Department of the Army Historical Summary

Fiscal Year 1982

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

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Introduction

Dramatic and significant change does not always emerge sharply out of the evolutionary processes of a large and complex organization like the United States Army in the comparatively brief span of one year, especially during peacetime. But while this was generally true of fiscal year 1982, there was still a remarkable story in the progress the Army achieved in modernization, and therefore readiness, in the period from 1 October 1981 to 30 September 1982.

The year's developments took place against a backdrop of presidential commitment, citizen consensus, congressional funding, Army dedication, and the Soviet threat. Throughout the twelve-month period the Army, along with the other armed services, was engaged in what has been characterized as the most comprehensive military modernization since World War II—one unlike any that had gone before considering the volume, diversity, and technological complexity involved and its significance for the military and the nation.

The tone of the period was set at all levels of authority. President Ronald Reagan stressed the point that "war comes not when the forces of freedom are strong, but when they are weak." Secretary of Defense Caspar W. Weinberger, calling attention to "our collective failure to preserve an adequate balance of military strength during the past decade or two," observed that our investment in forces and weapons had declined "while our principal adversaries engaged in the greatest buildup of military power seen in modern times." At the top of the Army organization, Secretary John O. Marsh, Jr., emphasized that "the threat we now face extends across a full spectrum of conflict that ranges from terrorism and unconventional warfare, through minor and major conventional war to, ultimately, the risk of theater and strategic nuclear war." The Army's two principal missions, Secretary Marsh stressed, "are to deter any threat to our national interests and, failing deterrence, to fight and win on terms favorable to the United States."

At the apex of the uniformed sector, the Chief of Staff, General Edward C. Meyer, saw the problem of equipment shortages as "serious and continuing," requiring a "long-term program of investment in land force materiel." He saw successful moderniza-

tion as "our only assurance that, over time, we will be prepared for the many diverse tasks we may be called upon to accomplish."

The obvious conclusion to this net assessment was simply that continuity is as important as clear beginnings and endings in the annual process of providing for the common defense. National security is open-ended; research, development, procurement, production—all of the elements that go into establishing, equipping, maintaining, and fielding adequate and effective military forces—must be funded at realistic levels from year to year.

The Army did reasonably well in fiscal year 1982, given the realities of competing demands and the ever-present dilemma of reconciling requirements with resources. The question of how much is enough represents far more than creation of a wish list, since it involves national security policy, military capabilities, service roles and missions, Army doctrine, and the general readiness of forces. "How much is enough" starts with money. All else flows from the base.

In fiscal year 1982, the Army was allocated $53 billion of the $214 billion Department of Defense budget. Total Army resources for the year, comprising monies carried forward from previous years, direct congressional authorizations, and various customer accounts, were $82 billion. Obligations for the year were $68 billion, while actual outlays were just above $44 billion. Such variations in the levels of appropriated funds are the rule rather than the exception, coming from budget delays, reprogramming actions, fluctuations in foreign currencies, and cancellations or delays in obligational plans. All are inevitable elements in the operation of one of the largest businesses in the world.

The dimensions of that business—of running the Army while completing, continuing, and projecting numerous elements of a modernization program that was in full swing during the year—are suggested by the funding levels of the major budget components. More that $16.7 billion was obligated and $16.4 billion expended for personnel purposes in 1982. Another $4.3 billion was allocated to research, development, testing, and evaluation, with $3.2 billion in outlays. Procurement accounted for $14.7 billion in obligations and $8.3 billion in expenditures; $1.8 billion covered construction obligations compared with $877 million in expenditures. Finally, operations and maintenance—the be-all and end-all in funding—had $18.8 billion in obligational authority and $15.4 billion in outlays.

These funds sustained an Army strength of 780,391 and a major organizational structure of sixteen active and eight re-

serve component divisions. Army civilian strength rested just above 380,000 as the period ended. In the reserve components, paid drill strength in the Army National Guard was just over 409,000, while that of the Army Reserve was close to 243,000. Significant shortages existed in the Individual Ready Reserve, the pretrained manpower pool.

Personnel developments during the year augered well for the quality of the Army and its ability to carry out its mission. The percentage of high school graduates among first-term enlistees edged above an already elevated level at the upper end of the scale. Reenlistments soared as well. This gratifying progress in both recruiting and reenlistment represented "a resounding turnabout," as the Army's personnel chief put it, from conditions in the late 1970s, and paved the way for a shift from quantity to quality in unremitting efforts to improve the Army's overall readiness. Several factors entered into the favorable equation, among them the military's increased acceptance in American life, the satisfaction of service to country, the teamwork and pride in military service, substantial improvements in military compensation, and, not least of all, the influence of a depressed economy. Yet, widespread affirmations of job satisfaction confirmed that altruistic and vocational inducements were as important as pecuniary considerations in the motivational mix.

Leading into and throughout the present operational period, the Army emphasized organizational as well as personnel quality over quantity. Despite the need for more divisions, and plans to augment the number several years down the line, the Army concentrated on achieving quality across the board within the existing structure rather than accepting a lower standard for people, equipment, training, and readiness within an expanded framework. Visible strides were made on the personnel side of the existing force, both in numbers and standards; but more remained to be done in equipping the force and achieving sustained improvement on an annual basis.

One significant development of the report period was the continuing evaluation, begun in May 1981 and described in some detail in last year's report, of a unit manning system designed to reduce the turbulence inherent in the traditional method of individual replacement. The first of twenty company-sized units reached the midpoint of an experiment under which soldiers were assigned to and would remain with a unit throughout training, stateside assignment, and overseas deployment. Although obstacles were being identified, the new manning experiment promised to pay dividends by reducing personnel turbulence and promoting unit cohesion.

At a higher level in the development of the new manning system for the Army, substantial progress was made on an Army regimental system. Under this concept, the regiment would become a nontactical grouping in which like battalions overseas would be paired with like battalions in the United States. The regiment would have a home base, an honorary colonel of the regiment, and an adjutant; the headquarters would be the custodian of the organizational colors and traditions. As the year closed, the initial moves toward the new structure were scheduled to take effect in a matter of days.

Modernizing an army that is distributed throughout the United States and deployed around the world was and is a challenge of the first magnitude in a process that involves not just the replacement of several existing pieces of equipment but an infusion of 583 new systems utilizing advanced technology. This current and ongoing modernization extended across the entire force structure of the Army, involving organization, doctrine, tactics, weapons, equipment, construction, training, and multiyear funding. Above all, the Army had to continue to function efficiently and effectively while it modernized. New weapons and equipment were being produced, delivered, integrated, operated, maintained, supported, and sustained, while displaced materiel was being distributed in combat-ready condition to other elements—part of the so-called high-low mix that is an inevitable concomitant of modernization. As General Meyer remarked during the year, "the complexity of the task is guaranteed to tax the imagination, innovation, and patience of the entire Army."

Orchestrating modernization while maintaining force readiness was an exacting challenge. The process obviously extends from front to rear, side to side, top to bottom. Procurement must be geared to funding and production to industrial capacity; spare parts packages must be developed and technical and training publications written or modified; transportation must be scheduled and deliveries and facilities adapted to meet new requirements; personnel must be trained to operate and employ new materiel, and training and maneuver areas must be modified to fit; and doctrine and tactics must be molded to harmonize with completely new or substantially changed procedures, weapons, and equipment. All of these activities proceeded during the ongoing modernization in 1982.

Some products of previous years' funding and procurement actions came to fruition during the year. By the end of the period, three Army battalions—two of them in Germany—had been equipped with the M1 Abrams tank, production was proceeding

on the Bradley fighting vehicle, the first production contract had been signed for the AH–64 Apache antiarmor helicopter, and the first production unit of the Patriot air defense missile system had been received. Fielding continued on the Black Hawk helicopter, the Stinger manportable air defense weapon, and the Firefinder counterbattery and countermortar radar systems. In the important area of modernizing current and proven weapons, the first production aircraft of the CH–47D medium-lift cargo helicopter program was delivered well ahead of schedule, and work proceeded on existing models of tanks, guns, helicopters, cargo vehicles, and communications equipment destined for National Guard and Army Reserve units.

That the Army does not exist in a vacuum, completely walled off from public life, is nowhere more evident than in the realm of mobilization. The nation cannot, of course, wait for the onset of an emergency to mobilize its manpower and industrial resources; plans must be in place to allow instant response to contingencies of any size and nature. Thus the Army was engaged during the year in reviewing and rewriting policies related to the responsiveness of the industrial base; trying to obtain legislation for the funding of surges required from industry during an emergency; seeking relief from social and environmental constraints on the defense industry; and improving mobilization procedures for ammunition and materiel. Personnel management initiatives were also taken to improve mobilization response.

In the 1983 budget hearings held in February 1982 before the Defense Subcommittee of the House Appropriations Committee, Secretary Marsh and General Meyer jointly addressed the subject of deployment of Army forces to meet global commitments and the capabilities of the sister services to provide adequate airlift and sealift to meet the strategic mobility needs of the ground forces. "U.S. strategic mobility forces," they noted, "are currently unable to meet NATO reinforcement objectives or to project credible U.S. forces to areas where our national interests are threatened. Without additional outsize airlift and responsive fast sealift, our ability to respond to global contingencies is dependent upon the readiness of our forward-deployed units, upon the prepositioning of unit equipment and war materiel, and upon timely political decisions." The senior officials stressed that, although individuals in the combat forces were ready, units were short of equipment and war reserve stocks were inadequate for many contingencies.

In March 1982, at the midpoint of the fiscal year, the Chief of Staff, testifying on the 1983 budget before the Defense Subcom-

mittee of the Senate Appropriations Committee, lamented the widespread practice both in and out of the service of viewing the Army in terms of tanks, trucks, helicopters, and other weapons and equipment instead of looking at it from the standpoint of "why we need an Army and what kind of an Army we need." He stressed four basic characteristics to support a rationale for the kind of Army the nation would need in the decade ahead. First of all, it would have to be flexible so that it could respond to all types of warfare. Second, the Army would require weapons systems equal to or better than those of a prospective enemy. Third, the Army must be strategically deployable, with adequate airlift and sealift to support it. And finally, the Army must exhibit sound tactics and doctrines in order to be effective on the battlefields of today and tomorrow. Only sustained procurement of adequate quantities of modern equipment would satisfy these compelling needs. The rest would be up to the Army.

All in all, the Army fared reasonably well in the 1982 fiscal year. The interval coincided with events on the international scene—notably in the Middle East, Poland, Afghanistan, and Central America—that prompted the American public to support a prudent strengthening of the armed forces after a period of decline. Yet the countervailing influences of inflation, expanding deficits, and social needs raised the prospect that annual defense budgets would come under sharp scrutiny in national debates over use of the tax dollar.

How the Army used its 1982 funds and how it carried forward the myriad activities of its national security role are covered in the various functional chapters of this report.

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Operational Forces

The Army's mission, in conjunction with that of the other armed services, is to "preserve the peace and security and provide for the common defense of the United States." The Army is required by statute to be "organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land." In modern times, this injunction represents a tall order, for American commitments are linked to global interests and agreements which require the Army to be deployed around the world.

Organizational Developments

Against the background of a $35 billion budget, a strength of 780,000, and a 24-division organizational structure, the Army had substantial numbers of troops stationed in Europe and Korea during fiscal year 1982, as well as smaller elements distributed in various regions for peacekeeping, advisory, and logistical purposes. A four-division force in Europe was augmented by three brigades and regiments. One division remained in Korea, while Panama and Alaska each had an assigned brigade.

As the fiscal year opened on 1 October 1981, the Army established Headquarters and Headquarters Company of I Corps at Fort Lewis, Washington. The corps is composed of active and reserve component units. At a lower organizational level, the first Patriot missile battalion was activated at Fort Bliss, Texas, to train with this new high- and medium-altitude antiaircraft missile system, which is designed to attack and destroy simultaneously several enemy aircraft while tracking others. Patriot will replace the Nike Hercules and most Hawk missiles presently in use. Also in the air defense area, manportable missile systems were consolidated in most divisions during the year; Stinger and Redeye teams are now located in division air defense battalions rather than in maneuver battalions.

Two major developments occurred in the joint service organizational field during the year. One was the establishment of the Rapid Deployment Joint Task Force; the other was a reorganization of U.S. forces in the Caribbean region. Both developments had broad Army connections.

The Rapid Deployment Joint Task Force grew out of a 1977 study which recognized the need for a four-service force that could be deployed for contingencies outside the regions of the North Atlantic Treaty Organization (NATO) and Korea. The President issued a directive to establish a force which could project U.S. power expeditiously; emergencies like the Iranian revolution, the seizure of American hostages in Teheran, and the Soviet invasion of Afghanistan stimulated and justified the formation of such a joint task force.

The headquarters of the Rapid Deployment Joint Task Force was established on 1 March 1980 as a subordinate element of the U.S. Readiness Command. On 1 October 1981 it was chartered as a separate task force reporting through the Joint Chiefs of Staff to the Secretary of Defense. The headquarters, located at MacDill Air Force Base in Tampa, Florida, had the mission of planning, training, exercising, and being prepared to employ designated forces in response to contingencies threatening the vital interests of the United States. The focus in the early period has been on the Southwest Asia–Persian Gulf region. The force is structured to deter agression if it should occur. The commander has Army, Navy, and Air Force elements under his control—in general, forces not otherwise committed to NATO or Korea. In 1982 the force numbered over 220,000 personnel, about 100,000 of them Army.

Naval forces stationed in the Indian Ocean and Persian Gulf areas are prepared to go into action immediately to support the joint task force; the first tactical air forces could be on the scene in the Southwest Asia–Persian Gulf region within hours; a combat-ready battalion could be on the ground within forty-eight hours; the combat elements of an airborne division could be in place in less than two weeks; and an additional division could arrive in thirty to thirty-five days. Near-term pre-positioned ships are on station with supplies and equipment to support Marine amphibious forces as well as selected Army and Air Force units, and long-term pre-positioning support will be provided as additional ships join the maritime fleet. Meanwhile, the Air Force, through procurement and modifications of military aircraft and structural changes in the Civil Reserve Air Fleet, is expanding its airlift capacity in support of the joint task force. Through planning, training, and exercises, the overall capability of the Rapid Deployment Joint Task Force improved steadily as the year progressed.

In the second joint-service organizational development of fiscal year 1982, readjustments and consolidations were carried out

in the Caribbean region to create the new U.S. Forces Caribbean Command. Established on 1 December 1981, the command was formed from the Contingency Joint Task Force at Key West, Florida; the Antilles Defense Command in Puerto Rico; a naval component; and Army, Air Force, and Marine units. The realignment streamlined the command structure and placed responsibility for the Caribbean region with one commander.

Readiness

Operational readiness was enhanced along several lines within the year. One of the more significant advances was the introduction of the new M1 Abrams tank into six units: three tank battalions in the 3d Infantry Division in Europe and three in the 2d Armored Division in Texas received the new tanks. The M1 is replacing the M60-series tank on a one-for-one basis throughout the Army, with procurement spread out over a period of time. Concurrently, the M60, an excellent tank with productive service potential, is being upgraded through improvements that will increase its survivability and lethality.

Also being modernized are the following: the AH–1S Cobra helicopter, with improvements that include a laser range-finder, a rocket management system, more firepower, and increased survivability; the UH–60 Black Hawk helicopter, with extended range and an all-weather capability to improve troop and supply transport and aeromedical evacuation; and the M113 armored personnel carrier, with improved suspension and cooling systems to enhance cross-country mobility as well as general reliability and maintainability.

Although such modernization had some detrimental effect on the standards by which a unit's readiness was measured, the problem was a passing one related to the process of change and will be offset by the enhanced capability derived from updated equipment and improved organization.

Substantial improvements in personnel readiness were reported during the year as a result of initiatives to increase the number of noncommissioned officers in the combat arms and improve the skill and efficiency of recruits and careerists. Shortages of noncommissioned officers were reduced by half during 1982, and reenlistment bonuses and increased promotion opportunities contributed markedly to the retention of senior grade personnel, with a resulting benefit in general readiness. Elimination procedures were streamlined, and enlistment and reenlistment standards were toughened. Among favorable personnel

trends, 86.1 percent of all recruits were high school graduates, and 53 percent scored in the top half of the Armed Forces Qualification Test.

As the quality of the manpower improved, increased use of devices and simulations improved the instructions and led to more sustained and effective training. Deployment exercises and the National Training Center provided realistic training that improved individual and collective skills.

Overseas Activities

One of the more significant and pervasive developments in the American Army's major commitment in Europe during the year was the progress made by the theater in the Armywide modernization program. Besides the initial three-battalion complement of Abrams M1 tanks, U.S. Army, Europe (USAREUR), began receiving the new Bradley fighting vehicle and Stinger missiles, moved well along on its conversion of M60-series tanks, and received AH–1S Cobra helicopters and the first UH–60 Black Hawks. These gains substantially advanced a modernization program that will transform U.S. forces in Europe over the next several years. Concurrently during the year, major training areas were improved and expanded to meet the changes in doctrine, organization, and equipment, and USAREUR's ability to accommodate reinforcements from the home base was improved with the pre-positioning of a fourth division set of equipment.

In mid-March 1982, the Army deployed a battalion of the 82d Airborne Division from Fort Bragg, North Carolina, to the Sinai Peninsula in the Mediterranean–Red Sea area to join the Multinational Force and Observers (MFO) established as a result of the Egyptian-Israeli Peace Treaty of March 1979. The U.S. contingent, which joined elements from several other countries including Italy and Colombia, consisted of a battalion task force of 800 troops, a 350-member logistical support element, an 85-member medical unit to provide health care for the entire force, and 32 officers and enlisted personnel assigned to the Multinational Force and Observers Staff. The infantry battalion established and will continue to man checkpoints and observation posts from Eilat to Sharm El Sheikh and conduct reconnaissance patrols as part of the effort to ensure freedom of navigation in the Strait of Tiran. Battalions of the 82d Airborne Division and the 101st Air Assault Division are to alternate every six months in this assignment while the international commitment remains in force.

Security problems in the Western Hemisphere received increased attention during fiscal year 1982. Factional strife in El Salvador, tensions between Nicaragua and Honduras, and Russian and Cuban intervention in the region either directly or by proxy created a threat that required a sharpening of regional priorities and an allocation of appropriate resources. Helicopters, trucks, weapons, and communications equipment were dispatched to El Salvador under the Foreign Military Sales program, military teams were sent to help the government develop a national military strategy, and training was provided both in and out of country to help the government deal with escalating insurgency.

