of selected units to be altered, mobilized, and deployed directly from their home stations to POMCUS located in Europe. RAMDEP offers promise for significant reductions in the time required to deploy units and to improve further mobilization readiness and response time.

The National Guard Bureau developed two new mobilization exercises during the year to capitalize on lessons learned through RAMDEP and to improve the mobilization response time of high priority units—Readiness for Mobilization Evaluation (REMOBE) and Mobilization and Deployment Exercises (MODEX). The two ex-

ercises will be tested. In addition, an ad hoc committee has been formed on the Army staff to develop ARNG/USAR direct deployment guidance and resolve major issues emanating from RAMDEP.

The Reserve Component Deployment Training Program had a positive impact on reserve components and active Army units during 1980. The training opportunities for reserve component units, especially combat service support units in the deployed theater areas, have, in most cases, been unique. These units experienced intense and demanding training, increased readiness, improved MOS postures, and an increased realism to their assigned missions while providing a highly visible sign to our allies which enhances their confidence in the capability and reliability of the United States to meet wartime commitments.

This training year provided the opportunity for 116 reserve component units to conduct realistic contingency and mission-oriented training in overseas environments. The deployment program supports the Capstone program by training units, in most cases, with their wartime gaining commands.

For the first time a battalion-size unit, 3d Battalion, 178th Field Artillery, South Carolina ARNG, participated in the deployment training program. The unit, part of the RAMDEP study pilot program, deployed directly from home station to Europe, drew and turned in POMCUS equipment, participated in the REFORGER exercise and redeployed to its home station. The unit had a very successful training experience that is certain to add another dimension to mobilization/deployment planning and training. In another first, the 112th Medical Brigade, Ohio ARNG, became the first ARNG medical unit to participate in overseas deployment training. From 13-27 September 1980, thirty of the eighty personnel in the brigade participated in a command training exercise called CERTAIN LANCER, part of the overall REFORGER exercise which takes place annually in Germany. The medical brigade, in an Annual Training status, performed the training exercise just outside of Frankfurt, Germany, and was hosted by the 68th Medical Group of the active Army. Together, the 112th and the 68th supported V Corps.

The eighteen USAR units that participated in REFORGER 80 represented the Army Reserve's largest unit participation to date in this annual exercise. It also marked the first time that USAR, as well as ARNG units, utilized exercise aircraft.

The Battalion Training Management System was first introduced to ARNG and USAR units in fiscal year 1980. It is designed to instruct trainers in the most effective means of training soldiers and bringing together all the available means to accomplish that objective. It consists of four separate workshops designed for different

levels of management in the battalion and is normally conducted over a two-day period (sixteen hours). The program was enthusiastically received by the field and will continue to expand to more units in fiscal year 1981.

A number of organizational changes took place during the year that pertained to individual training for Army reservists.

On 18 September 1978, the Reserve Enlisted Personnel (REP) Section, now called the Individual Training Branch, was released from the operational control of ODCSPER and returned to the control of Personnel Division, OCAR. Concurrently, DA staff proponency for the Training Requirements Generator (TRG) and development of USAR enhancements to the REQUEST system was transferred to OCAR, effective 1 October 1978. The branch's overall mission has been expanded to include promulgation and implementation of USAR individual training policies; DA staff level management of USAR individual training programs; coordination, programming, and establishment of funding priorities and budget formulation to support USAR individual training within the Reserve Personnel Appropriations (RPA); and review and analysis of policies and plans, as well as new initiatives, concerning individual school training for USAR members to achieve mobilization readiness.

January 1979 marked the further transfer of individual training functions within OCAR from the Personnel Division (DAAR-PE) to the Operations and Training Division (DAAR-OT), as a result of an internal review of responsibilities. This review indicated a critical need for a cohesive OCAR staff element to provide continuous interface of USAR individual training matters with other DA staff elements and major commands; timely and accurate projections of USAR enlisted training requirements; establishment of training priorities according to Army needs; and development and coordination of funding appropriations to support USAR individual training from USAR resources.

Support to Civil Authorities

National Guard personnel continued to fulfill an integral role in providing support and assistance during emergencies throughout the United States. During the year, the National Guard responded 306 times to emergency conditions in 42 states and territories. This involved a total callup of 26,895 Guard personnel and the use of 207,611 mandays.

During this period, National Guard personnel were placed on state active duty twenty times to assist civil authorities in controlling civil disturbance incidents. Incidents occurred in sixteen states and

involved 10,722 troops. Incidents included 5 public employee strikes, 8 civil disturbances, 2 prison disorders, and 5 potential civil disturbances. Guard units assigned civil disturbance control missions conducted up to twenty hours of refresher training in control operations and conducted annual evaluations to determine state of preparedness during the period.

In fiscal year 1980, 16,173 Guard personnel assisted civil authorities during 286 natural disasters and other emergencies in 40 states and territories. Natural disasters accounted for 110 of the callups: 26 were forest fires, 23 were snow and ice storms, 34 were floods, and 14 more were tornados; the remaining 13 natural disaster responses were the result of volcanic eruption, hurricanes and drought conditions. The other 176 emergencies involved 37 search and rescue, 38 water hauls, 36 medical evacuations, 30 support missions, and 71 security/traffic control missions. Chemical spills, emergency shelter, papal visits, structural fires, civilian airplane crash, and Winter Olympic support accounted for 14 missions.

Fiscal year 1980 saw an increase in the community relations role of the National Guard. Added emphasis by the Chief, National Guard Bureau and the state adjutants general resulted in increased local unit activity to improve the quality of life for the citizens of all our communities. Some representative samples of community relations activities include sponsorship of over 300 Scouting organizations by Guard units as well as the creation of a new Explorer Scout program oriented around competitive air rifle marksmanship. Additionally, Guard units assisted local citizens in blighted areas of some of our major cities in converting devastated city-owned blocks into urban community park areas.

9. Organization and Management

Organization

The Army's mobilization exercise in 1978, known as NIFTY NUGGET, revealed embarrassing gaps in the mobilization of reserve components and the need to place higher priority on the Total Army's mobilization programs and procedures within the Secretariat. This led to the creation of a Deputy for Mobilization and Analysis under the Assistant Secretary of the Army for Manpower and Reserve Affairs on 6 April 1980. A small office, it is responsible for supervising Army mobilization policies, plans, and programs. A mobilization task force assists in developing comprehensive, realistic mobilization plans and coordinates the Army's participation in mobilization exercises. Of particular concern are manpower computer support systems, the distribution of mobilization resources, and procedures for processing arrival of reserve component units at their assigned mobilization installation. Congress has passed legislation directed at improving the readiness of reserve components, another area of concern since at the end of the fiscal year many designated ready reserve units were still lacking key enlisted personnel. The Deputy for Mobilization and Analysis is studying and analyzing various means of attracting qualified reservists to fill these positions.

The Army Force Modernization Coordination Office (AFMCO) was established last year within the Office of the Chief of Staff to coordinate the Army's force modernization program and to ensure the effective fielding of new or improved weapons and materiel systems, which are discussed in Chapter 11.

AFMCO is headed by a major general who is assisted by twelve field grade officers and three civilian administrators. They assist elements of the Army staff and major commands directly involved in various force modernization projects. Another major responsibility is to keep Army leaders informed of significant developments and problems in this area before they become major crises of the sort that have plagued development of the Abrams or X1 tank. In this sense, the office acts as a troubleshooter both for the Chief of Staff and for organizations experiencing difficulties in the development of modern weapons systems.

Obtaining current, accurate, and relevant knowledge on any subject has always been a problem in large bureaucratic organizations

which traditionally pigeonhole such information. The larger the organization the less likely it is that any sovereign or executive will obtain information he needs on which to base important policy or operational decisions. Ironically, the problem has gotten worse in the past century every time some mechanical device has been introduced to increase the speed with which such information can be transmitted or reproduced: the telegraph, telephone, radio and television, the printing press, typewriter, copy machines, and most recently the electronic computer. Like the sorcerer's apprentice, governments today are drowning in a sea of paper which responsible executives are unable to control and from which they frequently can not retrieve the information they need. The uncontrolled proliferation of expensive, incompatible, rapidly obsolete automatic data processing systems (ADPS) within the Army and Department of Defense led to costly blunders by managers unable to distinguish between equipment or hardware and the programs or software which instructed computers what calculations to perform.

The principal reason behind all these problems has been the failure of responsible executives to realize the absolute necessity for establishing centralized control over the design, development, and procurement of all systems which process or transmit data of all kinds into information that executives at all levels of command or authority can use effectively. Army commanders for more than a decade dragged their feet, refusing to admit that centralized control over ADPS was needed above their level of authority. Under relentless pressure from successive Secretaries of Defense, the Army raised the level of control over ADPS to an Assistant Chief of Staff for Automation and Communications (ACSAC).

ADPS is only one means by which executives obtain the information they need. There are thousands of studies and reports generated by various requirements throughout the Army which often never get to those who need them except by accident if they involve more than one function or mission.

To examine this problem, the ACSAC's office let a contract to the management consulting firm of Arthur Young last year to study, analyze, and make recommendations for an Information Resource Management (IRM) program for HQDA. The study was completed in February 1980, and in June the Vice Chief of Staff approved its recommendations, designating the Director of Management within the Office of the Chief of Staff to administer the program. In July a six-person Information Resource Management Office was established. At the close of the fiscal year, a Chief of Staff memorandum was being prepared which would formally establish the IRM program

within HQDA. The program would focus initially on the roles and responsibilities of OACSI, OACSAC, and TAGO.

The problem, as outlined in the Arthur Young study, was that the Army does not treat information as a resource subject to critical evaluation and cost-effective analysis like financial, personnel, logistical, and materiel development programs. Information resource management involves the expenditure of money and time over a six-phase life cycle: determining valid requirements for information; planning the procedures for collecting the information; the collection of data; processing data into information which managers can use in making decisions; the actual use of information; and the final disposition of information. The last phase may involve transferring the information into a data bank where it can be retrieved promptly to avoid the wasteful practice of continually reinventing the wheel. The entire information resource management life cycle requires centralized control and decentralized management of operations. The proposed IRM program will require several years of experiment through trial and error, and education. If successful in HQDA, the IRM program may be extended to the Army's major commands.

General Meyer has stated that continued Army budget cuts have left the United States with "a hollow army," where units supposedly ready for combat were seriously understrength. The various remedies, some of which require congressional action, are discussed elsewhere in this report.

One such effort, undertaken at General Meyer's request, was the establishment of a small "Headquarters, DA Scrub Team" within the Office of the Deputy Chief of Staff for Personnel to conduct a detailed review or "scrub" of positions in the Army's noncombat, nondeployable support units whose authrorized strengths are included in tables of distribution and allowances (TDAs) as opposed to combat units which are organized under tables of organization and equipment (TOEs). The team was formed in April and submitted its review in July. The review identified civilian and military positions which could be eliminated and transferred to higher priority deployable combat and combat support units. The scrub team also identified positions where potential promotions were held up by excessive numbers in the next grades, particularly between E-5s and E-6s, a problem discussed in Chapter 5.

The scrub plan was divided into five coordinated phases, of which the scrub team's review was the first. Phase II (from August to October 1980) is to allow written replies by the affected commands and agencies to the scrub team's proposed personnel changes. The process struck a snag when several commanders complained that

unanticipated OSD- and Congress-imposed civilian personnel reductions, in addition to proposed team eliminations, would seriously impair the ability of many units and their parent commands to carry out assigned combat missions. In some instances military personnel would have to be assigned to civilian positions being eliminated. In September, General Vessey, the Vice Chief of Staff, reviewed these complaints and directed that affected commands and agencies receive greater flexibility in determining units and functions to which eliminated positions could be transferred. The remaining phases of the scrub plan involve personal discussions on the spot with units affected by special teams headed by general officers, a review of their recommendations by the Select Committee (SELCOM), and decisions on the SELCOM's scrub recommendations by the Chief of Staff. The final elimination and transfer of positions and grade reductions are scheduled for completion between October and December 1982.

Studies involving the closure or realignment of Army bases within the United States have become a hardy perennial, largely because of the time and money devoted to preparing and revising Environmental Impact Statements required by Congress. The Director of Management within the Office of the Chief of Staff has overall responsibility for Army base realignment actions while the Assistant Chief of Engineers is responsible for providing information needed in developing base realignment plans and installation closures.

During fiscal year 1980, eleven base closure/realignment actions were completed or under way. Four studies culminated in decisions to retain posts in their current status. These were the Presidio of San Francisco, California; Letterman Army Medical Center, San Francisco, California; the New York Area Command located at Forts Hamilton and Totten; and the Army Training Center, Fort Dix, New Jersey. Reasons for retaining the first three centered on high relocations costs. The continuing need for the Army Training Center at Fort Dix was based on increased training demands resulting from achievement of manpower and recruiting goals. No final decisions were made on three completed studies—Intelligence and Security Command units at Arlington Hall Station and Vint Hill Farm, Virginia; Fort Sheridan, Illinois; and merging of the Training and Doctrine Command's Combined Arms Test Activity with the Combat Development Experimentation Command at Fort Ord, California. Three other studies required Environmental Impact Statements prior to a final decision—Fort Indiantown Gap, Pennsylvania; Fort Monroe, Virginia; and the aircraft maintenance unit at New Cumberland Army Depot, Pennsylvania. In August, Secretary of the Army Alexander announced that a new realignment study would in-

vestigate the possible operation of Navajo Army Depot by the Arizona National Guard.

Agreement was reached with the Air Force to use part of Fort MacArthur for constructing family housing units and transferring the remainder of the installation to the Air Force by the end of fiscal year 1982. Fort Wadsworth, New York, minus the Reserve Center, was supposed to have been transferred to the Department of the Interior this June, but was deferred due to congressional objections.

Traditionally, The Inspector General has concentrated on securing compliance by Army units with formal instructions, regulations, and directives. This approach often deals with symptoms rather than underlying causes and often results in too much time and effort being spent by units preparing for announced inspections.

In February 1979 The Inspector General of the Army announced a major shift in The Inspector General's philosophy and procedures from compliance to problem solving, designated as "the systemic approach." Henceforth, the emphasis would be on identifying problems and their underlying causes and suggesting solutions. Inspected units were to be directed as parts of a larger system rather than isolated as in the past. In cases where problems were the result of circumstances beyond the control of the unit commander, inspectors were to trace them to their real source above or below the inspected unit and were to monitor corrective action through Inspector General channels as well as regular staff channels.

Financial Management

The Army's fiscal year 1980 budget request amounted to $34,337.1 million. This figure was cut by $1,176.2 million during reviews by Defense and the Office of Management and the reduced figure of $33,160.9 million was included in the President's budget. Table 2 below shows major milestones for the fiscal year 1980 budget, while the narrative that follows presents additional details on the development of the budget, and fiscal year 1980 expenditures.

Reprogramming actions requested during fiscal year 1980 totaled approximately $505 million of which Congress approved all but $32.3 million. The principal appropriation categories involved were: military personnel, $169.1 million approved; operations maintenence, $87.6 million approved; and $40.8 for procurement of M60A3 tanks.

Planned obligations for fiscal year 1980 were $45.3 billion; actual obligations incurred were $46.8 billion. The deviation of +$1.4 billion is attributed to a $1.5 billion variance in reimbursable obliga-

tions offset by a −$0.1 billion variance in direct obligations. Factors contributing to the direct obligations variances included unplanned collections of $103 million in offsetting receipts (recorded as negative obligations) and delays in the award of $92 million in weapons procurement contracts.

Unplanned reimbursable obligations for Cuban refugee support were incurred in Operation and Maintenance, Army Reserve (OMAR) and Operation and Maintenance, Army (OMA). There were also higher foreign military sales in procurement appropriations, more R&D laboratory and test facility work, early awards of reimbursable procurement contracts, and the transfer of Defense Telephone Service costs from the Army Management Fund to the OMA reimbursable program.

Planned outlays for fiscal year 1980 incurred under authorized obligations were $31.8 billion while actual performance was $32.6 billion. This deviation of +$810 million in outlays was primarily caused by a more rapid liquidation of operation and maintenance obligations than was provided for in the low disbursement rate used in developing the plan, accelerated vendor procurement appropriation deliveries, accelerated completion of military construction contracts, slippage in stock fund (revolving funds) war reserve materiel deliveries, and unanticipated collections.

When the fiscal year 1980 Army budget request was submitted, the administration's prevailing economic assumptions were translated by OSD into a 7 percent increase in the prices of industry purchases by DOD. Army programs reflected this guidance. The general economic assumptions were revised before the beginning of the fiscal year and the OSD index for industry purchases was increased to 9.3 percent. Army programs were repriced accordingly and the budget request was amended to reflect these price increases. As the budget was being executed, the economic assumptions were again revised and the overall DOD index for industry purchases rose to 9.5 percent. In order to keep the prices of Army programs consistent with the new economic assumptions, the Army submitted a supplemental budget request for $58 million to reprice current programs at the higher levels.

The portion of the Army's budget allocated to the purchase of fuel increased significantly in fiscal year 1980. This occurred despite a reduction in overall fuel consumption. Because petroleum products are centrally managed, the rapidly escalating prices of petroleum, oils and lubricants (POL) were not offset within the $58 million supplemental request for inflation. Thus, the Army's supplemental request contained an additional funding increase of $294 million to pay for fuel price increases charged by the Defense fuel supply center.

TABLE 2—CHRONOLOGY OF THE FISCAL YEAR 1980 BUDGET
Total Obligation Authority (TOA)
(in thousands of dollars)

	DA Submission to OSD	Initial President's Budget	Budget Approved by Congress	Budget Supplemental	Amended Supplemental	Congressional Actions (Jul 80)	Transfers/ Adjustments	Total Obligation Authority
Military Personnel, Army	9,735,786	9,754,500	9,668,819	661,100	32,319	−6,327	172,779	10,528,690
Reserve Personnel, Army	603,000	597,600	606,400	37,141	—	−1,200	17,000	659,341
National Guard Personnel, Army	860,900	874,200	867,250	56,650	—	−3,850	−19,500	921,150
O&M, Army	10,348,816	9,907,400	9,915,368	549,400	181,256	−20,500	394,162	11,019,686
O&M, Army Reserve	445,173	418,100	420,644	12,800	7,420	−500	-	440,364
O&M, Army National Guard	842,634	791,400	797,150	30,900	13,983	−6,100	41,622	856,955
BNBPRP	428	-0-	397	14	—	—	—	411
Aircraft Procurement, Army	959,300	946,400	961,837	—	1,100	−2,200	−14,570	946,167
Missile Procurement, Army	1,283,000	1,250,500	1,140,800	—	−24,700	−3,600	37,824	1,150,324
W&TCV Procurement, Army	2,002,400	1,888,900	1,824,100	—	−16,400	−6,400	−8,736	1,792,564
Ammunition Procurement, Army	1,542,200	1,343,400	1,232,800	—	6,100	+8,400	−95,575	1,151,725
Other Procurement, Army	1,820,625	1,694,200	1,435,410	—	9,600	−5,200	38,298	1,478,108
RDT&E	2,930,801	2,927,000	2,853,331	—	6,000	−4,800	−1,200	2,853,331
Army Stock Fund	—	—	—	—	—	—	—	—
Subtotal, Excluding Construction	33,375,063	32,393,600	31,724,306	1,348,005	216,678	−52,277	562,104	33,798,816
Military Construction, Army	883,592	722,300	725,649	—	4,000	−3,300	300	726,649
Military Construction, Army Reserve	44,846	25,000	30,000	—	—	—	—	30,000
Military Construction, ARNG	33,600	20,000	23,700	—	—	—	—	23,700
Subtotal, Construction	962,038	767,300	779,349		4,000	−3,300	300	780,349
Grand Total	34,337,101	33,160,900	32,503,655	1,348,005	220,678	−55,577	562,404	34,579,165

In the supplemental request, the Army identified $352 million above the amended President's Budget request to properly price the fiscal year 1980 program. Of this amount, $139 million was to be funded by specific reductions to be made in approved programs and $213 million was requested in additional funding. Congress approved $17 million of the $58 million request for inflation increases and $294 million for fuel price increases, but only allowed program offsets totaling $71 million of the $139 million offered by the Army.

Because of the sharp decline in the exchange rates between the dollar and foreign currencies, Congress established a continuing transfer account to be used to offset these currency losses. This fund, which began in fiscal year 1979, was titled the Foreign Currency Fluctuation, Defense (FCF,D) Fund and was available to the operation and maintenance and military personnel appropriations of all military services. Congress initially appropriated $500 million in fiscal year 1979 to capitalize the fund. However, because of the great disparity between the budgeted exchange rates and the rates actually experienced, these funds were nearly depleted in fiscal year 1979. Congress appropriated an additional $470 million for FCF,D in fiscal year 1980. During the fiscal year $312.50 million was transferred to OMA and $88.57 million to Military Personnel, Army (MPA) to offset currency losses.

The Army's Commercial-Industrial-Type-Activity (CITA) program was changed in accordance with the March 1979 OMB Circular A76. The most significant aspect of the revised program was the increased emphasis on cost studies to determine if in-house or contract operations of commercial and industrial type activities were more cost effective to the government. Among other changes was the requirement to use fully allocated costing instead of incremental costing. In addition, all in-house activities and service contracts will be reviewed for possible change in method of performance and, where appropriate, cost studies will be conducted over the next five years involving approximately 5,200 activities over 200 civilians have been hired to handle the increased work load and the development of special training courses in CITA management and cost study preparation.

During the year, the Army completed fifty-nine cost studies of internal activities, thirty-three of which indicated contracting to be cost effective to the government. Some 2,278 civilian and 537 military positions were freed for reallocation as a result of these decisions. From all conversions to contract in fiscal year 1980, a cost advantage to the government of $60.0 million over three years was identified. The twenty-six decisions to continue the in-house operation of the ac-

tivities involved 993 civilian positions. The 70 military positions in the activities retained in-house were reallocated to other critical needs in the Army, and replaced with civilians, as necessary.

During fiscal year 1980, the Army completed cost study of nineteen functions, largely in the Directorate of Industrial Operations, at Fort Gordon, Georgia. This was the first major cost study of grouped functions at a typical Army troop installation. The bid of the winning contractor, Pan-Am, represented a nearly $32 million cost advantage to the government over three years, and the conversion affected over 660 civilian and 460 military employees.

Total Army Costing (TAC) is composed of costing guidelines for capital intensive (materiel) and manpower intensive (nonmateriel) systems in the Army, and a family of computer programs. The computer programs aggregate life cycle costs by system at several levels of detail and in multiple management languages. Much of TAC's development is still in the early stages; however, computer programs were developed and tested using data from materiel systems during the year. This testing demonstrated the practicality of the TAC concept. Eventually, TAC will support the Planning, Programming, and Budgeting System through resource management.

The efficient and successful fielding of new weapons systems requires Armywide coordination and complete resource support. The key to good fielding decisions and the defense of those decisions outside the Army is a complete and realistic assessment of resources required to acquire, field, operate, maintain, and support each system. The resource requirements of commands and agencies for new systems are contained in the Program and Resource Review (PARR) documents submitted to HQDA. During the period May through September 1980, action officers of the Directorate of Operation and Maintenance and the Directorate of Cost Analysis worked with the staff of the Army Force Modernization Coordination Office (AFMCO) to develop a disciplined methodology for preparing the modernization resource information submissions portion of the PARR which MACOMs and separate agencies submit to support their modernization programs.

Fiscal year 1980 initiatives in the Army Productivity Measurement and Evaluation Program included expansion of the measurement program from twenty-one to twenty-four functional groups, and laying the groundwork for expansion to forty-two groups. A major change was the integration into the budget process of productivity goals established at major command level for major nontactical functional areas. Recognizing the increasing importance of managing nonmanpower resources to achieve greater efficiency, a measurement

concept called Total Factor Productivity was developed for considering all types of resources required to accomplish a mission and evaluating results in terms of timeliness, quality, effectiveness, and service in addition to cost.

Major commands and U.S. Army Finance and Accounting Center (USAFAC) developed summary level standards during the past year in base transportation, base communications, mission communications, commercial accounts, travel pay, civilian personnel administration, depot maintenance, depot supply, and senior ROTC detachments; MACOMs and USAFAC also began to prepare standards for base procurement, mission procurement, civilian pay, disbursing, base maintenance, triservice communications, and ROTC regions. The standards provided help manpower managers develop credible and reliable staffing standards to support manpower requirements.

The DA Productivity Technical Committee (PROCOM), established in June 1979, held its second meeting. The meeting led to increased support for development of the Performance Measurement Module of STANFINS Redesign (discussed below), standardization of summary-level-standard development procedures and presentation, and mutual major command support to develop Armywide summary level standards.

The Quick Return on Investment Program (QRIP) provides a fast method for recovering savings from investment opportunities which are frequently lost due to long delays in the normal budget process. For QRIP funding, projects (off-the-shelf capital tools and equipment) must cost $3,000-$100,000 and amortize in two years or less. Investments of $7.9 million in fiscal year 1979 and fiscal year 1980 will result in an annual savings of $11.9 million. The program has been received with such enthusiasm that the rate of projects received greatly exceeds the Army's programmed and budgeted levels of QRIP funding. Projects are coming in at a rate of over $1 million per month in comparison to the rate of $200,000 per month at the end of fiscal year 1979.

The Fast Payback Program of the Army Industrial Fund (AIF) is designed to fund QRIP-type projects in AIF facilities; projects must cost $5,000-$300,000 and amortize in three years or less. During fiscal years 1979 and 1980, projects were approved for $4.1 million with an annual savings of $3.5 million.

The Secretary of Defense sets aside approximately $100 million per year for the Labor Saving Capital Investment Program (LSCIP). Projects must cost $100,000 or more ($300,000 or more for AIF) and save 50 percent of the investment cost in labor during the four-year amortization period. The first LSCIP submission in fiscal year 1979 resulted in the Army obtaining $34.2 million for fiscal year 1981;

these projects will save $58.5 million. Projects submitted in fiscal year 1980 for fiscal year 1982 funding total $40 million.

Projects that don't fall within the above "set aside" programs are eligible for submission under the Productivity Enhancing Capital Investment Program (PECIP). Projects must cost $3,000 or more and amortize in four years or less. The earliest funding expected for this type project will be in fiscal year 1983.

The Value Engineering (VE) program, a formal program in four major Army commands, contributes substantial dollar savings. It involves the elimination or modification of anything that adds cost to an item, process, or procedure which is not necessary to its basic function. VE is structured to challenge the way of doing things and systematically searches for less costly alternatives. It contains two distinct elements: (1) an internal effort performed by Army personnel, and (2) a program to stimulate contractors to develop and submit proposals for changes to those contract specifications, purchase descriptions, or statements of work which the contractors feel impose costly, nonessential requirements. Savings in fiscal year 1980 amounted to $198.5 million for the internal VE program and $64.5 million for the contractor program, representing a return on investment of about 14.7 to 1 and 42.9 to 1, respectively.

The Army Idea Interchange Program was established as part of the Productivity Improvement Program in May 1980. It directs major commands, installations, and activities to develop an internal system for identifying proven ideas that have been used within their organization, establish a reviewing body to explore new applications for ideas already in use, circulate proven ideas which have potential for application within their organization, and forward ideas that have potential application elsewhere in the Army and the federal government to the Army staff on a quarterly basis.

The Nonappropriated Funds Installation Standard System (NAFISS) was fielded as an Army standard system in November 1977. At the beginning of this year, NAFISS was in use for at least some funds at 52 percent of CONUS installations, 37 percent were in the process of implementation and 11 percent had deferments or were exempt. By the close of the fiscal year, 91 percent of CONUS installations were using it and 9 percent had deferments or were exempt. USAREUR was using NAFISS at four of its thirty-five communities. Eighth Army has 874 NAF activities which will be serviced at four locations during the next year.

The Army's Standard Finance System (STANFINS) is being completely redesigned to meet General Accounting Office (GAO) requirements for Army installation level accounting and financial reporting systems. Accounting principles contained in the revised

system will include double entry accrual accounting with assets, liabilities, and capital under general ledger controls. Data processing concepts employed include a data base management system; automation of labor intensive functions such as travel, commercial accounts, and disbursing; and the maintenance of manual fund control ledgers. General ledger accounts and subsidiary records will be revised daily, and interactive terminals will provide on-line data processing. The project, begun in February 1979, is scheduled for completion in October 1986.

The Program and Budget Accounting System (PBAS) will integrate the accounting and budgeting processes at Army staff and major command levels. It is designed to collect, store, and process fund control and budget execution data in a centralized data base for all funds administered by the Army. All departmental reporting requirements and financial information requirements of Headquarters, Department of the Army and the major commands will be produced from this centralized data base. Budget execution data will be reported directly from installations and activities to the centralized data base using general ledger, detail transactions, and trial balance reporting techniques. The system will connect with the Army's standard installation accounting system and the budget formulation system utilized by the Director of the Army Budget. The system, approved by the Assistant Secretary of the Army (IL&FM) in April 1978, is scheduled for phased implementation beginning in December 1983.

In October 1979, the Vice Chief of Staff designated the Comptroller of the Army as the focal point for establishing a centrally managed data base to serve both the fiscal year 1982-86 program objective memorandum and budget formulation requirements. In November a functional work group consisting of members representing all Army staff agencies was established to carry out this directive. Objectives for the fiscal year 1982-86 program and budget cycle were: ensure a timely accurate program objective memorandum (POM) and budget submission to the Office of the Secretary of Defense, reduce or eliminate manual processes involved in feeding data into existing data bases, design procedures that will permit exchange of data between the various Army staff data bases on either an automated or semiautomated basis, develop an interface capability for translating data from one programming or budgeting language to another without manual intervention, and assure a smooth, orderly transition from POM development to budget preparation.

For the fiscal year 1982-86 program and budget cycle, the Army staff completed the following actions: integrated into a single Planning, Programming and Budgeting System (PPBS) data base a portion of the summary data to support Office, Secretary of Defense and

budget automation requirements; established an Information Resource Management Division under the Director of Program Analysis and Evaluation to manage and operate the PPBS data base, discussed earlier; modified internal staff systems to provide an automatic interface with the PPBS data base; developed an automated system to translate the Army's program into budget languages at a summary level; and established policies, procedures, responsibilities, and standard formats for a single source of data for the PPBS data base.

For over a year the concept of establishing a cost analysis office at the U.S. Army Finance and Accounting Center (USAFAC), Fort Benjamin Harrison, Indiana, was explored, This led to the establishment, in June 1980, of the Cost Analysis Division. The principal reason for establishing the division was the need to link downstream "controlling" factors based on accounting practices and data with upstream "deciding" considerations based on cost analysis techniques and data. The greatly improved automatic data processing capability being carried out at USAFAC will help in developing the mechanisms for using the Army's finance and accounting system to provide data for cost analysis activities.

Under the USAFAC program of improving its computer equipment, a new UNIVAC 1100/82 was acquired and installed to replace two Control Data Corporation (CDC) 3300 computers. In preparation for the new computer, the Systems and Programming Operations Directorate rewrote the CDC programs for thirty-five systems, assigned new systems identification under Standard Naming Conventions, and prepared operating documentation. Between February and May 1980, parallel production testing of the rewritten programs was accomplished for all converted systems. Normal production continued on the CDC 3300 computers during the test period, and comparison of parallel outputs and processes enabled problem identification and corrective actions during this period of evaluation. In addition, production experience was gained during parallel operation. The new UNIVAC computer took over on 4 May 1980.

On 12 May 1980, USAFAC's financial histories operations office was abolished due to declining work loads and overlapping functional responsibilities with other USAFAC components. Remaining functions were reassigned within USAFAC. The Examination Division was transferred intact to the Director for Quality due to similarity of missions. Functions pertaining to the maintenance and retrieval of both hard copy and microfiche financial records for individual soldiers and for disbursing officer accounts were transferred to Centralized Pay Operations.

Acting on a May 1979 GAO recommendation, the House Appro-

priations Committee included in its 1980 DOD Appropriations Report a requirement that DOD produce a plan for centralizing obligation and expenditure accounting and disbursing within Foreign Military Sales (FMS) and submit the plan to Congress by March 1980. Only FMS transactions involving direct site procurements were to be considered in the plan for centralization. In response, the services transferred approximately 250 FMS procurement contracts to a centralized test site located at the Security Assistance Accounting Center (SAAC), Lowry Air Force Base, Colorado. The Army portion of those transfers amounted to some forty contracts. The test will determine if centralization can eliminate or significantly reduce the problems identified in the GAO report; i.e., poor trust fund expenditure control, cash float in the services, and poor delivery reporting. A final report to the Congress is due in January 1982.

A DOD Directive on retention and transfer of materiel assets requires that shippers normally pay transportation costs for returns from DOD users to supply system inventories, including stock fund returns with or without credit. The Office of the Secretary of Defense (Comptroller) directed that the Army implement this policy, effective 1 October 1980. This will require modification of the Standard Army Financial Inventory Accounting and Reporting System (STARFIARS) to account for transportation obligations, and assignment and publication in DOD regulations of twelve Transportation Account Codes—one for each finance and accounting office servicing an overseas stock fund branch office.

There were forty cases under review at the end of fiscal year 1980 under revised statute 3679 activities involving overobligating or overspending authorized funds. Of these, 37 were resolved during the year; however, fifteen new cases were received, leaving eighteen cases under review on 30 September 1980, seven of which were over one year old.

The Army Audit Agency issued reports on the number of audits during the year which highlighted common problems at numerous installations. Actions taken on the audit recommendations should result in improved management of resources at all levels of command. The agency reported that: Army enlisted personnel were not being used in the skills for which bonuses totalling $8 million had been awarded; recruiting advertising goals were not being established or were too broad to measure the effectiveness of the recruiting advertising program which amounted to $65 million in fiscal year 1980; attendance at National Guard and Army Reserve training assemblies was not adequately controlled causing improper payments to reserve component members; the number of Chaparral and Stinger missiles authorized to be fired during training classes was twice the number

necessary to provide adequate training; management controls over overtime at Army depots were not fully effective; contractors with a pattern of poor performances continued to receive contract awards; maintenance and repair projects at Army installations were designed, funded, or were in progress, for buildings that were scheduled to be demolished; weak accounting and inventory controls were causing significant excesses and shortages in conventional ammunition; European Commissary System financial and supply records were so inaccurate and unreliable that accessibility and operational control could not be maintained over the basic functions of ordering, receiving, pricing, and selling.

In fiscal year 1980, Army installations, as reported above, began a major effort to review commercial/industrial type activities to determine if the functions should be performed within the Army or by contract. The Army Audit Agency conducted independent reviews of the cost comparisons, and spent about 13 percent of its resources to make reviews of 109 CITA cost comparisons during fiscal year 1980. This was the Army's initial effort in conducting cost comparisons under the full costing procedures prescribed by OMB Circular A-76, revised. Numerous errors and omissions were detected and corrected as a result of the audit reviews.

Army audit, inspection, and internal review activities uncovered 143 potential fraud cases which were referred to investigative organizations and twenty-five significant instances of waste which were included in Army reports that provided a basis for reporting to Congress pursuant to the Inspector General Act of 1978. The Army Audit Agency devoted nearly 30 percent of available auditor days to areas highly susceptible to fraud and waste. In instances where patterns of problems indicated a need for high level attention, "trend reports" were issued to Army staff elements with recommendations for needed action. In addition, field commanders received "advisory reports" summarizing common problems noted during audits of similar functions at a number of locations. In September the audit agency commenced an audit of yearend buying at fourteen installations or activities to ascertain if funds expended were in compliance with laws and regulations and that the materials acquired were needed. The number and mix of activities audited is expected to indicate adverse trends and highlight whether hurry-up spending at yearend is resulting in waste. At Army Audit Agency-conducted classes, special attention was devoted to basic audit techniques in evaluating internal controls and detecting wasteful and fraudulent conditions. Over 200 Army auditors received this training.

Internal review efforts were directed toward programs identified by commanders and staff elements as affecting mission objectives.

Resulting actions by commands have strengthened internal controls established to prevent or reduce fraud, waste, and uneconomical and inefficient practices.

Headquarters, Department of the Army teams conducted periodic inspections of five major commands and three Army staff agencies. An Armywide special review of conventional ammunition was completed. During Inspector General orientation courses particular emphasis was placed on the need to examine the effectiveness of internal control procedures. Steps which should be taken to ensure that commanders respond to conditions indicative of fraud, waste, and abuse were also stressed.

The Army Criminal Investigation Command's increased emphasis on the detection and investigation of fraud and waste resulted in 3,780 fraud cases being referred to civilian and military organizations for action. In addition, 1,674 crime prevention surveys were completed. Development was started on a computer crimes investigation course and other training programs to target economic crime—susceptible activities for informants, criminal information and systems access. Finance and accounting courses were reviewed to identify those appropriate for training investigators in crimes committed against the military pay and contract payment systems.

Records and Publications Managoment

The Records Management Division of The Adjutant General's Office (TAGO) handled 951 requests for information under the Freedom of Information Act and eighty-four under the Privacy Act, many of which involved sensitive or classified material. Under revised regulations, Records Management personnel must consider that a compilation of unclassified documents, or portions of them, obtained under the Freedom of Information Act may have a potentially adverse effect on national security. To guard against such circumstances seven additional "Initial Denial Authorities," making a total of twenty, have been added.

As reported last year, the Records Management Division's Access and Release Branch is actively involved in Army litigation concerning the Army's alleged role in "Love Canal" and in dealing with herbicides like "Agent Orange." A large number of law firms have requested documents under the Freedom of Information Act for use in court. At one point, eleven lawyers representing various chemical manufacturers descended on the Access and Release Branch, spending three days reviewing location data on Vietnam records and searching for information and documents on Agent Orange. The U.S. District Court for the Eastern District of New York requested

sixty-five documents concerning Agent Orange for Dow Chemical Company.

As noted in last year's report, The Adjutant General's Office is responsible for the care of high school transcripts previously generated by the Army, Navy, Air Force, and most recently the DOD Dependents Schools Records Program. TAGO receives about 100 requests a month from former students for transcripts of their records. Some 300 linear feet of school records stored at GSA's Washington National Records Center in Suitland, Maryland, are being recalled to check on filing accuracy, elimination of duplicate copies, and general consolidation. The most recently retired manuscripts are being prepared for microfilming. The establishment of a sixth regional office in Panama has added three high schools and a junior college to TAGO's list of schools for whose records it has responsibility.

The Army's program for developing an Advanced Micrographic Access and Retrieval System (AMARS) moved forward. September 1979 Teknekron Research, Inc., of Berkeley, California, was awarded the contract to develop and build a basic test system for an automated, modular, micrographic storage and retrieval system. Its design was reviewed and accepted on 25 March of this year and the system is scheduled for delivery and installation at the Reserve Components Personnel and Administration Center (RCPAC) in St. Louis during the spring of 1982, followed by a period of testing and evaluation by RCPAC.

Army corps commanders have expressed great concern over the rising cost of paper and its resupply under conditions of rapid deployment. Consequently, TAGO and the Army's Administrative Center, redesignated this year as the Soldier Support Center, undertook an effort to determine the practicality and effectiveness of using commercial computer output microform (COM) equipment in a tactical environment. COM equipment was delivered and installed in vans at two test sites in January 1980. A dry laser COM was field tested successfully at Fort Hood during June and a conventional or wet COM was successfully tested at Fort Bragg during July. Additional testing will be conducted to further evaluate the cost benefit of microfiche versus paper outputs in a tactical environment.

The Army's Official Military Personnel File (OMPF) micrographic system services both the active Army and reserve component personnel management systems. Officer files are maintained at Headquarters MILPERCEN, enlisted files in the Enlisted Record and Evaluation Center at Fort Benjamin Harrison; officer and enlisted ready reserve files at RCPAC in St. Louis, and officer National Guard files at the ARNG Personnel Center in Falls Church, Virginia. All of these files are being converted from paper to microfiche. Active Army

officers and enlisted personnel records have been completely converted; RCPAC has begun converting about 40,000 ready reserve officer records internally, and plans have been made to convert an additional 95,000 records; and TAGO approved an ARNG request to convert 35,000 officer paper records in July 1980, subject to the availability of funds.

TAGO is responsible for monitoring the micrographics portion of the personnel records system and for improving the quality of filming data. The first annual inspection of microfiche used for maintaining officers records was performed under contract during the year in accordance with federal regulations and National Archives and Records Service guidelines to detect and correct deterioration of microfiche documents. The first annual inspection of enlisted and ready reserve microfiche data is scheduled for fiscal year 1981.

At the request of the Director of the Army Staff, TAGO has accepted responsibility for design, execution, and funding of a project to convert records of the Armed Forces Discharge Review and Corrections Board Public Reading Room file to microfiche. A conversion contract was awarded in September. The contractor will use a packed microfiche concept where many records can be stored on a single microfiche. Approximately 150,000 existing records will be placed on 10,000 microfiche. A computer output microfiche index of file holdings will be produced each month on a cumulative basis and catalogued to permit previous and current actions on the same case to be found regardless of their physical location.

DARCOM's Troop Support and Aviation Readiness Command (TSARCOM) is procuring a $1.5 million mass storage punch card system from Infodetics involving an automated storage and retrieval system with remote image display and automated production of aperture cards for inclusion in technical data packages. The system is scheduled to become operational after appropriate testing in December 1981. The TSARCOM system is being reviewed as a prototype for possible installation in other DARCOM subcommands. The Navy and Air Force have expressed interest in the new system.

Computer output microform (COM) production of microfiche is used widely throughout the Army. Standard COM had been extended to thirty-five of the forty-two continental BASOPS installations, and to Germany, Hawaii (WESTPAC), Japan, and Korea by 30 September 1981. West Point, the Military District of Washington, and the Computer Systems Command obtained approval for their own COM systems. The emphasis now is to extend COM to other multicommand information systems as a means of improving the efficiency of reports and reducing administrative systems costs.

The Army Micrographics Management Information System

(AMMIS) went into limited operation this year. It provides the TAGO Micrographics Management Division and the major Army commands with information and technical assistance required to manage the micrographics program effectively. When completed by the end of fiscal year 1984, AMMIS will provide information relating to equipment inventory, micrographic systems, systems costs and savings, quality film and archival film submissions, and the status of micrographic production by all Army organizations.

TAGO's Editorial Control Division continued efforts to improve the readability of Army publications. This year 227 different publications were edited bringing the reading grade level of these publications to a 10th grade average. It reduced the number of pages in each edited publication by an average of 15 percent and achieved a reduction of 12 percent in the number of publications. The division conducted training sessions in the preparation of regulations and effective writing for 1,035 regulation writers from the Army staff and major commands.

The initial development of The Adjutant General's PUSH Army publication distribution method and its testing in the 2d Armored Division at Fort Hood, Texas, proved that centralized control of initial publications distribution was superior over the existing subscription system. This summer a fully automated test of the PUSH concept was begun at Fort Hood, involving over 800 accounts, including all the TOE active Army units at Fort Hood and all the TOE units of the ARNG and USAR in Texas. When completed, the test will provide data needed to support expansion of PUSH worldwide for TOE units. PUSH distribution for Enlisted Personnel Management System (EPMS) materials (soldiers manuals, trainers' guides, job books, etc.) to TOE and TDA units worldwide was also initiated.

In September the U.S. Army Adjutant General Publications Center in Baltimore completed installation of a mail sorting program aimed at reducing the time required to deliver publications and blank forms to major Army installations within the United States and overseas. Sorting packages by geographic destination before sending them through the U.S. Postal Service has eliminated extensive rehandling and speeded delivery of packages to their destinations by two to eight days.

The Micropublishing Branch in August 1979 started the Army Micropublishing Program for converting suitable Army publications from paper to microfiche. Standard specifications and guidelines for conversion were prepared including rating publications on their utility, timeliness, cost effectiveness and suitability for microfiche. During the year, publications suitable for microfiche were defined to include primarily reference works used in offices where viewers were

available and secondly, publications changed or revised frequently which are widely distributed and without color or graphics. Currently, 160 publications have been converted to microfiche, 2,500 others are being converted and an additional 1,500 identified as suitable for conversion to microfiche.

Administrative Management

The Installation Integrated Administrative Support System (IIADSS)—combining the most useful aspects of internal communications, text and data processing, photo-composition, and micrographics—is being developed at Fort Benning, Georgia, under the auspices of TAGO and TRADOC. The overall objective of this system is to integrate all areas of office administration and management in a totally automated, integrated administrative system developed for installation needs. Because the system has been developed using a "modular approach," it can be implemented at Army installations performing similar functions, either as a total package or piecemeal using only those software programs that are needed.

Effective 1 October 1979, word processing equipment (WPE) was reclassified by GSA as automatic data processing equipment (ADPE). This change requires close coordination and cooperation among all parties concerned in order to maintain clear lines of responsibility and authority for WPE and ADPE at all levels.

A revised Army Regulation, AR 18-1, Army Automation Management, dated 15 August 1980 clarifies the management responsibilities for Army automation and specifically outlines the authority to acquire administrative systems. The Adjutant General is the functional proponent for administrative systems. He or a designated representative is responsible for approving the acquisition of all administrative systems that run on Army automatic data processing equipment. The local approval authority will provide the necessary technical support, guidance, and assistance needed to acquire ADP resources to support administrative systems. This includes verification that time is not available on existing ADPE to accommodate validated administrative system requirements and that the existing ADP systems cannot be improved to satisfy the requirements in a timely and effective manner.

AR 340-8, The Army Word Processing Program, is being rewritten to complement the new AR 18-1. Increasing levels of expertise in the field and greater emphasis on increasing management and administrative productivity indicate the need for broader systems management of administrative functions and applications. As dollar

costs increase additional documentation may be required to justify equipment and services. The Adjutant General and the Assistant Chief of Staff for Automation and Communications (ACSAC) have agreed that automation staffs should accept the approved functional documentation with as little change as possible.

The Administrative Systems Acceleration Plan (ASAP) project was initiated on 13 November 1979 to document Army staff administrative requirements, help staff agencies acquire modern administrative technologies, and meet the administrative needs of staff action officers. An ASAP team—composed of administrative systems analysts expert in word processing, micrographics, copier, correspondence, and computer systems interface—conducted training sessions, detailed automated surveys, individual interviews, information summaries, and analyses to define and validate specific administrative requirements, provide design and/or technical assistance prior to implementing new technologies, recommend alternative solutions and costs, and provide followup assistance. The ASAP team recommended improved utilization of existing equipment, streamlining and standardization of procedures, and the acquisition of an estimated $1.7 million worth of administrative systems equipment. Productivity increases of $1,040,776 through labor savings and savings in paper, postage, and computer time in the amount of $1.5 million were identified.

The fiscal year 1978 Copier Cost and Production Report showed the Army alone possessed over 9,000 machines producing more than 1.2 billion copies annually, at a total cost in excess of $33 million at an average cost per copy of $.0269. During fiscal year 1980, the Administrative Systems Division, Administrative Management Directorate, developed and implemented an automated copier management system, the first of its kind, utilizing word processing equipment. Over 9,000 office copier inventory records representing Army installations worldwide have been loaded into the system and are available for inquiry and agency reporting purposes. The system provides sort capabilities and supports a full range of mathematical routines. Total copier management is the objective of the new system.

As reported last year, the House Subcommittee on Postal Facilities Mail and Labor Management, the GAO, and the House Appropriations Committee all recommended a review and revision of the 1959 United States Postal Service/DOD agreement. Consequently, a new Postal Agreement was signed on 21 February 1980, after two years of negotiations. Principal changes in the revised agreement included adding the goals of providing mail service to military personnel equal to service provided civilians in the United States and minimizing energy expenditures while conducting military postal

operations. The new agreement provides for review every five years and delegates to the Assistant Secretary of Defense (MRA&L) the authority to establish supplemental agreements to cover specific operational procedures.

The first supplemental agreement was signed on 22 February 1980 to cover details of administration. Areas addressed in the supplemental agreement include standards of service, and reimbursement for use of facilities and equipment and for expansion of United States domestic postal service to meet DOD requirements, including postal services expansion as a means of reducing shipping costs and improving services; a survey of facilities, services, and delivery in the United States; and a study of overseas military mail operations.

The Deputy Secretary of Defense signed DOD Directive 4525.6 on 5 May 1980 charging the Secretary of the Army as the DOD Single Manager for the Military Postal Service. The Secretary of the Army directed the Adjutant General to establish the Military Postal Service Agency (MPSA), which was formally organized as a field operating agency of TAGO on 1 June 1980 by Department of the Army General Order 6, dated 30 May 1980.

The MPSA operates under the broad policy guidance of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) and serves as the single DOD point of contact with the United States Postal Service (USPS) and other government agencies on military postal service policy and operational matters. The MPSA also acts as functional director for APO/FPO official and personal mail. The Service Secretaries continue to command and operate all internal postal facilities not assigned to the MPSA and recommend to the Executive Director, MPSA, policies and procedures for carrying out postal operations. Fiscal responsibility also remains with the respective military services, but the MPSA will have a coordination and monitoring role to ensure that the rapidly escalating postal costs for both official mail and second destination transportation costs are planned, programmed, and budgeted at appropriate and adequate levels.

The MPSA Table of Distribution and Allowances was approved on 14 July 1980 and the other uniformed services assigned elements to the new joint service staffed agency. Brig. Gen. Alan Ono became the first Executive Director effective 11 August 1980 with Col. Lloyd L. Wyatt appointed as Deputy Director. The MPSA consists of a jointly staffed headquarters in the National Capital Region and Joint Military Postal Activities (JMPA) Atlantic and Pacific, collocated with the USPS Postal Concentration Centers in the gateway cities of New York and San Francisco with subordinate elements in Miami, Jacksonville, and Seattle.

10. Logistics

As the Army Chief of Staff noted in his white paper of 25 February 1980, "the sinews of support are a basic ingredient for the U.S. Army's combat muscle." That these sinews were not as strong as they should be, the Commanding General of the U.S. Army Materiel Development and Readiness Command (DARCOM) made clear in a statement near the end of the fiscal year. "So serious is the situation," he warned, "that we are in danger of losing ground rather than holding our own in the materiel support function of force readiness." While logistical deficiencies stemmed largely from budgeting constraints, the Chief of Staff also pointed out that the Army must demonstrate its ability to use more wisely the funds provided to it. A major theme running through the history of the Army's logistical efforts in fiscal year 1980 is the attempt to improve resource management in a time of increasing demands on the system.

Support of Forward Deployed Forces

From 17 to 23 August 1980 TRADOC's Army Logistics Center conducted a Joint Chiefs of Staff coordinated command post exercise sponsored by the Department of the Army, Office of the Deputy Chief of Staff for Logistics (ODCSLOG), at Fort Pickett, Virginia. Titled LOGEX 80, the exercise involved more than 3,000 active and reserve personnel from the Army, the Navy, the Air Force, and the Marine Corps. The Army components, which included combat support and combat service support elements of the Army National Guard and the U.S. Army Reserve, played the role of an isolated U.S. corps composed of three and one third divisions operating in the Northern Army Group area of Europe. By simulating the functions and interrelationships of combat, combat support, and combat service support forces, LOGEX 80 provided training directly related to war planning and to NATO commitments.

On 4 August 1980 President Carter signed into law the North Atlantic Treaty Organization Mutual Support Act of 1979. Initiated by the Army and sponsored in Congress by the Department of Defense, the act permits the Secretary of Defense to negotiate agreements with the governments of NATO nations and with NATO agencies to buy, sell, loan, and exchange logistic support, supplies, and services. The intent of the act is to enhance allied interoperability

by overcoming many of the constraints imposed by U.S. laws and regulations that experience proved were too time-consuming or cumbersome, or to which NATO allies objected.

There was continued improvement during the year in the shipment of repair parts via the air line of communication to Army support units in Europe. The system concentrates on repair parts as the commodity that most directly affects equipment readiness, and it relies on airlift as the routine method of transport in replenishing these parts. Order ship time for the air line of communication to Europe averaged 23.5 days in August 1980, an improvement of more than five days over August 1979. The success of the line to Europe since its beginning in 1977 led to the establishment of one to Korea on a test basis in December 1978 and permanently in December 1979. In February 1980 other lines were established for selected support units in Alaska and Hawaii, reflecting the Army's objective of implementing the system wherever feasible and affordable. Participants in a conference of general officers on doctrine at Fort Lee, Virginia, in June 1980 decided to maximize the use of the air line of communication system in wartime as well as in peacetime—a significant revision of logistics doctrine.

Pursuing its goal of promulgating and implementing standardization agreements concerning logistical doctrine in NATO, the Land Forces Logistics Working Party held its annual meeting from 8 to 12 September 1980 in Brussels. A subordinate activity of the Army Board, Military Agency for Standardization, NATO, the working party discussed proposed agreements on classes of supply and color markings, combat rations, postal organization for NATO forces in wartime, supply transactions among NATO land forces during peace and war, procedures for emergency logistic assistance, establishment of a supply system panel and a logistics systems panel, and provision of support to visiting, neighboring, and commonly located sea, ground, and air forces. Only the last proposal, an attempt by the United States to consolidate three separate agreements, was rejected; all the others were in various stages of staffing or revision at the end of the fiscal year.

In case of war in Europe, NATO forces would depend heavily on equipment stored in Europe for issue to reinforcing units flown from the United States. These stocks of equipment, called POMCUS (prepositioned materiel configured to unit sets), are stored by unit sets rather than by commodity, thus permitting units to obtain their equipment rapidly. During the fiscal year, the Army procured twenty-six large flexible barrier shelters to provide low cost, long term storage of POMCUS stocks. Made of a coated fabric resistant to chemical warfare agents, and supported by an easily erected steel

frame, each shelter contains 20,000 square feet of humidity-controlled warehouse space. The main problem with POMCUS, however, was quantity rather than storage, and the Army continued efforts to increase POMCUS stocks.

A worse problem involved the quantity and condition of prepositioned war reserve (PPWR) material stocks in Europe. These theater war reserves, stored at U.S. Army depots, are designed to provide immediate logistical support to units under attack and to those within the theater preparing to deploy. In congressional testimony, the Supreme Allied Commander, NATO, described these stocks as "most inadequate" and "in a disastrous state." During the fiscal year, the Army revised its regulation dealing with reserve stocks to clarify the responsibilities of the various Army staff agencies and major commands. The annual U.S. Army, Europe, War Reserves Conference met in Heidelberg, Germany, in June 1980 to identify and attempt to resolve issues affecting the ability of U.S. Army, Europe, to sustain itself on the battlefield. In a new program, the Army moved approximately $21 million worth of material from lower priority uses in the United States to prepositioned war material reserve stocks in Europe.

To support worldwide Army operational and contingency plans, the Army maintained forty-three operational projects valued at $812 million and consisting of equipment stored in various locations in the United States and around the world. The purpose of the projects is to satisfy requirements above and beyond the materiel authorizations of the units for which they are designated. Since the condition and the amount of equipment in the projects required improvement, the Department of the Army requested all major commands to address the problem in their next budget submissions.

Fielding of M60A3 tanks to United States Army, Europe, begun in fiscal year 1979, continued during fiscal year 1980. However, late delivery of fire control systems from the production contractor caused a suspension from May to August of the upgrading of tank units with the M60A3. Deployment resumed in September.

To help attain the level of logistical support capability that would be required in war, the Army looks to allied nations. In February 1980 the United States presented host nation support requirements to the Federal Republic of Germany, which agreed to meet them. In addition, the Federal Republic proposed that the U.S. contract with the German aircraft industry for maintenance of Army helicopters in both peace and war. The Army concluded that this action would facilitate a quicker expansion of depot maintenance in the theater in the event of war in Europe, and the passage of the NATO Mutual Support Act increased the possibility of an agreement. Through negotiations, the United States sought other types of expanded host

nation support from Germany, the United Kingdom, Belgium, the Netherlands, and Luxembourg. While negotiations to obtain lines of communication support agreements with Norway, Denmark, and Italy continued, those with Turkey and Greece remained in suspension for political reasons. General support agreements were signed with Norway and Denmark, and discussions on the subject were begun with Italy.

In the Pacific area, the Army took several steps to remedy logistic deficiencies which exist in all versions of operational plans. These actions included prepositioning requisitions for certain critical items at U.S. Army Materiel Development and Readiness Command depots, structuring of ready supply packages in fifteen day increments, and increased prepositioning of war reserve stocks for allied use in the Republic of Korea.

Although President Carter in July 1979 suspended further withdrawal of U.S. forces from the Republic of Korea, withdrawals previously set in motion continued during fiscal year 1980. Through the delivery to the Republic of Korea (ROK) of equipment of withdrawing forces, the U.S. sought to transfer U.S. combat capability to ROK forces. The Office of the Deputy Chief of Staff for Logistics took steps to ensure that deliveries did not include surplus or reserve equipment. With the exception of two major units, all scheduled U.S. Army equipment transfers were completed in 1980.

Security Assistance

The Army continued its role in security assistance programs designed to enable allied and friendly nations to acquire and maintain the means of defending themselves. During the year, the Army participated with other federal agencies in a security assistance policy review begun by the new Under Secretary of State for Security Assistance, Science, and Technology. Army representatives sought funds for a special contingency stockpile of military equipment to meet urgent needs of friendly countries in order to minimize the withdrawal of Army inventories or the diversion of Army production for this purpose. In addition, the Army revised its policies on security assistance transfers and support of tanks and the Nike-Hercules air defense system. The Secretary of the Army advised the Secretary of Defense that for protection of Army readiness, the possibility of meeting security assistance needs by buying back Army tanks previously sold abroad should be explored.

Four programs comprised Army security assistance for the fiscal year. The military assistance program provided defense articles and

services to Portugal, Spain, the Philippines, and Jordan on a grant basis. Grant aid, which has been declining steadily in recent times, has been at the following levels, in millions of dollars, for the past three fiscal years:

Fiscal Year	
1978	170.0 (7 countries)
1979	157.0 (5 countries)
1980	40.0 (4 countries)

Under the international military education and training program, military and civilian personnel of forty-eight countries received instruction. Investment in this program for fiscal year 1980 was $13.4 million, a substantial decrease from the previous fiscal year's figure of $23.9 million. Cumulative outstanding foreign military sales of U.S. defense articles, services, and training—by far the largest security assistance program—totalled $40.8 billion at the end of fiscal year 1980, of which $16.4 billion had been delivered by the end of the period. The foreign military sales financing program provided credit and loan repayment guarantees to thirty-one countries in the amount of $1.45 billion, of which $500 million was allocated to Israel.

Interest in security assistance coproduction projects remained high among foreign governments seeking to achieve self-sufficiency, modernize forces, and capitalize on benefits deriving from standardization and interoperability. During the fiscal year, the cumulative value of active, closed, and pending coproduction projects in foreign countries was $5.37 billion, of which $2.49 billion will eventually be returned to the U.S. economy. Besides NATO members, eleven countries participated in the programs.

At the end of the year, security assistance for NATO's two poorest members, Portugal and Turkey, had not resulted in the significant modernization programs needed, indicating that greater efforts would have to be made to bolster the alliance's southern flank. It also became evident that dual production arrangements with NATO members would have to be studied in detail because of their possible impact on the U.S. production base. Long production lead times frustrated modernization efforts even when funds became available.

In the Middle East a $1.1 billion foreign military sales program evolved for Egypt during the year, much of it funded by a $2.05 billion multiyear credit which resulted from the Camp David peace

accords. Major weapons sold included M60A3 tanks, IHawk surface-to-air missile batteries, and M113 armored personnel carriers. The other signatory of the Camp David accords, Israel, bought Dragon, Chaparral, and TOW missiles, and M60 tanks in a foreign military sales program totaling $82.7 million for the fiscal year. The security assistance program for Saudi Arabia continued to be the Army's largest, with a value of $1.5 billion for the year. Major Saudi purchases were of ammunition, spare parts, training, armored personnel carriers, and TOW and Dragon night sights. Cancellation of foreign military sales to Iran in November 1979 left approximately $500 million worth of materiel undelivered.

The Ivory Coast and Gabon were new additions to the security assistance programs in Sub-Saharan Africa, bringing the number of participating countries in that area to twenty-one. Morocco and Tunisia accounted for the largest programs in North Africa.

In the Pacific region, the U.S. expedited equipment deliveries to Thailand, which was plagued with border incidents, incursions, and other threats of hostilities from its neighbors. Aid to Korea included an extensive military sales program, technical cooperation in the development of selected defense industries, and training in relation to U.S. equipment transfer to ROK forces. Although Pakistan rejected a new $400 million security assistance package, foreign military sales to that nation continued. After a year's moratorium on military sales to Taiwan, and the termination of the mutual defense treaty with the island at the end of 1979, sales of selected items were resumed in January 1980.

The United States furnished approximately $2 million in reimbursable supply support to United Nations (UN) peacekeeping forces in Lebanon and in the Golan Heights. Army officials explored with UN headquarters the possibility of speeding UN payment.

Over 7,000 foreign students received military training in the United States and abroad under Army sponsorship. International military education and training grants funded over $9 million worth of this training, while instruction through the foreign military sales program exceeded $33 million in value. In the 1980-81 academic year, fifteen nations participated in the International Fellows Program at the U.S. Army War College. A special facility to provide maintenance training to NATO members for the Nike-Hercules missile system opened at Fort Bliss, Texas, on 29 September 1980. The NATO Nike Training Center operates independently as a NATO maintenence and supply agency under foreign military sales funding.

By the end of the fiscal year, Congress had passed no new authorizing legislation for security assistance. The programs continued into

fiscal year 1981 on the basis of a continuing resolution terminating on 15 December 1980.

Logistics Planning and Management

In January 1980, Department of the Army Pamphlet 701-1, Direction for Army Logistics, was published for worldwide distribution. The Deputy Chief of Staff for Logistics, with the aid of the major Army commands and the Army staff, devised this list of actions aimed at improving logistic readiness and providing a common direction for the entire Army. To further improve logistics, the Deputy Chief of Staff encouraged each major command to develop its own supporting objectives.