The comprehensive modernization going on throughout the Army extended also to the Pacific region. In Korea, the Eighth Army brought the program to all aspects of the U.S.–Republic of Korea relationship, including equipment, training, command, control, and communications. Two artillery battalions of the 2d U.S. Infantry Division converted to the M198 155-mm. towed howitzer, and one battalion converted to the M109A2 155-mm. self-propelled howitzer. Receipt of AH–1S Cobra helicopters significantly expanded antitank capability, and modification of the M113 armored personnel carrier enhanced tactical mobility. Provocations by the North Koreans heightened the substance and reality of the exercises conducted at all levels of command during the year. Interoperability was stressed in these exercises since the defense of South Korea is a joint responsibility.

Command and Control

Command, control, communications, and intelligence are basic and interdependent properties of military operations, and their fusion provides the capability to transform individual weapons systems into an integrated and effective force. Consolidation ideally enables all levels of military force to "observe, provide warning and attack assessment, process information, support decision making, communicate, navigate, and degrade an enemy's ability to perform those functions." The need is ever-present, the mission never-ending.

During the past year work proceeded on implementing the Army Command and Control Master Plan (AC^2MP), which was published in fifty-eight volumes in September 1979, with several more volumes added in 1980 to bring the tactical portion up to date. Specifically, the 1980 update defined the architecture for the Army Command and Control System (ACCS), set forth deficiencies to be overcome, and established responsibilities and mile-

stones for implementing the ACCS. The update focused on baseline capabilities of the tactical echelons of the Army, which were projected from the current program year through 1988.

Intelligence Activities

Development of the Army Intelligence Master Plan continued during the year, and publication with distribution down to division level was expected early in 1983. The plan will serve many purposes, such as identifying areas where intelligence has fallen short and how the tactical performance of combat units was affected, listing and setting priorities of intelligence goals and objectives, and linking the Army Intelligence System with Department of Defense (DOD) and national intelligence planning systems.

Matters brought up at the tactical intelligence conference hosted by the U.S. Army Intelligence Center and School (USAICS) at Fort Huachuca in July 1982 indicated that while current intelligence and electronic warfare doctrine was in general use in the field, the lack of training manuals hampered instruction and dissemination. Manuals being prepared by USAICS should help to resolve this problem. USAICS had called the conference, which was attended by a broad sampling of G–2s and tactical military intelligence unit commanders from around the world, to assist the school in promulgating tactical intelligence doctrine.

In response to the continuing concern that intelligence activities lacked adequately trained human intelligence (HUMINT) personnel, the HUMINT Division of the Office of the Assistant Chief of Staff for Intelligence (OACSI) participated in two actions to upgrade career programs in this field. At the initiative of the Defense Intelligence Agency (DIA), the HUMINT Division coordinated a joint-service advanced debriefing and interrogation course scheduled to begin at Fort Huachuca in fiscal year 1983. The Army was named executive agent of the course, which will have instructors from all three services. The Office of the Secretary of Defense promised continued funding for the course as part of the general intelligence training for fiscal year 1984 and beyond. The HUMINT Division also participated in the HUMINT Training Working Group chaired by DIA. The working group was set up to assess the adequacy of DOD's human intelligence training and to make improvements.

Several initiatives were taken during the year to promote linguistics, responsibility for which had been transferred from

the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) to OACSI in January 1981. These plans included creating a new linguist career management field, establishing a new language training facility in Europe, developing proficiency sustainment training packages for units, setting up remote intercept locations, providing accompanied tours for linguists in Korea, and using foreign television tapes for unit training.

A major event in the area of foreign intelligence was the completion of a draft of the Soviet Battlefield Development Plan 2,000 (SBDP 2,000). An eight-volume work, the SBDP 2,000 projects the expected Soviet ground force threat on the battlefield for the next two decades, including anticipated numbers, types, and employment options for Soviet weapons; probable numbers, types, and character of Soviet units; and a forecast of Soviet strategy and tactics. When published, the study will help Army long-range planners to develop weapons systems, force structures, and battlefield tactics.

Regarding topographic activities, the Army updated mapping needs for the continental United States (CONUS) and in the process reduced the number of requirements, gearing them to priority operational plans and major training areas. Mapping, charting, and geodesy annexes were revised for the Joint Strategic Capabilities Plan (JSCAP) and the Joint Strategic Planning Document (JSPD). In other actions, the contractor delivered the Firefinder Digital Elevation Dubbing Facility to Headquarters, FORSCOM, where it began operations; the Army evaluation plan for the Defense Mapping Agency's (DMA) prototype digital terrain data base was forwarded to DMA; and the Engineer Topographic Laboratory and the Engineer School, representing DARCOM and TRADOC, respectively, began the initial phase of development for the digital Topographic Support System.

At the instigation of the Undersecretary of the Army, OACSI initiated a plan to improve the management of Army meteorological activities. By the close of the fiscal year a proposal had been developed for an office within Headquarters, TRADOC; a research, development, test, and evaluation (RDTE) plan; and a procurement plan. The RDTE plan focused on tactical environmental matters, automated surface weather observations on the battlefield, and collection and interpretation of data on the spot. Analyzed data will be compared with known weather sensitivities of individual weapons to predict the effect of the weather on the weapons. The procurement plan focused on improving upper air sounding equipment for artillery meteorological sections and tactical weather communications equipment for the Air Weather Service.

The Analysts' Intelligence Display and Exploitation System (AIDES) became fully operational in fiscal year 1982. AIDES enables intelligence analysts to produce current information more accurately as well as time-sensitive indications and warning data. The system provides file access and limited automated message-handling capability to principal Army sites via the Worldwide Military Command and Control System (WWMCCS) and can also tap national-level intelligence files through Intelligence Data Handling Systems Communication–II. AIDES is unique in that it concurrently supports both operational and intelligence activities.

In September 1982 the Undersecretary of the Army approved the mission element needs statement (MENS) for the Korean Intelligence Support System (KISS). The new system would automate the Combined Intelligence System–Korea, which supports the ground, air, and naval forces in Korea. KISS's automated support will provide more volume in handling unassimilated information, an English-Hangul translation ability, collection management, sensor correlation, exercise support, improved analyst working capacity, and interanalyst communication.

Treating imagery intelligence as sensitive compartmented information (SCI) had long been a problem because it severely restricted dissemination, thereby curtailing its usefulness. In July 1981 the director of the Central Intelligence Agency, in consultation with the National Intelligence Board, decided that imagery intelligence products would no longer be treated as SCI. In light of this decision, the intelligence community prepared and published, in June 1982, a comprehensive new National Imagery Policy Manual which significantly increased the authority and responsibility of the military services and the Defense Intelligence Agency for the security and use of imagery intelligence products. To promulgate the new policy within the Department of Defense, representatives from the military services and the Defense Intelligence Agency met to draft Defense Intelligence Agency Manual 56–1, which was issued shortly after fiscal year 1982 ended. It supplanted previous Army imagery policy contained in the Army Special Products Utilization Guide.

During the past year there has been increasing concern over the unauthorized disclosure of sensitive and state-of-the-art technology to both friendly and unfriendly governments. To combat this problem the Army has conducted an indepth study to determine which technologies should be protected from release; and it has worked with OSD and other military services to eliminate the release of sensitive technology, to initiate safeguards against its inadvertent release, and to establish an organization devoted exclusively to the study and release of sensitive technology.

Executive Order 12356, "National Security Information," issued on 2 April 1982, became effective on 1 August. Implementing DOD directives brought defense policies and procedures for classifying, downgrading, declassifying, and safeguarding information that required protection in the interest of national security in line with the order. The most significant change was the establishment of a new system for classifying, downgrading, and declassifying documents which enables a classifier to assign an indefinite period of classification if he or she cannot determine a specific date or event for declassification. At year's end the Army had nearly completed work on a revision of AR 380–5 which will reflect the new policies and procedures.

Changing requirements for military intelligence (MI) officers led to the revamping of the MI officer development plan. During the first four to seven years of commissioned service, MI officers will ordinarily receive tactical assignments. Basic officer training will, therefore, stress schooling in Army combat operations at corps level and below, followed by initial training in tactical all-source intelligence operations. Upon completion of the advanced course, MI officers will specialize in signal intelligence (SIGINT), human intelligence (HUMINT), imagery intelligence (IMINT), and counterintelligence (CI) or, on the other hand, foreign areas, automated data processing, and other OPM (Office of Personnel Management) specialties. Additional schooling and training will prepare MI officers for at least one tour in another specialty. The final product of the new development plan is a field grade officer highly qualified to serve in both tactical and specialized positions, such as division G–2, MI (CEWI) battalion commander, field station commander, or HUMINT operations officer. More senior officers would receive assignments to Headquarters, Department of the Army, joint, and DOD intelligence positions.

Nuclear, Biological, and Chemical Matters

U.S. policy supports negotiations aimed at obtaining a comprehensive agreement banning the production, possession, transfer, and use of chemical weapons. During the period 1977–1979, the United States and the Soviet Union conducted twelve rounds of bilateral negotiating sessions for the purpose of presenting a joint proposal to the Committee on Disarmament for negotiation of a multilateral chemical arms control treaty. The bilateral sessions ended in 1980 because of disagreement on the issues of verification, declaration of stocks and facilities, and

entry-into-force procedures. During fiscal year 1982 the Chemical Warfare Working Group in the Committee on Disarmament continued to define issues regarding control of chemical weapons. This work was pursued despite a growing body of evidence that chemical and toxic weapons were being used by Soviet surrogate forces in Southeast Asia and Afghanistan. Army chemical warfare experts have been actively supporting other U.S. government agencies charged with chemical warfare disarmament objectives.

After reviewing what little progress was made in negotiations, and considering the national security implications of the use of chemical and biological weapons in Southeast Asia and Afghanistan, President Reagan decided to persue modernization of the deterrent retaliatory stockpile of chemical weapons. The President informed Congress of his decision and, in compliance with the 1976 DOD Appropriations Authorization Act, provided certification on 8 February 1982 that the production of binary chemical munitions was "essential to the national interest." The required follow-up report to Congress on the U.S. Chemical Warfare Deterrence Program was given on 12 March 1982.

To support the binary chemical modernization program, the President's fiscal year 1983 budget request included $104.3 million for tooling and initial production of binary munitions (Army 155-mm. GB–2 artillery projectiles and Navy–Air Force Bigeye VX–2 bombs); for the construction of a load and packout facility at Pine Bluff Arsenal, Arkansas, for Bigeye; and for retaliatory research and development. The Bigeye project at Pine Bluff Arsenal is Phase II of the Integrated Binary Production Facility. Construction of the Phase I 155-mm. GB–2 artillery projectile facility, which was approved by Congress in 1981, began in November 1981. The contract to equip the facility was awarded on 9 September 1982. Plans for a third phase project for future agents and delivery systems (such as Intermediate Volatility Agent (IVA) warheads for the U.S. multiple launch rocket system and corps support weapon system) were being considered in the event these developmental systems are needed.

After long deliberation and extensive debate, Congress decided not to approve funds for binary production and the facility this year. However, funds for research and development (R&D) were approved, and $ 7.9 million of the $18.3 million requested for military construction on the Phase II Bigeye facility was allowed by the Joint Appropriations Conference Report. This sum will provide for area clean-up and site preparation and for the development of a hazardous waste landfill, which is required

regardless of the binary issue. Efforts to seek approval for a critical chemical retaliatory capability will continue. The objective is to develop and maintain the safest, smallest chemical munitions stockpile that will still deny a significant military advantage to any instigator of chemical warfare.

The Army continued its firm commitment to achieve the means to conduct sustained operations in a chemical-biological (CB) warfare environment through an expanded CB defense program of research, development, test, and evaluation during fiscal year 1982. Overall program funding increased by 56 percent over the previous year.

A key element in improving the Army's CB defense was building a sound technological base. To this end, funding doubled between fiscal year 1981 and 1982. Major accomplishments in this area included completion of threat definition for mycotoxins and evaluation of current CB protective materiel against T–2 toxins; initiation of efforts to develop infrared-ultraviolet CB detection devices and individual chemical alarms and desimeters; investigation of the application of immunoassay (bioengineering) technology to CB detection; and continuation of exploratory development on a follow-up technology to decontaminate eyes and the respiratory system as well as CB protective clothing. To meet the urgent need for a standoff chemical detector and an improved point chemical detector, the Army accelerated its programs for the XM21 Scanning Infrared Remote Alarm, Chemical (SCI–REACH), and the XM22 Automatic Chemical Agent Detector Alarm (ACADA). First units of both the XM21 and XM22 are now scheduled for deployment in fiscal year 1988 instead of 1992. In addition, advanced development continued on schedule for the XM85 Automatic Liquid Agent Detector (ALAD).

In fiscal year 1982 the Army terminated its XM30-series mask program. Based on the results of operational testing, the XM30 offered no significant operational improvement over the current M17A1 protective mask. Upon termination, the Army's Training and Doctrine Command (TRADOC) and Materiel Development and Readiness Command (DARCOM) prepared a follow-up mask program which will capitalize on the achievements of the XM30 mask development (improved fit and NATO interchangeable filter canister) and the proven lens system of the M17A1 mask.

Development of CB collective protection for combat vehicles, vans, and shelters continued during the year. Modular collective protection equipment was integrated with the Patriot and

TACFIRE systems. Hybrid collective protection equipment for combat vehicles was applied to the Fire Support Team Vehicle, the Field Artillery Ammunition Supply Vehicle, and combat vehicles equipped with the Roland missile.

CB decontamination efforts during fiscal year 1982 focused on advanced development of the Jet Exhaust Decontamination System, to provide a rapid decontamination capability for combat vehicles, and an Interior Surface Decontamination System. Advanced development began on a diesel-powered decontamination apparatus to replace the current M12A1 power-driven one.

Advanced development of the XM76 smoke grenade was completed, and the program entered full-scale engineering development. The XM76 will provide armored vehicles with more extensive smoke protection in the middle and far infrared regions of the electromagnetic spectrum.

The Army's major commands and reserve components received $70 million to purchase stock fund equipment for chemical defense under the OMA (Operations and Maintenance, Army) appropriation. The fiscal year 1982 OPA program provided another $75 million for major chemical defense items at the unit level, such as chemical agent alarms, collective protective shelters, and NBC protective masks.

The battle dress overgarment, a camouflaged chemical protective (CP) outer garment that enhances NBC (nuclear, biological, chemical) protection, was adopted for field use in June 1982. This new overgarment uses the same woodland-pattern camouflage overprint as the new battle dress uniform fatigues and provides better CP protection for the soldier than the one presently in use.

In June 1982 the U.S. Army Materiel Development and Readiness Command (DARCOM) replaced five on-scene commanders and their staffs as the agency designated to respond to the scene of an Army nuclear weapon incident or accident. DARCOM negotiated memoranda of understanding with Forces Command, Training and Doctrine Command, Communications Command, and Health Services Command for support. The new arrangement should improve the Army's responsiveness to a nuclear weapon incident or accident.

Major activities continued in the toxic chemical demilitarization program, including operations and research efforts at the Chemical Agency–Munition Disposal System (CAMDS), Tooele Army Depot, Utah; Drill and Transfer System (DATS) operations at various storage locations in the United States; and operations at Rocky Mountain Arsenal, Colorado. The Army expanded

its demilitarization research and development program, which seeks to identify innovative technologies to provide chemical demilitarization that is less expensive and more energy efficient than current technology.

The Defense Resources Board (DRB), along with Congress, has recognized that demilitarizing toxic chemical munitions is a national problem beyond the Army's own funding resources. The Army's Program Objective Memoranda for fiscal years 1984–1988 provided for continued operations and engineering development for chemical demilitarization with CAMDS and DATS and for construction of a demilitarization facility at Pine Bluff Arsenal, Arkansas, in fiscal year 1984 to dispose of the incapacitating agent BZ. The DRB programmed additional funds to build demilitarization facilities at Johnston Island and at three other U.S. storage sites to demilitarize obsolete M55 rockets and M23 land mines.

Operations and research efforts at the CAMDS facility continue to support the design and construction of the Johnston Atoll Chemical Agent Disposal System (JACADS). This work has involved demilitarizing 7,942 155-mm. GB projectiles and 7,766 105-mm. GB projectiles, conducting M55 rocket motor shearing tests and GB incineration experiments, and preparing a new 4.2-inch mortar module.

During fiscal year 1982 DATS safely and efficiently demilitarized 249 containers of leaking chemical munitions at Pine Bluff Arsenal, Arkansas, and Anniston Army Depot, Alabama. Operations programmed for fiscal year 1983 include demilitarizing leaking chemical munitions at Lexington Blue-Grass Depot Activity, Kentucky; Umatilla Depot Activity, Oregon; and Pueblo Depot Activity, Colorado. Chemical demilitarization operations at Rocky Mountain Arsenal, Colorado, disposed of 10,196 chemical agent identification training sets. The program to dispose of 5,961 remaining sets will conclude during the second quarter of fiscal year 1982.

In 1981 the Defense Intelligence Agency undertook a study to establish damage-level goals for U.S. retaliatory nuclear attacks. The Army was an active participant. The results of the study will be one factor used in the continuing evolution of U.S. nuclear policy and will help establish goals for reaching specified levels of damage based on certain variables, such as the relative positions of U.S. and enemy forces at the time of the alert and the response option chosen. The study will be updated as capabilities, target bases, and other factors change.

During fiscal year 1982, the Army Agent Orange Task Force (AAOTF) remained the primary office representing the Depart-

ment of Defense (DOD) in the nationally publicized controversy over whether or not the use of herbicides, especially Agent Orange, had a negative effect on the health of Vietnam veterans. The size of the task force grew from three members to twelve during the year in order to fulfill the AAOTF's basic function of providing records and information to government agencies and private entities involved in data collection, scientific studies, and litigation requirements generated by this matter.

In November 1981, the Army Agent Orange Task Force submitted testimony before the Senate Veterans Affairs Committee on the amount of DOD assets committed to the Agent Orange effort. Of particular concern to the senators was adequate and prompt DOD support to the Veterans Administration (VA) Epidemiology Study mandated by Public Law 96–151. In other actions, Secretary of Defense Caspar Weinberger, on 26 April 1982, designated the Army as the lead DOD agency for supporting the epidemiology study and others relevant to Agent Orange. Also, the DOD development of an exposure index model was unanimously approved by the science panel of the White House Agent Orange Working Group. By the close of the fiscal year, the AAOTF was ready to work on the epidemiology study, but the Veterans Administration had not yet begun on it and Congress was exerting considerable pressure to have the study done by the Centers for Disease Control in Atlanta, Georgia, instead of by the VA.