Another project initiated by the Deputy Chief of Staff for Logistics was an annual Army logistics assessment. The Army staff was in the process of developing the first assessment at the close of the fiscal year. When completed, the assessment will address what would have to be done logistically in the event of war and how shortfalls can be eliminated. To facilitate action on the assessment, its findings will be incorporated in the planning, programming, and budget system.

A key logistical effort in the improvement of Army readiness was the upgrading of the equipment of the 24th Infantry Division, part of the Rapid Deployment Force. The Department of the Army amended its priorities to ensure that the 24th Division received items in short supply; many of these items were withdrawn from other units. The division's upgrading was completed by October 1980.

On 15 January 1980, the Army implemented a revised Missile Materiel Readiness Reporting System. Eighteen months in development, the new system describes the monthly status of selected missile systems. The comprehensiveness of the new reports permits the elimination of several older reports and saves time for those doing the reporting.

To help achieve maximum effectiveness in operations at the local command level, the Department of Defense maintains the Defense Retail Interservice Support program, which has grown steadily over the past decade. In fiscal year 1980 the Army provided more than $130 million and 1,750 man-years of support to other military services and defense agencies. In separate agreements, the Army received $100 million and 1,300 man-years of support from other services and agencies. A major attempt to enlarge the rate of growth of the program has met thus far with only marginal success, however. The sixty-seven geographic Joint Interservice Resource Study Groups have made generally limited progress, primarily because of manpower shortages within the groups. Full implementation of recommenda-

tions of an Army Logistics Evaluation Agency study of the program, originally projected for fiscal year 1980, is now expected early in calendar year 1981.

As the Single Manager for Conventional Ammunition, the Secretary of the Army during the year oversaw continued improvements in the management of conventional ammunition. The Office of the Secretary of Defense directed all services to make even greater efforts in the program, in view of a 1979 General Accounting Office report titled "Centralized Ammunition Management—A Goal Not Yet Achieved." In response, the Secretary of the Army worked with the other services in developing a revised DOD directive on the conduct of the program. Still in the proposal stage at the end of the fiscal year, the directive includes a provision for a program executive director at the Army Materiel Development and Readiness Command. An additional $10 million that Congress appropriated for the single manager program budget will aid in the program's upgrading.

The Army Troop Support and Aviation Materiel Readiness Command hosted the annual Worldwide Aviation Logistics Conference in St. Louis, Missouri, from 12 to 16 May 1980. Conferees established or reviewed depot maintenance programs and distribution schedules for Army aircraft, avionics, armament subsystems, ground support equipment, and aircraft survivability systems. They also addressed the logistics requirements, problems, and actions of aviation commands and agencies. In July 1980 the conference's distribution plan was published and released to all major Army commands.

In the field of materiel management and accountability, the Department of the Army Property Accountability Task Force implemented the last two of eighteen recommendations for improvement made by the Army Inspector General in August 1977. When the Task Force's charter expired at the end of March 1980, its remaining missions, dealing with six Army materiel management regulations, were absorbed by the Supply Policy Division of ODCSLOG.

Purchase of five-ton trucks in numbers inadequate for the Army's requirements necessitated the preparation by the Tank Automotive Materiel Readiness Command of a plan for the distribution of available five-ton trucks. The study, reflecting recommendations from ODCSLOG, placed top priority on providing supporting transport for newly fielded weapons, communications systems, and other items of modernization. The needs of forward deployed forces would be met, the study indicated, to the extent that vehicles were available.

Every combat service support unit has a number of items of equipment that are essential to the accomplishment of its primary mission.

To keep closer track of such "pacing" items, the Army directed selected units to prepare special reports on them.

In another equipment monitoring effort, ODCSLOG developed an automated loans report. The aim of the report is better management of the approximately $83 million worth of equipment on temporary loan within the major Army commands.

The effectiveness of equipment depends ultimately on the skills of those using it, a fact that lay behind sustained efforts by ODCSLOG to revitalize the Noncommissioned Officer Logistics Program. This emphasis resulted in the upgrading of logistics NCO positions and an increase in the number of logistics military occupational specialties. A special study of Army aircraft repair and aircraft component repair military occupational specialties, sponsored by the DCSLOG, recommended a number of changes directed at securing, thoroughly training, and retaining high quality personnel. With respect to officer training, ODCSLOG thwarted an attempt at the Command and General Staff College to increase quotas for combat arms officers at the expense of combat service support officers.

Logistics Systems

Because of the Army's failure to rapidly return reparable and recoverable items of equipment to users, the Office of the Secretary of Defense has cut back Army funds for reparables management. The Army is therefore developing a computer system—cumbersomely titled the Logistic Intelligence File Retrograde Intransit Visibility System—to follow the movement of reparable items from the field to depots in the United States and develop information to help field commanders manage their own reparables return programs. In September 1980 the DARCOM completed a data base for the new system, paving the way for the creation of reports giving an installation-by-installation breakdown of turn-in and requisitioning rates for critical reparable items.

Also, development has been continuing on the Standard Army Ammunition System, an automated stock accounting and control system for ammunition and small guided missiles and rockets. With the progress made during fiscal year 1980 in design and programming, the Army expects the system to be field tested at the corps level in fiscal year 1982.

Already in use, and approved during the year by the Assistant Secretary of the Army (Installations, Logistics, and Financial Management) for worldwide extension, is the Standard Army Intermediate Level Supply Subsystem-Expanded. A more comprehensive

version of the Army's standard automated supply management system for all supply classes except ammunition, subsistence, and bulk petroleum products, the system encompasses all stock control and related financial management functions between the wholesale and direct support unit levels. In 1980 the system was extended to fifteen sites worldwide; all four Army corps were converted to it. A study of the automation of wartime functional supply requirements, completed during the year, determined that because of its technical design, the system could not accommodate the expanded volume of transactions expected during war. The Army will therefore develop a new wartime system for use at the corps level in a theater of operations.

Increasing logistical requirements stemming from modernization of the Army's forces, coupled with dwindling personnel resources, make mandatory a continued upgrading of automatic data processing equipment. Obsolete NCR computers used at the first level of supply support are being replaced by new van-mounted Honeywell minicomputers, known as the Decentralized Automatic Service Support System (DAS_3). By the end of the fiscal year, fourteen sets had been delivered, and production approval had been given to the contractor for an additional seventy-one units. The installation of IBM 370 series computers to replace IBM 360 series machines used at the second, or corps, level of supply support was completed. The changeovers at the corps level reduced processing time and significantly improved data processing capabilities.

Also extended during the year was the Direct Support System, the Army's standard supply distribution system since December 1974. Through the system, supply support activities in the United States and overseas receive direct delivery of materiel from DARCOM depots. In 1980, U.S. Army Reserve support units in fourteen states became users of the Direct Support System.

In an attempt to make greater use of materiel declared excess in U.S. Army, Europe, processing procedures in the Defense European and Pacific Redistribution Agency were revised in July 1980. Now a longer, more detailed search is made for new requisitions for excess items.

Finding that stock levels in installation warehouses were too high, U.S. Army Forces Command suggested that the mandatory level of three years be reduced. A test begun in March 1980 at Fort Riley, Kansas, and Fort Carson, Colorado, confirmed the need for a reduction, and the Department of the Army lowered the level to one year for both authorized stockage list and nonstockage list items (excluding reparables). The new level will be phased in gradually to keep

the wholesale supply system from being inundated with materiel that might be declared surplus.

A revised Army Regulation 95-33, Army Aircraft Inventory, Status, and Flying Time, was implemented in 1980. The regulation altered aircraft readiness goals and introduced new terminology: aircraft that can perform their primary missions are reported as full mission capable; aircraft that can perform some but not all of their primary missions are reported as partial mission capable; and aircraft that cannot perform any of their primary missions because of maintenance and supply difficulties are reported as not mission capable. This system gives a more accurate description of aircraft readiness and of the areas that require management controls.

Also published and implemented during the year was Department of the Army Pamphlet 710-1, Aviation Intensive Management Item Program. Aviation items that are critical by virtue of overhaul costs or source of supply fall under this program. To facilitate the distribution of these items, all major Army commands negotiate their requirements with commodity managers in a semiannual conference.

After a moratorium of more than two years, caused by budget constraints and a property accountability study, the Army resumed development of the Standard Property Book System. Designed to operate through new automatic data processing equipment at installation, division, corps, and separate brigade levels, the new system is intended to reduce manual effort and improve the accuracy and timeliness of worldwide asset files. It will replace the Division Logistics System property book system currently in use.

During the year, the Assistant Secretary of the Army (Installations, Logistics, and Financial Management) approved for development two additional logistics systems. The Automated Central Issue Facility System will be aimed at providing total accountability for the temporary loan, receipt, issue, turn-in, inspection, exchange, and stockage of organizational clothing and individual equipment. In support of installation self service supply centers and tables of distribution and allowance maintenance shop supply facilities, the Automated Retail Outlet System will automate routine supply functions and provide data for financial accounting.

Worldwide implementation of the Total Army Equipment Distribution Program neared completion toward the end of the fiscal year. The program provides a phased schedule for the introduction of new equipment into Army units; it projects distribution over a longer period than did the formerly used system and it correlates better the information needed for budget planning and long term planning for the Army's program objective memorandum.

In April 1980 the U.S. Army Logistics Evaluation Agency completed a study of logistics systems management in the Army. The study was the result of a January 1979 manpower survey of ODCSLOG recommending that the DCSLOG establish a single functional manager for retail logistics systems and transfer logistics system operational functions from the Army staff. The study recommended that the DCSLOG create a new field operating agency subordinate to his office to control both functional and technical aspects of the retail logistics standard Army management information system. A majority of the Army staff and major Army commands who were consulted on the proposal disagreed with it. The DCSLOG then changed the recommendation so as to establish, instead, the same type of control within TRADOC. After four Army staff agencies disagreed with this alternate proposal, the Deputy Chief of Staff informed the Army Management Director that he saw no acceptable alternative to the present setup. A subsequent internal review of the DCSLOG found that all functions performed by the office's Logistics Systems Division are appropriate for the Army staff according to the provisions of Army Regulation 18-1, Management Information Systems: Policies, Objectives, Procedures, and Responsibilities. The matter had not been resolved by the end of the fiscal year.

Materiel Maintenance

Advances in technology within the past decade, reflected in Army equipment, have seriously challenged the Army maintenance community. During the past three years, various agencies have audited, surveyed, and evaluated Army maintenance management, and all have found a need for improvement. In February 1979, the Army Chief of Staff approved a Maintenance Management Improvement Program developed by the Army staff and major Army commands. The program seeks to focus command attention on maintenance; improve personnel management; strengthen maintenance training; streamline maintenance operations; and improve publications, tools, and repair parts support. For example, service school courses have been modified to make them more relevant to fielded equipment; maintenance publications have been modified, reducing narrative to simplified terms and expanding the use of pictorials and graphics; short "How To" booklets have been published; and articles reinforcing the program have been printed in *Army Logistician* and *Soldiers* magazines.

As inflationary trends continued during 1980, the Army pressed its search for ways to economize while still meeting its goals. In 1979 the Deputy Chief of Staff for Logistics proposed that where feasible,

the Army procure lower cost unwarrantied equipment; the Assistant Secretary of the Army (Research, Development and Acquisition) approved this policy. During 1980, ODCSLOG and DARCOM worked at drafting an Army regulation that will include this policy change, stress more strict compliance by manufacturers with warranties, and consolidate all Army warranty policies.

Changes in the Maintenance Reporting and Management System were developed, field tested, and approved during the year. The major change in the system, which operates in all active Army divisions and many nondivisional maintenance units, is a monthly report to the Materiel Readiness Support Activity providing data on all completed maintenance jobs.

Development of the important Standard Army Maintenance System continued. When completed, this system will be the first Armywide, standardized, automated maintenance management system. Its goals are to enable direct support and general support maintenance activities to operate autonomously, to satisfy the immediate information needs of the maintenance operations manager, and to provide the trend data that are essential throughout the retail and wholesale maintenance levels.

Planning continued for implementation of restructured general support in the corps and communication zone. Approved by the Vice Chief of Staff in May 1979, restructured general support calls for commodity-oriented companies which make up composite battalions. Each commodity company will specialize in support of infantry, wheeled vehicles, combat vehicles, communications and electronics, aviation, or missiles.

To provide on-the-spot assistance and instruction to maintenance personnel in the field, and to furnish commanders with information concerning the overall readiness of their units, the Army conducts the Maintenance Assistance and Instruction Team Program. Decentrally operated, the teams are established at installation, readiness group, or comparable levels in CONUS, and at corps, division, separate brigade, or comparable levels in oversea areas. A revised Army Regulation 750-51 published in May 1980 strengthened the program by mandating corrective action and follow-up procedures within thirty days of team visits. Information derived from the visits, showing trends, common faults, and recurring problems, is disseminated without revealing the identification of units involved.

Using sampling techniques, the Army collects field maintenance and performance data on selected items of equipment for a specified period of time. This Sample Data Collection Program reduces the data recording and collection burden on field units, and makes available a manageable volume of information to the wholesale equip-

ment developer. In 1980 the number of sample data collection plans increased to seventeen. The program was extended to selected overseas areas, which should enhance the reliability of the data.

At the beginning of the fiscal year, changes in the Army's test, measurement, and diagnostic equipment support system were instituted in Europe. Levels A and C calibration were merged, calibration and repair functions were combined, and Armywide command and control of test, measurement, and diagnostic equipment support was placed under DARCOM. Plans for implementation of these changes in the Pacific were in the final stages of preparation at the end of the year.

The success of the Army's three-year-old "War on Battery Waste" program prompted a similar campaign titled "War on Tire Waste." A detailed study of tire management, with emphasis on the development of cost effective and efficient procedures, was completed in June 1980. Recommendations of the study report in the areas of depot storage levels, proliferation of national stock numbers for tires, and tire retread costs received top priority for implementation.

Study of the equipment recovery and evacuation capabilities of the current Army division continued in 1980. Army doctrine is to maintain and repair equipment in forward areas, returning it quickly to the battlefield. When equipment cannot be returned in operable condition within the time prescribed by the using commander, it must be recovered and evacuated to a rear area for repair. The study is developing recommendations for changes in doctrine to meet future battlefield requirements.

Increased requirements in recent years for equipment transfer to prepositioned stocks brought to light the need to develop equipment serviceability standards. A Department of the Army conference considered this question in October 1978 and directed DARCOM to write a technical manual giving serviceability standards for the transfer of equipment between units. The manual was drafted and reviewed in 1979. Based upon information received from the field, a Department of the Army message was dispatched in November 1979 outlining equipment serviceability standards for transferring items of equipment. That was followed in June 1980 by guidance on tube life serviceability criteria for material selected for POMCUS stocks. Subsequently, a Department of the Army meeting was held which developed policy for maintenance and transfer of equipment which should be published sometime in fiscal year 1981. The Department of the Army Inspector General, Command Logistics Readiness Teams, and Maintenance Assistance and Instruction Teams are monitoring execution of the policy.

When equipment wears out, it is released to property disposal of-

fices. During the fiscal year, the Army discovered that worn out UH-1 helicopter rotor blades were being processed through the Department of Defense disposal system and offered for sale to the Army and other customers as usable items. The Army therefore ordered the mutilation of all rotor blades earmarked for disposal. However, the Defense Logistics Agency recommended mutilation only for those blades which have exceeded their normal operating life in terms of operating hours, or have been condemned for other reasons. The Army responded that record keeping of blade condition is not sufficient to guarantee that an unsafe blade will not find its way into the market through the property disposal system. As a solution, the Office of the Secretary of Defense agreed to the mutilation of all blades scheduled for disposal until the end of fiscal year 1981, by which time the Army is to substitute for mutilation a system of record keeping and blade marking. Helicopter blades are only one of a number of finite life aviation items; others, such as gears and bearing assemblies, present even more complex and difficult problems of control.

The end of the fiscal year saw the near completion of the Army's conversion to three level aviation maintenance. Under this concept, the levels are aviation unit maintenance, which replaces organizational maintenance and includes limited direct support maintenance; aviation intermediate maintenance, which includes the remaining direct support maintenance functions and limited general support; and depot maintenance. Though all Army divisions have been completely converted, there still exist some equipment shortages. Nondivisional conversion to three level maintenance was still in progress at the end of the year.

In March 1978, the Deputy Chief of Staff for Logistics, in conjunction with the U.S. Army Troop Support and Aviation Materiel Readiness Command (TSARCOM), initiated a Reliability Centered Maintenance Program for aircraft engines and components at Corpus Christi Army Depot. The program was designed to reduce field returns and overhaul of engines, beginning with the T53-L-13B which is used in UH-1 and some AH-1 helicopters. By 1980, unnecessary returns of the T53 engine had been reduced over 16 percent; 647 engine problems had been solved in the field, either by hotline phone at the depot or by visiting depot teams; and more than $12 million had been saved. Under the program, the minimum requirements for time between overhauls was removed, and T53 engines are returned to the depot for maintenance as necessary.

Upon discovery of an aircraft equipment malfunction, the U.S. Army Safety Center or the U.S. Army Troop Support and Aviation Materiel Readiness Command, after coordination with the Aviation

Logistics Office in ODCSLOG, can issue a message prohibiting takeoff for a specified period during which the malfunction is to be corrected. Major commands receiving such messages are required to retransmit them and confirm retransmission. Message content is standardized, with a numbering sequence for each aircraft by mission, design, and series. This new safety-of-flight message procedure, which assigns clear lines of authority and responsibility, was established in revised Army Regulation 95-18 published on 1 May 1980.

The Deputy Chief of Staff for Logistics is the proponent of a study to determine the best method of deploying to Europe and maintaining aviation equipment belonging to units in the United States that would provide early reinforcement in the event of war. Launched in 1980, the study is an attack on the problem of deploying aviation units rapidly to USAREUR, without extensive sealift or airlift. Kaiserslautern and Pirmasens in the Federal Republic of Germany are being evaluated as possible locations for equipment deployment.

In September 1979, four National Guard Transportation Aircraft Repair Shops were converted to Aviation Classification Repair Activity Depots as the result of discussions between the National Guard Bureau and DARCOM. In case of contingency operations or mobilization, the four units and the National Guard Aviation Logistics Office would cooperate with DARCOM in repair diagnosis and classification, and limited depot repair. The units would serve as terminal points for closed loop support. Plans call for establishment of two European sites to receive two of the units in an emergency, with the third unit in reserve and the fourth supplementing DARCOM aviation depot maintenance as needed. Two possible sites were discussed during the year with USAREUR: Coleman Barracks outside of Mannheim, Germany, and Burtonwood Army Depot in England.

Despite efforts at improvement in the maintenance area, the backlog of maintenance and repair continued to be a major problem for the Army. Due to the lack of resources in past fiscal years, the soaring inflation rate, and the rapid deterioration of aging facilities, the backlog has grown, and is expected to continue to grow, at a rapid and increasingly unmanageable rate. The Army's past difficulties in controlling the backlog has raised questions about the efficiency of management efforts. In 1979 the General Accounting Office completed the first phase of a review of the problem throughout the Department of Defense. The subsequent report offered no firm recommendations for a new approach to the problem. The draft of the second phase report, done in 1980, in general recognizes that a lack of sufficient funds is the prime factor in the backlog's increase. At the request of the Vice Chief of Staff, Army, the Army Audit

Agency began, toward the end of the fiscal year, a detailed examination of the Army backlog.

Supply Management and Depot Operations

Much of the material that flows through the Army depot system is financed by the Army Stock Fund, a revolving fund established to finance inventories of supplies and other stores and to provide working capital for industrial-type activities. The fund is replenished through annual appropriations incorporated in the Army's budget. Stock fund obligations for fiscal year 1980 totaled $4.9 billion in support of $4.5 billion in net sales. This performance was still within the acceptable variation from the annual program.

In the procurement appropriation, the Army was authorized to obligate approximately $478 million for secondary items, compared to $315 million obligated in the previous fiscal year. The increase of $163 million is attributable to support of new weapons systems which were fielded as part of the program to modernize the Army.

Of the 1980 operation and maintenance appropriation of $11 billion, some $3.6 billion, or 33 percent, was allocated to central supply and depot maintenance activities. These two areas provide for the receipt, storage, issue, and transportation of supplies and equipment worldwide; the maintenance of an industrial base; and maintenance of supplies and equipment. The year was characterized by dynamic cost increases resulting in a budget supplemental of $67 million and a later amendment of $79 million for central supply and depot maintenance activities. The Army Industrial Fund received $41 million of the supplemental and $29 million of the amendment to prevent an unprogrammed operating loss. Through a reprogramming action, $45.8 million additional was gained to support second destination transportation and ammunition storage. The Army goal of eliminating the maintenance backlog of combat vehicles was achieved during the year.

Working capital for the Army Industrial Fund, acquired initially through congressional appropriation, is sustained on an annual basis by customer reimbursements for goods and services furnished. Typical activities financed under the fund are ordnance plants, depot supply and maintenance activities, and research and development activities. The total obligation authority for the fund in the fiscal year was $2.3 billion. Also, the Office of the Secretary of Defense provided "pass through" funding of $70.25 million to reimburse the fund for inflationary costs not included in the stabilized billing rates. Special emphasis was placed in 1980 on the reduction of overhead costs in fund operations.

During the year, the Office of the Secretary of Defense administratively divided the Army's operation and maintenance budget for base operations into two subprograms. The portion under the Deputy Chief of Staff for Logistics provides the funds and manpower for all base support functions other than purchased utilities, maintenance and repair of real property, minor construction, and other engineer support. These specific accounts are administered by the Office, Chief of Engineers. At $1.6 billion, the DCSLOG's subprogram represented 14.5 percent of the Army's operation and maintenance appropriation, and provided support for 324 installations in the United States and overseas. The Office of the Secretary of Defense also established three additional subprograms to reflect the support provided to the Military District of Washington, the U.S. Army Communications Command, and the U.S. Army Intelligence Command.

Development of two supply management improvement programs, begun in previous years, continued in 1980. One, to increase the availability of repair parts, includes such goals as increasing the number of items returned from the field for depot repair, decreasing repair cycle time, simplifying manual procedures, and making better use of automated resources. The other seeks to minimize the costs of retail inventory stockage for direct support and general support units and installations in CONUS, in addition to limiting to one the echelons between the consumer and the wholesale level.

The management of consumable items that are directly related to weapons systems and selected commodity integrated materiel management items are the responsibility of the individual military services. All other consumables are managed by the Defense Logistics Agency. In December 1978, the Defense Logistics Analysis Office proposed that the Defense Logistics Agency take the responsibility for all consumable items. When the military services expressed their opposition to this change, the Office of the Secretary of Defense in April 1979 directed the Defense Audit Service to review the matter. The Audit Service's report of 29 May 1980 supported the transfer proposal. The Deputy Secretary of Defense, with whom decision on the question lies, requested that the service secretaries comment on his proposed approval of the transfer, and in June 1980 the Army transmitted its views to him. Among the Army's major concerns was the probable impact of the fragmentation of management responsibilities that would result from the transfer. Weapons system management places strong reliance on the interdependence of supply, maintenance, engineering, product quality assurance, procurement, and production. Clear lines of responsibility link logistics assistance officers in the field to field maintenance technicians and field commanders, and provide responsive support for purposes of troop

readiness and reaction to crises. The Army believed that the effect of the proposed transfer of management responsibilities on this support would be adverse. In addition, the Army expressed its concern over the unknown capability of the Defense Logistics Agency to furnish materiel to meet mobilization requirements. By the end of the fiscal year, the Deputy Secretary of Defense had not made a decision in the matter.

Transportation

In the past, United States deployment planning for war focused on reinforcing units in the theater by airlift until the first ships arrived. However, a projected lack of sufficient airlift capability in the early days of a conflict has necessitated changes in Army and Navy plans which assumed that sea deployment would not begin until at least ten days after mobilization. The Deputy Chief of Staff for Logistics therefore made an analysis of the problem, seeking to identify procedures in the movements system that could be streamlined to speed deployment by ship. The study identified a number of corrective actions which were in the process of being carried out at the end of the year.

As a result of a Department of Defense directive, the Joint Chiefs of Staff directed the commanders in chief and the Commander of the Rapid Deployment Task Force to identify specific requirements for an over-the-shore logistics capability, expressed in short tons per day for containerized and break bulk cargo. Based on these requirements, the Army will determine whether the capability to support them exists; if it does not, the Army will identify the necessary equipment and force structure requirements by type, quantity, and cost, and seek appropriate funding for them.

The Army began procurement of the Tactical Marine Terminal—a ship-to-shore petroleum delivery, storage, and dispensing system capable of storing 50,000 barrels of fuel—in 1965 as part of the buildup for Vietnam. By the time it received the terminal, the Army had already constructed permanent port facilities in Vietnam. Except for onshore collapsible tanks sent to the war zone, the terminal went into storage at Sharpe Army Depot in California. In 1977 a study of petroleum logistics at the Quartermaster School, Fort Lee, Virginia, identified a deficiency in Army contingency planning: the Army lacked the ability to distribute bulk petroleum in an undeveloped theater without port facilities, such as Africa, the Middle East, or Southeast Asia. The Tactical Marine Terminal promised to satisfy this need, and, during February and March of 1979, the Army Energy Office shipped it from Sharpe Army Depot to

Fort Story, Virginia, where it was used in exercises conducted to improve the proficiency of both the pipeline and terminal operating company and the port construction company. The training uncovered many equipment deficiencies and other problems. For example, the new collapsible tanks procured to replace those sent to Vietnam had four-inch outlets while the pipe system was six inch. The Army is correcting these problems and preparing plans to modernize and expand the terminal's capacity so that it can accommodate the latest supertankers.

In the area of transportation container use, the Army in fiscal year 1980 shipped 67 percent of its general cargo in containers, compared to 63 percent in fiscal year 1979. The number of general cargo containers used increased from 12,000 to 12,800. Similarly, the number of ammunition containers used rose from 1,767 (23,175 short tons) to 1,990 (29,214 short tons). Twenty ship sailings were involved in the shipment of this containerized ammunition to Europe.

To provide logistical and financial information on the movement of Army-sponsored cargo and passengers within the Defense Transportation System network, and to forecast and budget short and long range airlift and sealift requirements, the Army uses the Automated Mechanization of Selected Transportation Movements Reports system. Some of the data for fiscal year 1980 developed through the system are as follows: 3,205,000 measurement tons of cargo were transported—2,562,700 from CONUS, 501,600 to CONUS, and 140,700 within and between overseas theaters. Passengers airlifted numbered 418,400 worldwide. The transfer of the system to its present computer facility in 1978 did not include accompanying descriptions and narration for the seventy-five programs that encompass the system, resulting in maintenance difficulties. Therefore the Army is developing a plan to evaluate and redesign the system.

The development of other transportation systems advanced during the year. Work continued on the Department of the Army Standard Port System-Enhanced, and upgrading of the original system to correct hardware obsolescence, operational inefficiency, and the lack of wartime and backup capability. Progress was made in the development of the Department of the Army Movements Management System Cargo Movement Module and Movement Planning Module. The first or intertheater phase of the Cargo Movements Module was implemented in USAREUR during the first quarter of the fiscal year. Development of the Freight Movement Control System also continued. Through the computerization of historical data, rates, routes, and rules, this system is expected to speed rating and routing as well as aid the negotiation of lower transportation charges.

In accordance with concern expressed by Congress, the Ad Hoc Work Group in the Office of the Secretary of Defense developed a reporting requirement for operational support aircraft (formerly administrative support aircraft). The new reporting procedure is expected to be implemented in the next fiscal year.

Decreased funding allowed the purchase of fewer replacement vehicles for the administrative use vehicle fleet, which is declining in quality as it accumulates mileage. This reduced procurement made it necessary to lease some vehicles to make up for the shortage. The Office of the Deputy Chief of Staff for Logistics, pointing out that the average vehicles retained in the fleet are less fuel efficient and more costly to maintain than the vehicles that would replace them, sought both increased procurement funding and improved fleet management.

Facilities, Construction, and Real Property

The Production Base Support Program provides the construction necessary for the development, maintenance, and retention of an efficient defense industrial base. In 1980, $189 million in projects was placed under contract, and design continued on projects valued at approximately $300 million. At the Mississippi Army Ammunition Plant in Bay St. Louis, the nation's newest munitions manufacturing facility, the construction contracts for the load, assembly, and pack-out facilities and the mechanical plant were awarded in May and September 1980, respectively. The $400 million plant will collocate the manufacture of metal parts and the loading, assembling, and packing of 155-mm. improved conventional artillery munitions.

The $727 million Military Construction, Army program for fiscal year 1980 emphasized improved force readiness and included $222 million for operations, training, maintenance, supply, and storage facilities; $10 million for facilities to accommodate force relocations; and approximately $114 million for USAREUR. About 22 percent of the military construction budget was for quality of life projects such as barracks, dining, medical, dental, and community support facilities.

In the Military Construction, Army Reserve, program, construction contracts for twenty-two projects totaling $30 million were awarded and construction was completed on projects costing $38.5 million. This program provides for the design and construction of a variety of facilities in support of the Army Reserve's training requirements and mobilization mission.

In its role as construction agent for other components of the Department of Defense, the Army, through the Corps of Engineers,

handled an Air Force program totaling $411 million. Of this amount, $386 million was forecast for award and $213 million actually awarded. While a portion of the shortfall was attributed to criteria changes, redesign, funding delays, and inadequate funding, the major cause was a reprogramming resulting in the deferment of fiscal year 1980 projects worth $145 million. The $145 million was subsequently used to award the fiscal year 1979 Space Transportation System launch complex at Vandenberg Air Force Base, California. Taking into account the $145 million in deferred projects, total execution for the fiscal year 1980 programs was $358 million, or 93 percent of the forecast and 87 percent of the total program.

The Corps of Engineers became deeply involved with the Air Force in planning for MX missile deployment construction. Corps efforts were directed primarily toward developing an organization to manage the program, selecting architects and engineers, and providing technical support in environmental impact statement preparation, real estate actions, and planning for life support in the construction area.

For the Navy, the Corps of Engineers did construction valued at $4.43 million at sites in Greece, Italy, Egypt, Japan, and the United States. The Corps also awarded six contracts covering $16.79 million in an extensive program for the Department of Defense Dependent Schools. Design and construction work for the Defense Nuclear Agency, the Defense Logistics Agency, the Defense Mapping Agency, and the National Security Agency totaled $27.34 million.

Six foreign governments received support from the Corps during the fiscal year. With Saudi Arabia, construction contracts with a total value of $911.0 million were completed; construction contracts with a total programmed amount of $2.6 billion were awarded; and numerous design contracts and modifications thereto with a value of $16.1 million were awarded. The U.S. Government approved foreign military sales cases totaling $1.7 billion and withdrew cases worth $0.86 billion, for a net increase of $0.9 billion. In addition, the Corps began design of the $65 million U.S. Geological Survey Mission in Saudi Arabia, which is funded by the United States. In Israel, two design and construction contracts and a management support contract were awarded for two air bases in the Negev Desert. At year's end, construction of the two facilities was approximately 13 percent complete with the United States funding $800 million of the estimated cost of $1.04 billion. The Jordanian Armed Forces in March 1980 awarded a contract for approximately $38 million to construct an armor rebuild factory. For this project the Corps of Engineers is providing construction supervision and inspection services for $2.75 million and is procuring equipment for $9.27 million,

with delivery to begin in fiscal year 1981. The Corps began work on two programs in Egypt: a development plan for an air base to be located at Ras Banas, and, under an Air Force foreign military sales case, the designs for various facilities to support F-16 aircraft at An Shas Air Force Base. During the year, the Corps was designated the design and construction agent for several sites in Oman to support the Rapid Deployment Joint Task Force. The year also saw the completion of two Corps projects for the Federal Republic of Germany: a $100,000 flammable materials storage area at the nation's cargo facility at Dulles International Airport near Washington, D.C., and a reinforced concrete bridge section which will provide standards for German military applications of bridge destruction.

An increasing Soviet presence, continued political instability, and concern over the protection of Western oil supplies prompted the Army staff to develop plans for the construction of staging and supply storage facilities for possible Army operations in the Persian Gulf region. In conjunction with the Joint staff, the Army staff surveyed a number of potential sites for such facilities, designating two as meeting the basic requirements. Construction at either site is dependent upon the successful completion of negotiations with the intended host nations.

In 1968 the General Accounting Office recommended that the Secretary of Defense conduct studies in areas having a large concentration of military installations to determine the feasibility of consolidating real property maintenance activities under a single manager. The initial resulting studies emphasized functional consolidation through the use of interservice support agreements. Since 1973, however, the emphasis has shifted to analyzing the feasibility of total organizational consolidation under the designated lead service in each area. As lead service for the Panama Canal Zone, the Army early in fiscal year 1980 completed a study recommending that real property maintenance activities in the Canal Zone be consolidated under the Army, and that a revolving fund be set up for reimbursement of the Army by the other services.

On a broader scale, the Panama Canal Treaty made necessary the development of a Regional Complex Master Plan to determine the most cost effective U.S. base structure there over the life of the treaty. Work on the plan continued during the year, with its completion due in 1981.

Late in 1978, the Army Chief of Staff requested the Chief of Engineers to develop a plan for the centralizaton of real property maintenance throughout CONUS. A committee convened by the Chief of Engineers subsequently presented a plan to the Vice Chief of Staff in September 1979. Although the Vice Chief of Staff did not ap-

prove the plan for national implementation, he directed that a test of it be performed in the National Capital Region. As developed jointly by the Chief of Engineers and the Commander of the Military District of Washington, and approved by the Vice Chief of Staff in December 1979, the test plan calls for the formation of a U.S. Army Engineer Activity, Capital Area. The director of this new field operating agency will be responsible for providing all real property maintenance activities for Army installations in the National Capital Region, plus the Defense Mapping Agency's Hydrographic/Topographic Center. Installations will continue to program and budget for these activities through their major Army commands, but will purchase them through a revolving fund. Representatives of the Corps of Engineers, the Military District of Washington, and the affected installations began planning in January 1980 for implementation of the test setup.

The Army published and distributed a new tri-service technical manual, TM 5-803-7, Airfield and Heliport Planning Criteria. Salient points in the manual include standardization where possible, updating of facilities to accommodate newly acquired aircraft, and the promulgation of Class "A" and Class "B" runways with their attendant criteria, such as new lateral clearances. Army TM 5-803-4, Planning of Army Aviation Facilities, is being revised to reflect the criteria in TM 5-803-7.

To support Army installation master planning and construction programming, the Corps of Engineers distributed $4.28 million in nonreimbursable funds to its Engineer districts. Despite a midyear budgetary reduction, sixty-nine active installations and five reserve installations in the United States, and installations in Europe and Korea, received funds.

As the executive agent for the Department of Defense Recruiting Facilities Program, the Corps of Engineers in 1980 took 2,340 separate actions involving the establishment of new offices and the relocation, expansion, and upgrading of existing ones. As of the end of the fiscal year, there were approximately 7,170 recruiting offices for the four services. In September 1979 the General Services Administration, which had had responsibility for approximately 75 percent of the Recruiting Facilities Program, reclassified recruiting offices from general purpose to special purpose space and delegated five year leasing authority to the Corps of Engineers. This change allowed the Corps to have almost total control of the program for the first time.

At the close of the fiscal year, the Department of the Army controlled approximately 12,128,917 acres of military land, which with improvements had an acquisition cost of $16.8 billion. During the fiscal year, the General Services Administration disposed of 1,869

acres of Army land and improvements in the United States having an acquisition cost of $7.7 million. In addition, the Army declared excess and reported to the General Services Administration for disposal 84,909 acres and improvements with an acquisition cost of $192.3 million. At the end of 1980, there were 41,702 outstanding grants covering 7.1 million acres of Army (military and civil) and Air Force lands.

The Corps of Engineers continued land acquisition for the Department of Energy's Strategic Petroleum Reserve Program, acquiring during the fiscal year sixty-three tracts encompassing 168 acres, at a cost of $1.75 million. Acquisitions for the program from its beginning through fiscal year 1980 now total 1,095 tracts, with 4,792 acres, at a cost of $88.2 million. Total acreage reflects a reinvestment of 490 acres in fiscal year 1980. The Corps also continued to acquire land for the Department of Interior's Big Thicket National Preserve, Texas, adding 215 tracts containing 2,888 acres at a cost of $4.0 million. Total acquisitions for Big Thicket stood at 1,293 tracts with 78,748 acres, valued at $62.44 million at the end of the year. For the Air Force, the Corps acquired 600 acres of land with improvements, at a cost of $3.8 million, to expand clear zones at thirteen Air Force bases.

The General Services Administration in 1980 conducted real property utilization surveys of twenty-seven Army-controlled properties, and recommended that 3,127 acres of land be declared in excess of the Army's needs. The Army agreed to the disposal of fifty-six acres—thirty-three acres of land and improvements comprising the Mahwah, New Jersey, National Guard Armory, and twenty-three acres of unimproved land at Radford Army Ammunition Plant, Virginia. In addition, the Army agreed to transfer 6,873 acres of Lake Mead Base, Nevada, to the Air Force, and return the remainder of the base, 1,142 acres of public domain lands, to the Department of the Interior.

During the year, the Corps of Engineers expended $3.8 million in relocation assistance payments to 553 applicants displaced by Corps projects.

11. Research, Development, and Acquisition

Planning and Budgeting

During 1980 the Office, Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA), in conjunction with the Office, Deputy Chief of Staff for Operations and Plans (ODCSOPS), continued building the essential elements of a long range RDA planning program. Phase I, mission area analyses, was completed by TRADOC. Science and technology plans compatible with the analyses were developed by the U.S. Army Materiel and Readiness Command in response to ODCSRDA planning guidance. Development of a planning data base was begun by the RDA Information Systems Agency (RDAISA) to support the long range plan. Establishment of the long range RDA planning process should result in early identification of system funding requirements to support the Army of the future and to provide a stable baseline against which constancy of requirements may be measured over a multiyear period.

The initial approved Army research, development, test, and evaluation (RDTE) program for fiscal year 1980 was based on the President's budget. As in the previous fiscal year, it included constraints placed by the Under Secretary of Defense for Research and Engineering (USDRE), who identified certain program elements as being of special interest. Total programs in funding categories 6.1 and 6.2 were designated of USDRE interest in order to maintain the approved dollar levels for these categories. In addition, twenty-six specific programs were identified as being of special interest; funds cannot be shifted from these programs without prior approval from OUSDRE. These included defense research sciences, high energy laser technology, aircraft survivability/EW self-protection system, NAVSTAR global positioning system, major RDTE facilities of DARCOM, IFF (identification, friend or foe) developments, and unattended ground sensors.

Deferrals totalled $406 million. Office of the Secretary of Defense deferrals amounted to $324 million and included BMD (ballistic missile defense) advanced technology, $10.0 million; BMD systems technology, $30.0 million; IFF developments, $3.4 million; advanced scout helicopter, $12.5 million; and tactical data systems interoperability, $4.0 million. Army deferrals based on TRACE (total risk assessing cost estimates) and congressional reprogramming actions totaled another $82 million. Some of the significant program deferrals were command and control $8.7 million; TRACE, $58.6

million; CH-47 modernization, $2.5 million; aircraft EW self-protection equipment, $3.5 million.

The Department of the Army research and development budget, approved by Congress for fiscal year 1980, was $2,855.3 million, a reduction of $102.7 million in the Army's RDTE request of $2,958.0 million. The authorization bill, however, required a fund transfer of $10.1 million from RDTE to OMA (operation and maintenance, Army) as a studies and analysis offset to a congressional reduction in the OMA appropriation. The initial approved RDTE program was, therefore, $2,845.2 million. A supplemental authorization subsequently increased the fiscal year 1980 RDTE budget by $1.2 million to $2,846.4 million. The supplemental was requested as an offset to the rapid escalation of POL (petroleum, oils and lubricants) costs during early fiscal year 1980 and to inflation increases.

The Army's fiscal year 1981 RDTE budget request of $3,504.8 million was submitted to OSD in September 1979. The fiscal year 1981 budget for $3,232.5 million presented to Congress in January 1980 incorporated decisions made during a review by the Office of Management and Budget (OMB) and the Department of Defense. A budget amendment was submitted in March 1980, which added $1,983.0 million to the budget request for a total of $3,234.5 million. The fiscal year 1981 Defense Appropriation Act had not been passed as of 30 September 1980.

Zero base budgeting was the primary method for the formulation of the Army research and development budget which was submitted to OSD/OMB. In addition to the three basic levels of minimum, basic, and enhanced, OSD expanded the budget from five to eight bands, resulting in a more detailed display of RDTE programs. Consoldiated decision package sets (CDPS) were also required. The CDPS provided narrative justifications for funding requested above the minimum level.

The Army continued to use TRACE techniques in estimating cost uncertainties for all major materiel developments. Thirteen systems were identified as having TRACE deferrals totaling $58.6 million in fiscal year 1980, ten in fiscal year 1981, totaling $69.1 million.

Congress appropriated a total of $9.56 million for construction of RDTE facilities in fiscal year 1980. This figure includes funds for the following Army facilities: operational test facility, Ft. Huachuca, Arizona ($330,000); ignition, rheological, and combustion sale, Picatinny Arsenal, N.J. ($1,200,000); addition to radiological facility, Picatinny Arsenal ($1,850,000); addition to high pressure technology lab, Watervliet Arsenal, New York ($440,000); fixed telescope sites, White Sands Missile Range, New Mexico ($1,650,000); temperature and altitude test facility, White Sands

Missile Range ($2,000,000); modernize research support facility, Walter Reed Army Medical Center, Washington, D.C. ($440,000); dynamic environmental test facility, Yuma Proving Ground, Arizona ($1,650,000). In addition, Congress appropriated $2,800,000 for land acquisition at Harry Diamond Laboratory.

The fiscal year 1980 obligation plan for Army procurement appropriations was $7.745 billion. This amount included $6.378 billion for direct Army procurement and $1.367 billion for reimbursable customer sales. The plan included all obligations incurred during fiscal year 1980 from funds appropriated in fiscal year 1978, 1979, and 1980.

Obligations incurred during fiscal year 1980 actually exceeded the plan by $582.4 million (short by $92.8 million for direct and over by $675.2 million for reimbursable). Total obligations of $8.327 billion included $6.285 billion direct and $2.042 billion reimbursable. Successful achievement of the fiscal year 1980 obligation plan resulted from obligating $1.487 billion in September.

Lapsed funds for the expiring fiscal year 1978 program were $101.7 million. The lapse of direct funds, $55.9 million, included $15.3 million for contingent liabilities. The lapse of $45.9 million in reimbursable funds resulted from generated augmentation and modernization due to the supply of government furnished materials, and other reimbursable orders where items sold from stock did not require replacement.

The fiscal year 1981 President's budget submitted to Congress in January 1980 requested $8,698.8 million for Army procurement programs. On 14 April 1980, an amended President's budget was submitted which decreased fiscal year 1981 procurement by $102.8 million. The decrease reflected certain Army reprogramming adjustments and an increase for inflation.

Action by the two authorization committees resulted in a net increase of $388 million in the authorization appropriations. Aircraft procurement, Army was increased by $143 million. Missiles procurement, Army was increased $66 million and weapons and tracked combat vehicles, Army received a $129 million increase.

Science and Technology

The Advanced Concepts Team was redesignated the Advanced Concepts and Technology (ACT) Committee on 15 September 1980. ACT now includes members from ODCSRDA, ODCSOPS, DARCOM, and TRADOC. Significant development efforts started in fiscal year 1980 included initial engineering work towards an antitactical ballistic missile, a novel millimeter wave lens antenna, a cast-to-

exact shape ceramic radial flow gas turbine, the exploitation of heliborne CO^2 lasers as coherent radars, a demonstration of a no tail rotor concept for single blade helicopters, and a high technology fire direction center.

A technology base program development meeting was held by the Research Developments and Acquisition Committee (RDAC) for program objective memorandum 82-86 in February 1980. The purpose of this review was to resolve issues and to establish priorities for programs in 6.1 Research and 6.2 Exploratory Development program funding categories. Technology base funding profiles and single project funding/single program element funding (SPF/SPEF) reports provided the basis for these reviews. Funds were allocated in acordance with user needs as listed in the Science and Technology Objectives Guide and Emphasis was given to the solution of major Army problems.

The Army worked to coordinate and provide emphasis for several technologies with a potential for solving significant problems in fulfilling user requirements. These special "Areas of Emphasis" required multilaboratory involvement in research and development spanning the technology base (6.1 to 6.3A). The areas identified were gun propulsion technology, millimeter wave radiation, mobility and installation energy, microelectronics, fire control, command control communications intelligence system engineering, and chemical warfare and chemical/biological warfare defense. Steering groups were organized to coordinate ongoing work and prepare future plans for research and development in these areas; programs were developed to more effectively divide the labor among the responsible laboratories in order to address important needs and opportunities in these areas. The coordination of these programs has improved use of funds and minimized overlap.

The fiscal year 1980 in-house laboratory independent research (ILIR) review was conducted by members of the Army Science Board (ASB) in mid-October 1979. The annual review covered the future evaluation process, the present process, and discussed the basic thrust of the program. Future reviews will continue to be accomplished by members of the ASB with members of the Department of Army staff providing administrative support and additional information on specific programs as required. The evaluation panel was composed of ASB members in scientific disciplines corresponding to the major research areas of the laboratories taking part in the program.

Thirty-nine laboratories participated in the ILIR program. Based on last year's feedback and guidance to the laboratory directors, twenty-one of the thirty-nine laboratories achieved measurable improvement in their programs. Seven of these laboratories achieved

significant improvement. In almost all cases there was a strong correlation between the performance in the ILIR program and laboratory performance in general. The ASB evaluation noted four significant accomplishments in the ILIR program which would significantly contribute to the research and development mission of the Army laboratories. These accomplishments were in the areas of electrical characterization of pressure synthesized galium arsenide crystals, subaural acoustic signal transmission and processing, filter for missile seeker image processing, and pulse holographic analysis of large structure vibration. In addition, there were five other highly promising projects which, if completed, will also have a major impact on research and development capabilities.

The fiscal year 1980 review continued a major effort to revitalize the ILIR program to provide for bright, new, innovative, high risk projects to increase and retain scientific expertise at Army laboratories while providing substantial scientific benefits to the Army research program.

The first edition of the "Compendium of Field Activities Key Scientific Capabilities" was published in late January 1980. This new publication provides the Army laboratory system, and others, with a document which furnishes information on each laboratory's mission, function, and organization.

The ASB advises the Secretary of the Army and Chief of Staff on research and development directions and programs, system acquisition policies and procedures, and other matters pertaining to science and engineering. The basic missions and policies of the ASB are to provide technical review and management support to major Army programs in critical need of DA attention; to furnish quick reaction technical review and assessment of major program initiatives; to keep the Army alert to new science and technology developments in industry; and to consult on science and technology, Army laboratory performance, and scientific papers.

Ad hoc subgroups and review groups met to review several major programs. One ASB subgroup explored the potential of degrading opposing force capabilities by targeting (e.g., jamming, suppressing, firing on) enemy C3 (command, control, communications). Blast overpressure (physiological) effects of certain weapons systems were reported on by another ad hoc subgroup, which found need for additional basic research on medical criteria, data measurements, actual effects, and test design. Antitactical ballistic missile options were explored, with recommendations that the conventional/chemical threat be validated and that systems studies be initiated. Human issues subgroups met to evaluate management organization charters, to postulate research criteria, and to survey maps and models for im-

provement. Electronic time fuze production decisions were reviewed in light of criticism that phasedown of mechanical time fuze manufacturers might be premature. Vertical lift technology was assessed under ASB auspices by a DOD team, with input from industry providing significant direction for future research and development. The military computer family program was reviewed, with recommendations for standardized hardware, language, and instruction set architecture. A two-day review of high frequency DF (direction finding) programs identified a need for increased development and acquisition. Irradiated food continued as a special project for review; statistical analyses and comment on experiments facilitated the smooth transfer of this program from the Army to the Department of Agriculture. Night vision common module production was reviewed to assess the degree of technical or management problems inherent in transition from engineering prototypes to full scale production. National Training Center instrumentation plans concerning Phase II programs have been examined. Energy needs of the Army focused on options to reduce both facilities consumption (83 percent of Army energy) and the use of fuels for mobility.

Two summer studies were conducted in July 1980. The high technology light division concept, the major summer study effort, was studied by a multidisciplinary group organized into five functional panels to seek near term infusion of equipment to enhance offensive and defensive capabilities of infantry forces. Combat power (armor, antiarmor, artillery, special topics) and associated support (mobility, survivability, counter-C3) were examined in detail. In the other study, statistical techniques in testing were assessed, with recommendations for earlier test design/PM (program manager) coordination, education, and effective conduct of tests.

External activities included judging of best improved Army laboratories and in-house laboratory independent research projects (on behalf of the Office of the Assistant Secretary of Army (RDA)) and Army science conference research papers (chair provided by ODCSRDA), which provided an independent, external, and objective review. Laboratory visits (e.g., Army Research Office, Aeromedical Lab) were conducted as an adjunct to these reviews. A visit to Alaska and Korea provided tunnel detection and air defense advice to the Cold Regions Test Center and to the Commander, United States Forces, Korea as well as a review of readiness and soldier quality of life. As a followup, testing of a modified TPQ-37 was conducted jointly by ASB, OASA, DARCOM, EUSA, and Hughes. The Tropic Test Center was visited for a dual orientation and advisory exchange. Chemical warfare work of the Defense Science Board and Air Force Scientific Advisory Board were

monitored through the attendance and participation of ASB members to assist in isolating appropriate ASB study in this area in the future. A visit to European laboratories and development agencies provided insights into potential U.S. research and development. Significant technological advances (e.g., French/German armor) were noted.

The Army Science and Technology Objectives Guide (STOG) was expected to be distributed to appropriate agencies in October 1980. However, the STOG, first published in May 1976, has proved so successful that, as recommended by the Army staff, an interim issue with requests for user comments will be distributed shortly after the end of the fiscal year.

The objectives of the realistic battlefield environments research program are to measure real battlefield environments conditions and associated obscuration effects on electro-optical and millimeter/microwave systems and to determine atmospheric interactions with high energy laser systems. Results of this effort support DARCOM and TRADOC programs involving materiel development, testing, war gaming, training, and weapon employment. Major thrusts during fiscal year 1980 were directed dust, smoke, and weather effects on electro-optical and near millimeter wave systems. Some specific accomplishments of the U.S. Army Atmospheric Sciences Laboratory during the year are described in the following paragraphs.

The interim version of the electro-optical systems atmospheric effects library (EOSAEL) was distributed and coding was completed. Measurements of aerosol characteristics, as a function of height, were conducted at Greding, Federal Republic of Germany, for the Stinger-Post missile system and models were constructed to permit better definition of airborne electro-optical weapon system performance in European fog and haze. The Dusty Infrared Test III (DIRT-III) was conducted at Fort Polk, Louisiana, in the spring of 1980, and atmospheric characterization (the study and interpretation of atmospheric behavior patterns from the surface to thirty-two meters above ground) was completed for the DOD High Energy Laser Systems Test Facility (HELSTF). An air-mobile transportable atmospheric characterization station (TACS) was assembled and used to define atmospheric effects on electro-optical/millimeter wave sensors.

The disturbed infrared transmission (DIRTRAN) code, a computer module in EOSAEL 80, was expanded from the version in interim EOSAEL. A model (SCREEN) was designed and constructed to provide atmospheric threshold information for fourteen different sensors. Assessments of effects of snow, haze, fog, and rain on such threshold determinations were completed and reported. Prototype

spectrophone field systems were completed, tested, and used for field support during Smoke Week III. Prototype systems for the measurement of liquid water content were developed and tested. Customized electro-optical climate models, tailored summaries, and user weather scenarios for Europe were delivered to weapons designers, war gamers, and modelers. A qualitative description of battlefield obscuration factors for central Europe was prepared and provided to the DARCOM's battlefield systems integration office. Water vapor absorption in the submillimeter spectral region was measured as a function of pressure to allow a better understanding of the water vapor absorption line shape and hence be able to more accurately predict degrading atmospheric effects on battlefield surveillance and target acquisition systems. A prototype ceiling and visibility sensor, for use in electro-optical atmospheric characterization, was evaluated in field tests. Geometric analysis methodology was completed for the multispectral assessment of smoke and dust clouds. An interim complex terrain model for the transport and diffusion of battlefield obscurants was completed and the model used to generate realistic battlefield smoke scenarios. Additionally, a model was completed to provide the instantaneous probability of target acquisition through obscurants. Water vapor absorption in the submillimeter spectral region was measured as a function of pressure. Experimental design, fabrication, and construction was initiated in two new measurement efforts; contrast transmission measurement for electro-optical modeling and hot plume radiative transfer for modeling aircraft signature propagation. A smoke munition expenditures model, called KWIK, was used to calculate munition expenditures and impact separation in real time at Dugway Proving Ground, Utah, and for real time support to PM Smoke during Smoke Week III. A two-color radar to obtain backscatter information on smoke and dust clouds for application to electro-optical systems was developed and is operational.

In fiscal year 1980 the SNOW-ONE (scenario naturalization for operation in winter-obscuration and the natural environment) exercise technical plan was developed and completed. SNOW-ONE is the first in a series of field experiments designed to explore the influence of winter terrain conditions on the propagation of directed electromagnetic energy for military purposes.

The Mobility Systems Division of the U.S. Army Engineer Waterways Experiment Station (WES) continued efforts to improve the Army's mobility. The Army mobility model (AMM) is designed to properly assess mobility, both from a terrain standpoint and from a vehicle standpoint.

During the last fiscal year, the mobility modeling and associated capabilities have been used to support the armored combat vehicle

technology (ACVT) program, with priority support diverted to the urgent air-transportable, protected, antiarmor/assault capable system (APAS) study to investigate the need for a light antiarmor offensive system to augment the firepower of light divisions designed for the 1986 time frame. Mobility modeling has also had a major impact on the MX Missile Program. The WES conducted research for the Ballistic Missile Office on the mobility performance of the transporter system to aid in the concept design program. Several concepts and tire sizes were modeled and performance predictions were made using current mobility modeling techniques. The Waterways Experiment Station also participated in a testing program conducted at the Nevada Test Site using a large four-wheeled hauler capable of gross loads of up to 500,000 pounds. In addition, a modeling technique has been developed to use a hand-held calculator for making mobility predictions in varied terrain and climatic conditions.

Because of the improved performance of modern combat aircraft, forward tactical air bases throughout the world are now within easy reach of, and are therefore vulnerable to, attack by enemy aircraft. This has created a renewed interest in the alternative of directly attacking the airfield pavement system and in the repair and restoration of paved surfaces.

A five-phase plan was under way and the following work had been accomplished during the year: data collection for the strike threat analysis and numbers and density of bomb impacts were completed and a report was published; a draft data report was prepared describing the results of the reset cement concrete test section under traffic; a report and film describing field operations using reset cement concrete were completed; the operational requirements, together with work in evaluation of potential rapid repair/restoration materials procedures, was accomplished; and a test section using PCC (Portland Cement Concrete), soil stabilization, grouts, and crushed stone has been tried with F-4 and C-141 full-scale loadings. In addition, rock-filled wire gabions and sand reinforced with a landing mat grid system have been traffic tested to evaluate increases in foundation support; a field reference document, "Airfield Damage Repair," May 1979, was published; a letter report was prepared on the Airborne Corps Mission Study, the purpose of which was to develop methods for airborne engineers to rapidly open a runway for C-130 aircraft; and coordination work with U.S. Air Force and constant field exercises with the 18th Engineer Brigade using WES solutions were carried out.

Initial work involving grid and membrane reinforcement concepts dealt with constructing military bridge approach roads over soft ground. The success of the work led to applying these concepts

toward the Army's logistic over-the-shore program. In a future war the Army must have the capability of moving supply containers weighing up to 50,000 pounds between shipside and a temporary storage yard within a few miles. Planned truck-semitrailer container operations over loose beach sands will not be possible without some type of treatment for the sand.

Several sand-grid confinement and membrane reinforcement concepts for enhancing truck trafficability over loose beach sands were tested during the last year. The sand-grid confinement work investigated optimum grid cell dimensions and surfacing requirements for over-the-shore container hauling operations. Also, several expedient membrane-reinforcement concepts were tested for mobility enhancement over sands. Technical Report GL-79-80, "Investigation of Beach Sand Trafficability Enhancement Using Sand-Grid Confinement and Membrane Reinforcement Concepts, Report 1" was published and a draft of Report 2 was completed.

A sand-grid confinement concept was developed for building supply roads over loose sands. Test results showed that the trafficability of a loaded test truck increased from 10 passes over sand with no treatment to over 10,000 passes with grids. Also, an expedient buried membrane reinforcement concept was developed that increased the truck trafficability from 10 passes to 3,500 passes.

Military engineering applications for commercial explosives (MEACE) began in 1972 at the Explosive Excavation Research Laboratory, Livermore, California. Responsibility for the project was transferred to WES in fiscal year 1976. The MEACE project was closed at the end of fiscal year 1980.

The MEACE research effort resulted in the establishment of a role for commercial slurry explosives in a theater of operations. It assisted in the identification and standardization of a particular product—a pumpable slurry—suitable for antiarmor ditching on a large scale. The program then went on to recommend doctrine for the use of this slurry.

Additionally, several lesser efforts were pursued under MEACE: explosive excavation of hull defilade positions, deliberate road-crater design, and foxhole excavation by explosives.

The Corps of Engineers is assigned responsibility for providing hydrology information to the armed forces. There are many examples of damages by floods, forces immobilized by impassable roads or high water, and operations hindered by lack of water. It is imperative that the serious consequences of neglecting hydrologic considerations are avoided by adequate preparedness and use of the latest techniques for estimating the impact of hydrology on military operations. Ongoing research directed by WES is focused on pro-

viding the necessary tools to upgrade Army hydrologic capabilities in the areas of streamflow forecasting, dam breach flood analysis, location and evaluation of water supplies in arid regions, state-of-the-ground forecasting, and acquisition of tactical weather data.

A general procedure for tactical steamflow forecasts, known as "MILHY," is being developed. The manual version of the procedure has been completed and the microprocessor version is under development. "MILHY" is designed for use by Army Terrain Team personnel. Procedures for estimating the downstream flooding from single or multiple dam breaches are being investigated. A computerized procedure was used to support a study on earth dams which highlighted the difficulty in breaching earth dams and the inadequacy of existing conventional munitions effectiveness guides. A concept was developed for portraying groundwater supply potential information in arid regions. Prototype map overlays were developed for thirty-five Mid-East Joint Operations Graphic map sheets. Inability to obtain tactical weather data for flood and trafficability forecasts has led to experiments to evaluate the potential of weather radars and satellites for providing this data. Current efforts emphasize joint efforts with the Atmospheric Sciences Laboratory and Air Weather Service.

Groundwater supply potential overlays for thirty-five joint operations graphics were produced for selected Mid-East areas. The overlays have been provided to the Rapid Deployment Joint Task Force and associated force units.

Computational methods used to predict the response of structure targets, such as bridges and shallow-buried structures subjected to airblast from nuclear weapons, have been based in large part on well-established design procedures. These computations tend to produce conservative designs, however, the predicted response may be unconservative in a targeting problem. The lack of response data from tests on these types of structures in an airblast environment has prompted extensive test programs jointly sponsored by the Defense Nuclear Agency (DNA) and Office, Chief of Engineers. Three model bridge spans were tested in MISERS BLUFF, and a series of seven Foam HEST tests have been completed in the shallow-buried structures research program during the past three years.

Data collected in these research programs have been used extensively by the Pershing II Systems Analysis Working Group to evaluate the effectiveness of proposed new weapons systems. Also, these data are being used by the WES and the U.S. Army Engineer Division, Europe, in the design of new command centers and in the updating of design manuals such as TM 855-5-1.

Using data collected in the SBS program, a procedure for com-

puting the vulnerability of shallow-buried, flat-roofed structures was developed at WES and submitted to DNA in July 1980. Following the approval of the procedure by DNA, a computer program automating the computation was put into operation at the Defense Intelligence Agency in August 1980. Vulnerability computations based on this new procedure indicate that shallow-buried, flat-roofed structures are much harder than had been predicted previously.

During fiscal year 1980, research on fixed fighting positions was conducted by the Structural Mechanics Division to provide input to the Army's manuals for military operations in urbanized terrain (MOUT). Programs in support of MOUT define damage-distance relationships for fuel-air explosives (FAE) used against urban targets and to develop methods to protect fighting and C3 positions in urban structures. In other programs concepts were developed to increase the survivability of the Army's field ADP system to develop rapidly emplaced fighting positions, and to better protect artillery positions.

A reinforced concrete reaction structure having replaceable wall panels was constructed at Fort Polk, Louisiana, for test of masonry walls using both FAE and conventional munitions. In the first series of tests concrete block walls were subjected to the blast effects of FAE rounds and the blast and fragmentation from shaped charge, mortar, and artillery rounds. A vulnerability analysis of the Army's field ADP system was completed. In the vulnerability analysis various protection concepts were evaluated and several selected for final design. Through coordination meetings with the Engineer, Artillery, and Infantry Schools, requirements were established for rapidly emplaced fighting positions for the infantry and for protection of both towed and mechanized artillery. A lightweight fabric revetment was developed that successfully withstood simulated artillery blast effects. Fragmentation tests are scheduled for early fiscal year 1981. Other applications for the revetment are protection of aircraft, air defense positions, and the field ADP system.