Military Support to Civilian Authorities

Fiscal year 1982 was another good year with regard to military support for disaster relief operations. There were only twenty-five disasters and emergencies declared by the President, and none required active Army troops. Support rendered by the Army National Guard to state and local authorities in these incidents is discussed in Chapter 6.

At the request of the Federal Emergency Management Agency, extensive support was provided during the recovery operation following the crash of Air Florida Flight 90 into the Potomac River just after takeoff from Washington, D.C.'s, National Airport on 13 January 1982. Army and Navy personnel, under the command of the Director of Military Support, Office of the Deputy Chief of Staff for Operations and Plans, recovered the remains of seventy-eight victims and 92 percent of the aircraft wreckage.

When the air traffic controllers walked off the job in August 1981, military controllers stepped in to fill the void until the air

traffic control system could be revamped and new controllers trained.

Support to the U.S. Secret Service during fiscal year 1982 consisted primarily of bomb search assistance in connection with the travel of officials who were authorized Secret Service protection. Army personnel carried out over 900 such missions in the continental United States and overseas during the year. Additional support to the Secret Service was chiefly in the area of transportation.

3

Force Development and Training

During fiscal year 1982 the Army moved forward with plans and programs to develop modern, well-equipped, adequately supported, and fully trained forces that would be capable of meeting military contingencies wherever they might arise. Europe and the might of Warsaw Pact forces arrayed along NATO's eastern flank continued to be the principal threat, and the greater effort was made to counter it; but the need to have highly mobile, quick reaction forces available for commitment to other critical areas, such as the Persian Gulf, was a growing concern.

Force Development

Early in the fiscal year the Vice Chief of staff directed the Army staff to prepare a plan that would integrate and provide unified direction for the Army's force modernization efforts. The result was the Force Modernization Master Plan (FMMP), which was published in April 1982. It contained a compendium of modernization goals and objectives, a detailed "roadmap" for transition of the force from its current structure to a modernized one, and a methodology for assessing the Army's capability to carry out its modernization plans. From May to August the Army's major commands assessed their ability to execute the plan. As the year closed, issues raised by the commands were being resolved and changes were being incorporated into an updated FMMP to be published early in fiscal year 1983. Of particular concern was the question of unit stationing in USAREUR.

The Army 90 Transition Plan, a detailed schedule of the actions required to implement Army 86 designs for improving the operational effectiveness of units and increasing the combat effectiveness of both existing and new systems, formed part of the FMMP. Major features of the plan included converting units to new designs as major pacing items—such as the Bradley fighting vehicle and the M1 tank—are received; converting units to transitional designs as facilities and manpower resources become available, thus improving the combat effectiveness of the existing force by achieving the capability to execute advanced tactical concepts using current weapon and support systems; converting division support commands to the maximum extent possible as

major pacing items are fielded; and converting reserve component roundout units at the same time as their parent units in the active Army. Reserve component divisions and separate brigades would begin converting in fiscal year 1985. The plan also showed, through an extract from the Force Accounting System, all currently planned unit activations, inactivations, and conversions for fiscal years 1984–1992.

A flurry of activity had preceded publication of the first edition of the FMMP and the Army 90 Transition Plan. During the first quarter of the fiscal year, the Army staff reviewed tables of organization and equipment (TOEs) for the Army 86 heavy division (Division 86) prepared at TRADOC. The review process considerably increased the size of certain divisional units, to the point that there were more people in the division than the force structure allowed. As a result, TRADOC received instructions in January 1982 to redesign Division 86 within a prescribed active component ceiling of between 17,750 and 18,750. During the entire month of February a task force representing TRADOC, USAREUR, FORSCOM (U.S. Army Forces Command), and the Army staff worked at Fort Leavenworth on a revised Division 86 design and a transition plan for the divisional reorganization. TRADOC presented the results of the task force's efforts at a decision briefing on 5 March. Later in the month the Chief of Staff approved the TRADOC design calling for nine active battalions (five tank and four mechanized infantry) and one reserve battalion (tank for armor divisions and mechanized infantry for infantry divisions, mechanized) with the following changes: all medical companies would be placed in the medical battalion; rifle squads would have ten members in both M113- and M2-equipped squads; and the tenth battalion of USAREUR divisions would be an active rather than reserve component. To ensure adequate support, the Chief of Staff rejected fielding the M1 tank and the Bradley fighting vehicle in less than full division sets. He also approved transition plan guidelines.

Another aspect of Army 86 planning, the airborne–air assault division, continued under study at TRADOC. As currently developed, the new airborne division would feature nine infantry battalions plus one mobile protected gun battalion and a cavalry brigade (air attack) as maneuver units. Division artillery would contain three direct support battalions equipped with M198 155-mm. howitzers, but no general support battalion. Planning at the close of the fiscal year envisaged an air assault division built around nine infantry battalions and a cavalry brigade (air attack) having the capability to lift the combat elements of two

maneuver battalions. Artillery components would be the same as for the airborne division. A decision briefing for the Chief of Staff (CSA) on operational concepts and force designs was scheduled for early 1983. Upon CSA approval, TOEs will be produced and programming for transition will begin.

On 29 April 1982 the Commander, Combined Arms Center, briefed the Chief of Staff and major command leaders on the status of Echelons Above Corps 86 force designs and doctrine. Several issues were identified for further study, primarily questions regarding functional (stovepipe) and operational commands. An important result of the meeting was the publication of a draft of FM 100–16, "Support Operations Echelons Above Corps," which serves as interim "how to support" doctrine for the Army. During fiscal year 1983 the draft of FM 100–16 will undergo additional review before final publication.

The Army took steps during fiscal year 1982 to further its High Technology Test Bed (HTTB) program, which consists of TRADOC and DARCOM assets, as well as those of the 9th Infantry Division, I Corps, and Fort Lewis, Washington. The program goal is to field a prototype of a strategically deployable, lean, hard-hitting, and sustainable light division (HTLD) in 1985. In October 1981 intensive work began on developing this division's operational concept and organizational designs. In April 1982 the HTLD operational and organizational design was approved by Headquarters, Department of the Army, and plans were begun for testing and transition. In May the initial HTLD materiel requirements were approved, and HTLD funding requirements were added to Army resourcing documents. In September, plans were completed for transforming a brigade slice of 9th Infantry Division units to the HTLD configuration in fiscal year 1983 for evaluation and testing.

The Army initiated, through the Joint Chiefs of Staff, an analytical examination of the potential force mix needed to meet national security objectives. Major features of the analysis included compiling all pertinent policy guidance into a single document, establishing a methodology to consider all facets of relevant variables, defining and refining an applicable target base, computer modeling, and executing potential force scenarios. The resulting product will be updated on a continuing basis and refined through the PPBES (Planning, Programming, Budgeting, and Execution System) process to provide force structures that can be combined with other factors, such as dollar costs, in order to present a choice of viable alternatives for meeting national security objectives.

Force mix analysis efforts and the damage criteria study noted in last year's summary supported the administration's drive to modernize and expand U.S. strategic forces. As an active participant in this effort, the Army tried to ensure that a healthy perspective was maintained on what was required for a balanced deterrent. While there was no question of the need for an effective strategic deterrent, the high cost of such systems could lead to a deficit in the conventional capabilities that were also required for a balanced deterrent. The Army worked to ensure that conventional forces were neither neglected nor allowed to deteriorate for, if they were, the result could be restrictive and undesirable choices in responding to expected challenges from potential enemies.

In October 1981, the Army began a reorganization of division-level hospitals to improve medical care for the combat zone. A key element of the reorganization was changing the surgical hospital (mobile army) TOE to a new TOE which was given the name mobile army surgical hospital (MASH). The revised structure was designed to increase mobility and better support a fast-moving tactical scenario, while at the same time providing an acceptable emergency surgical-resuscitative capability. In addition to the new MASH, the reorganization would allocate one combat support hospital and two evacuation hospitals to each combat division. Full implementation of the reorganization, which would occur over a five-year period, would increase the number of hospital beds from 800 to 1,060 and the number of operating rooms from fourteen to twenty-two in each supported division; would provide a hospital unit that was staffed and equipped to operate on a continuous 24-hour basis rather than on a "sustained basis"; and would introduce a highly intensive, surgically oriented unit which could be located adjacent to the division's rear boundary and which would provide continuous support—even in areas where helicopter air ambulances could not be used.

The Force Development Directorate, ODCSOPS, completed work on a revision of Army Regulation 71–11, "Total Army Analysis (TAA)," and publication was scheduled for early fiscal year 1983. The revision changed the TAA from an annual study to a biennial one. Following a review by the Army staff and the major commands, the directorate hosted a three-day conference which began on 14 September 1982 to consider the proposed TAA–89 force for development in the Program Objective Memorandum (POM) covering fiscal years 1985–1989. The General Officer Steering Committee met on 17 September to resolve issues left hanging at the conference, to review the base force, and to make

final recommendations for presentation at the Select Committee (SELCOM) meeting scheduled for November 1982.

Sustainability

An important element in determining the composition of forces to be developed is how well they can be sustained overseas under combat conditions. Important factors in this regard are war reserves, POMCUS, host nation support, and rationalization, standardization, and interoperability.

In February 1981 the U.S. Army Logistics Evaluation Agency (USALEA) reported on its study of management policies, procedures, and programs covering secondary items in the war reserve. The report noted four major problem areas that hampered effective war reserve management: (1) insufficient central control and direction; (2) ineffectual or conflicting guidance and inadequate instructions for preparing war reserve budgets; (3) confusing, conflicting, and cumbersome selection procedures; and (4) inadequate management information. Short-range and long-range actions recommended in the report to correct these problems have been accepted and are being implemented by DARCOM and the Army staff.

To improve the accuracy of war reserve asset information reported by major commands, the U.S. Army Logistics Center (LOGCEN) developed and tested a standard report for worldwide use having common data elements that would be auditable. The fruit of this effort, the War Reserve Reporting System (ALS–8), was implemented in June 1982 as part of the Standard Army Intermediate Level Supply System–Expanded (SAILS–ABX).

The major change in the pre-positioning of materiel configured to unit sets (POMCUS) during fiscal year 1982 was the realignment of logistical and medical support packages in the divisional sets. POMCUS fill increased in Northern Army Group (NORTHAG) during the year, but declined in Central Army Group (CENTAG) because of the effects of redesigned USAREUR force requirements and POMCUS restructuring. Funding for spare parts has raised the fill of authorized stockage lists–prescribed stockage lists (ASL–PSL) to an all-time high.

Construction started on shortage sites for POMCUS division set five in Belgium and the Netherlands, and land aquisition began in the Netherlands for set six. Although Congress deleted funding for these sets in the fiscal year 1982 budget, this presented no problem since land procurement and site construction had been delayed. A skeletal force from the 7th Support Com-

mand and a small element of the 54th Area Support Group moved into the area of Rheinberg, Germany, to plan, coordinate, receive, and provide initial support for the reinforcing divisions which are part of the NORTHAG expansion. The 54th Area Support Group will also provide community support activities for U.S. personnel assigned in the vicinity.

The Army continued to emphasize host nation support (HNS) to satisfy some of its combat support and combat service support requirements. The use of HNS resources to complement U.S. military capabilities and force structure, within the bounds of prudent risk, is considered essential to attain the support level necessary for maximum combat power of forward deployed and deploying U.S. forces.

Following lengthy negotiations, the United States and the Federal Republic of Germany (FRG) signed a host nation support agreement on 15 April 1982. It calls for additional negotiations on three technical agreements covering military support, civilian support, and reinforcement exercises. The agreement on military support will provide for the formation of German reserve units containing approximately 93,000 reservists, whose mission will be to support U.S. air and ground forces in time of crisis or war. As the fiscal year ended, U.S.–FRG working groups were putting together details of the military support agreement; the reinforcement exercise agreement was in draft; while work on the civilian support agreement was expected to get under way early in fiscal year 1983.

Regarding other NATO-related HNS matters, progress was made on the preparation of joint logistical support plans to cover the details of host nation support provided under umbrella and general technical agreements which the U.S. has signed with Belgium, the Netherlands, Luxembourg, the United Kingdom, Denmark, and Italy. Also, USEUCOM initiated action to establish logistics coordination cells to operate as in-country extensions of the command in developing joint logistics support plans.

Host nation support in Korea is provided through the combined defense improvement projects (CDIP) program, and in Japan by arrangements for base rentals and construction cost avoidance. Elsewhere in the Pacific, HNS was in a rudimentary state. WESTCOM (Western Command) has begun the friendly-allied nation support (FANS) program to determine the ability of countries to provide support. In Southwest Asia, U.S. policy was to begin discussions with selected countries on possible contingency support for U.S. forces. Although the political climate has inhibited initiatives, some progress has been made in the

areas of access agreements, pre-positioning, and the start of HNS talks.

In the area of rationalization, standardization, and interoperability, the primary effort continued to be the establishment of standardization agreements (STANAG) and interoperable weapons systems, logistics, equipment, and procedures in order to conserve resources and increase the combined combat capability of U.S. and allied ground forces. Concept and doctrinal issues, including AirLand Battle 2000 and land force tactical doctrine, were also raised. The Army, through participation in an interservice working group, actively supported the development, operation, and maintenance of an automated system to manage the status and implementation of standardization agreements, allied publications, and quadripartite standardization agreements.

The Department of the Army International Rationalization Office (DAIRO) was disbanded and its functions transferred to the Office of the Deputy Chief of Staff of Operations and Plans. In conjunction with the demise of DAIRO, AR 34–1, "U.S. Army Participation in International Military Rationalization and Standardization Interoperability Programs," and AR 34–2, "Rationalization, Standardization, and Interoperability Policy," came under revision. The result is expected to be a single regulation which will incorporate both policy and program.

Bilateral Army staff talks were held with the armies of the Federal Republic of Germany, France, and the United Kingdom. AirLand Battle 2000 figured prominently among the topics discussed. The U.S.-Canadian Permanent Joint Board for Defense and the Canadian-U.S. Cooperation Committee also met to discuss matters of mutual interest. The Army took part in NATO Army Armaments Group (NAAG) panels and working groups. At the Military Agency for Standardization (MAS), the Army participated in the promulgation of 31 new STANAGs and allied publications, the amendment of 197 others, and various actions to develop and ratify 109 more. STANAG 2868/ ATP–35(A), Land Force Tactical Doctrine, was forwarded to participating governments for final review and is expected to be ratified in early 1983.

Mobilization

Mobilization efforts during fiscal year 1982 focused on the following issues: reviews of mobilization and deployment planning, continued development of augmentation and preassignment programs to provide pretrained individuals to Regular Army

and reserve component units upon mobilization or in a national emergency, use of civilian personnel, and industrial mobilization.

Based on initiatives by the Secretary of Defense and Chief of Staff, the Army conducted two mobilization planning reviews in March 1982. The first, held on 6 March, considered the Mobilization Acquisition Plan, the update to the Remedial Action Program, and FORSCOM and TRADOC Remedial Action Program management. On 25 March the Vice Chief of Staff chaired a general officer mobilization review which all those in charge of major commands attended. The meeting's agenda included the Mobilization Aquisition Plan, MOBEX 83, and mobilization issues facing FORSCOM, TRADOC, and DARCOM. If program deficiencies uncovered at the meetings are not resolved satisfactorily, both reviews will be conducted again in fiscal year 1983.

Full implementation of the Army Mobilization and Operation Planning System (AMOPS) moved forward during the past year with the publication of AMOPS Volume II, "Strategic Employment of Army Forces," and Volume IV, "Army Crisis Action System." Volumes I and III had been published in 1981.

Following publication of a critical Inspector General report in January 1982, the Army staff acted to develop a more timely process for producing mobilization training requirements. The ODCSOPS Training Directorate assisted ODCSPER in revising an automated system to give it the capacity to produce mobilization training requirements. This joint effort neared completion by the end of the fiscal year. The Mobilization Army Program for Individual Training (MOB ARPRINT) was significantly refined to reflect course capacities more accurately and to determine requirements for functional or non-MOS courses. A special ODCSOPS task force met during the year to prepare a blueprint for mobilization training in a constrained environment. The task force, called WARTRAIN, examined manpower, facilities, stationing, base support, manning, structure, and equipment requirements for providing trained manpower during a full mobilization. The task force determined that equipment remained the pacing item for any emergency expansion of the training base, that a continuous review of equipment availability was necessary to project the effects on training base capacities, and that there was a need to review and improve mobilization plans and to focus on a comprehensive training strategy.

Implementation of the retiree preassignment and recall program gained momentum during fiscal year 1982. The Army began issuing recall preassignment orders in November 1981, and by the end of fiscal year 1982, more than 97,000 retirees had

received "hip pocket" mobilization preassignment orders to Army installations within the continental United States. Another 2,100 retirees residing in Europe also received orders. Most were involuntarily assigned Regular Army retirees under the age of sixty; but some 1,300 were volunteers, both above and below age sixty and both regular and reserve retirees. Reserve retirees can be contingently preassigned, but can be recalled only after a declaration of war or national emergency by Congress, and only after the Secretary of Defense has concurred with the Secretary of the Army's determination that no other reservists are available.

During the past year the Army identified approximately 48,000 reserve retirees for preassignment. These assets will be matched against remaining retiree requirements and, where appropriate, contingent preassignment orders will be issued in fiscal year 1983. The Army also expanded the retiree recall program to include preassignment to nondeploying MTOE units.

On 1 October 1981, the Mobilization Designation (MOBDES) Program was redesignated the Individual Mobilization Augmentation (IMA) Program. All participants became members of the Selected Reserve and subject to active duty service under the President's authority to call up 100,000 selected reservists for a period of one year. In November the program was expanded to include assignment to active Army MTOE units. This action significantly enlarged the scope, size, and impact of the Army's premobilization assignment effort and, for the first time, allowed large numbers of junior enlisted personnel to be included in the program. By the close of the fiscal year, approximately 7,800 selected reservists were preassigned to positions they would fill upon mobilization under the IMA Program.

Mobilization of civilians to meet wartime production and support requirements received unprecedented emphasis during fiscal year 1982. The Civilian Personnel Center's San Francisco field office conducted a thorough study of civilian mobilization planning within the continental United States during the period January–May 1982 to determine how well major Army civilian personnel offices were carrying out assigned responsibilities in this area. The study report recommended numerous actions to improve mobilization readiness. One of the most significant was a complete revision of the Army's regulation on civilian mobilization planning, which was completed by the close of the fiscal year.

Other actions taken during fiscal year 1982 to improve mobilization planning and management included discerning civilian employees who are reservists or retired military members in

preparation for automating this data early in fiscal year 1982; identifying civilian positions and employee assignments according to their status during mobilization; and determining retired military members who serve in key positions and submitting requests for their exemption from recall to active duty during a mobilization. In addition, civilian personnel offices servicing more than one command were directed to establish priorities for assigning available persons among serviced activities having common requirements during mobilization. Overseas commands were to determine the CONUS assignments of civilian employees who would be evacuated in the event of mobilization or hostilities.