A report describing the vulnerability analysis code used to evaluate the protective concepts for the Army's field ADP system was published. Data from the blast test on the fabric revetment was given to the Artillery, Infantry, and Engineer Schools. Data from the FAE test on masonry wall panels was presented to the FAE working party of the Joint Technical Coordinating Group.

In the topographic sciences area, a field capability for the application of digital elevation data was demonstrated. Field exploitation of elevation data (FEED) utilizes a minicomputer programmed to provide various forms of elevation/terrain information needed to support battlefield operations. Products such as line of sight profiles between points, perspective views of terrain areas and helicopter fields

of five terrain masking plots can be generated rapidly using stored digital elevation data provided by Defense Mapping Agency's digital terrain elevation data base.

ILIR, an infra-red, thermal-imaging system for heat flow through building materials has been developed and tested which combines the best features of thermography and of spot measurements of effective thermal conductivity. Field tests made with an infra-red, thermal-imaging system produced a two-dimensional thermogram of a masonry wall having a high heat capacity. Combined with this, heat flow sensors were placed at the warmest and coolest locations on the wall. The R-value at other areas on the wall was then deduced based on the surface temperature and the two reference values. A finite-difference technique was utilized to analyze the transient thermal response of the wall.

The reduction in effectiveness of scatterable-fragment anti-personnel mines, known as FACAM, when they are buried in snow is a factor that is unknown at present. In order to study possibly reduced effects under controlled laboratory conditions a simulator has been designed and fabricated which shoots fragment-like projectiles into a snow mass. Early indications are that natural low-density snow will have a reducing effect on scatterable mine fragments.

Ballistic Missile Defense

The Ballistic Missile Defense (BMD) program maintains the superiority of U.S. ballistic missile defense technology and is the only strategic effort designed to keep the United States ready to develop and deploy an active defense against missile attack, if necessary. The program is structured to be consistent with all current arms control agreements, and the BMD Program Office periodically participates in reviews of the ABM (antiballistic missile) treaty to maintain adherence.

In fiscal year 1980 the BMD organization was authorized sixty-five military and 426 civilian spaces; funding totaled $339,590,000 and included $119,854,000 for the Advanced Technology Program, $120,814,000 for the Systems Technology Program and $98,841,000 for the Kwajalein Missile Range (KMR) in the Pacific.

The Advanced Technology Program is directed toward the research and development of BMD components and subsystems, including radar and optical sensors, unique discrimination techniques, hardware and software for data processing, and interceptor missiles. Some of the more advanced technological activities were the

designating optical tracker (DOT) program; the endoatmospheric nonnuclear kill program; the forward acquisition system integrated ground test program; a millimeter wave radar; Cobra Judy, a shipborne radar signature collection system; the optical aircraft measurement program; and exploration of directed energy weapons, such as the particle beam program.

Three DOT program flights were accomplished successfully: one in December 1978 and the others in February and September 1980. DOT is providing data that verifies the capability of long wave-length infrared sensors to perform the BMD generic functions of designation and track under realistic engagement geometry and environmental conditions. Planning, coordination, and component testing have been initiated for other flights which will evaluate different target conditions. In 1980 a study was completed which examined application of current DOT equipment to other programs.

The objective of the endoatmospheric nonnuclear kill program is to establish a technology base for future demonstration of a homing guided intercept and nonnuclear kill of representative reentry vehicles in the atmosphere. A three-degree-of-freedom end game computer simulation was completed and used to examine trade-offs and determine sensitivities. Upgrade of this simulation to six-degrees-of-freedom was initiated, and incorporation of hardware-in-the-loop and environmental effects explored. Technology developments in final design and test phases were incorporated into updated integrated ground and flight test planning.

The forward acquisition system program, established in October 1978, was redirected in fiscal year 1980. Plans for design and implementation of an integrated ground test program were initiated. In support of this effort the early warning augmentation team completed identification of functional performance, sensitivity analyses, and requirements definition for an integrated ground test program.

Component development and fabrication of a millimeter wave radar for use in collecting data on BMD targets at KMR is in progress. Major components have been procured and are being assembled for testing. These components will be shipped to Roi-Namur Island at KMR for installation. Installation of the antenna tower and radome support at Kwajalein was in progress when the year ended.

Fabrication was completed on all major radar subsystems for the jointly funded Cobra Judy, which is designed to provide intelligence data for the U.S. Air Force Systems Command Foreign Technology Division and for the BMD Advanced Technology Center (BMDATC). These subsystems are being integrated for testing. The U.S.S. *Observation Island* was towed to the Maryland Shipbuilding and Dry Dock

Company, refurbished, and made seaworthy. It meets all the requirements for the Cobra Judy platform. Modification of the ship is in progress including installation of the radar array turret.

Objectives of the optical aircraft measurements program are development and implementation of an airborne measurement system capable of providing exoatmospheric and early reentry infrared data on BMD targets. This data will be used as a base for development and evaluation of discrimination techniques. In fiscal year 1980, the BMDATC published an "Optical Aircraft Measurements Program Management Plan" documenting program objectives, the preliminary concept, and the proposed plan of implementation. A determination of the requirements for the aircraft platform and the infrared sensor was under way at the end of the year. Infrared radiation from the upper atmosphere (above the ceiling of the aircraft platform) was also being measured and modeled to determine its effect on the sensor. Results of these measurements will aid in deconvolution of the atmospheric noise from the target signature measurements. Approximately 80 percent of the planned sky noise measurements are completed. A site survey assessing available aircraft basing facilities and determining additional requirements has been completed and a request made for military construction authority to provide for the additional basing requirements.

Overall responsibility for the particle beam program was assigned to the Defense Advanced Research Projects Agency (DARPA) at the end of fiscal year 1980. For DARPA, the BMDATC will primarily perform technical management and serve as procurement agent for two major efforts: the Los Alamos Scientific Laboratory exoatmospheric neutral particle beam accelerator program and the Austin Research Associates collective ion accelerator proof-of-principle experiment known as the auto-resonant accelerator. The Los Alamos Scientific Laboratory had made significant advances in ion source development and was nearing completion of facilities to house the accelerator test stand which will be used to test the major components of the neutral particle beam accelerator when the year ended. Austin Research Associates had made substantial progress in its high gradient accelerator experiment by characterizing the electron beam, and exciting, detecting, and identifying the specific cyclotron wave which is required for ion trapping and acceleration.

Emphasis in the Systems Technology Program during fiscal year 1980 concerned "near term" technology or that which could be expected to contribute to a BMD system deployed in the next few years.

The Systems Technology Project Office (STPO) continued definition of a layered defense system (LDS). A baseline LDS design, defined in the preliminary design review held in March 1979, would

have operated under the concept of engaging the approaching threat with two tiers, or layers, of defensive missiles. An outer layer of interceptors formed the overlay system, each interceptor carrying a number of small kill vehicles capable of destroying a reentry vehicle through nonnuclear means. The inner or under layer was the improved Site Defense system which would have engaged those targets that had eluded the overlay and killed them with nuclear warhead detonations. In 1980, analysis was directed toward potential use of the low altitude defense (LoAD) system as the underlay system. The LoAD system is characterized by numerous, low cost radars and distributed data processors in contrast to the improved site defense system which has a fairly small number of radars that offer potentially high value targets to the offense. Results of the 1980 analysis, documented in the Layered Defense System (LoAD Underlay) Concept Definition published in October 1980, showed that an effective LDS could be constructed with a LoAD underlay.

The homing overlay experiment (HOE) continued with a two-phase demonstration planned to prove technology associated with the overlay portion of the LDS. In October and November an experiment preliminary design review was conducted at Lockheed Missiles and Space Company (LMSC), the HOE interceptor supplier and integration contractor, and at McDonnell Douglas Astronautics Company (MDAC), the mission and launch control subsystem contractor. LMSC progressed in releasing firmware/software requirements to the flight computer contractor, Honeywell Avionics Division, and provided a translator to convert FORTRAN to MICROCODE to eliminate most of the manual work usually associated with such an effort. Fabrication and testing of HOE sensor hardware progressed. Representatives of the HOE Division of STPO, other government agencies, and private industry formed a committee to define standards for infrared source calibration approaches. This is a first for this particular field of technology since no universally accepted set of test terms is available to describe measurement errors. A C-3 access stand, approved in fiscal year 1979 for use in checking out the HOE interceptor at KMR, has been modified, checked out, and prepared for shipment to the range. In 1980 the U.S. Air Force agreed to fund the instrumented test vehicle testing and the BMD Systems Command (BMDSCOM) modified MDAC's contract to cover this performance.

The systems technology underlay experiment is the culmination of a program which was first started as the Site Defense prototype demonstration and later modified to a technology program exploring key issues associated with a terminal BMD system to defend Minuteman silos or other hard targets. Effort in fiscal year 1980 concerned gathering of data on a number of live target tracking missions

and evaluating that data, through simulations and analyses. Seven live tracking missions (five targets of opportunity and two dedicated targets) were performed during the year to test various aspects of the system or to gather data for future use. BMD components performed as expected on each mission. Payload deployment problems prevented all mission objectives from being met on only one of the dedicated missions. To recoup discrimination data lost on the systems technology reentry experiment program (STREP)-2 mission where, due to a Minuteman-I booster anomaly, the desired clutter environment for the reentry vehicle and traffic decoys was not achieved, a target of opportunity was designated as a clutter experiment. This clutter experiment used the expanded multiple target generator for injecting simulated radar returns for a reentry vehicle and decoy into actual radar returns from live mission tank breakup and provided "quasi" live mission data on discrimination performance in such clutter. An army optical station (AOS)/systems technology radar (STR) handover experiment was attempted on two targets-of-opportunity missions. On the first, cloud cover prevented the optical station from acquiring the target and no handover was completed. However, the STR did acquire the target by its normal search mode and maintained track until face exit. The second mission was successful and demonstrated the handover of an optical system track to a ground based radar system using techniques representative of those to be used in an LDS. The capability to transmit new waveforms was incorporated into the STR and considerable data was gathered using these waveforms on still another target-of-opportunity mission and on the final dedicated mission (STREP-3). STREP-4 and STREP-3, conducted during the year, completed the planned testing for the underlay experiment program and a decision was made to deactivate the systems technology test facility (STTF) on Meck Island in the Pacific. An STTF Deactivation Plan, was published on 30 September 1980.

The LoAD System, conceived as a near-term, technology-point defense system, is expected to be valuable in defending either the MX missile system or silo-based intercontinental ballistic missiles (ICBMs). The current LoAD plan provides for a preprototype demonstration (PPD) to be completed upon successful firings at White Sands Missile Range and at KMR during the mid-to-late 1980s. The LoAD PPD program summary, signed by the Under Secretary of Defense for Research and Engineering on 19 May 1980, directed BMDSCOM to proceed with Phase I activity. Specifications were developed for the generic LoAD interceptor to support the MX and Minuteman requirements and a preliminary concept established for mounting these interceptors and the associated launch equip-

ment. The brassboard model of the LoAD interceptor digital missile controller set was completed and plans formulated for the wind tunnel testing of the missile. A request for quotation (RFQ) for the Phase IA of the PPD was issued to Martin Marietta Corporation. The signature measurement radar was built and component testing begun. A discrimination and reentry physics panel was formed in May to provide the LoAD program guidance in the area of discrimination and reentry physics. Models were formulated and evaluated which will be used in the sensor engagement controller RFQ. In July the LoAD Project Office issued a sensor and engagement controller Request for Information. Comments received from industry were incorporated and an RFQ issued in early September.

Key threat documents published by the STPO Threat Office in support of BMD system studies and concept evaluations included: LoAD MX Threat Parameters, April 1980; Layered Defense/LoAD Threat Parameters, April 1980; Reentry Vehicle Threat Vulnerability/Lethality Models for LDS/LoAD System Design, August 1980; Threat Stockpile Projections for BMD Studies, March 1980; and 1987-99 Threat Projections for BMD Studies, June 1980. The Threat Office prepared and submitted annual and supplemental intelligence production requirements for BMD to the Office of the Assistant Chief of Staff for Intelligence for action. The Threat Office conducted final reviews of the fiscal year 1979 comparative BMD capabilities (red/blue) study effort and completed plans for the fiscal year 1980 effort. The 1979 study provided red BMD information for use by the BMD program manager in congressional and related briefings. A contract modification issued in 1980 extended through September 1981 Teledyne Brown Engineering's ICBM/Sea Launched Ballistic Missile (SLBM) Attack Geometry Simulations effort. This effort, costing approximately $470,000, is funded by Electronics Systems Division, Hanscom Air Force Base, Massachusetts, and supports the Warning Information Correlation (WIC) Study. A member of the STPO Threat Office serves on the WIC Threat Panel. The U.S. Army Air Defense Command, Colorado Springs, Colorado, provided BMDSCOM $300,000 to initiate an early warning assessment contract with Teledyne Brown Engineering to perform an assessment of software involved in the recent false alarm problems of early warning. The ICBM/SLBM attack geometry simulations contract mentioned above was modified to provide technical direction of this effort.

Weapons effects activities completed this year included the joint Department of Energy/Department of Defense Phase I warhead study for the LoAD initiated in fiscal year 1979. The low altitude effects working group reviewed the most stressing nuclear environments that the LoAD system will experience. Methods and techniques of

calculating these environments were validated and additional environments examined. An attack working group completed the offense attack laydown definition effort on LoAD-defended MX multiple protective structures. LoAD weapons effects environments also were defined and provided to prospective bidders for the interceptor and sensor engagement controller. BMD and the Defense Nuclear Agency (DNA) began interchange meetings to define mutual weapons effects tasks to be sponsored by DNA. The STPO Weapons Office published a weapon effects problems and guidelines document providing technical information on preferred life cycle hardening design and indicating techniques to be avoided.

The KMR continued support to programs of numerous agencies including the U.S. Air Force's increasingly complex developmental and operational tests of ICBMs, launched from Vandenberg Air Force Base, California. Aircraft-launched missiles and bomb drops were "firsts" for the Range. Support was provided to the Navy's reentry vehicle development program through small rocket launches from Roi-Namur Island. Additionally, extensive base and technical support was provided to the STTF on Meck Island during the six target-of-opportunity and two dedicated missions described above. It also supported the BMDATC designating optical tracker missions and the Army Optical Station on Roi-Namur. Modification of a long range tracking and instrumentation radar (ALTAIR) continued through fiscal year 1980. This modification will enable the high power ultra high frequency/very high frequency radar to perform new missions.

The Deputy Director, Defense Test and Evaluation (DDTE) requested the KMR Directorate to participate in a 12-month, tri-service strategic systems test support study to evaluate the Department of Defense user test support requirements. The study will develop an overall approach that would assure nonredundant, cost-effective support for offensive and defensive systems in both the Atlantic and Pacific, including mid-range and terminal range configuration. An alternative Pacific instrumented test area was to be identified in the event that the Kwajalein Atoll was no longer available. The scope included land-based and mobile resources with their projected work loads and requirements for upgrades, modifications, and augmentation. The DDTE and the Major Range and Test Facility Committee were briefed on 22 September on the proposed approach.

Development

Extended Full Scale Engineering Development (FSED) testing of three pilot-model XMIs at Fort Knox, Kentucky, was completed on

19 December 1979 and demonstrated that prior reliability and power train durability shortfalls had been overcome.

The first two Low Rate Initial Production (LRIP) XM1s were delivered to the Army on schedule on 28 February 1980 at the Lima Army Tank Plant, Lima, Ohio. Senator John Glenn from Ohio, announced the XM1 name, the General Abrams tank. Mrs. Abrams, the widow of the former Army Chief of Staff, christened the first production-model XM1 the "Thunderbolt" after the name of her husband's tank during World War II.

Following the acceptance ceremony, the first production-model XM1 was shipped to Aberdeen Proving Ground, Maryland, for use in DT (development test) III which started in March 1980. In fiscal year 1980, development testing was conducted at Aberdeen and Yuma Proving Ground, Arizona. In addition, the prime contractor, Chrysler Defense, Inc., ran shakedown tests of production tanks at Fort Knox, Kentucky, and in the Cold Chamber at Eglin Air Force Base, Florida. Operational Test (OT) III began in mid-September 1980 and will continue in fiscal year 1981 at two sites, Fort Knox, Kentucky, and Fort Hood, Texas.

As of 30 September 1980, Chrysler continued to experience production startup problems, and only twenty-six of the originally planned sixty-three XM1s had been produced and accepted by the Army.

Since 1973, the Army has been engaged in a cooperative effort with the United Kingdom and the Federal Republic of Germany (FRG) to seek a common main armament system for the Leopard II and XM1 tanks. On 31 January 1978, the Army formally announced the selection of the FRG 120-mm. smoothbore gun system for continued U.S. development and future incorporation into the XM1 tank. In April 1978, a special ASARC approved a 120-mm. gun program with a first production delivery of a 120-mm. gun equipped XM1 tank in August 1984. On 22 February 1979, the U.S. and the developer, Rheinmetall, signed a license to allow the United States to produce the 120-mm. system (cannon and ammunition).

The U.S. 120-mm. tank gun program officially started on 8 March 1979. On 23 March 1979, a special ASARC approved a revised program with a first production delivery date of a 120-mm. equipped XM1 tank scheduled for August 1985. On 4 June 1979, the Secretary of Defense directed that the Army should plan for an August 1984 first production delivery date of a 120-mm. gun equipped XM1 tank. On 23 August 1979, the 120-mm. gun equipped XM1 tank was designated the XM1E1 tank. The first U.S.-manufactured XM 256 120-mm. cannon (tube and breech) was delivered by Watervliet Arsenal on schedule on 30 April 1980 to Aberdeen Proving Ground

for testing. As of 30 September 1980, work continued on the fabrication and testing of the 120-mm. ammunition family of rounds. Chrysler Corporation is beginning to convert two XM1 tanks to XM1E1 tanks that will be used in subsequent contractor testing.

Fiscal Year 1980 was a period of major change and evolution in the Division Air Defense (DIVAD) gun program. During the year, the program was restructured several times due to funding constraints. The President's budget reduced the weapons and tracked combat vehicle (WTCV) appropriations request from $333.5 million to $204.4 million in fiscal year 1981. This resulted in a six-month slip in the production schedule and a reduction in the planned procurement quantity from forty-two to twelve. In March an amended budget was submitted which reduced the WTCV appropriation an additional $100 million resulting in deferral of the first fire unit procurement until fiscal year 1982.

A request for proposal (RFP) was issued to support this revised program in May and contractor proposals for the production of DIVAD guns were received in August. At year's end, these proposals were under evaluation by a Source Selection Evaluation Board (SSEB) with an anticipated contract award scheduled for February 1981.

Prototypes from the two contractors were delivered to the Army on 15 June 1980 for the start of government testing. Prior to delivery a thirty-day demonstration and sixty days of contractor testing were scheduled at North McGregor Range, Ft. Bliss, Texas. The government combined development test/operational test was started on schedule on 15 June 1980 and was still in progress at year's end. Testing was scheduled to be completed in mid-November 1980.

During fiscal year 1980, the Patriot Air Defense Missile system formally entered production. DSARC III was held on August 18, 1980 and the approval to proceed into limited production was signed by the Secretary of Defense on 10 September.

A series of developmental and operational tests to verify the capabilities of system prototype hardware in a tactical environment began in January 1980. The results of these tests highlighted several deficiencies, particularly in software maturity and reliability. All of the deficiencies were considered correctable. Based on this testing, the Secretary of Defense approved limited production and the first production contract was signed in October 1980. Production approval is currently limited to five fire units in fiscal year 1981 and nine in fiscal year 1982.

The U.S. Roland Missile System is a highly mobile, air transportable, short range, all weather, air defense system. The Roland Missile System consists of a fire unit, missiles, a carrier vehicle, a

trainer, and maintenance test sets. The fire unit is fully self contained in a module that can be in a fixed position or mounted on a variety of vehicles and requires no interunit cabling. The fire unit consists of a search radar, a track radar, a computer, an identification, friend or foe unit (IFF), an optical sight, two automatic reload launchers and two storage magazines. Ten missiles are carried on the fire unit; two are on launchers ready for firing, and eight are carried in the magazines for automatic reloading.

The initial low-rate production contract was awarded to the associate prime contractors—Hughes Aircraft Company (HAC) and Boeing Aerospace Company (BAC)—on 30 October 1979. A second low-rate production contract was awarded 10 January 1980. Award of these contracts was delayed more than four months because fiscal year 1979 procurement funds could not be released until the fiscal year 1980 Roland authorization issue was resolved by the Congressional Joint Authorization Conference. The impact of this delay in fiscal years 1979 and 1980 amounts to $10.4 million, which will be handled by reducing hardware quantities and the scope of engineering services in fiscal year 1981. In all, twenty-one fire units and 485 missiles are now on contract. A Department of Defense-directed program restructure resulted in the continuation of low-rate production for a third year and quantity reductions to accommodate a two battalion (95 fire units) instead of a four battalion (180 fire units) program. The RDTE program was to be increased more than $5.0 million in fiscal year 1981 for a new effort to develop a prototype maintenance training simulator for use in training organizational and direct support maintenance personnel. These funds are provided under the labor saving capital investment program (LSCIP).

Instructor and key personnel training continued at BAC/Seattle with the first two classes completed during the period. Government acceptance of two organizational maintenance test sets (OMTS) and one field maintenance test set (FMTS) completed the delivery of all major Roland hardware items under the technology transfer fabrication and test (TTF&T) contract. The special evaluation test program, designed to evaluate required modifications to TTF&T hardware, began in early July 1980 at White Sands Missile Range. In all, five ground tests, fifteen tracking missions, and nine firings were planned for 10 July-15 November 1980. Also, three ground tests, two tracking missions and four firings were completed, and the reliability improvement program was begun during this reporting period.

General Dynamics, the prime contractor in the Stinger program made limited deliveries of weapons from the first production contract in March 1980. The first article flight tests passed with only one failure occurring. Several technical problems arose during the

reliability and training flights. Production deliveries were further delayed due to component level qualification and pilot lot test failures. These tests are being repeated. The responsibility for management and procurement of the Stinger IFF system was transferred from the U.S. Army Missile Command (MICOM) to U.S. Army Communication Electronics Readiness Command (CERCOM) during September 1980.

The Stinger passive optical seeker techniques (POST) seeker development program continued during the year. Ground testing and flight vehicle fabrication and assembly were the major activities conducted. The POST program was extended to fifty-four months because of problems associated with the integration/assembly and testing of the POST seeker head and packaged electronics.

Several significant testing activities were accomplished during this period. The third POST fly-by tracking test was completed in January 1980, as well as sled tests performed at China Lake during May-June 1980. A winter tracking test was also conducted in Germany during February and March 1980 to measure the Stinger and Stinger-POST seeker's performance under the adverse weather conditions of that region.

The Improved Hawk (IHawk) system is the Army's all weather, day and night, low to medium altitude air defense guided missile system. To keep pace with the projected threat, a series of product improvements is being applied in three phases to fielded equipment. Procuring and fielding the initial set of system improvements continued in fiscal year 1980. Collectively, these were known as Phase I product improvements and were: (1) increasing the number of channels of communications within an IHawk battery; (2) doubling the computer memory and upgrading the data processor capability to speed the flow of tactical information; (3) improving the detection range of the continuous wave acquisition radar (CWAR) and upgrading its reliability; and (4) upgrading the electronics of the pulse acquisition radar (PAR) to give it a better detection capability. New equipment training (NET) on the Phase I modifications for U.S. Army personnel was conducted in CONUS and in West Germany.

Development continued on Phase II. An optical tracker modification called the Tracking Adjunct System (TAS) will give each IHawk firing unit an alternate mode for tracking targets. The TAS was placed under contract in fiscal year 1980. Upgrading the IHawk missile performance in a jamming environment was carried on. Progress continued on making improvements to the Hawk's tracking radar (improved high power illuminator). Improvements will be in reliability, availability, maintainability, and emission control.

On 15 April 1980, the U.S. Army's Missile Command completed a

study on what additional improvements (beyond Phase I and II) are needed to ensure IHawk is properly phased into its interface role with the Patriot air defense weapon system during the 1980s. The Department of the Army published and briefed Congress on its Air Defense Program Plan 90. The plan addressed the longevity of IHawk and the IHawk force level planned during the initial stages of Patriot fielding.

The Copperhead is a 155-mm. field artillery projectile fired from conventional howitzers and designed to attack stationary and moving hard point targets such as tanks with a high probability of first round kills. The projectile acquires and homes on the laser energy reflected from a target which has been illuminated by the ground laser locator designator. Continuing development efforts for the target acquisition designation system for helicopters and remotely piloted vehicles (RPVs) with on-board laser designator capability are expected to provide a range of designator options in the future. The DSARC III decision to begin Copperhead production was approved by the Secretary of Defense on 15 December 1979. The Secretary approved production at a rate of 200 projectiles per month until a reliability of .8 is demonstrated. In addition, a reliability growth test plan to achieve a reliability of .9 was required within ninety days of construction of the production facility with a target completion date of December 1980. The contract for the first three years' production was signed on 7 March 1980.

In the past year the Viper system was redesigned to correct several problems. These design changes have been tested at the component and system level. The noise level has been reduced and man firing will begin in November 1980. Production facilities for Viper have proceeded simultaneously with system development in order to minimize the time required to deliver the system.

The Hellfire operational test was conducted during May-July 1980. Data was obtained in an operational environment to assess the operational effectiveness to include command and control, hit performance, human factors, and safety. Information was also obtained on the reliability, availability, and maintainability of the system. In fiscal year 1980, five Hellfire missiles with live warheads were successfully fired from a tower during developmental testing. Planning continued for an engineering development program for an imaging infrared (fire-and-forget) seeker to complement the laser seeker in the Hellfire system. A cost and operational effectiveness analysis was continued and necessary program documentation was initiated to achieve approval for the program.

In February 1980 the President approved Pershing II (PII) as a program of highest national priority. During fiscal year 1980, major contractor component testing of PII was successful and on schedule.

Six static firings of the first and second stage motors were completed and the initial phase of captive flight testing of the radar area correlator was completed. Test results provided initial verification of required performance.

The program decision memorandum (PDM) for the fiscal year 1982 budget cancelled the earth penetrator warhead program for fiscal year 1982 and beyond based on budgetary and priority considerations. The Army's reclama to the PDM was not sustained in the amended PDM.

The U.S. Army is conducting a two-step program to improve the performance of the TOW antitank guided missile against advanced enemy armor and dirty battlefield. First phase of the upgrading program is an improved five-inch warhead. The second step, called TOW 2, will include a heavier six-inch warhead with even greater armor-piercing capacity. In addition, the missile guidance system will be improved.

The TOW improvement program will enable this battle-proven antitank missile to meet anticipated enemy threats and at the same time will preserve the Army's large investment in its primary infantry heavy assault weapon system. Changes are being planned in such a way as to minimize the obsolescence of existing elements in the TOW system. Development and testing on both phases of the improvement program are under way. Both warhead improvement programs are being directed by the Army Research Development Command's Picatinny Arsenal. The overall TOW improvement program is managed by the Army Missile Command.

The Improved TOW Vehicle (ITV) is an M113A2 armored personnel carrier modified by addition of an erectable, two-tube launcher head mounted on a cupola with 360 degree traverse capability. It provides armor protection for the crew and TOW system components against small arms and indirect artillery fire. The ITV was deployed to USAREUR in considerable depth during fiscal year 1980 and troop acceptance has been excellent. After evaluation of its capabilities by the 11th Armored Cavalry Regiment, the Commander in Chief, USAREUR, decided to equip all of the command's armored cavalry units with ITV pending availability of the IFV/CFV.

A multiyear letter contract for 910 ITVs, including 190 vehicles from the fiscal year 1979 program and all of the quantities programmed for fiscal year 1980 and fiscal year 1981, was awarded to the Emerson Electric Company in January 1980. The contract is expected to be the final ITV buy for the U.S. Army.

The Cobra/TOW continued its modernization program in fiscal year 1980 through phased product improvements to the AH-1. One hundred sixty AH-1Gs were contracted for conversion to AH-1Ss

with 20 millimeter cannon, a fire control subsystem, and wing stored, 2.75 inch rocket management subsystem. The fire control subsystem has been the major effort of the second phase of the enhanced Cobra armament program (ECAP) to strengthen and modernize the Cobra attack helicopter.

The CH-47 modernization program preliminary airworthiness evaluation (PAE) was completed in early December 1979 and a very successful developments test II/operational test II was conducted from 14 December 1979 through 9 May 1980. A "no issue" Army Systems Acquisition Review Council (ASARC) III met on 19 August 1980 and recommended that the CH-47 modernization program advance into full production in fiscal year 1981. The formal Defense Acquisition Review Council (DSARC) III was waived and the Secretary of Defense approved the program as recommended.

The Advanced Attack Helicopter continued in full scale engineering development during 1980. The focus this year was the complete integration of all subsystems and weapons on the helicopter. In April 1980, the competition between contractors to continue development of and produce the Target Acquisition Designation Sight and Pilots Night Vision Sensor (TADS/PNVS)) was completed. Martin-Marietta was selected as the winning contractor. All five flight test vehicles had the winning TADS/PNVS integrated by May 1980 when these prototype helicopters were in flight tests with the stabilator modification. Subsequent developmental flight and subsystems tests were satisfactory.

The UH-60A Black Hawk force development test and experimentation (FDTE) was successfully completed at Fort Campbell, Kentucky, in October 1979. By November 1979, the first combat support aviation company was fully equipped with Black Hawk helicopters and determined to be operationally ready to perform its assigned combat support mission. Black Hawk production continued into the fourth year with procurement of ninety-four helicopters in fiscal year 1980. From the first production helicopter delivery in October 1978 to the end of fiscal year 1980, the Army received eighty-one UH-60A Black Hawk helicopters.

The Aquila remotely piloted vehicle (RPV) systems technology demonstration in 1978 was a joint material developer/combat developer "hands on" experimentation and testing program to understand the role of the RPV, determine its place in the force structure, and determine how it should be integrated into the command, control, and targeting systems. The RPV was configured as a flying wing, had a twelve-foot wing span and six-foot-long fuselage, had a gross weight of 144 pounds, was powered by a twelve HP engine, flew at speeds between 45 and 100 knots and remained air-

borne at least 1.5 hours. The system was tested at Fort Huachuca, Arizona.

A cost-plus-incentive-fee contract was awarded to Lockheed Missiles and Space Company on 31 August 1979 for the full-scale engineering developments of an RPV System. Contract value is $101.1 million over a period of forty-three months. Hardware delivered will consist of twenty-two air vehicles, eighteen mission payload subsystems, four ground control stations, and three launcher and recovery subsystems. First flight of the system is scheduled for August 1981. Production is scheduled to start in 1984.

Development of the Infantry Fighting Vehicle/Calvary Fighting Vehicle (IFV/CFV) continued during fiscal year 1980 with a production contract awarded to FMC Corporation in February 1980 to begin the first year procurement of 100 vehicles. The fighting vehicle systems, less test equipment and training devices, were type-classified in January 1980 after an ASARC/DSARC III review of the program.