The Army took several actions during fiscal year 1982 in the area of industrial preparedness to promote the development and maintenance of an industrial base able to support military operations during peacetime and mobilization.

Army Regulation 700–90, "Army Industrial Preparedness Program," published in March 1982, consolidated the Army's policy and procedures for industrial preparedness into a single document. Three new Department of Defense regulations—4005.1, "Industrial Resources"; 4005.2, "Industrial Preparedness Planning"; and 4005.3, "Industrial Preparedness Planning Manual"—also provided guidance in this area. They were the product of the joint task force formed to carry out the Department of Defense Action Plan for improving industrial preparedness, noted in last year's report.

In another joint effort, the Undersecretary of Defense for Research and Engineering sponsored a triservice committee which drafted a DOD instruction supporting an expanded Army Industrial Productivity Improvement program and an Air Force Technology Modernization program. In addition, the instruction would encourage industry through contract incentives to increase substantially capital investments in productivity-enhancing technology, processes, and modern plants and equipment for defense work. Special emphasis would be given to increasing the productivity of subcontractors and vendors. By the close of the fiscal year the proposed program had been informally coordinated with the military services, with the Defense Logistics Agency, and with industry and had been well received. Formal coordination and implementation should be underway early in fiscal year 1983.

ODCSRDA (Office of the Deputy Chief of Staff for Research, Development, and Acquisition) specialists conducted numerous field trips across the country in support of the Army's assessments of the industrial base. Prime contractors and subcontrac-

tors were visited to determine how well their plants could respond to multiple demands from the three military services. Extensive interdependence among weapon systems and the supporting subcontract structure was discerned. For example, Hughes Aircraft Corporation, the prime contractor for the AH–64 helicopter, was a subcontractor for the TOW 2 missile. In many cases, a single contractor supplied the military services with similar products for use in different weapon systems.

During the spring of fiscal year 1982 the Army assisted the Department of Commerce in a study to evaluate the nation's need for foundry capacity during peacetime and during mobilization. The Department of Commerce was especially interested in assessing the impact of military procurement on the economy of the country in peace and war. The Army reported that it experienced no difficulties in meeting casting requirements, even large or unusual ones. The Department of Commerce study was expected to help the foundry industry project future business and capital improvements.

Training and Schooling

The Army's training goal is to develop and sustain a competent, combat-ready Total Army prepared to mobilize, deploy, fight, and defeat any enemies of the United States in support of worldwide national commitments. To this end, the Army must be ready to undertake and support wartime missions on short notice, regardless of type unit, component, or branch. Forces must then be sustained through well-planned, -supported, and -executed mobilization procedures. Despite a changing world environment and threat, the Army's training mission will not change significantly over time. It will continue to train and develop soldiers, teams, crews, units, and forces individually and collectively to become combat-ready combined arms forces.

Well-trained units capable of carrying out their wartime missions are developed by skilled commanders and leaders who know how to plan, manage, and conduct mission-oriented training. Approved strategy gives commanders a long-term focus for Total Army training. It creates an integrated, war-fighting, mission-oriented theme to prepare active Army and reserve component forces and establishes the training base for peace and war. Strategy provides the framework to deal with the changes associated with force modernization, doctrine, tactics, threat, organization, demography, and technology and to realize full potential, capitalize on increased capabilities, and exploit oppor-

tunities. The training principles of decentralization, modernization, standardization, and sustainment provide the structure for follow-up plans of action, such as Army Training 1990, to support the Army readiness goal: generating and sustaining a modern, combat-ready, well-led, and supported total force that can fight and win.

Better management of training resources continued to be emphasized during fiscal year 1982. A major element of this effort was the Armywide Standardization Program, which had the objective of standardizing procedures used by soldiers to operate and maintain major systems, thereby saving time spent teaching local modifications of basic tasks and reducing retraining requirements for soldiers joining a new unit. Phase I of the program, which has already been implemented, was oriented toward combat arms units and involved drills that relate to soldier-crew functioning on weapons or equipment, for example, gunnery-crew drills, biological and chemical procedures, and combat vehicle preoperational checks. Phase II of the program, which began in 1981, was an ongoing effort by schools, centers, and major commands to identify possible procedures for standardization. Training and Doctrine Command had overall responsibility for the program, while schools and centers and designated chiefs from the Department of the Army standardization branches were responsible for all aspects of the program which pertained to their specialties. An Inspector General investigation of the program carried out during fiscal year 1982 uncovered several problems that required attention, which will lead to some redirection in the coming fiscal year. The inspection report also found that commanders supported the spirit of standardization and that numerous initiatives were under way.

Improved management of training resources was also the objective of the Standards In Training Commission, which was formed to determine the amount of ammunition needed to train and sustain crews and individuals at a prescribed readiness level. The commission developed standard training strategies for thirty-eight weapons systems, which will be implemented in the field in fiscal year 1984, and identified training ammunition requirements, which will be used by program and decision makers in preparing and justifying the fiscal year 1984 budget request. Efforts were begun to expand the scope of the commission's work to cover management of time, fuel, spare parts, and training land and ranges.

Training devices and simulations had become increasingly important in recent years in getting the most out of training

resources. During the past year a regulation on training device policy and management was staffed, and publication is expected in fiscal year 1983. In June 1982 the Training Directorate of ODCSOPS sponsored and the Army Training Support Center hosted the Army's first Worldwide Training Devices Conference with the objective of laying out training device strategy—how devices are developed, acquired, supported, and used. Presentations included the work and methodology of the Standards in Training Commission, a white paper on streamlining acquisition of institution-type simulators, and lessons learned from fielding battle simulation devices. During June and July of 1982 the Defense Science Board conducted a summer study on training and related technology. Out of it came a recommendation to consolidate and increase funding for research in these areas.

The Director of Training, ODCSOPS, chartered the Training Aids Work Group to develop alternatives and recommend improvements in providing and supporting efficient and effective training for the active Army and the reserve components. Participating in the work group would be the Training Support Division, Directorate of Training, ODCSOPS; ANG; Office, Chief Army Reserve (OCAR); TRADOC; DARCOM; FORSCOM; USAREUR; and USAHSC. The Training Aids Work Group would focus its work on policy, management, organization, and procedures for devices and simulators, literature and graphic aids, and audiovisual products and user-operated audiovisual equipment. A report of issues, findings, and recommendations will be provided to the Director of Training in February 1983.

Field validation testing of the Training Management Control System (TMACS)—an automated aid to help the unit commander at the battalion, brigade, or division level to plan training, evaluate the benefits and resource impact of training plans, and record training accomplished and resources expended—was successfully completed at Fort Carson, Colorado, in February 1982, and equipment distribution to the field began. During the period April–May 1982, FORSCOM held courses for unit trainers in the use of the system at Fort Leavenworth, Kansas. The trainers then accepted TMACS equipment into their units and instructed their own people in its use. By the close of the reporting period, 215 TMACS sets had been delivered to the field, and the Army was studying interfaces between TMACS and other systems to further relieve the training management burden borne by unit commanders.

The opening class of the First Sergeant Course got under way at the U.S. Army Sergeants Major Academy on 5 October

1981. The purpose of the course was to prepare senior noncommissioned officers for the position of first sergeant in a company, battery, troop, or similar-sized unit. The curriculum included physical training, field operations, training management, unit administration, personnel actions, logistics, unit security, discipline, soldier problems, and communication skills. Five eight-week classes offered in fiscal year 1982 had a capacity of 312 students. Six classes capable of handling 384 students will be offered in fiscal year 1983. USAREUR also planned to offer a first sergeant course in 1983 for some 300 students.

During fiscal year 1982, 2,223 active Army and many reserve intelligence specialists participated in the Tactical Intelligence Readiness Training (REDTRAIN) Program. Training was focused on in-unit activities and intelligence production. For the first time participants included intelligence specialists assigned to special forces and psychological operations units as well as personnel from the intelligence staffs of tactical battalions. TROJAN, an associated program, will bring live intercepted signals to signal intelligence specialists at two FORSCOM installations in fiscal year 1983 and to USAREUR's 1st Armored Division.

The Skill Qualification Test (SQT) program continued to come under fire during fiscal year 1982. At the Army Commander's Conference held in October 1981 there was general agreement that steps should be taken to streamline the program, make it more flexible, and minimize the "surge" aspect of individual training and evaluation. TRADOC received the task of adapting the program to meet these objections. Staffing of TRADOC's proposals to modify the SQT was influenced by a draft audit of the program prepared by the General Accounting Office (GAO), which was released in January 1982. The audit was highly critical of the program, as was the final GAO report dated 30 March 1982.

On 22 April 1982 the Chief of Staff approved changes to streamline the SQT program. A core or common-task test would be given to all soldiers up to the grade of E–4. Rules for administration and the application of results for personnel management would be flexible and based upon the local commander's judgment. Hands-on tests of military occupational specialty (MOS) tasks would be designed by the unit commander; the results of the evaluations would not be used directly for consideration of promotion, but would be used by supervisors in preparing the soldier's overall performance rating. Also, performance-based, written tests of generic MOS skills would be given annually to most soldiers in skill levels 1–4. These test scores would be used

as objective indicators for promotions and other personnel management decisions. To improve equity and test validity, as well as simplify administration, test notices would only list possible tasks to be tested.

These changes closely paralleled recommendations contained in the GAO's audit report in March. But while the Army supported the thrust of the GAO's recommendations, it did not agree with the agency's assertion that the SQT was ineffective. The Army continued to maintain that the SQT was "a principal tool in the simulation and evaluation of individual skill training and proficiency," that the program "has been an effective indicator for promotion and other personnel management decisions," and that, except for a small number of tests which have been discarded, "SQTs are as valid or more valid than any comparable test instrument used to assess individual task proficiency."

Meanwhile, following a GAO briefing on the SQT audit, Congress reduced spending for the program in fiscal year 1982 from $18 million to $9 million in December 1981. After the Army briefed Congress in June 1982 on the reforms made in the program, Congress restored $4 million for the development of SQTs in fiscal year 1983.

Eight brigade task force training rotations were completed during the first year of operations at the National Training Center, Fort Irwin, California. Amex Corporation finished installing an extensive instrumentation system at the center to monitor and evaluate unit performance during live-fire exercises and force-on-force maneuvers. TRADOC and the Combined Arms Center will analyze unit performance data to determine "lessons learned" with regard to training doctrine and tactics.

During fiscal year 1982, Military Operations on Urbanized Terrain (MOUT) training for NATO and CONUS-based forces continued to be limited by a lack of training facilities. However, the increased emphasis on MOUT doctrine and training during the previous year's programming efforts yielded the Army's first new MOUT training facility at Fort Bragg, North Carolina. This facility was completed in July 1982 and will serve as a prototype for future construction in FORSCOM, USAREUR, and WESTCOM. TRADOC's Directorate for Army Ammunition, Ranges, and Targets (DAART) has also developed a prototype MOUT facility and a combat assault course for individual skills. FORSCOM is expected to program some of these facilities for fiscal year 1985 and 1986, depending on the availability of military construction funds.

Army forces participated in ten exercises directed by the JCS and thirty-two exercises coordinated by the JCS in fiscal year

1982 at a cost of $67 million. These included two command post exercises sponsored by the JCS; two major field training exercises, TEAM SPIRIT 82 in Korea and BRIGHT STAR 82 in Egypt; and BOLD EAGLE, a large-scale USCINCRED field training exercise carried out in the continental United States. Joint exercises provided the opportunity, often not obtainable in any other training situation, to accomplish specific objectives in the areas of mobility, command and control, and communications.

REFORGER 82, conducted in September 1982, was the largest JCS exercise of the year and the fourteenth in the annual series of exercises begun in 1968. It involved the deployment of over 18,000 Army soldiers and their equipment from the continental United States to Europe in 212 C–141 and C–5A aircraft and in 3 roll-on-roll-off (RO–RO) ships, which moved over 1,500 wheeled and tracked vehicles to Europe. Army CONUS units included most of the 1st Infantry Division (Mechanized), the 3d Armored Cavalry Regiment, the 3d Brigade (-) of the 82d Airborne Division, the III Corps battle staff, and an engineer battalion of the USAR.

Over 58,000 USAREUR soldiers participated with the CONUS deploying forces in Europe. CENTAG's CARBINE FORTRESS was a field training exercise conducted in the central and eastern parts of the Federal Republic of Germany involving over 72,000 NATO personnel.

Major innovations in REFORGER 82 included a substantial effort to adhere to and evaluate war plans; a no-notice exercise, GOLDEN THUNDER, which rapidly deployed an Army battalion from CONUS to Europe; deployment of a USAR engineer battalion to Europe; deployment from CONUS of two airborne battalions, which parachuted into Germany; and tactical crossings of the Rhine and Main rivers.

Army Study Program

The Army Study Program is designed to provide the means, through formal analytic effort, for the Army to examine critical problems and improve the quality and usefulness of analyses in support of planning, programming, and budgeting decisions. Studies are defined as a broad class of intellectual activity characterized by the application of the tools of operational and systems analysis.

Approximately 360 studies were worked on during fiscal year 1982, about 54 percent of which were continuations of efforts begun earlier. The studies covered a wide range of topics, from

innovative concepts to applications of new technology. About two-thirds of the studies were conducted solely by Army military and civilian members of study organizations; about half of the balance that were conducted under contract also had participation by Army study personnel.

Studies related to operations and force structure required over 55 percent of the in-house analytical staff time and accounted for about 24 percent of the contract funds. Studies dealing with science, technology, systems, and equipment accounted for about 17 percent of the in-house staff and about 34 percent of the contract funds. The balance of contract effort (42 percent) was distributed over personnel, logistics, management, intelligence, and planning studies. Total contract expenditures were about $15 million; in-house staff time represents about $117 million. Thus the total study program in fiscal year 1982 was somewhat more than $130 million.

A major new development in support of the Army Study Program was the establishment of an Army studies and analyis element at the California Institute of Technology's Jet Propulsion Laboratory. The element, which began conducting Army studies late in the fiscal year, will meet the need for forward-looking policy and technical studies to support Army planning and programming for future change.

During the past year the Chief of Staff changed the methodology used to choose the subjects addressed by Army studies. Priority problem area analysis, the previous technique, consisted of ten general areas—including force design, manpower, modernization, and training—used to guide studies toward problems of critical importance to the Army. While logically appealing, the procedure suffered from three basic problems: the priority areas were very broad; in the field, the problems changed by the time the elaborate analytical process identified them; and the process was not universally understood. The Office of the Chief of Staff found no convincing evidence that the effort expended produced a commensurate improvement in studies management. After some experimentation with substituting major mission statements for priority area analysis, the Office of the Chief of Staff issued a statement on 7 December 1981 of Total Army goals and performance management initiatives, which directed that each staff agency assign one point of contact for Army studies.

4

Manning the Army

The most important asset in the Total Army is people. Quality people, adequately trained and in sufficient numbers in all components—active, reserve, and civilian—are the key to success in maintaining the Army's combat capability.

During fiscal year 1982, the active Army succeeded in meeting both qualitative and quantitative recruitment goals, in large measure because of the higher compensation levels provided in fiscal years 1981 and 1982. The combination of bonuses and educational benefits available to enlistees, in addition to the pay, significantly helped the Army to reverse a previously unfavorable situation. For the first time in nearly a decade, military pay approached a level comparable to the private sector. With the optimum result in recruitment, the Army was in a position to be selective in acquiring as well as in retaining soldiers. The Army's continuing success in meeting near-term recruitment for the past two years enabled it to deny retention opportunities to soldiers who failed to measure up to Army standards.

The Army was dependent upon the reserve components as well as the active force for Total Army mission capability. Critical requirements for wartime combat support were assigned to reserve component units. They provided one-third of the Total Army's combat divisions and approximately two-thirds of its combat support. The personnel status of reserve component units, while still below desired levels, improved. The Army's manning goal was to provide enough reserve component personnel to man units at levels consistent with readiness objectives. The Army planned to continue improving its reserve component unit strength through extensive reenlistment programs and by recruitment of quality soldiers who would remain in the Army National Guard and the Army Reserve. Toward this end, the Army expanded the Full Time Unit Support Program and actively supported the Selected Reserve Incentive Program (SRIP). These initiatives were designed to provide full-time manning of both early-deploying and early-mobilizing-but-non-deploying reserve component units, and to improve recruitment and retention in selected reserve component units by paying cash bonuses and giving educational assistance.

The strength level of the pretrained individual manpower pool of the reserve components remained unsatisfactory during the year, but did improve. Consisting of the Individual Ready Reserve, the Inactive National Guard, the Standby Reserve, and military retirees, this pool provided individual replacements for both active and reserve component units that would be required in wartime until the training base could provide replacements. This manpower pool had a shortfall of some 100,000 enlisted personnel in combat specialties, but contained a surplus of soldiers in several noncombat military specialties. To help eliminate the shortfall, bonus funds were requested for those who enlisted and reenlisted in the Individual Ready Reserve. Additionally, the Army requested authority to increase the total military service obligation from six years to eight.

Individual states also helped to improve the personnel status of the reserve components. Thirty-two states provided educational assistance and other benefits to National Guard personnel, and Hawaii extended benefits to selected reservists. These initiatives assisted in solving personnel acquisition and retention problems in the reserve components.

Even adequate strength levels lose some of their value when units suffer from personnel turbulence, which diminishes readiness and combat effectiveness. To eliminate the adverse impact of turbulence in the active force, the Army began a program of personnel stabilization and unit replacement under which soldiers train and work together and are assigned as a unit both overseas and in the United States. After three years, Personnel will form new stabilized units, be assigned to other jobs, or be released from active service, as appropriate.

The unit replacement system complements the American Regimental System program, the first phase of which was recently implemented. Composed of battalions linked under one regimental flag, or "color," the system is based on paired battalions serving in the continental United States and overseas. The regiment is the community in which a soldier is assigned and with which he identifies throughout his entire Army career. Although it is a nontactical unit, the regiment creates an environment that fosters cohesion and commitment while improving morale, training, and readiness.

To enable these new manning programs to work, the Army must make the maximum number of personnel available for service in combat-related units and supporting activities. In pursuit of this objective, the Army implemented during the past two years a civilian hire substitution program to replace military spaces

with civilian spaces where feasible. Civilian substitution freed soldiers to perform their combat roles while enhancing readiness by increasing stability and expertise in the Army's sustaining base.

The Army relied heavily on its civilian work force of 391,000 dedicated men and women to perform tasks necessary for the daily operations of the three uniformed components. These tasks directly affected the readiness and war-fighting capability of America's Total Army.

Because a well-trained, uniformed, and professional civilian work force must have competent leadership to be most effective, the Army focused more effort on leadership development. The Total Army's continuing goal was to develop leaders at all levels who possessed the highest ethical and professional standards and who were committed to mission accomplishment and to the well-being of subordinates. Because of its critical importance on the modern battlefield, the fundamentals of leadership were stressed at all levels of military instruction. Courses in ethics and professionalism were established at all commissioned officers schools and were under development for noncommissioned and warrant officers schools.

Excellence in the Total Army requires a strong cadre of noncommissioned officers (NCO), since the NCOs are both the backbone of the fighting units and the first-line trainers and supervisors of new and junior soldiers. Teaching the NCO corps how to lead, train, and teach is therefore a critical task. Consequently, the Army put increased emphasis on providing leadership and technical training both at schools and in field units. Believing that greater initiatives must be taken by junior leaders if the Army is to be successful in peace and war, the Army encouraged a command climate which reenforced basic values and empowered leaders at all levels to act decisively and creatively. Personnel systems were aligned to support unit performance and leadership development at the lowest levels. These efforts developed tomorrow's leadership while simultaneously improving the readiness of today's Total Army.

Active Military Strength

The active Army entered fiscal year 1982 with an authorized strength of 780,300 men and women. In February 1982, the Army asked Congress to increase the end strength to 784,000. During June, however, it became apparent that the prospect for congressional approval of the increase was not favorable. Con-

tributing to the decision to keep the end strength at 780,300 was the additional cost associated with unprogrammed growth of the actual strength in the second quarter to 791,000. To achieve an end strength of 780,300, the Army implemented policies emphasizing the recruitment and retention of quality soldiers and the discharge of poor performers. As a result, the overall quality of the force was significantly improved, and the active Army reached an end strength of 780,391. On 10 September 1982, only twenty days before the end of the fiscal year, Congress raised the end strength authorization to 782,500, too late for the Army to retarget the actual end strength.

Throughout fiscal year 1982, the Army implemented a series of personnel management and strength policies to improve the quality of the force and to meet end strength and budget limitations. These policies enabled the Army to raise its standards for enlistment and reenlistment, to assign "re-up" objectives by MOS, and to reduce the migration rate of first-term soldiers in the combat arms. With the availability of day-to-day strength information, management capabilities within the Army have been greatly enhanced.

During fiscal year 1982, the active Army force structure was manned on the average at 101.4 percent of authorizations, with an average overmanning of 9,200 for the year. On 30 September 1982, active Army strength was as follows:

	Authorized Strength	*Actual Strength*
Officer	103,100	103,109
Enlisted Personnel	672,783	672,699
U. S. Military Academy	4,417	4,583
Total	780,300[a]	780,391

[a] An end strength of 782,500 was authorized on 10 September 1982, too late to program for fiscal year 1982.

Enlisted Personnel

Fiscal year 1982 was an excellent recruiting year for the Army in terms of both quality and quantity of accessions. As in fiscal year 1981, the Army met its programmed recruiting goals. Army recruiters reached their fiscal year 1982 objectives of 127,000 volunteers on 12 July 1982, nearly three months before the end of the fiscal year. The commanding general of the U.S. Army Recruiting Command stated that "the service was more successful in attracting people this year than at any time since the government scrapped the draft in 1973 in favor of filling its military

ranks with volunteers. . . . Because of the recruiting success, the Army has stopped enlisting people for fiscal year 1982 and started stockpiling for fiscal year 1983."

In fiscal year 1982, the active Army recruited a total of 130,198 men and women, more than 5,000 over the total programmed objective of 125,100, and 104 percent of its objective. Total non-prior service (NPS) accessions were 120,353 (104 percent of the goal); prior service accessions were 9,845 (104 percent of the goal). Of the non-prior service recruits, 103,571 (86 percent) were high school diploma graduates, a 9.3-percent improvement over fiscal year 1981.Recruits in mental category IV numbered 23,121, or 19.2 pecent, well below the 25-percent ceiling mandated by Congress and an improvement of 36.5 percent from fiscal year 1981.

Recruiting trends for the last three years are shown in *Table 1*.

TABLE 1—ACTIVE ARMY RECRUITING TRENDS

Category	*FY 80*	*FY 81*	*FY 82*
Total Objective	172,800	136,800	125,100
Total Accessions	173,228	137,916	130,198
% of Objective	100.2	100.8	104.1
NPS Male Objective	134,400	98,500	100,500
NPS Male Accessions	135,969	99,613	105,158
% of Objective	101.2	101.1	104.6
NPS Female Objective	23,400	18,300	15,100
NPS Female Accessions	22,210	18,302	15,195
% of Objective	94.9	100.0	100.6
PS Personnel Objective	15,000	20,000	9,500
PS Personnel Accessions	15,049	20,001	9,845
% of Objective	100.3	100.0	103.6
Total Education (NPS)			
Diploma (NPS)	85,825	94,730	103,571
Diploma (NPS)	54.3%	80.3%	86.0%
GED (NPS)	3.7%	3.1%	2.8%
Total Education (NPSM)			
Diploma (Male Only)	66,517	77,529	88,376
Diploma (Male Only)	48.9%	77.8%	84.0%
GED (Male Only)	3.8%	3.2%	3.2%
Test Score Category (NPS)			
IV	82,031	36,418	23,121
IV	51.9%	30.9%	19.2%
Blacks (NPS)	29.8	27.4	24.6
Two-Year Term (NPS)	1.0	1.8	5.5
Three-Year Term (NPS)	68.3	62.7	57.1
Four(+)-Year Term (NPS)	30.7	35.5	37.4

Recent success in Total Army retention programs has also resulted in end strengths that surpassed those programmed for each element of the active Army and the Selected Reserve, but a significant shortage still existed in the Individual Ready Reserve (IRR), which is the Army's pretrained manpower pool, and in aviator strength. As a result of both post–Vietnam War force reductions and the end of the draft, IRR strength declined from over one million men and women a decade ago to a low of under 150,000 in 1977. The strength in fiscal year 1982 of about 213,000 was far short of the 453,800 required. Efforts were being made to correct the deficiency. Army aviator strength was improving, and the Army's warrant officer objective should be reached during fiscal year 1983. The fiscal year 1983 budget included funds to increase the number of trained warrant officer aviators from 800 to 1,000.

While general economic and social conditions have been significant factors in the notable improvement of recruiting, other elements also contributed. These included higher pay, expanded resources, better management, varied training assignment and enlistment options, enhanced educational benefits, and growing public support for young men and women in uniform. The Selected Reserve Incentive Program (enlistment-reenlistment bonuses and educational benefits) and the affiliation bonus program especially contributed to success in the reserve components.

The 1980 Military Compensation Act increased pay by an average of 14.3 percent in 1981 and made it competitive with private sector pay for the first time since the mid-1970s. This factor contributed to the dramatic turnaround in accession and retention of military personnel over the past two years.

Another important component of the recruiting package was the enlistment bonus, a highly flexible and efficient means of improving recruitment in critical MOSs. Enlistment bonuses and the skills for which they were offered could be easily adjusted to reflect ever-changing supply and demand, thereby allowing the Army to react quickly to recruiting problems that might arise because of an improved economy or a reduction in the youth population. Provisions of the Uniformed Service Act of 1981 increased several special and incentive pays, raised the maximum enlisted bonus from $5,000 to $8,000 for four-year enlistments and set a $4,000 maximum for three-year enlistments on a test basis, and improved travel and transportation allowances.

The reenlistment bonus for the IRR was tied to skills that were expected to be in short supply upon mobilization. It authorized up to $900 for three-year reenlistments. Contingency funds

for the Army have been requested to produce an estimated 20,000 three-year reenlistments in the IRR.

To manage recruiting more efficiently, the Army undertook a detailed and intensive market research study called Recruiter Zone Analysis. It involved a review of demographics and other significant factors of the market in each recruiting district. The analysis considered variables such as current population density of seventeen- to nineteen-year-olds, the number and location of high schools, unemployment, and historical propensity to enlist. Using these variables, the Army could make the best use of recruiter strength and location of stations to take advantage of the market. Under the Ultra Veterans Educational Assistance Program (Ultra VEAP), nearly 4,700 soldiers enlisted for three or four years in one of sixty-two qualifying specialties in exchange for benefits of up to $20,100. Soldiers who participated contributed up to $100 monthly to receive full benefits. To qualify for Ultra VEAP, a soldier had to have no prior service; be a high school diploma graduate; have an Armed Forces Qualification Test score of 50 or more and be in mental category I–IIIA; enlist for active duty; enroll in the Basic VEAP for a minimum of twelve months; and enlist in one of seventy-two selected military occupational specialties.

Reenlistment and recruitment programs of the Army were complementary: improved quality recruitment led to more and better qualified reenlistments. Among the many changes under way in personnel management that brought about improvements in recruitment and reenlistment were continued progress in quality accessions; better alignment of the career force with noncommissioned officers (NCO); filling the total force with appropriate skills in the right grades; building stability and fostering cohesion in units; and providing commanders with increased authority to retain model soldiers and to eliminate ineffective ones.

In the past, soldiers with more than eighteen years of service were, almost without exception, permitted to reenlist or extend their enlistment to remain on active duty until they reached their twenty-year retirement mark. However, a clarification of policy outlined in interim change 16 to AR 601–280, effective on 1 January 1982, stated that major field commanders could deny this opportunity to soldiers who had bars to reenlistment imposed or approved by the Department of the Army (DA), who had refused to take required action to comply with DA assignment instructions, or who did not meet height and weight standards of AR 600–9. The change also denied reenlistment to soldiers who did not make corporal or specialist four during their

first three years of service, but allowed privates first class to extend their overseas duty long enough to complete a tour, and permitted extensions to soldiers who needed additional time to satisfy a DA-imposed service obligation. Another example of the Army's tougher standards was a new requirement that reenlisting soldiers have three area aptitude test scores of 95 or better on the Armed Services Vocational Aptitude Battery (ASVAB) Test.

Department of the Army reenlistment objectives for the first quarter of fiscal year 1982 were transmitted to the major commands in September 1981. These objectives represented a change from past practice in that the Army designated specific MOS objectives for initial-term soldiers (those reenlisting for the first time), midterm soldiers (those reenlisting for the second or subsequent time up to ten years of service), and careerists (those with more than ten years of service). The MOS reenlistment objectives were part of the Army's plan to acquire the right number of soldiers with the appropriate qaulifications at the proper time.

The Army also used reenlistment policies to help overcome a shortage of 6,000 noncommissioned officers in selected combat arms skills as well as a shortage of 2,400 NCOs in other specialties. This was accomplished by allowing soldiers to reenlist only in their current skills or in shortage skills. Selective reenlistment bonuses for critical skills assisted in this process, as did the fact that opportunities for promotion were higher in skills with greater shortages.

A total of 87,184 men and women reenlisted in fiscal year 1982. This was 1,494 more than had been expected when goals were set for the fiscal year. Significantly, reenlistments were higher than expected in the combat branches of infantry, armor, and artillery, where the Army has experienced chronic difficulties since the end of the draft nearly a decade ago. Active Army reenlistment achievements for fiscal year 1982 were as follows:

	Achieved	*Percent of Goal*
Initial Term	34,011	96.6
Midterm	28,553	94.2
Career	21,645	107.2
Total	84,209	98.3

Effective 1 April 1982 the Army changed its policies to expedite the separation of "marginal performers." Commanders were now able to discharge marginal performers under the Expeditious Discharge Program (Chapter 5, AR 635–200) without the

soldier's consent. Commanders could also discharge soldiers with less than six years' service involuntarily and without offering them a board of officers to consider the matter. These changes implemented Department of Defense policies which permitted the identification and separation of individuals who had not adapted to military service. Soldiers separated under the revised policies would receive either an honorable or general discharge.

A close look at the data pertaining to the three-year attrition rates in the active Army indicates two key factors influencing attrition: one was related to the quality of accessions (educational levels of the recruits) and the other to sex. As indicated by the figures in *Table 2*, rates for soldiers who were high school diploma graduates (HSDGs) tended to be lower than those of soldiers who did not graduate. AFQT categories within the education group were also factors influencing attrition, mainly during the training periods. For instance, high school diploma graduates who were classified as AFQT mental category IV normally had higher attrition during training than the high school diploma graduates in mental categories I–IIIA.

Through fiscal year 1978, attrition rates for male recruits decreased considerably, largely because of the Army's intensified efforts to increase accessions from groups with lower risk of attrition and reduce accessions from higher risk groups. However, quantitative recruiting efforts to meet manpower requirements during the period resulted in slight increases in the three-year attrition rates for fiscal year 1979 through 1980.

TABLE 2—THREE-YEAR FIRST-TERM ATTRITION RATES
(as percent of accessions)

Sex	*Education Level*	*Accession Year* FY 77	FY 78	FY 79[a]	FY 80[a]	FY 81[a]	FY 82
Male	HSDG[b]	28.9	26.2	25.5	27.0	26.5	25.3
Male	NHSDG[c]	50.6	45.5	46.6	50.4	49.8	45.0
Male	All	39.4	31.9	34.4	39.2	31.9	28.7
Female	HSDG[b]	44.2	44.6	44.1	46.3	48.9	50.3
Female	NHSDG[c]	58.3[d]	54.7[d]	46.3[d]	65.0[d]	67.8	[e]
Female	All	46.3	45.3	44.2	49.1	50.1	50.3
All	All	40.0	33.8	35.7	40.6	34.8	31.4

[a]Forecasts based on current historical data and targeted policy changes.
[b]High School Diploma Graduates.
[c]Non-High School Diploma Graduates.
[d]Basic Army policy denied enlistment to NHSDGs; a small percentage of GED certificate holders were enlisted (10% of female accessions during FY 77 and 5% and 1%, respectively, during FY 78 and FY 79).
[e]No NHSDG female enlistees programmed during fiscal year 1982.

The three-year attrition rate of first-term female soldiers recruited since fiscal year 1979 is approximately 15–20 percent higher than that of their male counterparts and has increased considerably among the recruits of fiscal year 1980, largely because many of these recruits were not high school diploma graduates.

After extensive staffing and coordination, a complete revision of AR 570–4 "Army Management," was published in September 1982 with an effective date of 15 October 1982. Highlights of the changes in the regulations included definition of authorities delegated to MACOM (Major Army Command) commanders and those reserved for Headquarters, Department of the Army (HQDA); definition of borrowed military manpower (BMM) and updated policies; new controls for unscheduled overtime that were realistic and auditable; improved position identification policies; and procedures for submission and coordination of TDA (tables of distribution and allowances) changes requiring HQDA approval.

A readiness problem encountered by the Army in past years was using soldiers from tactical units to perform base operations and installation support functions instead of civilians because of a constrained civilian manpower authorization. Borrowing military manpower had an adverse effect on personnel and unit readiness and decreased job satisfaction. In recognition of this impact Congress authorized the Army an increase of 6,500 civilians in fiscal year 1981 and 10,300 in fiscal year 1982—a total of 16,800—to replace borrowed military manpower and improve near-term readiness. By the end of 1981 about 6,000 civilians were hired, and a total of 1,100 noncommissioned officers (NCOs) and 4,300 other soldiers were returned to their units. During fiscal year 1982, another 6,000 civilians were hired with a concomitant return of enlisted men and women to their soldiering duties.

Officer Personnel

In fiscal year 1982 the Army's officer program achieved notable success. The officer strength of the active Army continued to increase, rising from 101,850 to 103,463 during the year. The following table breaks down the officer end strength by grade.

TABLE 3—ACTIVE ARMY OFFICER GRADE STRUCTURE
30 September 1982

Category	*Total*
Commissioned Officers	
General	411
Colonel	4,577
Lieutenant colonel	10,716
Major	16,176
Captain	32,699
First lieutenant	13,084
Second lieutenant	11,360
Total	89,023
Warrant Officers	
CW–4	1,505
CW–3	4,304
CW–2	5,286
CW–1	3,345
Total	14,440
Grand Total	103,463[a]

[a]This figure includes 354 reimbursable active duty personnel; otherwise total is 103,109.

Most of the increase in strength during the past year was among officers with more than four years of service, reflecting improved retention. Although the number of senior active duty officers was growing at a slower rate than the total number of officers, the average grade among active Army officers remained unchanged for two years at roughly 0–3 (captain). This meant that officers had more years of service in grade.

The growth in officer strength did not offset the increased operational demand for another 1,871 officers and the Army's need to have 13,437 officers either attending military or civilian schools or in transit to new assignments.

Early in fiscal year 1982, the Department of Defense proposed management reform legislation for general (and flag) officers in response to a congressional request for accountability and validation of star-rank positions. This represented DOD's first attempt since the Officer Grade Limitation Act of 1954 to streamline service procedures for determining numbers, assignments, and qualifications of general (and flag) officers. Key provisions in the proposed legislation would create uniform system accounting for general (and flag) officer requirements; new grade tables and a revised method of determining general (and flag) officer ceilings based on force structure and size, with special support requirements counted separately; a standardized system for all services in reviewing, validating, and reporting on star-billet requirements; and clearly defined authority within DOD to con-

trol general (and flag) officers. The proposal would exclude the minimum grade requirements on general (and flag) officers assigned to the reserve components and the Judge Advocate General Corps.

The recruitment and retention of medical personnel, a persistent problem area in the officer corps, steadily improved in fiscal year 1982. The Army's recruitment and retention efforts exceeded by about one hundred the number of active duty Army Medical Department officers authorized in 1982—16,532 (actual strength) as compared with 16,438 (authorized strength).

Although shortages in several specialties eased, the number of officers in the Dental Corps, Medical Service Corps, and Army Medical Specialist Corps fell slightly short of the minimum peacetime requirements. (*Table 4*)

TABLE 4—ARMY MEDICAL DEPARTMENT OFFICER STRENGTH
30 September 1982

Corps	*Authorized Strength*	*Actual Strength*
Medical	4,905	4,975
Dentral	1,815	1,788
Veterinary	396	405
Medical Service	4,968	4,942
Army Nurse	3,891	3,962
Army Medical Specialist	463	460
Total	16,438	16,532

As a result of current initiatives, Army Medical Department officer strength in the Army Reserve was expected to increase significantly. Nonetheless, Army Reserve Troop Program units were still 55 percent short of physicians and 28.5 percent short of nurse needed upon mobilization. Critical shortages also remained in surgical specialties.