Operational testing II was completed in November 1979 with the systems achieving essentially all major test objectives and system specifications. Development testing II continued through June 1980 at Aberdeen Proving Ground. The fix verification test was conducted during September-October 1980 to evaluate vehicle modifications incorporated to correct deficiencies. The Army conducted force development test and experimentation (FDTE) for the cavalry fighting vehicle at Fort Knox, Kentucky, during April-August 1980. Contractor cost increases, inflation growth, and the Army's conservation management concept caused strong OSD and congressional pressure to hasten the completion of plans for competition. A special ASARC was held on 18 July 1980 to review alternative second-source strategies.

On 30 January 1980 the Secretary of the Army approved termination of project management for high energy laser systems. The technology related elements of the High Energy Laser Systems Project Office and the High Energy Laser Laboratory were merged into the Directed Energy Directorate as part of the U.S. Army Missile Laboratory at Redstone Arsenal, Alabama. This decision was made after nearly a year of evaluating the status of the technology base and high energy laser programs related to the acquisition cycle, the constraints of limited resource availability, and requirements for responsive management and control of this unique high technological effort.

In March 1979 DARCOM directed a complete review of laser weapons to present to the Army the most promising that technology offers, and the Army laser weapon technology assessment was undertaken. This assessment, which was published in early 1980, analyzed

pertinent DOD laser device and technology efforts. Subsequently, the Army established a program to provide for early capability demonstration upon which to base future laser weapon system decisions and the concurrent advancement of the high energy laser technology base in the areas of laser energy generation devices, large rugged optics, laser phenomenology data base, and acquisition and fire control.

Production continued on manportable common thermal night sights: AN/TAS-4 (TOW), AN/TAS-5 (Dragon), and AN/TAS-6 (night observation device, long range). New production contracts were awarded for the AN/TAS-4 and the AN/TAS-6. These night sights make use of a set of infrared common modules (IRCM) which are also used by some Navy and Air Force systems. Contracts were also awarded for production of supporting equipments AN/TAM-3 (test set, night vision sights) and AN/TAM-4 (bottle cleaning/charging station). Negotiations continued within NATO for sale and cooperative production of IRCM. A draft memorandum of understanding has been completed and will be circulated for signature.

Production continued on second generation image intensification night sights: AN/PVS-4 (individual served weapons sight), AN/TVS-5 (crew served weapons sight), and AN/PVS-5 (night vision goggles). Work continued on third generation image intensification devices: The aviators night vision imaging system (ANVIS), which will permit nap-of-the-earth flight in overcast starlight conditions, proceeded in engineering development. The low cost night vision aids for use by the individual soldier proceeded in advanced development.

One of two Standoff Target Acquisition Systems (SOTAS) in advanced development participated in Operation ANORAK EXPRESS (February-March 1980), a multinational NATO field exercise in Norway. The exercise tested the system's ability to deploy tactically (in C-5 aircraft) and to operate in the rugged terrain and arctic climate of northern Norway. The operation was successful on both counts. In the SOTAS engineering development program, the radar design successfully passed the "Proof of Principle" demonstration. All major systems progressed through both the preliminary and the critical design review phases. The basic design for all components has been approved. The first UH-60 Blackhawk airplane was modified to a YEH-60B configuration and flown with a dummy antenna. Full-scale mockup of the airborne and ground station subsystem were completed.

The Family of Scatterable Mines (FASCAM) represents a significant advancement in the technology of mine warfare. The system achieves increased utility through the use of modern electronics, a

variety of delivery means, and a high degree of commonality of parts within the mines.

The area denial artillery munition (ADAM) is an artillery delivered antipersonnel mine activated by deployed triplines. Thirty-six mines are dispensed from a single modified M483 155-mm. howitzer shell. In production during fiscal year 1980, the system will be fielded in fiscal year 1982.

The remote antiarmor mine (RAAM) is magnetically fuzed and artillery delivered. Ten rounds can produce a 250 by 300 meter minefield. Minefield density is a function of the height of the burst, and can be controlled with the number of rounds applied. Any 155-mm. artillery piece is capable of emplacing RAAM mines by firing a modified M483 projectile. Nine RAAM mines fit inside one projectile. When the artillery is fired, the safe and arming mechanism senses the forces of spin and mine ejection for proper arming. The mines are expelled from the rear of the projectile over the target. After ground impact, the mine is armed and ready to detonate upon sensing a proper armored vehicle signature. RAAM is in production. The system will be fielded in fiscal year 1982.

The ground emplaced mine scattering system (GEMSS) is designed to provide rapid emplacement of large, prepared minefields in friendly territory. While minefields of the same size can be emplaced conventionally, GEMSS is preferred because of its significantly faster emplacement rate and lower manpower requirements. Two types of mines are launched using this system. One is an antiarmor mine that is activated by magnetic influence. The second is an antipersonnel mine activated by a tripline. The antipersonnel mines can be effectively dispersed with the antitank mines to protect the minefield from disturbance by enemy ground support troops. Both types of mines have antidisturbance features, and selectable self-destruct times. GEMSS was type classified, standard A, in April 1980. Production will begin in fiscal year 1981; the system is scheduled for fielding in fiscal year 1983.

GATOR mines are designed to be effective for interdiction of second echelon forces in assembly areas and columns. A single aircraft sortie can deliver approximately 600 GATOR mines covering a 200 by 300 meter area. Both antiarmor and antipersonnel mines are used in the GATOR mine system. These mines are ballistically matched, similar in appearance, and feature a high degree of commonality in their respective subsystems. GATOR is a joint service development program. The U.S. Air Force has overall system responsibility. Type classification is scheduled in fiscal year 1981.

The Modular Pack Mine System (MOPMS) is a portable mine system designed for selective protection and smaller area coverage.

The MOPMS modules are normally transported to the site by truck. The MOPMS module is emplaced by soldiers hand carrying it to the desired location. If no contact with enemy forces is made or if there is no need to fire the MOPMS modules, they can be retrieved, and reused. If enemy contact is made the modules can be fired instantly by remote command to deploy the mines. In a withdrawal maneuver, the modules can be activated immediately after the friendly units pass. Two types of mines can be emplaced using MOPMS. One type is the antiarmor mine activated by a magnetic influence. The other type is an antipersonnel mine activated by triplines and used to protect the antiarmor mines from disturbance by enemy foot soldiers. MOPMS was in full scale development at the end of the year.

The fiscal year 1982 Program Decision Memorandum directed the Army to terminate the 155-mm. nuclear projectile modernization program and to retain the seventeen-year-old M454 155-mm. artillery fired atomic projectile. The Chief of Staff of the Army personally argued the case with the Secretary of Defense for a new 155-mm. nuclear projectile in addition to the new 8-inch nuclear projectile then nearing the end of development. The Assistant to the Secretary of Defense for Atomic Energy, the Director of the Defense Nuclear Agency, and the Supreme Allied Commander, Europe, also intervened in support of 155-mm. nuclear projectile modernization. As a result, the Secretary of Defense's Amended Program Decision Memorandum for the fiscal year 1982 budget cycle restored this vitally needed program.

The Army and the Department of Energy initiated component production for the XM753/W79 improved 8-inch nuclear projectile and the Department of Energy initiated component production for the W70-4 Lance warhead. Army production of adaption kits for the new Lance warhead was completed in fiscal year 1980. The initial operational capability with these two new nuclear weapons was originally scheduled in fiscal year 1978 and fiscal year 1979 but production was delayed by Congress as a result of the highly publicized "neutron bomb" controversy. The Byrd-Baker Amendment to the fiscal year 1978 Department of Energy Appropriations Act prohibited the expenditure of production funds on enhanced radiation nuclear weapons pending a Presidential decision on the need for this kind of weapon. The production initiated in fiscal year 1980 supports the Presidential decision to modernize the 8-inch nuclear projectile and the Lance warheads and to retain the option to convert them to enhanced radiation weapons.

The fiscal year 1982 Program Decision Memorandum directed the Army to terminate the development of an earth penetrating nuclear warhead for the Pershing II missile. The Under Secretary of Defense

for Research and Engineering requested the Department of Energy to preserve the earth penetrator technology for possible application to future weapon systems.

The Army initiated formal studies to identify the nuclear requirements for a Corps Support Weapons System as a Lance follow-on, and to identify the technological alternatives for modernizing the W45 medium atomic demolition munition and the B54 special atomic demolition munition in support of theater requirements.

Based on an extensive NATO Maintenance and Supply Agency modernization effort to extend the life of the Nike Hercules air defense missile system, the Army requested that the Department of Energy apply modifications to the nuclear warhead that would improve the nuclear safety of that warhead.

The Army made a decision on 30 November 1979 to defer development of an advanced scout helicopter system, and pursue development of a near term scout helicopter (NTSH) based upon modification of an existing inventory airframe. The primary aspect of the NTSH program is to put a mast-mounted-sight (MMS) on the aircraft to improve its mission performance capability. The MMS will enable the aircraft to perform its reconnaissance, surveillance, and target acquisition functions while remaining hidden behind masking obstacles such as trees and terrain.

The Army conducted an evaluation of the UH-1 and OH-58 as NTSH candidates. Based upon the results of the relative detectability of the two, the UH-1 was dropped from consideration as a candidate airframe. The results of this evaluation showed that there was a dramatic reduction of the detectability of the OH-58 as a result of the MMS. A 10 July 1980 decision by the Army made the NTSH a competitive modification program. Independently from the Army, industry had developed a commercial helicopter similar to the OH-6. Actions are continuing to solicit industry for technical proposals that address the Army's needs for a near term scout helicopter.

Testing commenced in April 1979 on four candidates for the squad automatic weapon (SAW): XM106—heavy barrel M16A1; XM248—Ford Aerospace Corp; XM249—Fabrique Nationale (FN), Beligum; and XM262—Heckler and Koch, FRG. On 28 May 1980, an inprocess review (IPR) was conducted to select the best SAW weapon from the four candidates, and to obtain approval of a fiscal year 1981 program to mature the selected SAW candidate leading to a fiscal year 1982 type classification and procurement. The IPR recommended the XM249 as the weapon which most closely satisfied the requirements for a SAW system. HQDA approved the recommendations on 4 September 1980.

A highly successful program competition for the multiple launch

rocket system (MLRS) contract between the Vought Corporation of Dallas, Texas, and the Boeing Company of Seattle, Washington, was concluded in April 1980 when the Army awarded an advanced development and low rate production contract to Vought. This award was made after evaluating the results of more than 200 test firings and observing the performance of each company's system hardware during numerous tests and evaluations which were conducted during the preceding six months. Sixty days of this evaluation were performed under simulated tactical conditions.

Rationalization, Standardization, and Interoperability (RSI)

Over the past year, the Army continued RSI and Host Nation Support (HNS) initiatives in the areas of policy guidance, doctrine formulation, combat service support negotiation, and hardware programs. Army RSI policies and responsibilities, contained in Army Regulation 34-2, were written to incorporate policy changes reflected in a revised DODD 2010-6. While basic policy and objectives remain unchanged, the RSI program scope was expanded to include all allies and friends. Continued emphasis was placed on implementation of the NATO long term defense program (LTDP); support of the OSD/JCS high-priority areas; standardization of doctrine, requirements and procedures; interoperability and standardization of weapon systems and equipment.

Priority areas continued to be intensively managed throughout the PPBS. LTDP actions required of the Army continued as a priority item in the NATO defense planning questionnaire. MACOMs conducted training emphasizing interoperability and mutual exchange of ideas and procedures. RSI conferences were held at TRADOC, DARCOM, and WESTCOM.

A significant development was the initiation of ARSTAF dialogue with the Japanese Ground Self Defense Force. Potential for great progress in RSI initiatives with Japan exists and will receive more attention.

The Army continued to explore HNS as an alternative method of providing combat service support in all theaters. Detailed HNS requirements were developed and passed through OSD to the Ministries of Defense (MODs) in Germany, the United Kingdom, Belgium, the Netherlands, and Luxembourg between January and August of 1980. These requirements address a full system of support necessary to augment U.S. combat service support capabilities to receive, move, and sustain forward stationed and reinforcing Army units in Europe. Based on these requirements the MODs are developing conceptual plans for support which will require political and economic decisions

in each country prior to implementation. An Army regulation on HNS was drafted, staffed, and scheduled to be published in December 1980. This regulation defines policies, procedures, and responsibilities for the first time as well as establishing an HNS Steering Committee at HQDA. Combined defense improvement projects such as HNS in Korea continued to make considerable progress and will be examined in detail in Total Army Analysis 87.

A U.S. Army program of staff talks with the General Staff of the Army of the Federal Republic of Germany has been held since 1975. An eighth set of formal talks was held in April 1980 at Fort Rucker, Alabama. Both armies continued to follow an operating plan seeking agreement first on major operational concepts; then going on to define selected materiel items; to define and evaluate selected materiel, organizations, and operational concepts; and to cooperate in materiel, training, and logistical requirements. In September 1980 the two Army Chiefs of Staff cosigned a concept paper on electronic warfare and a joint paper on camouflage—bringing to thirteen the number of U.S.-German signed agreements on basic military questions. Six more concepts were in staffing or preparation in 1980. The two armies looked ahead to joint operational concepts for command control, continuous operations, armor forces of the 1990s, land battle of the 1990s, Army requirements for tactical air support, and tactical communications.

Staff talks with the Army of the United Kingdom continued into their third year with formal meetings in Aldershot, England, in October 1979 and at Fort Monroe, Virginia, in March 1980. Conducted in a combat developments framework, the talks with the British have the purpose of developing joint tactical concepts, setting interoperability goals, and selecting materiel requirements with potential for standardization and interoperability. They also provided a forum for an informal exchange of views at the general officer level. During fiscal year 1980, the exchange focused on concepts for land-air operations during the 1990s, command control, countermobility, and Army requirements for tactical air support. A serious exchange of ideas and interests in materiel systems continued. The British remained committed to cooperative U.S.-British-German-French development of the Multiple Launch Rocket System. They continued their interest in the goal of interoperable automated battlefield systems.

The exchange with the French Army staff went into its second year with a second round of talks held in Paris in May 1980. Less formal than the German and British exchanges, the talks with the French emphasized the exchange of ideas at the Army level rather than pursuit of formal agreements. The May talks centered on the

French and U.S. corps concepts and on concepts for the employment of armed helicopters.

In May 1978, the United States Air Force began conversion from JP-4 to JP-8 fuel in the United Kingdom. Conversion in continental Europe will begin as soon as practicable. The purpose is to standardize fuel now being used by most NATO and commercial aircraft in Europe.

The thirteenth meeting of the North Atlantic Treaty Organization Ad Hoc Working Group #4 on fuels met at NATO Headquarters, Brussels, during the period 1-3 September 1980. Its purpose was to discuss the progress which has been made on conversion from JP-4 to JP-8 in Europe. A representative from the Office of Energy, Environment and Safety, Office, Secretary of Defense, headed the U.S. contingent. He advised the working group that as a result of a market analysis made by Defense Fuels Supply Center, there is a real concern about price and availability of JP-4 compared to JP-8 on the European continent. The U.S. Army advised that modifications were required for AH-1, UH-1, OH-58, and CH-47 helicopters to meet cold start requirements at $-25\,^{\circ}F$ with JP-8 fuel. It is estimated that these modifications will cost about $54 million in fiscal year 1980 dollars and take four years to complete.

The Federal Republic of Germany representative gave a prepared statement advising that price and availability are major issues. JP-8 could cost Germany an additional 70 million Deutschmarks per year over JP-4. Germany proposed the following:

a. All concerned continue to adapt fixed and rotary wing aircraft to use JP-8 under all conditions, thereby achieving interoperability regardless of which fuel is used.

b. Remain with JP-4 fuel and not set a firm conversion date to JP-8 until market price and availability become acceptable. Norway, Canada, Italy, Belgium, Denmark, and Greece tentatively supported the German proposal subject to formal approval by their respective governments.

The Army does not agree with the German proposal to modify aircraft regardless of a decision on conversion. TRADOC has the task of evaluating user requirements, in conjunction with the impact in dollars, time, and other resources needed to modify these aircraft to meet the cold start requirement. TRADOC's evaluation and position will be forwarded to Department of the Army for review.

In October 1976, the United States signed a Memorandum of Understanding with ten other NATO nations for testing and selection of a second standard caliber of small arms ammunition (the present NATO standard 7.62-mm. will continue as standard) and possibly a

weapon system for the post-1980 timeframe. The United States entered the M16A1 rifle and the improved 5.56-mm. (SM77 and XM778) cartridges as candidates and provided the M16A1 rifle with standard M193/196 ammunition as control. Testing of candidate systems was completed in June 1979. The International Test Control Commission and Panels of Experts analyzed the test data and issued a final report in May 1980. This report concluded that:

a. 5.56-mm. should be adopted as the second standard NATO caliber for small arms.

b. The Belgian SS109 ammunition should be used as the basis for a 5.56-mm. STANAG (Standardization Agreement).

c. No recommendation be made for standardization of an individual or light support weapon.

On 22 October 1980, the Conference of National Armaments Directors (CNAD), NATO, approved the recommendation to adopt 5.56-mm. as the second standard NATO caliber for small arms.

Since World War II, almost no work has been done in fixed-installation camouflage. Increased potential adversary air strength and advances in thermal infrared and microwave target acquisition devices have now put a premium on concealment and deception. Under authority of AR 530-1, the Corps of Engineers is conducting a program to update the Army's capability in fixed-installation camouflage. The program involves two major NATO groups and emphasizes techniques to defeat manned aircraft employing visual, infrared or microwave target acquisition devices by camouflage of key elements at installations. Theoretical modeling work and field data collection efforts are being combined in a field trial under the NATO Special Group of Experts for Camouflage, Concealment, and Deception. The Corps is directing this experiment in which West Germany, the United Kingdom, The Netherlands, and Denmark are participating.

The United States signed general reciprocal procurement memorandums of understanding with Denmark and Turkey in March 1980. Negotiations with Greece on a similar understanding are in progress.

In August 1980 the United States, the United Kingdom, and Germany signed a family of weapons agreement on air-to-air missiles, with the United States designated to develop a medium range missile and the Europeans to develop a short range version.

In March 1980 the United States signed a memorandum of understanding with France, the United Kingdom, and the Federal Republic of Germany for an information exchange concerning antitank guided weapons to determine the feasibility of an antitank

guided weapons family of weapons agreement. Discussions are under way in regard to air delivered munitions and a family of naval mines.

A four-nation Memorandum of Understanding (MOU) signed in July 1979 by the United States, United Kingdom, France, and Germany to develop the Multiple Launch Rocket System (MLRS) represented a substantive breakthrough in achieving cooperation among NATO allies. By funding most of the research and development, the United States is taking the lead. France and the United Kingdom are contributing to the R&D expenses for the basic system, which consists of a self-propelled launcher loader and a conventional rocket that holds in excess of 600 high-explosive rounds. Germany's share of the R&D program is to develop a scatterable mine warhead that will deliver antitank mines to ranges in excess of 30 kilometers. As the production line makes the equipment available, the four partners have made tentative commitments to procure and field the basic MLRS. Negotiations started in fiscal year 1980 for the Concept Initial Program Definition (CIPD) for the terminally-guided warhead.

In September 1980 the President approved in principle a program of cooperation with the Federal Republic of Germany for the modernization of their Pershing Ia missile system. Discussions with the German government were inititated in the same month.

Foreign country interest in Improved Hawk continued in fiscal year 1980. Such interest was based on a country's desire to modernize its air defense, procure a higher technology, or to upgrade its defensive posture against an actual or perceived threat. Fiscal year 1980 saw the addition of Egypt and Singapore to the list of foreign countries that have bought Improved Hawk, bringing the total to nineteen.

During the year, the Army continued to support NATO in its investigation of multinational cooperation in the acquisition of the Patriot Air Defense Missile System. The NATO Patriot steering committee established a working group to explore common logistic support concepts and the NATO Patriot Management Office (NAPATMO) solicited cost estimates from European industry to ascertain the most economical method for the NATO partners to acquire the system to replace their Nike Hercules. The NATO Patriot Acquisition Study is scheduled for completion in October 1982. It will be followed by an acquisition preparation phase during which the management organization will be established and contracts or FMS cases will be implemented.

12. Special Functions

Special functions include those activities which deeply involve the Army in the life of the civilian community. The civil works program of the Corps of Engineers dates from the 1780s. From then until well into the nineteenth century the Corps enjoyed a virtual monopoly on the engineering talent of the nation. The diffusion of scientific and professional education slowly broke down this condition, but the tradition of excellence established early in the work of the Corps sufficed to convince the national government to leave this mission with the Army. Two other special functions, environmental protection and energy, are of much more recent origin. The Army's environmental protection and preservation programs are designed to bring Army practices into conformity with federal laws and regulations in an area of increasing concern to the nation. The energy program involves the Army in a coordinated governmentwide effort to develop alternative energy sources and to conserve energy. The dominance of mechanization in modern military operations means that the energy program has a direct impact upon the Army's ability to fight and win any future land battle, making the program central to the Army as an institution as well as American society generally. The Army's actions in all three areas have become controversial as public concern has increased in recent years. The consequence has been litigation involving the Army. Finally, in compliance with national policy the Army seeks to utilize small and disadvantaged businesses when it awards contracts.

Civil Works

Five major wars in this century have demonstrated that the civil works program plays an extremely important role in mobilization. In each instance the Corps quickly converted from civil projects to constructing camps and training areas required by the units and men called to duty. The civil works program thus allows the maintenance of a sizable military construction potential within the Army during peacetime and provides individual engineers an opportunity to practice the skills they will need in war.

Fiscal year 1980 funds appropriated for the civil works program of the Corps of Engineers totaled $3,263,226,000, an increase of $472,926,000 over the fiscal year 1979 appropriation. The majority of

this increase came in a 1980 supplemental appropriation of $460,600,000. Relief of the emergency created by the eruption of Mount St. Helens in Washington State accounted for forty-seven percent of the supplemental appropriation, $170 million in Flood Control and Coastal Emergencies and $45 million in Operations and Maintenance, General. The table below provides a breakdown of the fiscal year 1980 civil works appropriations by title (the amounts include funds appropriated by the Energy and Water Development Appropriation Act, 1980, Public Law (PL) 96-69, and the Supplemental Appropriations Act, 1980, PL 96-304).

Title	Dollar Value (thousands)
General Investigations	142,145
Construction, General	1,660,966
Operations & Maintenance, General	942,100
Flood Control, Mississippi River& Tributaries	210,515
Flood Control & Coastal Emergencies	170,000
General Expenses	76,800
Special Recreation Use Fees	4,000
Permanent Appropriations	6,700
Revolving Fund	50,000
Total	$3,263,226

The largest appropriation, Construction, General, permitted work on 225 projects of which fifteen were completed during fiscal year 1980. The completed projects will provide flood protection to 547,376 acres of flood-prone lands and store 253,860 acre-feet (the volume of liquid which would cover one acre to the depth of one foot) of water for water supply. They also include improvements to two coastal harbors and fourteen miles of inland waterways, seven miles of beach erosion control, and power-on-line from one generating hydropower unit with an installed capacity of 26,667 kilowatts.

The Tennessee-Tombigbee Waterway, currently under construction by the U.S. Army Corps of Engineers, is probably the most important new navigation project in the United States since the St. Lawrence Seaway. It is 232 miles long, extending from Demopolis, Alabama, on the Black Warrior-Tombigbee River navigation system through a divide cut (a canal connecting one large drainage basin with another) into Pickwick Pool on the Tennessee River.

The Corps began construction of the project during 1971. At the beginning of fiscal year 1980, $622 million had been appropriated and allocated for construction. The 1980 budget request was $165 million.

The project generated intense controversy as reflected in court litigation (see Army Litigation) and challenges in Congress. A fiscal

year 1980 supplemental request of $58 million to speed construction of the waterway precipitated an extensive debate on the floor of the House before the amount was approved by a vote of 230 to 185. In the Senate, the Appropriations, the Environment, and the Public Works Committees held special hearings on the Tennessee-Tombigbee project. The Senate debated a motion to reduce 1981 funds from $208 million to $8 million. The motion was defeated fifty-two to thirty-seven. As the fiscal year ended, the Corps estimated that completion of the project would require an additional $880 million.

Two major disasters, Hurricane Frederick and the eruption of Mount St. Helens, accounted for most of the Corps' natural disaster activities in the fiscal year just ended.

Hurricane Frederick came ashore near Mobile, Alabama, on 12 September 1979. The storm involved 100 mile per hour winds, a ten foot surge in ocean level, and seven inches of rain in three hours at Mobile. Damages totaling more than $600 million occurred in Alabama, Mississippi, and Florida, which President Carter declared major disaster areas.

Disaster relief activities, begun in fiscal year 1979, continued into June 1980. Federal Emergency Management Agency (FEMA) mission assignments, under PL 93-288 authority, included damage surveys in all three states, delivery of block ice in Alabama, debris removal from the Mobile drainage system, removal of sunken barges in Mobile harbor, and temporary housing in Mississippi. The Corps' response to FEMA requests required more than two hundred man-years of effort. At the peak, the effort required 450 persons, including personnel loaned by two divisions and eighteen districts. The Corps administered $100 million in contracts, including one for the removal of ten million cubic yards of debris.

On 18 May 1980 Mount St. Helens, a volcano in southwestern Washington State, erupted. The blast was greater than a twenty-five megaton bomb, removed 1,300 feet of mountain top, and scattered four billion cubic yards of material across the landscape and into the atmosphere. Mud flows clogged the Toutle, Cowlitz, and Columbia River channels. Deep-draft navigation to Portland was cut off, and the Toutle and Cowlitz Rivers could not handle normal winter rainy season flows. Loss of vegetation and soil over a 150 square mile area increased runoff, aggravating the potential for flooding. The President declared the state of Washington a disaster area on 22 May.

The Corps began work to restore the Columbia River navigation channel with Operations and Maintenance funds and to restore flood flow capacity on the Toutle and Cowlitz Rivers using PL 84-99 disaster funds. By 30 September, the Corps had dredged ten million cubic yards of material from the Columbia River at a cost of $15

million. Flood flow activities on the Toutle and Cowlitz Rivers included dredging a new river channel, building or raising levees, and constructing debris retention structures.

By the end of the fiscal year, the Corps had obligated $97 million for flood prevention with $51 million expended. An additional $130 million had been authorized for work in the next year. The Corps has used more than twenty dredges plus land-based earthmoving equipment. It has also prepared Damage Survey Reports for FEMA.

The Corps of Engineers continuously evaluates all major civil works structures which it operates, including flood control dams, navigation locks and dams, and multipurpose dams, to ensure their structural safety and stability. Such evaluations are based upon periodic inspections, supported when appropriate by use of instruments to measure the effects of seepage, movement of the structure, and earthquakes. Following the initial inspection of new dams, they are examined at one-year intervals for four years and two-year intervals for another four years. Depending on the results, the inspections may be extended to intervals of five years. The District Engineer prepares a formal technical report on the inspection and submits it to the Division Engineer for review and approval. The District Engineer schedules remedial work when deficiencies are found and corrective measures are needed.

The Corps operates 248 flood control dams and reservoir projects, 220 major lock sites, and 69 hydroelectric power dams (multipurpose). Most of the other dams are used for flood control. The Dam Inspection Program seeks to ensure the integrity of Corps projects and thereby protect the people and property located downstream.

Congress enacted the National Dam Inspection Act of 1972 (PL 92-367) as a result of several dam failures in the United States. Limited funding and the Administration's position that the safety of nonfederal dams is the responsibility of states and dam owners restricted the Corps of Engineers to compiling a national inventory of about 63,500 dams; conducting a review of each state and federal agency's capabilities, practices, and regulations regarding the design, construction, operation, and maintenance of dams; developing the "Recommended Guidelines for the Safety Inspection of Dams"; and formulating recommendations for a comprehensive national dam safety program for nonfederal dams. The Chief of Engineers reported to Congress on these activities, including recommendations and proposed legislation to implement a federal dam safety program, in November 1976. A series of spectacular dam failures, including the Bureau of Reclamation's Teton Dam in Idaho on 5 June 1976 and the privately-owned Kelly Barnes Dam in Georgia on 6 November 1977,

led Congress to appropriate funds in the Public Works Appropriation Act for fiscal year 1978 to begin the inspection of nonfederal dams as required by PL 92-367.

On 2 December 1977 the Corps initiated a program to inspect approximately 9,000 nonfederal dams which by virtue of their location presented a high potential for loss of life and property should they fail. The program seeks to identify deficiencies in order to permit correction in a timely manner by nonfederal interests, to verify and update the existing inventory of dams, to provide data for a better definition of a viable national dam safety program including the federal role, and to encourage and prepare the states to implement effective dam safety programs for nonfederal dams.

The Corps began the inspections three years ago; it will require one more year to complete them. It selects and schedules the dam inspection in cooperation with the governor and state officials. The Corps had initiated 6,854 inspections, completed 6,632, and approved and furnished to governors and dam owners 5,894 inspection reports by 30 September 1980. During fiscal year 1981, it anticipates inspecting the approximately 2,100 remaining dams.

Of the 6,632 inspected dams, 1,937 had deficiencies which made them unsafe. The Corps recommended emergency action for ninety-seven of the unsafe dams to eliminate the potential for immediate failure. Emergency actions included draining or partial draining of the reservoir and breaching. In some cases the owners made the repairs almost immediately; however, their overall response in correcting deficiencies needs to be improved.

PL 92-367 specifically directed the Corps of Engineers to compile an inventory of all dams in the United States over six feet in height and with a maximum water impounding capability of at least fifty acre-feet or of at least twenty-five feet in height and with a maximum water capacity in excess of fifteen acre-feet. Compilation of the dam inventory involved collecting such information as the exact longitude and latitude of the dam site, the popular name of the impoundment, the nearest downstream center of habitation, the distance from the dam, its population, the type of dam, the year completed, its structural height, its maximum and normal impounding capacities, etc. In 1978 the Corps estimated that an update and expansion of the inventory begun in the early seventies would involve 55,000 dams. Use of a variety of sophisticated techniques to locate dams including the National Aeronautics and Space Administration's Land Satellite (LANDSAT) Multiple Scanner led to the identification of 63,578 dams meeting the criteria for inclusion in the inventory of which the Corps had inventoried 62,846 by 30 September 1980. The Corps

hopes to obtain the legislative authority to maintain the inventory after fiscal year 1981.

During fiscal year 1980, the Corps conducted two one-week sessions of a dam safety training course for state personnel to promote the development of effective safety programs for nonfederal dams at the state level. The course offered instruction in basic engineering principles and practices involved in inspecting existing dams and assessing their safety. A total of fifty-five state representatives attended.

As part of a series of management initiatives to improve performance and support changing priorities and work loads, the Chief of Engineers in December 1978 directed the Corps' field structure to undertake a realignment study to determine where to best locate Corps resources to meet the water resource challenges of the eighties. The study showed that the Corps' field organization was basically sound, manning levels were lean, and that relatively few economies could be gained through major realignments without considerable disruption to missions.