A joint recruiting effort by the Army Surgeon General's Office and the Army Reserve has been in progress since late fiscal year 1980. It produced 656 physicians in fiscal year 1981 and 550 physicians in fiscal year 1982; it was projected to produce 450 physicians in fiscal year 1983 and annually thereafter for troop program units.

Active duty officer accessions totaled 9,417 in fiscal year 1982. Of these, 3,998 men and women came from the Reserve Officers' Training Corps (ROTC), 885 from the United States Military Academy (USMA), 770 from Officer Candidate School (OCS), and 3,764 from other sources, including 1,633 warrant officers.

In addition, 8,486 officers entered the Army Reserve, and 6,058 officers received Army National Guard appointments. (*Table 5*)

TABLE 5—OFFICER ACCESSIONS
Fiscal Year 1982

Active Army	*Total*	*U.S. Army Reserve*	*Total*	*Army National Guard*	*Total*
USMA	885	ROTC	1,017	ROTC	1,101
ROTC	3,998	State OCS	55	State OCS	1,394
OCS	770	RCOCS	42	RCOCS	215
Other	3,764	IRR Transfer	3,375	IRR Transfer	[a]
		Other	3,997	Other	3,348
Total	9,417	Total	8,486	Total	6,058

[a]IRR transfers included in other category; all IRR transfers to ARNG receive an ARNG appointment.

On 15 March 1982 the Precommissioning Branch of the Office of the Deputy Chief of Staff for Personnel became the Officer Accession Branch and assumed responsibility for Total Army officer procurement from all sources.

Future officer accessions were based on several projections. The ROTC production should reach the 10,500 range in 1985. Approximately 5,000 officers would be brought to active duty; the remainder would be reserve component accessions. Beginning in 1985 the majority of ROTC duty accessions would be scholarship recipients. The number of those commissioned early and brought to active duty beginning in 1985 would be between 400 and 600. Beginning in school year 1983–1984 12,000 ROTC scholarships would be funded for award. It was estimated that by 1985 the ROTC Scholarship Program would yield about 3,500 officers. All graduate delay students would be brought to active duty after obtaining advanced degrees. USMA output would remain at approximately 900 per year. Beginning in 1986, active OCS would be reduced to an annual output of 550. Within the voluntary active duty program (selective recall, volunteers for active duty, and Commandants Program), selective and invitational recall should remain in the 500 range. Direct appointments in the special branches would be stable, while warrant officer strength would increase by 201 and 487 in fiscal years 1983 and 1984, respectively.

Officer accessions in the reserve components rose as ROTC production increased. In fiscal year 1982, ROTC accessions made up 22 percent of reserve component accessions. By fiscal year 1988, 44 percent of reserve component accessions would be from ROTC, and in the future years as many non-graduate ROTC commissionees as possible would be assigned to the reserve

components. As a result, there would be a corresponding decrease in the accessioning of officers in the reserve components from the state OCS program.

The Army Medical Department active duty accessions in fiscal year 1982 were met, with the exception of two Medical Service Corps specialties: sanitary engineering and nuclear medicine. Emphasis shifted from recruiting volunteer physicians to filling vacancies at the community hospital level and accessioning hard-to-get specialists. Medical center assignments for volunteer physicians were restricted to certain critical specialties, while recruitment counselors emphasized the search for qualified physicians to fill the ranks of the post hospital staffs. Although there was a decrease in the number of volunteer physicians (164 in fiscal year 1982 compared with 259 in fiscal year 1981, 332 in 1979, and 326 in 1978), this group still constituted 28 percent of total Medical Corps entries on active duty for fiscal year 1982. Improved physician retention and anticipated increases in accessions from other sources, such as Health Professions Scholarship Program (HPSP) and Uniformed Services University of the Health Sciences (USUHS), will offset the projected reduction in the Medical Corps volunteer program.

Twelve universities were added to the list of Army ROTC host institutions which had an Army ROTC detachment physically located on their campus. This increase brought the count of host institutions to 315. The number of universities and colleges at which ROTC was available to students grew to over 1,400. This included extension centers that were staffed by ROTC detachments on campuses close by, in the host institutions, and at cross-enrolled schools, which had students academically enrolled who attended ROTC instruction at other schools. The twelve universities added to the list of host institutions were Embry-Riddle Aeronautical University, Duke University, University of South Maine, Memphis State University, University of Louisville, Winona State University, University of New Orleans, University of Texas at San Antonio, University of Alabama at Birmingham, Northern Arizona University, Boise State University, and California State University at Fresno.

School year 1981–1982 was the first year for allocation of ten two-year scholarships at each of six military junior colleges (MJC): Kemper Military School and College, Wentworth Military Academy and Junior College, New Mexico Military Institute, Valley Forge Military Academy and Junior College, Marion Military Institute, and Georgia Military College. The allocation and award of these scholarships was in compliance with 10 USC 2107.

During fiscal year 1982, the Army experienced chronic shortages of field grade officers managed under the Officer Personnel Management System (OPMS). These were the officers assigned to a control branch or specialties other than the Chaplain's Corps, Judge Advocate General's Corps, Medical Corps, Army Medical Specialist Corps, Medical Service Corps, Dental Corps, Veterinary Corps, and Army Nurse Corps.

To alleviate the shortage of approximately 4,600 field grade officers needed to fill authorized duty positions and remain within the Defense Officer Personnel Management Act (DOPMA) constraints, the Deputy Chief of Staff for Personnel developed a plan to align the Army officer personnel inventory with its authorized duty positions in the field grade ranks. Designated as Force Alignment II, the plan would replace 3,600 field grade positions with company grade positions and an additional 1,000 field grade positions with civilian positions. When fully implemented by fiscal year 1984, Force Alignment II would enable the Army to eliminate chronic officer shortages in the field grade ranks.

During fiscal year 1982, the Army reached its goal of filling medical and health service personnel positions that had been in critical shortage during the post–Vietnam War period. Consequently, the Army Medical Department (AMEDD) was in a position to be selective with all of the health professionals it recruited. In general, except for some critically needed surgical subspecialties, the Army's physician shortage was over. There was concern, however, about the effect that the recently enacted (DOPMA) would have on bringing certified health professionals into the Army. Previously, physicians and dentists were given four years of pay credit for formal education (postbachelors degree), but DOPMA erased that; consequently, entry salaries for physicians and dentists were cut in some cases by as much as $4,000.

In order to provide the armed forces with an officer management policy that was uniform, equitable, and tailored to contemporary manpower requirements, the Department of Defense and Congress in fiscal year 1981 agreed, after sixteen years of effort, on the DOPMA. Congress passed it on 21 November 1980, the President signed it on 12 December 1980, and it went into effect on 15 September 1981. Although DOPMA affected all commissioned officers, including generals, its primary impact would be to create a single promotion system for all field grade officers on active duty and eventually to produce an active Army field grade officer corps that is all Regular Army. The new system would replace the old dual system of permanent Regular Army

(RA) ranks and temporary Army of the United States (AUS) ranks, as well as an active Army corps of field grade officers that, since the Vietnam War, has consisted of about 7 percent Other Than Regular Army (OTRA) officers.

Following enactment of DOPMA, the Secretary of the Army approved the establishment of promotion competitive categories in October 1981. The nine categories (JAG Corps, Chaplain Corps, Medical Corps, Dental Corps, Army Nurse Corps, Medical Service Corps, Veterinary Corps, Army Medical Specialist Corps, and Army Competitive Category) served as the foundation upon which the Army's officer personnel management system was built.

The Army established an active duty list (ADL) containing the names of Regular Army and eligible reserve officers from which new active duty promotions would be made. Promotion resulting from an ADL board was permanent for both regular and reserve officers. During fiscal year 1982, the grade in which officers were serving on active duty on 15 September 1981 became their permanent grade.

The first ADL promotion selection boards were conducted for grades of captain through colonel during fiscal year 1982. While the up-or-out provisions of the old promotion system remained, there were some important differences. Previously a Regular Army major was guaranteed service until about twenty-one years—the time required for two nonselections to lieutenant colonel. Since ADL promotions were permanent, the time needed to be passed over twice for promotion to a Regular Army lieutenant-colonel was reduced to about seventeen years. The RA officer's only guarantee of reaching and going beyond retirement under the new law was to be promoted to lieutenant colonel.

To accommodate the move toward an all–regular officer corps, the maximum allowable Regular Army officer force was increased from 49,500 to 63,000. The Secretary of the Army approved an all–regular field grade force with promotion to major as the break point for Regular Army integration. This action would be accomplished in phases and affected officers in three categories differently. First, reserve officers on active duty on 15 September 1981 selected for or serving in grades of major and above were administratively offered RA integration if they met certain basic criteria. If they elected to continue service as a reserve officer, they would be released from active duty at twenty years. Second, reserve officers on active duty on 15 September 1981 serving in the company grades would automatically be offered RA integration when selected for promotion to major. These

officers also could reject integration and could serve until they were eligible for retirement after twenty years, if they so desired. Finally, reserve officers commissioned after 1 October 1981 who were selected for promotion to major had to accept RA integration or leave active duty. Those electing not to become RA would leave active duty voluntarily and would not be eligible for separation pay.

A revision of Army Regulation 600–101, approved in August 1981 and effective on 1 October 1981, transferred to the various Army schools primary responsibility for setting educational and skill standards for commissioned officer specialty codes, warrant officer military occupational specialties, and enlisted career management fields. The proponent schools advised and assisted the Office of the Deputy Chief of Staff for Personnel and the Military Personnel Center in developing and carrying out personnel management policies and programs and in operating personnel systems within the purview of their specialty interest and responsibility. The schools dealt with their specialties only in a collective sense and did not have authority over decisions regarding individuals, which were normally handled by the Military Personnel Center or commanders of reserve component personnel agencies.

The Army also instituted changes in the specialty classification system for commissioned officers. Effective 1 March 1982 the engineer specialty career field was revised to improve descriptions of duty, function, and responsibility. Significant in this revision was the creation of Specialty Code 22, Topographic Engineer, formally a skill identifier within Specialty Code 21, Engineer. Specialty Code 31, Law Enforcement, was renamed Military Police.

Effective 1 September 1982, the operations specialty career field was also improved. Significant in this revision was the elimination of the training development specialty career field (formerly Specialty Code 28) and inclusion of these functions within the operations specialty career field. Also included in the newly defined operations specialty career field was the manpower–force management function (formerly an additional skill identifier). The title of the operations specialty career field was changed from Specialty Code 54, Operations and Force Development, to Specialty Code 54, Operations, Plans, Training, and Force Development.

On 15 September 1982, a new concept was approved which would result in a separate career management system for special operations personnel. The new system would include commis-

sioned officers, warrant officers, and enlisted personnel. The system principally encompassed personnel who had been formerly classified in unconventional warfare skill identifiers. Action was under way through a working group to carry out this decision.

Women in the Army

In the Army women are authorized to serve in 92 percent of all officer, warrant officer, and enlisted specialties. Women may be assigned to all units except battalion and smaller-sized units of infantry, armor, cannon field artillery, low-altitude air defense artillery, combat engineers, and certain aviation units.

Approximately 10 percent of the active Army was female, while the female share of Army National Guard and Army Reserve troop units was approximately 5 percent and 16 percent, respectively. In February 1981, the active Army announced a decision to pause at a level of 65,000 enlisted women pending a review of policies and programs on the role of women. The Army's criteria, as in all personnel management reviews, would be used to improve combat readiness and enhance mobilization capability. Initial assessment of this review indicated that further analysis would be needed through 1982 and 1983.

As of 30 September 1982, more than 144,000 women were serving in the Total Army: 75,000 in the active force, 20,000 in the National Guard, 34,000 in Army Reserve troop units, and 15,600 in the Individual Ready Reserve.

In January 1982, the Secretary of Defense directed the military services to "aggressively break down those remaining barriers that prevent us from making the fullest use of the capabilities of women in providing for our national defense." Secretary Weinberger's memorandum to the service secretaries affirming the administration's policy to expand the role of military women was a strong, positive statement in an otherwise uncertain year for women in the Army.

In May 1982, the Army announced that it would discontinue coeducational basic training by September, because men were not being challenged enough physically in integrated training companies and were not attaining their full potential. The effective date of the new policy was later changed to October 1982. Although basic training would remain the same for both sexes, male and female recruits would be separated at the company level and below. Men and women had been training in integrated companies since 1978. Training cadre assignments would

continue to be made regardless of gender, with female drill instructors training men as well as women. Under the new system, female recruits would receive basic training only at Fort Jackson, South Carolina; Fort Dix, New Jersey; and Fort McClellan, Alabama.

Many women leaders considered the decision to end coed basic training a step backward. Army spokesmen, however, insisted that it was not meant to discriminate against women but to toughen the men.

During fiscal year 1982 women were also concerned about delays in completing the review of current Army policies affecting women, which began in May 1981. The Women in the Army Policy Review Group finally completed its study in August 1982 and submitted its report through appropriate staff channels to the Secretary of the Army. By the end of the fiscal year the report still had not been published, although some of the review group's findings were released, stirring up considerable controversy over the future role of female soldiers.

On 26 August 1982, the Secretary of Defense announced the decision, based on the policy review, to increase the number of enlisted women in the Army over the next five years from 65,000 to 70,000. This figure was well below the goal of 87,500 enlisted women set by the Carter administration. At the same time, the Army announced that, as a result of the review group's clarification of the combat exclusion policy, an additional twenty-three military occupational specialties would be closed to women. Furthermore, new physical strength standards and tests would probably bar most women from many other jobs in the Army. Administration officials maintained that those changes would help rather than hinder women by assigning them to jobs for which they are better suited.

Equal Opportunity and Minority Representation

Equal opportunity is a program concerned with human development that allows talent, ability, and initiative to flourish through fair and impartial treatment. Equal opportunity programs help commanders and managers create an environment free of discrimination in any form—one that is conducive to cohesion and mission accomplishment.

The Department of the Army Affirmative Action Plan provided a direct link between the efforts of the Department of the Army and the major commands to achieve equal opportunity for all military personnel and their families. Recent assessment re-

ports indicated that progress toward fiscal year 1982 goals had been favorable concerning women and minority enrollment in officer commissioning programs, promotions, command selections, career schooling, and other career development areas.

As of 30 September 1982, 37.4 percent of active duty personnel were members of minorities (29.4 percent black, 3.9 percent Hispanic, and 4.1 percent others). Blacks made up 8.8 percent of commissioned officers, 6.2 percent of warrant officers, and 32.6 percent of the enlisted force. (*Table 6*) There remained a tendency for blacks to be even more heavily represented in certain enlisted career management fields that characteristically have had large numbers of blacks—supply petroleum handler and food service.

TABLE 6—MINORITY REPRESENTATION IN ACTIVE ARMY[1]
30 September 1982
(in percentages)

Category	*Officer*	*Warrant Officer*	*Enlisted*	*Total*
White, not of Hispanic Origin	85.8	88.4	58.9	62.5
Black, not of Hispanic Origin	8.8	6.2	32.6	29.4
Hispanic	1.2	1.4	4.4	3.9
American Indian/ Alaskan Native	0.2	0.3	0.3	0.3
Asian/Pacific Islander	0.9	0.6	1.2	1.1
Other/Unknown	3.2	3.2	2.6	2.7

[1]This is minority representation data only. Data may be different from racial data because white and black information excludes all Hispanics.

A presidential task force on military manpower concluded that the high propensity of blacks enlisting and reenlisting in recent years was based on "the proud heritage of Black service in the military since the beginnings of the nation, which has contributed strongly to the prestige of military service in the Black community," and "the fact that military service offers Blacks better opportunities for responsible work at fair compensation than are available to them in many segments of the private sector."

The following table shows black enlisted accessions in the Army as a percentage of Total Army enlisted accessions.

Fiscal Year	*Black Males*	*Black Females*	*Total*
Draft Years			
1964	12	19	19
1968	13	19	13
1972	15	18	15
AVF Years			
1974	28	20	27
1976	25	18	24
1980	28	40	30
1981	26	37	27
1982	23	30	25

The objective of the civilian equal employment opportunity program was to ensure a working force reflective of the nation's diversity in all occupations, grade levels, and employment benefits.

For fiscal year 1982, the Army developed an affirmative action plan for evaluating civilian job categories to determine the representation of minority group members and women. Where groups were underrepresented in the Army work force, they were targeted for increased placement efforts.

During fiscal year 1982, the Army achieved eight of its ten goals for the employment and advancement of minorities and women in the civilian work force. The total of minority personnel in full-time, permanent, appropriated fund positions increased from 59,233 (19.3 percent) to 65,004 (20.3 percent) and the number of women from 115,989 (37.7 percent) to 124,374 (38.8 percent). In grades GS–13 and above, minorities rose from 1,366 (6.4 percent) to 1,501 (6.8 percent) and women from 1,012 (4.8 percent) to 1,167 (5.3 percent). On 30 September 1982 there were 15 members of minority groups and 7 women among the 317 filled positions in the Army's Senior Executive Service (SES), compared with 10 minority group members and 4 women out of 292 filled SES positions on 30 September 1981.

Another equal opportunity program the Army used with success was the Severely Handicapped Affirmative Requirement Program (SHARP). The purpose of this program was to increase the number of handicapped employees, including disabled veterans, with special emphasis on individuals with severe handicaps. Accessions for the eighteen-month period from 1 October 1979 to 31 March 1981 were 116,540; of these, 451 or .39 percent were severely handicapped. Between 1 April 1981 and 30 September 1981, 307 of 37,887 accessions or .81 percent

were severely handicapped individuals. As of 30 September 1982, 6 percent of the Army's work force was made up of disabled veterans, including 1 percent who were 30 percent or more disabled.

An area of continuing concern was the evidence or perception of sexual harassment. As part of the Armywide effort to combat sexual harassment, special training programs for military and civilian personnel, both male and female, were begun. During fiscal year 1982, the U.S. Army Training and Doctrine Command developed standardized training to counter sexual harassment for use in all enlisted and officer service schools and in ROTC courses. The Army also produced standard, high quality training programs on the prevention of sexual harassment to present to civilian employees and their supervisors. Finally, a revised Army Regulation 600–21, "Equal Opportunity Program in the Army," which explicitly defines sexual harassment and prohibits it in the Army, was prepared for publication during fiscal year 1983.

Alcohol and Drug Abuse

The Army considered alcohol and drug abuse a readiness issue and a command problem. Commanders focused on the impact of abuse on the readiness of both units and individuals. The Army acted to eliminate drug pushers from its ranks. It also tried to rehabilitate abusers; those who could not be rehabilitated were separated from the Army.

The Army Alcohol and Drug Abuse Prevention and Control Program (ADAPCP) provided alcohol and other drug abuse identification, treatment, and rehabilitation for active duty military personnel, civilian employees, family members, and Army National Guard and Army Reserve personnel on active duty. The 1,984 military and civilian personnel associated with the program staffed 3 residential treatment centers, 5 USAREUR extended care facilities, and 179 counseling centers. Each year, the ADAPCP returns to duty approximately 19,000 soldiers, the equivalent of a reinforced division. About 3,000 rehabilitation failures are separated annually. Recent success in recruiting and retaining more high quality soldiers enabled the Army to toughen its standards on alcohol and other drug abuse during fiscal year 1982.

In a complete revision of Army Regulation 600–85, "Alcohol and Drug Abuse Prevention and Control Program," effective 1 January 1982, the Army updated its policies in this area. At the

same time, senior leaders began a concerted effort to reduce the adverse effects of alcohol and other drug abuse on soldier proficiency, morale, and combat effectiveness. Marijuana and alcohol, the most heavily abused substances among younger service members, became key targets in the overall program to toughen standards and reduce substance abuse.

The revised regulation introduced a three-track system of treatment for soldiers exhibiting varying degrees of involvement with drugs and alcohol. Track I provided education in short-term awareness for persons displaying limited involvement with drugs, particularly marijuana. Aimed at the occasional or experimental abuser, it emphasized the adverse physical, psychological, and career consequences that could occur as a result of abuse. Track II, designed for individuals with more profound abuse patterns, provided a variety of outpatient counseling services. Track III provided intensive short-term residential treatment, followed by supportive outpatient programs for a period of one year.

Soldiers enrolled in rehabilitation programs were expected to show individual initiative and steady progress in overcoming alcohol and drug-related problems. Commanders closely monitored their progress through consultation with ADAPCP rehabilitation teams. If it became apparent that an individual was not responding, the commander could separate the soldier from the service after ninety days of treatment. Those who failed rehabilitation could receive honorable or general discharges, as warranted by their military records.

As a further crackdown on marijuana and other drugs, commanders who had probable cause to believe that members of their units were using drugs could direct that urinalysis testing be conducted on any of them. Positive lab results from these specimens could be used as evidence in judicial and administrative procedures.

Other initiatives included increased awareness through education, a program to upgrade counselor skills, better program assessment through expanded management information, and improved identification capabilities by using portable testing devices. Positive support to provide wholesome alternatives to drugs and alcohol, such as physical fitness centers, better living and working conditions, and improved morale and welfare activities, was essential to achieve the Army's goal of reducing alcohol and drug abuse among soldiers.

Discipline, Law Enforcement, and Military Justice

Although it was difficult to measure discipline in the Army with precision, statistics on certain infractions and punishments gave a useful insight into trends in the discipline of the force. *Table 7* compares indiscipline indicators for fiscal years 1974 through 1982. This year's indiscipline rates were below those of fiscal year 1981 in all but one category—drug offenses other than use and possession of marijuana, which registered a slight increase of less than 1 percent. More important, discipline has improved significantly in all categories since the inception of the all-volunteer force, with particularly impressive results in desertion and absences without leave.

In fiscal year 1982 absenteeism was at the lowest level in recent history. The desertion rate of 11 per thousand was the lowest since 1962, and the AWOL rate of 27.3 per thousand was the lowest since the Army began recording AWOL data regularly in 1952. Factors contributing to the favorable rates included better quality of men and women entering the Army, command emphasis on preventing absenteeism through leadership, and increased unit cohesion.

The number of court-martial cases also decreased, from 10,438 in fiscal year 1981 to 9,856 in fiscal year 1982. The breakdown of court-martial statistics for fiscal year 1982 was as follows:

	Convicted	*Acquitted*	*Total*
General	1,387	113	1,500
BCD/SPCM[a]	2,411	145	2,556
Special	1,480	169	1,649
Summary	3,822	329	4,151
Total	9,100	756	9,856

[a] Special courts-martial involving bad conduct discharges.

Nonjudicial punishment under Article 15, Uniform Code of Military Justice, was imposed in 140,191 cases, compared with 156,497 cases in fiscal year 1981.

During fiscal year 1982 significant changes were made in Army regulations on military justice, the Manual for Courts-Martial, and the Uniform Code of Military Justice. Public Law 97–81 amended the Uniform Code of Military Justice (UCMJ) so that commanders could place on involuntary excess leave those service members who had received a punitive discharge and were awaiting appellate review of their court-martial. The law also placed a two-year statute of limitation on petitions to The Judge Advocate General for review under Article 69, UCMJ, and permitted service secretaries to define, by regulation, the reasonable availability of individually requested military counsel.

TABLE 7—INDISCIPLINE INDICATORS
(rate per 1,000)

Fiscal Year	*Crimes of Violence*	*Crimes Against Property*	*Marijuana Use and Possession*	*Other Drug Offenses*	*Total Courts-Martial*	*Non-Judicial Punishment*	*Separations Other Than Honorable*	*Absence Without Leave*	*Deser*
1974	7.94	89.87	29.38	8.45	27.65	220.32	32.52	88.8	41.
1975	8.38	89.86	32.02	8.47	20.57	214.03	25.59	66.3	26.
1976	7.20	87.99	29.21	7.02	13.26	202.88	25.65	45.6	15.
1977	6.28	78.80	29.91	5.55	10.34	214.08	18.26	47.0	16.
1978	6.04	74.65	28.11	5.09	9.89	200.39	15.61	40.4	15.
1979	5.90	74.35	27.97	6.41	9.89	193.02	16.54	38.0	18.
1980	6.46	77.11	25.47	5.62	12.06	196.87	16.69	41.6	19.
1981	5.91	74.91	30.83	5.24	13.71	196.97	17.17	36.0	15.
1982	5.16	65.68	26.40	5.29	12.41	177.79	16.09	27.3	11.

Executive Orders 12340 and 12383, signed 20 January 1982 and 23 September 1982, respectively, amended the Manual for Courts-Martial. Executive Order 12340 changed the standards and procedures for acting on requests for individual military counsel, for dealing with prisoners after trial, for serving Courts of Military Review decisions and petitions for review to the Court of Military Appeals, and for submitting applications to The Judge Advocate General under Article 69, UCMJ. These changes implemented the Military Justice Amendments of 1981. Executive Order 12383 changed the pleading, proof, and punishment for controlled substances and drug offenses; defined the offenses of distribution and possession with intent to distribute; and generally increased maximum punishments for drug offenses, except for off-duty possession and use of less than thirty grams of marijuana or certain other drugs having a relatively low potential for abuse. These were specifically defined as schedule IV and V controlled substances in Section 812, Title 21, United States Code.

A revision of Army Regulation 27–10, "Military Justice," was published on 1 September 1982 with an effective date of 1 November 1982. It incorporated twenty-one permanent and numerous interim changes to the 1968 edition of the regulation. Major changes were made in the administration of nonjudicial punishment and the filing of related records in the official personnel file of the service member.

Proceedings under Article 15, Uniform Code of Military Justice, were now divided into formal and summarized versions, allowing commanders more flexibility in dealing with minor offenders and enabling them to dispose of minor infractions more quickly. The new, summarized Article 15 carried a maximum punishment of extra duty for fourteen days, restriction for fourteen days, an oral reprimand or admonition, or any combination thereof. These proceedings would not become a permanent part of the soldier's official military personnel file. Instead, records of summarized Article 15s would be maintained in the unit personnel files for two years after the date of punishment or until the soldier transferred to another unit, whichever came first. Records of formal Article 15s, however, would be kept in the individual's official file either in the performance or restricted portion, at the discretion of the commander imposing the punishment. Under certain conditions, commissioned officers, warrant officers, and enlisted personnel in grades E–6 and above could petition the Department of the Army Suitability Evaluation Board to transfer records of nonjudicial punishment from the performance to the restricted portion of the personnel file.

The revised regulation on military justice also provided for more direct involvement of senior noncommissioned officers in the nonjudicial punishment process.

The prisoner population in the Army correctional system reached a low of 1,661 (1,531 Army) in February 1978, but then began to increase steadily, reaching a high of 3,124 (2,804 Army) in July 1981. During fiscal year 1982 the number of prisoners remained high, and by the end of the year some stabilization became apparant. On 30 September 1982, there were 2,994 prisoners in Army confinement facilities, including 2,559 Army personnel. The high number of Army prisoners was attributed to tougher treatment of offenders by commanders and the longer, more severe sentences imposed by courts-martial judges.

The Army Correctional System in fiscal year 1982 consisted of twelve CONUS detention facilities, six OCONUS facilities, the U.S. Disciplinary Barracks (USDB) at Fort Leavenworth, Kansas, and the U.S. Army Retraining Brigade (USARB) at Fort Riley, Kansas. Installation detention facilities held pretrial prisoners as well as short-term prisoners after trial. The USDB held long-term prisoners, and the USARB operated a retraining program for selected offenders, offering the opportunity to return to duty. Because of declining numbers of prisoners eligible for the retraining program, the brigade assumed the additional mission of confinement without training. This adjustment allowed successful management of the high prisoner population.

After a year of study to determine the best management structure for Army law enforcement, the U.S. Army Military Police Operations Agency was formally and permanently organized on 22 March 1982 as a field operating agency of the Deputy Chief of Staff for Personnel. The agency had been established on a trial basis in March 1981 to monitor implementation of Army law enforcement policy, develop and promulgate operational and technical guidance for military police, and provide guidance and assistance to other Army law enforcement elements.

The Secretary of the Army was the DOD executive agent for administering the U.S. Enemy Prisoner of War and Detainee Program according to the Geneva Conventions for the Protection of War Victims of 12 August 1949. During fiscal year 1982 the Army made steady progress in addressing problems concerning enemy prisoners of war and other detainees that had been raised during training exercises MOBEX 78 and 80 and at a special worldwide conference held in October 1979. In the first update of Army policy on this subject since 1963, Army Regulation 190–8, "Enemy Prisoners of War: Administration, Employ-

ment, and Compensation," was published on 1 June 1982. In addition, agreements were made with the Republic of Korea and the Federal Republic of Germany which would allow the United States to transfer custody of prisoners of war captured by American forces to host nations while retaining the responsibility of processing and accounting for them. Since host nation support agreements provided only a partial solution to the problem, the Army also developed plans to evacuate enemy prisoners of war to the continental United States.

Civilian Personnel

Civilian personnel play a major role in the Army's readiness and modernization. They develop, procure, store, maintain, and distribute military weapons, equipment, repair parts, clothing, and supplies; provide medical services; and keep open the Army's vital communications network. Civilians also support base operations and training and help improve the quality of life for soldiers and their families.

Although the ratio of military personnel to Army civilians in military functions dropped sharply at the end of the Vietnam War and remained almost constant through fiscal year 1981 (about 2.4 to 1), the number of civilians in military functions (excluding indirect hire support personnel overseas) decreased greatly in absolute terms—from 367,300 in June 1972 to 315,000 in September 1980. Since 1974 the number of Army civilians in military functions dropped about 10 percent, while overall federal employment decreased only 1 percent over the same period. Despite a supplemental budget request, congressional approval, and a hiring surge in the Department of the Army, civilian strength, including indirect hires overseas, only increased from 360,500 to 371,200 in fiscal year 1981.

Recognizing the problems caused by the shortage of civilian personnel in the Army and the negative effect that borrowing military manpower had on readiness, Congress authorized the Army an increase of 6,500 civilians in fiscal year 1981 and 10,300 in fiscal year 1982, for a total of 16,800, to replace borrowed military manpower and to improve near-term readiness. This increase resulted in an authorized civilian end strength in military functions—those directly supporting military readiness—of 383,000 in fiscal year 1982.

As of 30 September 1982, 410,855 civilian personnel under appropriated funds were in the Department of the Army. Approximately 31,600 of these were employed in civil functions,

predominantly in the Corps of Engineers. At the end of fiscal year 1982, total Department of the Army strength not under appropriated funds was 33,125, a decrease of 507 from fiscal year 1981. Of the total, 4,018 were foreign nationals, 7,176 were military personnel employed in off-duty hours, and 21,931 were U.S. citizens.

While the recent increases in civilian personnel strength allowed the Army to return the equivalent of one division of soldiers to their units and to strengthen the logistics base, the Army today still has fewer civilian employees than it needs to meet mission requirements. The growing need for Army civilian personnel generated by force modernization and other mission requirements will probably continue to outpace increases in civilian strength ceilings. Furthermore, the shortfall will not be covered by manpower spaces saved through consolidations, realignments, or outside contracting for commercial activities. As the gap between workload requirements and actual civilian strength widens, civilian manpower will be an increasingly scarce resource.

Programs have existed for years, particularly in overseas commands, to help family members of soldiers and civilian employees to find jobs as Army civilians. These programs permit sound use of available skills and support the volunteer Army. The Army currently employs over 20,000 family members in overseas civilian jobs alone.

Emphasis on employment assistance to family members increased during fiscal year 1982. A presidential executive order authorized noncompetitive appointments to competitive service positions for employees returning to the United States after completing twenty-four months in federal positions overseas. OPM published changes that extended reinstatement eligiblity to certain employees who left the federal service to accompany their military or federal civilian family member on overseas assignment and made provisions more flexible for crediting periods of overseas residence and employment toward career tenure. These policy changes and their implementation by the Army will make family members a more viable recruitment source than ever before.

To supplement its Civilian Career Management Appraisal System, the Department of the Army recently developed the Army Civilian Career Evaluation System (ACCESS), which featured computerized rating and referral data, independent appraisals from employees and supervisors, knowledge and skill requirements, and assessment linked to specific knowledge and skills based on their importance to the job being filled.

Over the past three and one-half years the Army has implemented three performance management systems mandated by the Civil Service Reform Act (CSRA) of 1978: the Senior Executive Service (SES), the Merit Pay System (MPS), and the General Performance Appraisal System (GPAS). These new systems stressed the supervisor's responsibility to establish individual performance standards that support the organization's goals and objectives; to discuss the standards with the employee at the beginning of and during the performance appraisal period; to rate the employee's performance objectively against the standards; and to use the appraisal as a basis for personnel actions such as pay increases, promotions, awards, reductions in grade, reassignments, separations, and training.

Improved recruitment of capable senior executives took place in fiscal year 1982. There were 349 SES positions in the Army, of which 317 were filled by 30 September 1982, a fill ratio of 91 percent. This was a sizable increase over fiscal year 1981 when 292 positions were filled, a fill ratio of 84 percent. Some 76 percent of the vacancies in the SES were in the hard-to-fill engineering and scientific fields. This improvement in fill ratio was attributed to the decline in attrition of senior executives and to timely recruitment. Fifteen minority members and four women were in the Army SES at the end of fiscal year 1982.

The Army SES office instituted two projects to improve recruitment in April 1982—one involved automation of SES records to provide a skills inventory for faster reassignment and referral, and the other was the employment of an executive recruiter to make personal contacts with the private sector, academia, federal agencies, and other recruitment resources.

The Army held its nineteenth SES performance management seminar from 10 to 12 May 1982. Emphasis during the seminar was on developing performance standards and linking them to individual development plans for the enhancement of executive management skills. Twenty-six senior executives and military supervisors attended the seminar.

Recognizing the need for monetary incentives to retain quality senior executives, Congress raised the level of the "cap" on executive salaries in December 1981, but declined to remove it completely. Congress and the OPM also reduced the number of bonuses allowed by the 1978 CSRA from 50 percent to 20 percent of executive strength, which meant that only fifty-two bonuses could be awarded in the Army. Seventeen career SES members received the awards and accompanying bonuses; four received the Distinguished Rank Awards with $20,000; and thirteen received Meritorious Rank Awards with $10,000 stipends.

The Merit Pay System (MPS) covering supervisors and management officials in grades 13 and above was not fully successful in providing pay incentives for high quality performances. In accordance with the CSRA of 1978, approximately 16,000 GS–13 through GS–15 positions were converted to merit pay status in October 1981. The first year of the MPS was adversely affected by small payouts resulting from the Comptroller General's ruling of 8 September 1981, which stated that the OPM merit pay computation factor and methodology would cost $50 million to $74 million more annually than the GS pay system. Accordingly, the OPM lowered the computation factor for GM employees and increased the guaranteed portion of the October 1981 raise for merit pay employees from 50 percent to 100 percent. To improve the situation the Army has obtained OPM approval for some short-term reform, including an increased funding factor for "quality step increase" experience. This and related changes would yield about $5 million more in merit pay funds for Army civilian employees during fiscal year 1983. OPM also agreed to grant interim authority to provide merit pay employees who had rated at least "fully successful" an annual increase comparable to that given most other federal employees. To achieve long-term improvements in the system, the military services and OSD developed proposals for legislative changes that would permit more equitable treatment of merit pay employees.

An Armywide Merit Pay Planning Conference held during 10–11 February 1982 reviewed the first year's experience under the MPS and recommended the following: guaranteed full, comparable increases for employees rated fully successful or higher; additional guidance for MPS coverage; and a higher merit pay funding factor for quality step increases.

In other actions related to merit pay, the Army adopted guidance of the Federal Labor Relations Authority (FLRA) on MPS coverage, which resulted in the removal of approximately 3,000 employees from the system; OPM approved the Army's request to raise the quality step increase factor from 0.1 percent to 0.3 percent; and the OPM granted the Army's request for a full, comparable increase to merit pay employees rated fully successful or higher, provided that the increase was reviewed case by case and was not automatic. The Army also joined other services and OSD in supporting legislation for the return to the GS pay system and cash rewards for superior performance.

During the past year the Atlanta Field Office completed the first part of a two-phase GPAS evaluation. Twenty-one Army activities participated in assessing the DA experience during the

time before implementation and in the early stage of GPAS. The activities reported on the effectiveness of the system, the perception of the system by supervisors and employees, the level of satisfaction, the use of system information, and the degree to which GPAS goals were attained, and provided recommendations for improving the system. In response to problems identified in the evaluation, the Army issued guidance on the relationship between major job elements and individual standards and on the appraisal of collateral duties. A draft AR 690–400 clarifying and simplifying the GPAS, as well as the merit pay system, was coordinated late in the fiscal year.

As a means of controlling labor costs, Congress has required DOD to reduce the number of high grade positions (GS–13 and above) over the past several years. Specifically, Section 811(a) of the 1978 DOD Authorization Act called for a 6-percent reduction of DOD civilian personnel in the grades of GS–13 and above. The 1980 DOD Authorization Act (PL 96–107) extended the reduction through 30 September 1980. The DOD Authorization Act of 1981 required that the total number of DOD high grade civilian personnel could not exceed 96 percent of the number employed on 30 July 1977, and that after 30 September 1982 the total number of high grade civilian personnel could not exceed 94 percent of the 1977 level. The DOD Authorization Act of 1982 repealed the high grade civilian reduction requirement and the Office of the Secretary of Defense established the Army's fiscal year 1982 ceiling of 18,892 high grade civilian personnel as the new baseline. OSD would allow a 6-percent growth (1,134 positions) above the baseline without prior approval during fiscal years 1982 and 1983.