The study considered for possible closure or realignment the engineer district offices at Buffalo, New York; Charleston, South Carolina; Chicago, Illinois; Philadelphia, Pennsylvania; Rock Island, Illinois; San Francisco, California; St. Paul, Minnesota; and Wilmington, North Carolina. The study reviewed and confirmed the status of the New England Division as a division. The St. Louis, Missouri, District will also remain a subordinate element of the Lower Mississippi Valley Division for the near future. San Francisco District will remain essentially unchanged with retention dependent on the size of the future construction work load.

While the study recommended no major realignments or closures, it did lead to some boundary adjustments and functional transfers. These changes included: Adjustment of the Chicago District's areas of responsibility; assumption by the Detroit District of responsibility for Corps programs and projects in those parts of Wisconsin and most of Indiana currently assigned to the Chicago District, while the Rock Island District took over responsibility for the Chicago District's part of the Illinois Waterway; continuation of the Chicago District's support of the Chicago area and the northeastern six counties of Illinois and Lake and Porter counties in Indiana. The Corps also transferred the lake-oriented work of the St. Paul District, including the Lake Superior Area Office in Duluth, Minnesota, to the Detroit District; adjusted the boundary between the Charleston and Wilmington districts to follow the North Carolina and South Carolina state line; adjusted the boundary for regulatory activities between Charleston

and Savannah districts to follow the Georgia and South Carolina state line (this realignment negated the need for any further study of the Charleston District for the foreseeable future); and transferred Philadelphia District's construction and related design functions to the Baltimore District for new projects authorized in the future.

Environmental Protection and Preservation

Continued central management of Army Pollution Abatement Program (APAP) during fiscal year 1980 resulted in significant progress in bringing Army installations into compliance with applicable air and water standards. The 1980 Military Construction, Army (MCA) program consisted of fifty-eight pollution-abatement projects at a cost of $144 million. Of the 116 installations identified in 1978 as being out of compliance, only fifty-six remained to be corrected by 30 September 1980, and completion of all projects in the 1980 MCA program would correct thirty of them. The promulgation of regulations implementing the solid waste and hazardous waste provisions of the Resource Conservation and Recovery Act (RCRA) in 1980 initiated a major increase in APAP investigative studies. These studies should identify additional noncomplying installations which will require future MCA corrective projects to achieve compliance with solid waste and hazardous waste standards.

During the past year, the Environmental Office, Office of the Assistant Chief of Engineers revised AR 200-1 and prepared an entirely new regulation, AR 200-2, both of which dealt with the environment. AR 200-1 implements several Department of Defense directives and provides general Department of the Army policy for the Army Environmental Program. The Environmental Office completed and distributed a draft revision for initial coordination with the Army staff and major Army commands. Preparation of the final version was well under way at the end of the fiscal year.

AR 200-2, formerly chapter 2 of AR 200-1, establishes Army policy for the implementation of the National Environmental Policy Act. The Department of the Army published the draft regulation in the *Federal Register* on 4 January 1980 for public review and comment. The Environmental Office prepared the final draft on which staffing was complete except for some minor changes by the end of September.

The Secretary of the Army initiated the installation restoration program in 1975 to eliminate chemical contamination at Army installations and its spread to surrounding areas. The major commands identified sixty-seven installations as candidates for the first phase "record search," i.e., a detailed investigation of all records pertaining

to the facility to determine if a potential for contaminant migration exists. The Operations and Maintenance Division, Directorate of Military Programs, Office of the Chief of Engineers (OCE) recommended the screening of all Army installations to provide a data base for future hazardous materials management programs and to provide information for future facilities management decisions. The Department of the Army added this expansion to the fiscal year 1982-86 budget guidance. The U.S. Army Toxic and Hazardous Materials Agency began preparing detailed plans for implementing the screening.

In September 1980 the Operations and Maintenance Division published the final environmental impact statement on the expanded north boundary containment operations at Rocky Mountain Arsenal, Colorado. It concluded that the installation of a ground water containment barrier and activated carbon filtration system was the most environmentally acceptable option for halting offpost migration of hazardous materials at the north boundary.

During 1980, the Operations and Maintenance Division and the Directorate of Civil Works, Corps of Engineers, initiated preliminary discussions on establishing a policy that the Corps of Engineers would assist the Environmental Protection Agency (EPA) in a nationwide cleanup of all uncontrolled private hazardous waste disposal sites nationwide.

The EPA published regulations implementing the hazardous waste provisions of the RCRA in the *Federal Register* on 19 May 1980. These regulations defined the characteristics of "hazardous waste" and provided lists of hazardous wastes. The same *Federal Register* established a timeframe to notify the EPA of all hazardous waste activities, including generation, transportation, treatment, storage, and disposal of waste. Army installations had to complete and return this notification to an EPA Regional Office by 18 August 1980. The Environmental Office distributed a Headquarters, Department of the Army Letter, subject: Implementation of Hazardous Waste Regulations, to all major commands. The Directorate of Military Programs sent the first draft of revised AR 420-47, Solid Waste Management, to the field and received comments. The revised regulation incorporates the new solid waste and hazardous waste guidelines contained in the RCRA.

Each year the Department of the Army confers the Secretary of the Army Environmental Quality Award to the installation conducting the best environmental program. The Army Environmental Committee judged the installations competing for this year's award on the overall quality of their written presentation and their program achievements. Red River Army Depot at Texarkana, Texas, won the

award for its accomplishments during 1979. Col. Claude B. Donovan, commander of the depot, received the award at a special presentation at the Pentagon on November 3, 1980. Ft. McClellan, Alabama, and Tobyhanna Army Depot, Pennsylvania, were the first and second runners-up, respectively.

The Army Energy Program

The Army's role in the national energy program consists of two complementary and often commingled facets: (1) initiatives to enhance conservation and exploit alternative fuels for the Army as an energy consumer and (2) efforts to use the Army's expertise in these areas to assist other federal agencies. The Interagency Coal Export Task Force (ICETF), established by President Carter in April 1980, fits into the latter category. The Corps of Engineers plays a key role in the task force because of its co-chair position on the inland transportation and port and ocean transportation work groups. The ICETF will report to the President in December 1980 on ways to increase United States coal exports in a manner consistent with other national policies, including the commitment to environmental protection. The major effort has been devoted to compiling information on present and projected levels of domestic and international supply and demand; identifying specific actions that could be undertaken to increase coal export; analyzing the social, economic, and environmental costs and benefits of such actions; and assessing the role to be played by the private sector and, if desirable, by the government.

In 1978 the President directed the Department of Defense and the Department of Energy to identify energy areas of mutual interest and assign lead responsibility to the department best equipped to handle it. Successful implementation of the directive dates from an interdepartmental conference held at the National Bureau of Standards in February 1980. The conferees assigned broad responsibility for ground mobility to the Department of the Army, including the lead for terrestrial photovoltaic (solar-electric) development; ground vehicle multifuel engines such as in the new XM1 main battle tank; solar heating and cooling of buildings; woodfired boilers; electric vehicles; energy storage and distribution systems for buildings and other fixed facilities; energy conserving structures and construction technology; and the establishment of an "energy showcase" at Red River Army Depot Lone Star Ammunition Plant.

The Army Energy Office published a completely revised Army Energy Plan in September 1980. The plan surveys the world energy situation, the energy position of the United States, and the national energy objectives and relates them to the Army's energy goals. The

new plan contains more detailed and more recent energy data than the 1978 plan which it replaces, updates budget figures, and includes all changes in national and institutional energy objectives since 1978. It provides a framework for the preparation of detailed plans by energy coordinators at Army bases.

For fiscal year 1980 the Army established an energy conservation goal of a 9.5 percent reduction compared to the fiscal year 1975 baseline 276.54 trillion British Thermal Units (BTUs). In practice, consumption totaled only 246.03 trillion BTUs, an actual savings of 14.04 percent, despite increased mechanization and training requirements and an extremely hot summer which greatly increased electrical consumption. The following table, expressed in trillion British Thermal Units, presents a comparison between the 1975 figures for Army energy consumption and those of fiscal year 1980.

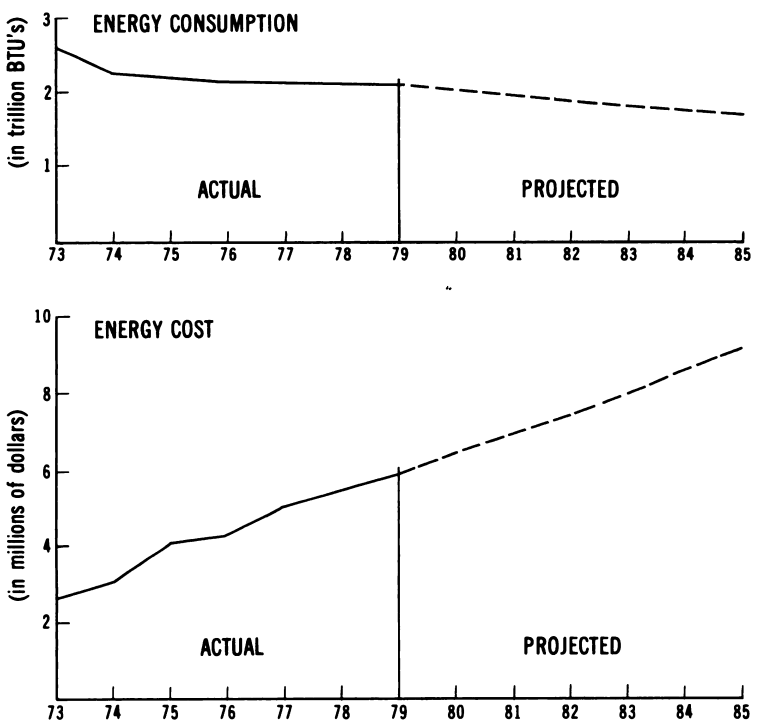
	FY 75	FY 80	Conservation (Percent)[1]
Installation Operations			
Purchased Electricity	89.53	88.42	1.24
Natural Gas	44.30	37.58	15.17
Liquefied Petroleum Gas	2.24	1.79	20.09
Coal	34.63	25.96	25.04
Purchased Steam	.68	.88	−29.41
Petroleum Heating Fuels	68.46	50.83	25.75
Subtotal	239.84	205.46	14.33
Mobility Operations			
Aviation Fuel	13.15	14.36	−9.20
Motor Gasoline	16.85	13.84	17.86
Diesel Fuel	16.38	12.37	24.48
Subtotal	46.38	40.57	12.53
Army Total	286.22	246.03	14.04

[1]A negative figure reflects consumption exceeding the baseline.

As the above table indicates, the Army divides its energy program into two major components: installation operations and mobility operations. Most of the savings since 1975, some 88 percent, have accrued in the former both because of the limits of existing technology and because of the proportionately large amount of energy expended in that area, 84 percent in 1980. The energy conservation program for facilities covers a broad range of actions directed toward overall reductions in energy consumption. Other phases seek to shift major energy loads from oil and natural gas to coal, which is far more plentiful. In addition, the Corps of Engineers is working on several projects to minimize the impact of sudden curtailments in supplies.

Army installations require substantially less energy to operate in 1980 than they did in 1973 at the time of the OPEC embargo, but while the reductions have continued they have become smaller each year. Decreased consumption has not sufficed to offset the increase in total energy costs which have resulted from the rapid escalation in unit costs of energy, basically oil, natural gas, coal, and electricity. Electricity has proven the most difficult area in which to achieve energy reductions. Chart 2 below compares trends in energy consumption and energy costs (thermal and purchased electricity) since fiscal year 1973.

CHART 2—TOTAL ENERGY CONSUMPTION VS. COST FY 73–85



The energy conservation program has achieved major savings through cost avoidance. These savings of approximately $150 million per year are increasing annually.

The Army has achieved its energy savings through numerous local management actions such as consolidation or inactivation of facilities, changes in temperature standards, fine tuning of equipment, and increased motivation of personnel.

The largest single energy reduction program is the Energy Conservation Investment Program (ECIP). Begun in fiscal year 1976 and programmed through fiscal year 1985, this program focuses on a retrofit of existing facilities. Projects include insulation, storm windows, storm doors, economizers, changes in lighting, heating and electrical controls, and specialized monitoring and control systems. The Department of the Army expects ECIP to provide a 12 percent reduction in energy use per square foot of existing facilities in fiscal year 1985 from the usage in fiscal year 1975. Other programs should reduce consumption by an additional 8 percent.

The policy of the Department of the Army with respect to energy conservation in new construction is based on Public Law (PL) 94-385, the Energy Conservation Standards Act of 1976, and Executive Order (EO) 12003. Title III of PL 94-385 redirects federal policies and practices to ensure that new buildings financed by the federal government will incorporate reasonable energy conservation features. The act requires federal agencies to establish design energy budgets for all new buildings by August 1979. EO 12003 established energy conservation goals for new and existing federal facilities. It mandated a reduction by 1985 of 45 percent in average annual energy use when compared to the 1975 level. In March 1979 the Department of Defense issued interim energy budgets for new facilities which adopted, with modifications, budgets prepared by the Corps of Engineers in 1978. A triservice committee is currently assisting the Department of Defense in updating its interim energy budgets.

The Energy Monitoring and Control System (EMCS)—a means of controlling and measuring building mechanical and electrical systems such as heating, ventilation, air conditioning and lighting—aids in energy and manpower conservation and the more efficient operation of old and new buildings. The Army has six manual EMCSs installed and operating. Three Army installations have automatic EMCSs in initial startup status. The Corps of Engineers has forty-two systems in design and various stages of construction. The MCA program through fiscal year 1982 contains fifty-one EMCSs.

The Power Plant and Industrial Fuel Use Act of 1978 and EO 12217, 18 June 1980, seek to reduce national dependence on nonrenewable and foreign energy sources. They establish as a major goal for the Army a 30 percent reduction in oil consumption at Army facilities in fiscal year 1985 compared to fiscal year 1975. The lowering of authorized space heating and water heating temperature will assist in achieving this goal as will a number of major construction projects planned over the next few years. The fiscal year 1980 programs included a new wood and coal fired boiler plant at the Red

River Army Depot to replace two gas-oil plants. Plans also call for the introduction of a wood-coal boiler plant at Fort Stewart, Georgia; the addition of a new coal-fired boiler plant at the Iowa ammunition plant; the transfer of generating capacity from an oil plant to an existing central coal plant at Fort Benjamin Harrison, Indiana; and construction of approximately fifteen recovery-refuse incinerators.

The Corps' Districts are conducting a number of feasibility studies on the increased use of wood, coal, and refuse. Two studies at Fort Benning, Georgia, and Fort Lewis, Washington, are considering the potential of joint ventures with the local utility companies. During the past two fiscal years, the Corps conducted test firings of wood pellets in Army boilers. Additional studies are under way on the feasibility of wood gasification to provide substitute or supplemental fuel for Army boilers. OCE issued a recent policy change which requires that new boiler plants with a capacity of generating over twenty Mega British Thermal Units per Hour (BTUH) use coal or another alternate fuel. At the direction of the President, the Corps is making a survey of all major boiler plants, those with a capacity of fifty Mega BTUH, to determine which should be converted to coal or some alternate fuel.

The initiative for an Army effort in solar energy came from a variety of sources: the Corps of Engineers, the Surgeon General, and U.S. Army Forces Command. Beginning in 1975, the Army established several MCA projects which included solar heating, cooling, and/or domestic hot water as demonstration programs. Two demonstration projects partially funded by the Department of Energy are operational and include the heating and cooling of a battalion headquarters and classroom building and one family housing unit. In addition, nine Department of Defense funded facilities—including one bachelor enlisted quarters building, two barracks, two dining halls, one dental clinic, and three Army Reserve Centers—are operational. Three Department of Defense funded facilities and one Department of Energy funded facility with solar energy were under construction as part of this initial Army effort.

The fiscal year 1979 and 1980 Military Construction Authorization Acts, PL 95-356 and PL 96-125, directed the Army to install solar energy systems in all new facilities to the extent that such systems were cost effective. As a result of these acts eleven projects are under construction, and nineteen projects are in the study or design stage. In addition, the Corps of Engineers studied approximately ninety other projects which it found were not cost effective or, in a few instances, for which the Army lacked funds.

The Huntsville Division of the Corps of Engineers has supported the Department of Energy's Fossil Energy Demonstration Plant Pro-

gram since early 1974. The program seeks to encourage the commercial application of the chemical conversion of high sulfur coals into clean liquid or gaseous fuels through a series of scaled-down plants. The government fully funds the design effort, while the government and the contractor jointly fund the construction and demonstration phases.

In June 1975 a Memorandum of Understanding formalized Corps support for the Fossil Energy Demonstration Program. It outlined Corps activities in preliminary planning; proposal preparation and evaluation; contract negotiating, estimating; equipment procurement; review of designs for cost effectiveness, adequacy, and constructability; site investigations and evaluations; development of configuration management; quality assurance; logistic support and project management plans; and special tasks required in the development of new programs. The Departments of Army and Energy signed a new Interagency Agreement superseding the 1975 Memorandum of Understanding on 1 August 1980. The Interagency Agreement transferred contract officer authority to the Corps of Engineers for the balance of two engineering and design contracts awarded by the Department of Energy and valued at approximately $35 million. The agreement changed the role of the Corps from one of administrative support to one of operational responsibility.

The Army's implementation of energy reduction projects actually preceded the initiation of systematic planning in the area. In 1976, the same year as the introduction of ECIP and the passage of the Energy Conservation Standards Act, the Corps of Engineers began the Basewide Energy Studies (BWES) program to develop a systematic plan for projects that would result in the reduction of energy consumption at each major Army installation. Funded initially at the $1.124 million level, BWES was essentially a pilot program focusing on three installations: Fort Rucker, Alabama; Fort Campbell, Kentucky; and Redstone Arsenal, Alabama. Expanded and renamed the Energy Engineering Analysis Program (EEAP), it investigates all techniques of energy conservation which are reasonable, practical, and economical, including operation methods and procedures as well as the physical characteristics of the facilities. The results of studies developed from the program allow the Army to establish priorities in an orderly manner for ECIP and new military construction projects that will reduce energy consumption and provide the most efficient energy use at each installation. In addition EEAP describes low cost and no cost projects which can be accomplished by work order or readjustment of machinery by operating personnel.

As of 30 September 1980, the Corps of Engineers had EEAP

studies under way at seventy-six CONUS installations. It had completed an additional eleven studies, including seven on Defense Logistics Agency installations. Nineteen studies are under way concerning Eighth Army installations in Korea. The Corps began the first seven EEAP studies in Europe during fiscal year 1980. The Corps plans to let contracts for consultants to prepare EEAP studies of an additional forty-two CONUS and eighteen European installations in fiscal year 1981.

Fiscal year 1980 was the first year in which Congress had specifically appropriated funds for the program. Congress provided EEAP with $15 million. In the past the various commands funded most of the program using yearend Operation Maintenance Activities (OMA) funds. The Army projects funding the EEAP for $15 million in both 1981 and 1982 and for $10 million in 1983. The results of the EEAP studies are starting to become apparent in the construction program. In the fiscal year 1982 ECIP program, 62 percent of the CONUS ECIP projects resulted from EEAP studies.

In contrast to that portion of the Army's Energy Program dealing with installations, work in the mobility section remained largely in the area of research and development. During the past few years, the Department of Defense has sought to minimize the impact of a disruption in the supply of foreign oil on that tactical efficiency of the armed forces through the Defense Mobility Fuels Action Plan. Army research and development in alternative and synthetic fuels is guided by this plan.

Three agencies within DARCOM—the Mobility Equipment Research and Development Command (MERADCOM), the Tank-Automatic Research and Development Command (TARADCOM) and the Aviation Research and Development Command (AVRADCOM)—hold joint responsibility for Army fuel research. Semiannual technical program reviews ensure that their work is effectively coordinated. MERADCOM acts as the lead agency in mobility fuels research, development, test, and evaluation (RDTE).

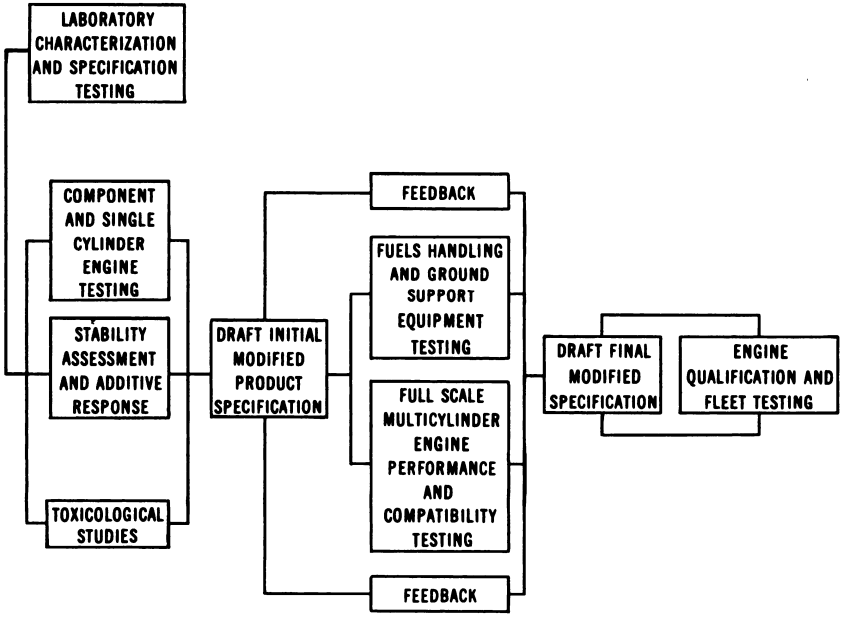
The three major efforts within the Army's Alternative and Synthetic Fuels Program are: (1) development of an alternative and synthetic fuels capability; (2) creation of a new, accelerated fuel—engine qualification procedure; and (3) evaluation of gasohol use in tactical equipment. The first two evolved from the Defense Mobility Fuels Action Plan, the third from the Defense Authorization Act of 1979 which required the Department of Defense to procure domestically produced alcohol or alcohol-gasoline blends.

Army laboratories gained their first experience in synthetic fuel evaluation in 1973 and 1974 during work on the Navy's Char-Oil Energy Development (COED) program to produce gasoline distillate

from coal by pyrosis, any chemical change brought about by heat alone. The product quality proved marginal and led to further testing, first on the use of steam to extract aviation turbine fuel (JP-5) from tar sands and then on the employment of the Parahoe above-ground retort process to produce gasoline, aviation turbine fuel (JP-5, JP-5/JET A, and JP-8), and diesel fuel from shale. The effort to distill satisfactory aviation turbine and diesel fuels from shale has completed the laboratory phase of determining the fuel's physical and chemical properties called characterization and specification, and limited component and single cylinder engine testing has begun. DARCOM anticipates completing full-scale durability and endurance testing during fiscal year 1981. This will pose certain problems in terms of volume of production. At yearend, the evaluation of the most recent shale-derived fuels had required approximately ten barrels. The 1981 testing program will require between 3,000 and 3,500 barrels. DARCOM hopes to meet this challenge and go on to fleet testing in late 1981. Chart 3 below illustrates the procedure which MERADCOM has developed since 1973 to evaluate synthetic fuels. Each stage requires progressively more fuel.

The Department of Energy predicts that a successful research program in shale-derived synthetic fuels will alleviate the need for other

CHART 3—ARMY SYNTHETIC FUELS EVALUATION PROCESS



synthetic fuels for another two decades. The Army, however, cannot afford to make its mobility hostage to an as yet unproven technique. DARCOM will begin RDTE on coal liquification in fiscal year 1981 and on biomass derived fuels, essentially alcohols derived from wood, vegetation, etc., the following year.

The Department of Defense in late 1979 directed the Army to develop more efficient procedures in qualifying military fuels in order that it might react quickly to changes in the petroleum refining industry. A new fuel normally takes five to eight years to qualify for use in Army engine and powerplant accessory systems. The Department of Defense, noting the five years which the Army took to convert to unleaded gasoline, wants the process streamlined.

DARCOM began laboratory testing of gasohol, the third major component of the Alternative and Synthetic Fuels Program, in fiscal year 1980. The command expects that completion of the gasohol evaluation for tactical vehicles will require another two years. The Department of Energy and other federal and state agencies are testing gasohol for administrative vehicles and will furnish the results to the Army when available.

Much of the remainder of the work in the mobility section of the Army's Energy Plan fell into the area of planning. The Deputy Chief of Staff, Operations and Plans, upon the recommendation of the Deputy Chief of Staff, Logistics, directed the Concept Analysis Agency to validate the average fuel usage rates for tracked combat vehicles for use in all future computations of requirements for the petroleum war reserve. This study, still under way at the end of the fiscal year, promises to have a major impact upon future Army planning. During 1980, the Directorate of Transportation, Energy and Troop Support in the Office of the Deputy Chief of Staff for Logistics provided $21 million for petroleum equipment procurement in the fiscal year 1982-86 program. The expenditure makes a major contribution toward procurement of needed prepositioned materiel configured to unit sets (POMCUS) and war reserves. It constitutes an 18 percent increase over prior year funding.

The Military Traffic Management Command (MTMC) is surveying transportation patterns in order to save fuel by consolidating shipments. It is also studying the tradeoffs between lessening dependence on air transport and the need to create large stockpiles of goods. Finally, it is developing a command level management information system to identify performance trends and check carrier performance on a state, regional, or national level and by military service. CERS (Carrier Evaluation and Reporting System) II will allow MTMC to analyze local performance in comparison with the

national average and quickly identify problem areas requiring remedial action.

Army Litigation

During fiscal year 1980, Army activities were again frequently challenged in federal court. For the first time in several years the caseload of the Office of the Judge Advocate General climbed to over 1,500 cases on hand.

Cases concerning officers released from active duty as a result of nonselection for temporary promotion in 1975 and 1976 continued to provide a significant work load. The Solicitor General of the United States decided not to appeal the adverse decision of the United States Court of Appeals for the District of Columbia in *Dilley* v. *Alexander* to the Supreme Court. The Army must reinstate the plaintiffs in these cases to active duty and provide backpay, allowances, and other benefits of full constructive service. In most cases this action will entitle these officers to active duty retirement.

In the same manner, the Solicitor General made no appeal from the adverse decisions of the Court of Claims in *Doyle* v. *United States* and *Adams* v. *United States*. As a result the plaintiffs in the Doyle case are entitled to backpay and retirement status.

The issues concerning the validity of promotion boards are also pending in fifty cases in the court of claims and over twenty cases in the U.S. District Court for the District of Columbia. The Judge Advocate General expects the courts will decide these cases within calendar year 1981.

The United States Court of Appeals for the Fifth Circuit in the case of *Jones* v. *Alexander* decided that the RELOOK boards and the 1975 promotion board properly constituted a "pass over" within the meaning of Army Regulations. The U.S. Supreme Court denied plaintiff's petition for *certiorari* in October 1980.

In the cases of *Ben Sholom* v. *Secretary of the Army* the district court decided that plaintiff's discharge from the Army Reserve violated plaintiff's rights of privacy and substantive due process and that the Army Regulation in question was too broad. The Army made no appeal from the decisions because of a more recent favorable decision in a Navy case from the U.S. Court of Appeals for the Ninth Circuit. In addition, the Army plans to change Army Regulation 135-178.

Many cases arising from Army testing of hallucinogens remain in litigation. The government won *Stanley* v. *CIA* and *Nagy* v. *United States* in the lower court; they are still pending in the appellate

courts. Pretrial discovery is proceeding in the cases of *Loeh* v. *United States* and *Chaffin* v. *United States*. In both cases motion to dismiss were partially denied last year.

Litigation has been stayed in the case of *Thornwell* v. *United States* while a private bill on Thornwell's behalf is pending in Congress. The Senate approved the bill and the House Judiciary Committee has made a favorable report.

A series of cases concerning the death of a civilian after administration of mescaline as part of an Army research contract—*Barrett* v. *United States, Barrett* v. *Hoffman, Barrett* v. *Arthur*—is continuing before the courts. Dispositive motions are pending in other cases concerning administration of drugs to military volunteers at Edgewood Arsenal.

Cases concerning the atmospheric nuclear testing program continue to be filed. In the leading case, *Jaffee* v. *United States*, the U.S. Court of Appeals for the Third Circuit reversed the district court's earlier dismissal of the claims against individual defendants, holding that the *Feres* doctrine did not apply to intentional torts. The *Feres* doctrine holds that the government is not liable for injuries to service members which arise from or were incurred incident to service. Many courts have held that the same immunity from suit by service members injured incident to service also is provided to federal officials, when sued in their individual capacities for actions taken within the scope of their official duties. Later, however, the Court of Appeals granted the Government's petition for a rehearing *en banc* and vacated the earlier decision. Both sides have filed supplemental briefs, and the case is awaiting oral argument. In other nuclear testing cases appeals are in progress after the courts granted government motions to dismiss.

The case filed by the Governor of the State of Utah against the Secretary of Defense to prevent the movement of Weteye Bombs from Rocky Mountain Arsenal, Colorado, to Tooele Army Depot, Utah, was dismissed after the Department of Defense decided not to move the bombs. Weteye is the nickname of a five hundred pound Navy bomb, the MK 116 Model O, filled with nerve agent GB.

In November 1979 the U.S. District Court for the District of Columbia ruled in favor of the plaintiffs in *Giles* v. *Secretary of the Army*, a class action concerning discharges for drug abuse based, in part, on the results of mandatory urinalysis. The court ordered review of more than 10,000 discharges and ordered upgrading of the discharges. The Secretary of the Army appealed the decision arguing several substantive defects in the decision of the lower court and that even if the district court was correct on the substantive issues, the relief was overbroad. The Court of Appeals for the District of

Columbia affirmed the lower court's decision on the substantive issues, but held, however, that the remedy mandated was overbroad in that it required automatic upgrading of discharge characterization, even though nondrug related evidence in certain cases might support a lesser characterization. The Secretary decided against seeking rehearing or seeking *certiorari*.

In tort litigation medical malpractice cases continue to present a substantial work load. Further, the Army settled, for substantial sums of money, a number of cases concerning injuries or deaths resulting from explosions of ordnance removed from firing ranges.

The number of medical care recovery claims climbed to 5,355 during the period of this report. These actions resulted in the government recovering almost $5.5 million. United States Army Claims Service, Europe, again led all other offices with a recovery of almost $1.5 million.

In the case of *Mable Nevin* v. *United States* concerning atmospheric testing of bacteria, the government's motion for summary judgment was denied. Trial on the merits is scheduled for 1981. In *Burchfield* v. *Gaon*, a suit against Army doctors for their failure to diagnose the long term effects of nerve gas, the court rejected a U.S. motion for a summary judgment on the grounds that the statute of limitations barred such an action.

During fiscal year 1980, Agent Orange litigation started to significantly involve the Army. In January 1980, corporate defendants in a consolidated action in New York, involving over one thousand plaintiffs who claim that they were injured by exposure to Agent Orange in Vietnam, impleaded the United States as a third party defendant. The complaints allege *inter alia* that the United States owes a duty of indemnification to the manufacturers of the defoliant used in Vietnam because the government allegedly established the specifications by which the companies synthesized and distributed the herbicide. The defendants initiated discovery against the United States. The Army recommended that the government oppose discovery. The Department of Justice filed a dispositive motion in March. It is now pending.

Coffey v. *United States* and *Coffey* v. *The Dow Chemical Corporation* are the first cases brought against the United States and individually named federal defendants arising from the use of Agent Orange in Vietnam. The former suit is under the Federal Tort Claims Act (FTCA) against the United States and former Secretaries of Defense Melvin R. Laird and Elliott L. Richardson, Secretary of Defense Harold Brown, former Secretary of the Army Stanley R. Resor, and Secretary of the Army Alexander. The latter case is similar to the actions in New York and has been consolidated with

them. In the FTCA suit, a dispositive motion was recently granted to the United States but was denied to the individual defendants. A motion to vacate that decision was denied.

The Army's alleged involvement in Love Canal, Agent Orange, and related herbicides contributed to the Access and Release Branch of The Adjutant General's Center becoming actively involved in Army litigation in 1980. The Access and Release Branch received a large volume of Freedom of Information Act requests from law firms for documents to be used in court. At one point, eleven attorneys representing various chemical manufacturers descended on the office for three days and reviewed the locator data on the Vietnam records in search of information on Agent Orange. The Access and Release Branch received a discovery notice from the U.S. District Court, Eastern District of New York, on behalf of Dow Chemical, requesting sixty-five separate documents concerning Agent Orange. At the request of the Assistant Secretary of Defense for Health Affairs, the branch also prepared a study of the effect of Agent Orange on American troops during the Vietnam War for the White House Interagency Working Group on Herbicide Orange and Related Herbicides.

The state of Alabama and a group of commercial fishermen voluntarily requested dismissal of their suit against the Army for the release into the streams and lakes of the state of DDT manufactured at a privately leased plant on the grounds of Redstone Arsenal between 1947 and 1970.

The cases of *American Civil Liberties Union* v. *City of Chicago* and *Alliance to End Repression* v. *Rochford* are class action suits for damages and injunctive relief for alleged violation of civil rights in the Chicago area by the FBI, the Department of the Army, and others. The suits primarily concern alleged surveillance of dissident groups and individuals. Plaintiffs are seeking records of military intelligence activity in the Chicago area directed against nonaffiliated U.S. persons. Settlement discussions were under way when the year ended.

One of the most significant actions in litigation during the year was the settlement of the *Berlin Democratic Club* v. *Brown* case. This case, which challenged intelligence activities in Berlin, involved assembly and review of thousands of documents. The settlement provides for release of documents to the plaintiffs after review by the Army. This process will take several months so that final settlement of the case will not be completed until sometime in fiscal year 1982.

The plaintiffs in *Dostal* v. *Vance* appealed the dismissal of their case. The case is an outgrowth of litigation begun in 1978 as *Gemeinschaft Zum Schutz* v. *Marienthal* in which the plaintiffs

sought to stop housing construction in Berlin based on an alleged violation of the National Environmental Policy Act.

In 1976, with construction on the Tennessee-Tombigbee Waterway well under way in Alabama and Mississippi, a coalition of project opponents, led and largely financed by the Louisville and Nashville (L&N) Railroad, brought suit in the Federal courts seeking to enjoin further construction. The plaintiffs alleged that many illegalities had been perpetrated by the Department of the Army and the Corps of Engineers in modifying project design after the 1946 authorization; that the project was not in compliance with various environmental laws; and that the project did not have necessary economic justification. The most significant allegation said that the Corps was constructing many features and dimensions of the "Tenn-Tom" project in a manner not authorized by Congress. Four years of litigation ensued, in which the plaintiffs conducted exhaustive discovery proceedings against the Department of the Army and the Corps concerning the project. Following two weeks of hearings, the Federal trial court ruled that all but one of the many features and dimensions of the waterway project which plaintiffs had alleged to be illegal were in fact entirely legal and proper, and that the Corps of Engineers and the Department of the Army has used their discretionary authority to alter project design responsibly and legally. Only one of the many challenged design features of the project did not receive the court's explicit endorsement: Concerning that issue—the 300-foot channel width—the court held that no decision was necessary or possible because the equitable doctrine of laches barred the plaintiffs' challenge to the 300-foot width. The equitable doctrine of laches is the legal principle that in a civil case a plaintiff loses his right to contest an action of a defendant if the plaintiff does not do so in a timely fashion and if the redress requested would be prejudicial to the interests of the defendant. The Secretary of the Army in 1966 gave public notice of the decision of the Corps of Engineers to widen the channel and work began soon after. The plaintiffs did not begin legal action on this issue until 1978. The Plaintiffs appealed the trial court's decision, but the U.S. Court of Appeals for the Fifth Circuit affirmed it and later denied the plaintiffs' request for a rehearing *en banc*. The plaintiffs then petitioned the U.S. Supreme Court to hear their discredited allegations on the authorization issues; the U.S. Department of Justice opposed that petition on the grounds that the plaintiffs' case was totally without merit. The Supreme Court had not ruled on the petition at the end of the fiscal year.

In the case of *United States* v. *Harford Sands, Inc.*, the United States successfully sued the defendant over damage to a governmental

easement near Aberdeen Proving Ground. The court enjoined the defendant from interfering further with the Army easement and ordered the company to pay damages. In United States v. Reeves Telcom, where the government sued a developer who built a dam that changed the flow of subsurface waters and undermined the government railroad's right of way, the U.S. magistrate found in favor of the United States on some complaints and in favor of the defendant in others. The district court will next hear arguments to determine liability and damages. Discovery is continuing in *U.S.* v. *Chamberland Manufacturing Company and Holcroft and Company.*

The Army continued its record of successfully defending against union efforts to stop contracting out under the Commercial-Industrial-Type-Activities (CITA) program. In a major contracting out case at Fort Gordon, Georgia, *A.F.G.E.*. v. *Brown*, the district court denied the union's petition for a temporary restraining order on jurisdictional grounds. The union is appealing this decision. Another district court denied a similar petition concerning contracting out of civilian Army activities at Selfridge Air Force Base in Michigan.

Litigation continued on the cases attacking Army policies in USAREUR which favor German nationals or dependents over other American citizens.

The issues in all Equal Employment Opportunity class actions continued to concern the Army, although only two new cases were filed in 1980. The two new class actions—*Godwin* v. *Alexander* and *Cho* v. *Alexander*—allege sex discrimination at Fort Rucker, Alabama, and sex, national origin, and race discrimination at Fort Gordon, Georgia. Both of these cases are in the preclass certification discovery stages. Several other class actions are still pending. These cases are characteristically slow moving because of the massive discovery involved. The class action of *Valdez* v. *Froehlke*, however, is in the final settlement stages.

Two suits challenged the Army's policy of precluding the enlistment of someone who had undergone a sex change operation. In *Joanne Michelle Clark* v. *Harold Brown* the Court of Appeals sustained the lower court's dismissal of the case. The plaintiff then brought suit in the U.S. Court of Claims. Pretrial preparation continued in *Jan Doe* v. *Secretary of the Army*.

The first year of experience with cases arising from the Civil Service Reform Act provided no unexpected developments. Plaintiffs, as expected, had some difficulty in determining the proper forum for their cases and there was some lag time in EEO cases filed, while plaintiffs tested the remedies available at the Equal Employment Opportunity Commission.

During the period of this report, debarment of contractors

became a significant work load. Cases arising from the procurement activities of the Army-Air Force Exchange Service were a matter of particular concern.

Plaintiffs challenged actions across the spectrum of Army activities. These routine cases, too numerous to mention individually, questioned military and civilian promotions, discharges, eliminations or terminations, procurement activities, and actions on Freedom of Information Act requests.

Small and Disadvantaged Business Utilization

The Director of the Office of Small and Disadvantaged Business Utilization (SADBU), created in April 1979, reports directly to the Secretary of the Army and is his principal adviser and assistant for all matters pertaining to the implementation and administration of programs under the Small Business Act, the Labor Surplus Areas Program, and the Woman-owned Business Programs. The SADBU Office develops policies and procedures to implement socio-economic acquisition programs, establishes and monitors agency goals, and assures that offices at major commands are properly staffed to effectively execute these programs. The office conducts outreach, liaison, source development activities, and seminars. The SADBU office cooperates with and consults on a regular basis with the Congress, the Office of the Secretary of Defense, the Small Business Administration, and other government and industrial organizations in order to carry out its program.

The Army's awards to small businesses in fiscal year 1980 totaled $4 billion or 26 percent of the total amount awarded to all businesses. Set-asides exclusively for small businesses (items which can only be bid on by small businesses) rose to $1.7 billion or 10.8 percent of the total. This is the highest percentage of small business set-asides attained by the Army in any fiscal year.

In fiscal year 1980 the Army led all federal agencies in contracting with disadvantaged small businesses under the provisions of Section 8(a) of the Small Business Act with awards totaling $237 million, an increase of $70 million over fiscal year 1979. Section 8(a) of the Small Business Act provides that governmental agencies will meet a certain portion of their requirements through contracts with disadvantaged small businesses. The Army has now led all federal agencies in awards under the 8(a) program for eleven of the past twelve years. Total awards and subcontracts with minority firms reached $549 million in fiscal year 1980, an increase of 36 percent over the previous year.

In January 1979 the President designated the Army to participate

in an 8(a) pilot program with the Small Business Administration. The program, which augments the regular 8(a) program, differs from it in that the Small Business Administration has authority, subject to certain qualifications, to unilaterally demand and be awarded Army contracts which it then subcontracts for performance by socially and economically disadvantaged small business firms. The Small Business Administration has awarded $20.9 million under the pilot program since its inception.

It is federal policy that businesses owned by women shall have the maximum opportunity to participate in contracts awarded by the government. Although there is no requirement to give preference to such firms, Army contracting offices use their best efforts to assist those businesses to compete for awards. Awards made to them reached a total of $90 million in fiscal year 1980, which greatly exceeded the goal of $37 million.

13. Conclusion

By the close of fiscal year 1980, the Army had made notable progress in preparing for the challenges of the 1980s described by Army Chief of Staff General Edward C. Meyer in his white paper on the state of the Army issued just after the year had begun. It was evident, however, that serious internal and external problems were hampering the Army in attaining the readiness posture required to perform the missions national strategy placed upon it.

On the positive side, active Army and reserve components enlistment programs picked up steam and the drill pay strength of the latter continued on the rebound. Congress enacted legislation that provided substantial boosts in military pay and benefits that aided enlistment and retention efforts. Reinstitution of draft registration offered prospects of some relief to the mobilization problem posed by woefully inadequate Individual Ready Reserve (IRR) strength in meeting filler and replacement needs, while improved administration of the IRR made for more efficient management of this important resource. Production of new weapons on a par with those in the Warsaw Pact arsenal—such as the XM1 tank, Patriot air defense system, and the M2 infantry fighting vehicle—moved forward. The need for light forces to meet contingencies outside the NATO area was recognized and the Rapid Deployment Force containing Army ranger, airborne, air assault, and armored forces was organized. As the year drew to a close, General Meyer announced a new set of proposals—covering pay, promotions, taxes, assignment and rotation policies, uniforms, and awards—that were designed to enhance unit esprit, strengthen the role of unit commanders, and promote personnel stability.

Major problems facing the Army at the close of the fiscal year had to do with manning, equipping, and sustaining the force. Despite enlistment gains, the reserve components were considerably short of peacetime and wartime manning levels and the number of high school graduates who joined the active Army declined. Reductions in the training base, a shortage of junior leaders, and the diversion of NCOs and other soldiers to perform base support functions that a reduced civilian work force could not manage impaired training. And while a significant amount of new equipment was entering the inventory, there were units in all components that lacked essential equipment, modern or not. This deficiency had an adverse impact on

training. A number of factors affected the Army's ability to sustain combat forces should war come. These included the concentration of support units in undermanned and underequipped reserve component units, the low strength of the IRR, the civilian work force shortfall, inadequate war reserve stocks to support forward deployed and reinforcing units, shortcomings in the industrial mobilization base, and insufficient sea and airlift.

In the coming year the Army will build on its own strengths and a hoped for increase in budgetary support in tackling these problems and preparing itself for the defense of the nation.

Glossary

AASP	Army Automation Security Program
ACAB	Air Cavalry Attack Brigade
ACCESS	Army Computer Entry Store System
ACCS-82	Army Command and Control Study-82
ACSAC	Assistant Chief of Staff for Automation and Communications
ACSI	Assistant Chief of Staff for Intelligence
ACT	Advanced Concepts Team
ACVT	Armored combat vehicle technology
ADAM	Area denial artillery munition
ADDS	Army Data Distribution System
ADP	Automatic Data Processing
ADPA	American Defense Preparedness Association
ADPS	Automatic Data Processing System
AFEES	Armed Forces Examining and Entrance Stations
AFQT	Armed Forces Qualification Test
AFMCO	Army Force Modernization Coordination Office
Agent Orange	An herbicide used by the U.S. Army in South Vietnam.
ALOC	Air Line of Communications
AMEDD	Army Medical Department
AMIP	Army Model Improvement Program
AMM	Army Mobility Model
AMOPS	Army Mobilization and Operations Planning System
AMPS	Army Mobilization Planning System
ANC	Army Nurse Corps
ANORAK EXPRESS	A multinational NATO field exercise conducted in Norway.
ANVIS	Aviators Night Vision Imaging System
AOS	Army Optical Station
APAP	Army Pollution Abatement Program
APAS	Air-transportable, protected antiarmor/ assault capable system
APOE	Aerial Ports of Embarkation

ARCSA III	Aviation Requirements for the Combat Structure of the Army III
ARMIS	Army Reserve Management Information System
ARMRS	Army Readiness and Mobilization Regions
ARNG	Army National Guard
ARSTAF	Army staff
ARWIN	Army WWMCCS Intercomputer Network
ASAC	Automated System for Army Commissaries
ASAP	Administrative Systems Acceleration Plan
ASARC	Army Systems Acquisition Review Council
ASAS	All Source Analysis Systems
ASB	Army Science Board
ASC	Army Staff Council
ASSLT	Assault
ASVAB	Armed Services Vocational Aptitude Battery
ATC	Air Training Command
ATFES	Automated Tactical Frequency Engineering System
ATP	Ammunition transfer point
ATRRS	Army Training Requirements and Resources System
ATT	Attack
AUS	Army of the United States
AUTODIN	Automatic Digital Network
AVRADCOM	Aviation Research and Development Command
AWACS	Airborne Warning and Control System
BAC	Boeing Aerospace Company
BAO	Battalion administrative officer
BASOPS	Base Operating Information System
BETA	Battlefield Exploitation Target Acquisition
BMD	Ballistic missile defense
BMDSCOM	BMD Systems Command
BMM	Borrowed military manpower
BOIP	Basis of Issue Plan
BTD	Battalion Training Day
BTMS	Battalion Training Management System

BTU	British Thermal Units
BTUH	British thermal units per hour
BWES	Basewide Energy Studies
C3	Communications, command, control
CAA	Concepts Analysis Agency
CAC	Combined Arms Center
CACDA	Combined Arms Combat Development Activity
CAPSTONE	An Army organizational program for mobilization in which National Guard units are formed into preorganized packages, each with a specific mission.
CBT	Combat
CDPS	Consolidated Decision Package Sets
CERCOM	Communication Electronics Readiness Command
CERS	Carrier Evaluation and Reporting System
CERTAIN LANCER	A command training exercise.
CEWI	Combat Electronic Warfare Intelligence
C3I	Communications, command, control, and intelligence
CILHI	Central Identification Laboratory, Hawaii
CINCPAC	Commander in Chief, Pacific
CINCLANT	Commander in Chief, Atlantic
CIPD	Concept Initial Program Definition
CITA	Commerical-industrial-type-activities
CIUS	Corps Interim Upgrade System
CNAD	Conference of National Armaments Directors
COBRA JUDY	A shipborne S-band radar signature collection system designed to provide intelligence data.
COE	Corps of Engineers
COMUSKOREA	Commander, United States Forces, Korea
CSS A/C	Combat Service Support Automation and Communications
CONUS	Continental United States
Copperhead	A field artillery projectile fired from conventional weapons
CORPS 86	Heavy Corps 86

CPR	Cardiopulmonary Resuscitation
CRC	CONUS Replacement Center
CSA	Chief of Staff, U.S. Army
CSBS	Combat-to-Support Balance Study
CSM	Chief of Staff Memorandum
CSOP	College Student Officer Program
CSPR	Chemical System Program Review
CSRA	Civil Service Reform Act
CWAR	Continuous wave acquisition radar
DARCOM	Materiel Development and Readiness Command
DARPA	Defense Advanced Research Projects Agency
DAS3	Decentralized Automated Service Support System
DCS	Defense Communications System
DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Operations
DCII	Defense Central Index and Investigations
DDTE	Director, Defense Test and Evaluation
DEPMAS	Deployment Management System
DFSC	Defense Fuels Supply Center
DIA	Defense Intelligence Agency
DIRT-III	Dusty Infrared Test-III
DIRTRAN	Disturbed infrared transmission
DIRTY	The presence of natural and man-made obscurants (dust, fog, rain, smoke, etc., and use of countermeasures).
DIV 86	Heavy Division 86
DIVAD	Division Air Defense
DLA	Defense Logistics Agency
DLOGS	Division Logistics System
DMATS	Defense Metropolitan Area Telephone System
DNA	Defense Nuclear Agency
DOD	Department of Defense
DOPMA	Defense Officer Personnel Management Act
DOT	Designated optical tracker
DPI	Data Processing Installation
DS	Direct Support
DSARC	Defense System Acquisition Review Council

DSCS	Defense Satellite Communication System
DSSCS	Defense Special Security Communications System
EAC	Echelons above corps
ECAC	Electromagnetic Compatability Analysis Center
ECAP	Enhanced Cobra Armament Program
ECIP	Energy Conservation Investment Program
EEAP	Energy Engineering Analysis Program
EFMP	Enlisted Force Management Plan
EMCS	Energy Monitoring Control System
EMTMS	Enlisted Mobilization Training and Management System
EO	Executive Order
EOSAEL	Electro-optical systems atmospheric effects library
EPA	Environmental Protection Agency
ES	Executive Schedule
ETS	European Telephone System
EUSA	Eighth United States Army
EW	Early Warning
FACTS	Facilities Assets Catalog and Tracking System
FAS	Force Accounting System
FASCAM	Family of scatterable mines
FCF, D	Foreign Currency Fluctuation, Defense
FDTE	Force development test and experimentation
FEED	Field exploitation and elevation data
FEMA	Federal Emergency Management Agency
FEORP	Federal Equal Opportunity Recruitment Program
FESS	Facilities Engineering Supply System
FHRSC	Federal Health Resources Sharing Committee
FLRA	Federal Labor Relations Authority
FORECAST	The Military Occupational Specialty, enlisted strength, and personnel management forecasting system.
FORDIMS	Force Development Integrated Management System
FORSCOM	Forces Command

FORTRAN	Formula Translation (a scientific programming language for computers)
FMTS	Field maintenance test set
FRG	Federal Republic of Germany
FSED	Full Scale Engineering Development
FTM	Full-time manning
GAO	General Accounting Office
GEMSS	Ground emplaced mine scattering system
GO IPR	General Officer In-Process Review
GPAS	General Performance Appraisal System
GPS	Global Positioning System
HAC	Hughes Aircraft Company
HHB	Headquarters and headquarters battery
HHC	Headquarters and headquarters company
HHD	Headquarters and headquarters detachment
Hellfire	A laser guided ballistic missile.
HELSTF	High Energy Laser Systems Test Facility
HIMAD	High to Medium Air Defense
HPSP	Health Professions Scholarship Program
HQDA	Headquarters, Department of the Army
HLG	High Level Group
HNS	Host Nation Support
HOE	Homing Overlay Experiment
HSC	Health Services Command
HTTB	High Technology Test Bed
HUMINT	Human Intelligence
ICETF	Interagency Coal Export Task Force
IRCM	Infrared common modules
ID 86	Infantry Division 86
IDOFOR	Improving the Definition of the Army Objective Force Methodology
IFF	Identification, friend or foe (radar)
IFS	Integrated Facilities System
IHawk	Improved Hawk
IISS	Intelligence Information Subsystem
I & KP	Instructor and key personnel
ILIR	In-house laboratory independent research
IMFL	Intensive Management Force List
ING	Inactive National Guard

INSCOM	Intelligence and Security Command
IPR	In-process review
IR	Infrared
IRM	Information Resource Management
ITV	Improved TOW Vehicle
IRR	Individual Ready Reserve
ISTAP	Intelligence, Surveillance, and Target Acquisition Program
ITAADS	Installation—The Army Authorization Documents System
ITAC	Intelligence Threat Analysis Center
ITEP	Interim Tactical Elint Processor
ITU	International Telecommunications Union
JACS	Joint Adjudication Clearance System
JAIEG	Joint Atomic Information Exchange Group
JCC	Joint Computer Center
JCRC	Joint Casualty Resolution Center
JCS	Joint Chiefs of Staff
JDA	Joint Deployment Agency
JDS	Joint Deployment System
JINTACCS	Joint Interoperability of Tactical Command and Control System
JITF	Joint Interface Test Facility
JOPS	Joint Operations Planning System
JTIDS	Joint Tactical Information Distribution System
KMR	Kwajalein Missile Range
LANDSAT	Land Satellite
LDP	Leader Development Plan
LDS	Layered Defense System
LMSC	Lockheed Missile and Space Company
LOGEX 80	A joint command post and training exercise
LOGSACS	Logistic Structure and Composition Systems
LRIP	Low Rate Initial Production
LSICP	Labor Saving Capital Investment Program
LTDP	Long Term Defense Program

MAA	Mission area analysis
MACOM	Major Army Command
MAGIIC	Mobile Army Ground Imagery Interpretation Center
MANPAD	Man Portable Air Defense
MCA	Military Construction, Army
MECH	Mechanized
MED	Message Element Dictionary
MDAC	McDonnell Douglas Astronautics Company
MEACE	Military engineering applications for commercial explosives
MEDCASE	Medical Care Support Equipment
MELT	Minimum Equipment Levels for Training
MENS	Mission Element Need Statement
MEPCOM	Military Enlistment Processing Command
MERADCOM	Mobility Equipment Research and Development Command
MI	Military Intelligence
MICOM	Missile Command
MILPERCEN	Military Personnel Center
MMS	Mast-mounted-sight
MLRS	Multiple launch rocket system
MOBEX	The Army's portion of a joint exercise by the Army, Navy, Air Force, and other concerned federal government agencies, which was designed to review and practice all mobilization and deployment actions required during the first thirty days of a general war.
MOBPERS	Mobilization Personnel Processing System
MOD	Ministry of Defense
MODEX	Mobilization and Deployment Exercises
MPA	Military Personnel, Army
MOS	Military Occupational Specialty
MOU	Memorandum of Understanding
MOUT	Military operations in urbanized terrain
MQS	Military Qualification Standard
MRA & L	Manpower, Reserve Affairs, and Logistics
MCI	Meal, combat, individual

MRE	Meal, ready-to-eat
MS3	Munitions system support structure
MTMC	Military Traffic Management Command
NAPATMO	NATO Patriot Management Office
NBC	Nuclear, biological, chemical
NET	New equipment training
NGB	National Guard Bureau
NIFTY NUGGET	A mobilization and deployment command post exercise
NORAD	North American Air Defense Command
NPS	Nonprior service
NTC	National Training Center
NTSH	Near term scout helicopter
OACSI	Office of the Assistant Chief of Staff for Intelligence
OASA	Office of the Assistant Secretary of the Army
OCAR	Office, Chief Army Reserve
OCCH	Office of the Chief of Chaplains
OCE	Office of the Chief of Engineers
OCS	Officer Candidate School
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development, and Acquisition
ODCSLOG	Office of the Deputy Chief of Staff, Logistics
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSPER	Office of the Deputy Chief of Staff for Personnel
OE	Organizational Effectiveness
OEPMD	Organizational Effectiveness Personnel Management Directorate
OMA	Operations and Maintenance, Army
OMAR	Operations and Maintenance, Army Reserve
OMB	Office of Management and Budget
OMTS	Organizational maintenance test sets
OPFOR	Opposing forces
OPM	Office of Personnel Management
OPMD	Officer Personnel Management Directorate

OPMS	Officer Personnel Management System
OPREP	Operational Readiness Report
OPSEC	Operation Security
OSD	Office of the Secretary of Defense
OT III	Operational Test III
PDIP	Program-Development Increment Packages
PDM	Program decision memorandum
PA	Physician Assistant
PAE	Preliminary airworthiness evaluation
PAR	Pulse acquisition radar
PNVS	Pilots night vision sensor
PL	Public Law
PLRS	Position Location Reporting System
PMAS	Performance Management Army Staff
POL	Petroleum, oils, and lubricants
POM	Program Objective Memorandum
POMCUS	Prepositioning of materiel configured to unit sets
PPBS	Planning, Programming, and Budgeting System
PPD	Preprototype demonstration
PPWR	Prepositioned war reserve
PS	Prior service
RAAM	Remote anti-armor mine
RAMDEP	Rapid Mobilization for Direct Deployment
RCPAC	Reserve Components Personnel and Administration Center
RCRA	Resource Conservation and Recovery Act
R&D	Research and Development
RDAC	Research, Development, and Acquisition Committee
RDAISA	Research, Development, and Acquisition Information Systems Agency
RDF	Rapid Deployment Force
RDJTF	Rapid Deployment Joint Task Force
RDTE	Research, development, test, and evaluation
RECON	Reconnaissance
REDCOM	Readiness Command
REFORGER	An exercise conducted in Western

	Europe to test the readiness of reserve component units in reinforcing active components already engaged in a European conflict. It involves the deployment and redeployment of U.S. units to Europe.
REMOBE	Readiness for Mobilization Evaluation
REQUEST	The automated recruit quota system
RETAIN	The automated reenlistment and assignment system.
RETMOB	Requirements for Total Mobilization Study
RETO	Review of Education and Training for Officers
RFP	Request for proposal
RPA	Reserve Personnel Appropriations
ROK	Republic of Korea
RPIRS	Reserve Personnel Information Reporting System
RPV	Remotely piloted vehicles
RFQ	Request for quotation
RSI	Rationalization, standardization, and interoperability
RVN	Republic of Vietnam
S-1	Adjutant (U.S. Army)
SAC	Strategic Air Corps
SACS	Structure and Composition System
SADBU	Small and Disadvantaged Business Utilization
SAG	Study Advisory Group
SALT	Strategic Arms Limitation Treaty
SAW	Squad automatic weapon
SELCOM	Select Committee
SEP	Separate
SES	Senior Executive Service
SHARP	Severely Handicapped Recruit Program
SHORAD	Short Range Air Defense
SIDPERS	Standard Installation Division Personnel System
SIGINT	Signal Intelligence
SIGMA	A force level and maneuver control system
SIOC	Senior Intelligence Officers Conference

SM	Service Memorandum
SNOW-ONE	Scenario naturalization for operation in winter-obscuration and natural environment.
SOLID SHIELD	A joint command post and training exercise.
SOTAS	Standoff Target Acquisition Systems
SPARK	Systematic Pulmo-Cardia Anaphylaxis Resuscitation Kit
SPEARPOINT	A large-scale British field exercise participated in by U.S. units during REFORGER 80.
SPPF	Single program project funding
SPF	Single project fund
SPR	System Program Reviews
SQT	Skill Qualification Test
SRIP	Selected Reserve Incentive Program
SSEB	Source Selection Evaluation Board
SSI	Strategic Studies Institute
SSO	Special Security Officer
SSS	Selective Service System
Stinger	A low altitude air defense missile system which is man portable and shoulder-fired.
STOG	Science and Technology Objectives Guide
STPO	Systems Technology Project Office
STR	Systems technology radar
STREP	Systems technology reentry experiment program
TAA	Total Army Analysis
TAADS	The Army Authorization Documents System
TAMIS	Training Ammunition Management Information System
TARADCOM	Tank-Automatic Research and Development Command
TAC	Total Army Costing
TACFIRE	A tactical fire direction system for artillery
TACIES	Tactical Imagery Exploitation System
TACS	Transportable atmospheric characterization station
TADS	Target Acquisition Designation Sight

TAS	Tracking Adjunct System
TCT	Tactical Computer Terminal
TDA	Tables of distribution and allowances
TDY	Temporary Duty
TEAM SPIRIT	A training exercise conducted in Korea in late FY 79 which tested inter-operability and reinforcement by American combat elements from stations as far away as Hawaii.
TEATAC	Technical Evaluation of Army Tactical Signals Intelligence
TDS	Trial Defense Service
TENCAP	Tactical Exploitation of National Capabilities
TIDP-TE	Technical Interface Design Plan—Test Edition
TMACS	Training Management Control System
TNFS3	Theater Nuclear Force Survivability, Security, and Safety
TNSPR	Tactical Nuclear System Program Review
TOA	Transportation Operating Agencies
TOE	Table of organization and equipment
TOP	Time Sensitive Operations Procedures
TOS	Tactical Operations System
TOW	Tube-launched, optically-tracked, wire-guided
TPFDD	Time Phased Force Deployment Data
TRACE	Total risk assessing cost estimates
TRADOC	Training and Doctrine Command
TRG	Training Requirements Generator
TCAC	Technical Control and Analysis Center
TRASANA	TRADOC System Analysis Activity
TRIMIS	Tri-Service Medical Information Systems
TRI-TAC	A joint tactical communication program
TROSCOM	Troop Support Command
TSA	Troop Support Agency
UCA	Uniform Chart of Accounts
UK	United Kingdom
UNITREP	The JCS unit status and identity reporting system
USACSAA	U.S. Army Computer Systems Support and Acquisition Agency

USAICS	U.S. Army Intelligence Center and School
USAINTA	U.S. Army Intelligence Agency
USALOGC	U.S. Army Logistics Center
USAMSSA	U.S. Army Management Systems Support Agency
USAR	U.S. Army Reserve
USAREC	U.S. Army Recruiting Command
USAREUR	U.S. Army, Europe
USASMA	U.S. Army Sergeants Major Academy
USASSC	U.S. Army Soldier Support Center
USASSG	U.S. Army Special Security Group
USDRE	Under Secretary of Defense for Research and Engineering
VEAP	Veterans Educational Assistance Program
VFDMIS	Vertical Force Development Management Information System
VIABLE	Vertical Installation Automation Baseline
Viper	An antiarmor rocket system which is a one-shot, shoulder-fired, throw-away weapon that is issued as a round of ammunition, like a grenade.
VTAADS	Vertical—The Army Authorization Documents System
WAAC	Women's Army Auxiliary Corps
WAC	Women's Army Corps
WES	Waterways Experiment Station
WESTCOM	Western Command
WIC	Warning Information Correlation
WIMEA	Wiretapping, monitoring, and eavesdropping
WSMR	White Sands Missile Range
WT	Wartime
WWMCCS	Worldwide Military Command and Control Systems

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