The DA high grade civilian personnel requirements reported by commanders for fiscal years 1982 and 1983 reflected the need for a 14.8-percent growth above their 1981 assigned ceilings. Meeting these requirements would have amounted to a 17.6-percent rise above the baseline. The Office of the Deputy Chief of Staff for Personnel, which was designated the executive agency for managing the Army's high grade civilian resources, provided program guidance on the subject to major commands and Army staff agencies. DCSPER directed aggressive position management and emphasized the role of commanders in managing their high grade civilian personnel resources.

In a move to enhance superior performance, the Army distributed a revised AR 672–20 on incentive awards, which became effective on 1 July 1982. The criteria for the sustained superior performance award (SSPA) and the quality step increase (QSI)

were revised to be consistent with the General Performance Appraisal System. SSPA remuneration was increased to allow a maximum cash award of 15 percent of the basic pay rate.

During fiscal year 1982 charges of unfair labor practices continued at a high rate. To prevent too much legal action from being taken, the Army urged several changes that would encourage informal attempts at resolution before formal charges were filed. However, the Federal Labor Relations Authority (FLRA), created by the CSRA of 1978, continued to expand the scope of bargaining in federal labor-management relations. Federal courts upheld several of the authority's early decisions, such as those requiring bargaining on stays of disciplinary actions and on details by seniority. Only in assigning work and in contracting out was management's right not to bargain left intact. Federal courts reversed FLRA decisions in several cases, such as the appeals on disciplinary actions against National Guard technicians and the disallowance of per diem expenses for union representatives who are granted official time to attend contract negotiations.

More and more of the recent advances in office technology and automated management information systems are being applied to improve timeliness, correctness, and effectiveness of operations in civilian personnel offices (CPOs). In this connection, The Adjutant General's Office conducted a study on the requirements of medium-sized CPOs. The study suggested that cost savings of approximately $70 million could be realized over a five-year period by purchasing $20 million worth of office automation equipment and services for nearly 200 civilian personnel offices. A request for funding the equipment was submitted under the DOD capital improvement program, and a project steering committee was established as well as a full-time task force to support the effort.

On 7 January 1982, the Assistant Secretary of the Army for Manpower and Reserve Affairs approved the charter for the Army Civilian Personnel System (ACPERS), a centralized management system that would provide total personnel information requirements for mobilization and peacetime. Designed to support changing needs at all levels within the Army command structure and projected to replace all automated civilian personnel systems now used in the Army, ACPERS implementation was scheduled for fiscal years 1984 and 1985.

To improve efficiency in managing its civilian employees, the Army also simplified pertinent regulations. The Civilian Personnel Center coordinated a thorough review of these regulations, and those found to be unnecessary or overly complex would be

recommended for elimination or streamlining. Separate efforts were either under way or under consideration to simplify SES recruitment procedures, the performance appraisal procedures under the Merit Pay and General Performance Appraisal systems, career management policies and procedures, and the administration of the Merit Pay System.

The New Manning System

At the end of fiscal year 1982, the Army was ready to implement the first phase of a new system for manning combat arms units. The New Manning System (NMS) objectives were to reduce personnel turbulence, to improve cohesion, and to enable soldiers to cultivate a meaningful and lasting sense of belonging to one of the Army's valorous and distinguished regiments.

For the most part, the World War II combat soldiers served in one regiment for the duration of the conflict. Many who came ashore in North Africa in 1942 were still soldiering under the same regimental colors on the Elbe River in May of 1945. The veterans of that war look back with immense pride at their shared experiences and their total commitment to their units and to their comrades in arms.

That kind of commitment and system of manning and sustaining the Army has never been totally recaptured in the post–World War II period. In the Korean conflict, soldiers accumulated points determined by their exposure to hostile fire; those with a prescribed minimum were eligible to return home. In the years between Korea and Vietnam, the Army, with some notable exceptions like the GYROSCOPE and the Overseas Unit Replacement System experiments, focused on an individual replacement system to sustain units.

With the coming of large-scale involvement in Vietnam, the active Army expanded rapidly and formed units for deployment to satisfy ground force requirements. Because the one-year tour policy remained in effect after the introduction of units, the Army resorted to the use of an "infusion" technique, in which soldiers with varying rotation dates were put into the units to preclude the instantaneous breakup of the units one year after arriving in country. While there were some good reasons for sustaining the force this way, the potential for developing the enduring commitment and relationships so characteristic of the World War II experience was severely diminished.

The post-Vietnam era saw a series of new dimensions in manning the Army. The draft system ceased to exist and the Volun-

teer Army was introduced. The focus was on the efficient use of human resources and the cost of maintaining adequate manpower in uniform. In this resource-driven environment, it was natural that the Army would again resort to a manning system that would distribute soldiers efficiently in accordance with priorities. The individual replacement system served the Army well. Flexible and efficient, it facilitated management and put soldiers where the Army needed them quickly and fairly. However, it also generated personnel turbulence. The constant flow of personnel into and out of units made it extremely difficult to foster cohesion and group solidarity, especially in the small combat arms units which were the cutting edge of the Army. Personnel turbulence inhibited improved combat effectiveness and impeded commanders in their efforts to develop and maintain cohesive, well-trained units. Having recognized the systemic shortcoming of the manning process, the Chief of Staff, Army, in early 1981, directed several initiatives designed to analyze and correct the Army's manning system.

Project COHORT (Cohesion, Operational Readiness, and Training), initiated by FORSCOM under the proponency of the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), began testing the effectiveness of accessioning, training, and introducing into the operational forces (both CONUS and OCONUS) twenty company-sized combat arms units formed for a three-year life cycle around a group of first-term soldiers who were recruited specifically for these units.

The Regimental System Study, developed by the Army's Training and Doctrine Command (TRADOC), sought to enhance cohesion by adopting an American regimental system that drew on the British and Canadian models. Although the 1957 Combat Arms Regimental System (CARS) redesignated U.S. Army units to reflect their association with nontactical regiments in order to preserve the continuity of distinguished units, the last phase of that initiative, establishment of a regimental headquarters, was never implemented. The TRADOC study reviewed such concepts as regional affiliation, recruitment, package training, and a regimental headquarters and concluded that the regimental system could be applied to the U.S. Army's combat arms. TRADOC was then given the mission to develop a plan to implement an American regimental system. The primary consideration in developing the system was the organizational relationship between regiments and existing organizations, brigades, and divisions. Subsequently, four concepts were developed. Concept Alpha involved reinforcing the present force structure by

superimposing regiments on existing brigades. Soldiers would be affiliated with a grouping of stateside-overseas battalions with a U.S. home base. Concept Bravo recommended assigning administrative functions to a Colonel of the Regiment. Concept Charlie would establish a regimental headquarters separate from tactical units and include combat support (CS) and combat service support (CSS) elements. Concept Delta envisioned converting from a division-based Army to one founded on combat, combat support, and combat service support regiments.

The study recommended implementing Concept Alpha by fiscal year 1983. Analysis included investigating the implications of regimental affiliation, recruitment, training, unit rotation, personnel, and logistical management. A Concept Alpha feasibility analysis of unit rotation concluded that battalion-level rotation was possible.

The Army Cohesion and Stability Study (ARCOST), which addressed numerous initiatives to reduce turbulence, improve stability, and enhance cohesion, was made under the proponency of the Office of Deputy Chief of Staff for Personnel (ODCSPER). It identified current personnel policies that undermined unit stability and cohesion, concluded that the individual replacement system created excessive turbulence, and recommended a unit replacement system. The study recommended a regimental structure, including aligned battalions, home-based careerists, regional recruiting, and stateside-overseas rotation.

The Office of the Deputy Chief of Staff for Operations and Plans initiated three programs to reduce the frequency of structure changes—Management of Change, Implementation of Change, and MTOE Standardization. The Management of Change policy reduced authorization document changes by limiting the time period during which MTOEs can be modified. The Implementation of Change policy required changes to be applied expeditiously. The MTOE Standardization policy required that like-type unit authorizations be governed by the same document.

The U.S. Army Concepts Analysis Agency (CAA) conducted a series of related studies, called Unit Replacement System Analysis (URSA), to evaluate the feasibility and sustainability of a unit replacement system. The first two studies addressed the impact of company- and battalion-level movement on personnel policies and procedures, distribution of manpower resources, and the budget. The studies concluded that a unit movement concept was feasible and that it would significantly increase personnel stability in the units.

The Army Personnel System Review, conducted by The Inspector General, identified and studied each of eight personnel processes or "manning functions"—structure, acquire, train, distribute, deploy, sustain, develop, and separate. These functions were managed by various agencies and, while each could effectively accomplish its own objectives, the policies, procedures, and management information system for each process evolved somewhat independently of the others and were not mutually supportive. For instance, when the structure function was reviewed, the large number of authorization documents and the frequent modifications to these documents were found to be disruptive to the other functions. Because of the time needed for the acquire, train, and distribute functions, personnel were sometimes programmed and managed by procedures based upon structure requirements that were no longer valid. The eight manning functions needed to be synchronized into an interactive system.

In another study, entitled Personnel Replacement System Policy Analysis, the General Research Corporation concluded that the individual replacement system caused personnel turbulence and disrupted unit cohesiveness. The study further asserted that personnel policies had evolved that supported the philosophy of the individual replacement system and had therefore institutionalized the problem; it recommended a unit replacement system and related policy changes.

A follow-up study, Turbulence: Definition and Measurement, linked turbulence with specific policies that caused personnel movement between units. It identified the individual replacement system as the predominant cause of turbulence, and personnel management by unit as the most positive corrective action that could be taken.

All of these studies emphasized that the problem of personnel turbulence was inherent to the system, requiring basic philosophic changes rather than modifications to present procedures. Units, not individuals, must be the focus of personnel management. Unit continuity, group cohesion and stability, and organizational loyalty and affiliation should be the objectives of personnel management. The "human goal" was unit readiness. Therefore, an entirely new manning system was required.

Using these initiatives as a basis, the Chief of Staff, Army, directed the formation of a task force to develop and implement a manning system that would enhance combat effectiveness by keeping soldiers together longer. He also directed that this objective be pursued through the rotation and replacement of units in

an environment where career soldiers were offered the opportunity to have a CONUS home base within the framework of an American regimental system.

Accordingly, the task force developed a New Manning System which would integrate the eight manning functions, employ unit replacement, and affiliate soldiers with a unit, institution, or location. Under the new system, units—initially company- and battery-sized—were formed by bringing first-termers and the cadre together immediately after initial entry training of the new soldiers. The soldiers in the newly formed unit would remain together in FORSCOM for approximately eighteen months. Stabilization would permit cohesion and bonding to develop trust and affiliation—intangible elements so important to increasing combat readiness. Movement into and out of the unit would not be allowed except in extreme cases, such as compassionate reassignment or discharge. After eighteen months, the unit would deploy overseas to a long-tour area. Units going to short-tour assignments would serve twenty-four months in CONUS, then deploy. The deployed unit would move to its location outside the continental United States and serve out the remaining portion of its three-year life cycle. At that point first-termers either would leave the service or reenlist. Career cadre would be reassigned, and another like-type unit would take over the equipment and mission of the dissolving unit.

This unit formation, movement, and life cycle was the essence of Project COHORT. Future units formed under the New Manning System would also be called COHORTs after the Roman unit and the acronym for Cohesion, Operational Readiness, and Training. COHORT units would embody the principles of stabilization (in a unit) and unit movement. Both these factors foster esprit de corps—that intangible "why men fight." The Army can and does teach men how to fight; it even teaches when and where. To motivate a man to risk his life is something that cannot be learned; it must be believed.

During the next three years, a comprehensive field evaluation will follow the progress of the New Manning System. The evaluation process will be carried out on a fix-as-we-go basis in order to identify proper paths to achieve New Manning System goals. If problems are encountered, solutions will be devised immediately. By the end of the evaluation period, required policies, regulations, and actions should have been accomplished, and the New Manning System should be in place and institutionalized. This is no simple matter, because hundreds of personnel policies are geared to the individual, not the unit. These

policies must be ferreted out and modified or scrapped to build a new unit movement system. Field commanders, staffs, and personnel managers all have a part to play in this endeavor. The goal is to have soldiers train together, grow together, share together, and stay together, building the bonds of cohesion in a common purpose, anticipating each other's needs, caring for one another, and ultimately fighting for one another, if necessary.

The first of the combat arms companies that enlisted together, took basic and advanced training or one-station unit training together, and moved to their first operational unit together have deployed to Europe. Both units were from Fort Carson, Colorado. Soldiers in Company B, 6th Battalion, 32d Armor, left on 24 September 1982 to become part of the 2d Armored Division Forward in Garlstedt, Germany. Soldiers in Battery C, 1st Battalion, 19th Field Artillery, left on 29 September 1982 to join Battery C, 1st Battalion, 14th Field Artillery, also in Garlstedt. At the end of fiscal year 1982, twenty-seven other COHORT companies were on duty at Fort Bragg, North Carolina; Fort Carson, Colorado; Fort Campbell, Kentucky; Fort Hood, Texas; Fort Lewis, Washington; Fort Ord, California; Fort Polk, Louisiana; and Fort Riley, Kansas. Overseas, they will be stationed at Boeblingen, Garlstedt, Goeppingen, and Neu Ulm in Germany; Vicenza, Italy; and Fort Wainwright, Alaska. Current planning calls for an increase to about eighty rotating companies by the end of fiscal year 1985.

The American Regimental System, a separate but related action within the New Manning System, will have many facets. The heart of the system, as noted earlier, will be the affiliation of soldiers with a regiment for the entire length of their service. Regiments themselves will be home-based at a CONUS location. The regimental colors will be located at the home base of those CONUS battalions assigned to that regiment. Regiments will be pure organizations, for example, infantry regiments that have only infantry battalions as subordinate elements. The same is true for light, mechanized, airborne infantry, armor, cannon field artillery, and air defense regiments. A soldier who is a member of a certain regiment can then expect recurring assignments to the regiment when his normal career progression causes him to be assigned to troop duty. Right now, only infantry, armor, cannon field artillery, and air defense artillery regiments have been paired with similar CONUS battalions, and those paired battalions have been linked to form regiments. Regiments will normally consist of four like-type battalions, two outside the continental United States and two within.

The regimental system will enable a soldier to develop a sense of belonging to a distinguished and legendary regiment. When soldiers today are reassigned, they must constantly develop a new allegiance, cultivate new relationships, and acclimate themselves to a new organization's environment. The regimental system will define a community of battalions both in CONUS and overseas. Soldiers will experience recurring assignments to the battalions of this community, thus reducing the scope and impersonality of the assignment alternatives. A soldier will be able to affiliate with his regiment for the duration of his career.

The regiment will change a soldier's focus from "mine" to "ours" and will operate as an entity without affecting the present brigade, tactical, or combined arms organization. The regiment will be represented by an honorary Colonel of the Regiment and an adjutant. Their purpose will be to give meaning to the system and organize individual efforts to institutionalize the concept. The first six adjutants have been designated by the Military Personnel Center. They will act as regimental adjutants at first as an additional duty. The process of selecting the first honorary colonels of the regiment has already begun. Retired colonels and above are the prime candidates for this honorary position. The Army will work with them to further develop the entire concept, duty standards, and other related matters.

5

Support Services

The physical and emotional well-being of a soldier depends upon the support services offered the soldier and his or her dependents. These services form the keystone of an army's morale and play an important role in maintaining an alert and highly motivated force.

Health Affairs

The Secretary of the Army and the Chief of Staff, Army, made achieving total fitness throughout the Army a priority and designated 1982 as the Year of Physical Fitness. TRADOC established the Soldier Physical Fitness Center at the Soldier Support Center, Fort Benjamin Harrison, Indiana, to begin the program, while the Army Medical Department (AMEDD) provided support through The Surgeon General's Task Force on Fitness, which consisted of four full-time AMEDD officers and fourteen medical and nonmedical consultants. During the past year, the task force provided guidance for the over-forty medical screening project, which was fielded in June 1981 and scheduled for completion in July 1983. During fiscal year 1982 over 18,000 of 55,000 personnel were screened, with approximately 38 percent proceeding to the second level of screening—an exercise stress test. A significant amount of non-symtomatic heart disease was found, and data was collected by the Armed Forces Institute of Pathology (AFIP) for use by the research community.

In an effort to reduce the number of sudden deaths due to exercise in the under-forty population, the Task Force on Fitness started the Health Risk Appraisal Program (HRAP) at the Command and General Staff College, Fort Leavenworth, Kansas. Major objectives of the HRAP pilot program were to provide a cost-effective, computer-assisted method of screening for occult cardiovascular disease in a predominantly under-forty population before the exercise level was accelerated and to evaluate the usefulness of the Centers for Disease Control (CDC) Health Risk Appraisal questionnaire as both a primary cardiovascular screening tool and as a method for initiating a comprehensive risk intervention program. Preliminary results were expected to be published in the spring of 1983. If successful, this pilot program could serve as a model for Armywide use.

The task force's major work was in the area of promoting total fitness. The main thrust was in helping apparently healthy people to modify their lifestyle in a positive way to reduce the effect of many degenerative diseases. Specific areas of emphasis were weight control, nutrition, stress management, substance (alcohol, tobacco, and drugs) abuse reduction, and the components of physical fitness—strength, flexibility, and endurance. This approach could give new direction to Army health care and be cost beneficial in the long run.

Each Army medical activity (MEDDAC) and medical center (MEDCEN) worldwide formed a local AMEDD health and advisory team under the leadership of the commander, which was the focal point for the Army's total fitness program. Each team was composed of those individuals (physicians, dietitians, physical and occupational therapists, social workers, psychologists, community health and preventive medicine officers, and other health care professionals) with the skills necessary to carry out lifestyle modification programs. The teams will develop and provide comprehensive health education classes to three target audiences: the soldier, leadership groups, and the soldier's family.

The total cost of medical operations for fiscal year 1982 was $2,211.3 million, an increase of nearly $133 million over fiscal year 1981 expenditures. Funding increases gave a growing number of physicians their required ancillary support personnel, several new management information systems, and expanded hospital facilities at Fort Irwin, California. Other mission changes with budgetary implications included congressional designation of the Army as the lead agency within DOD for infectious disease control and combat dental research; also the Army Medical Intelligence and Information Agency was dissolved and a similar agency was established that serviced all of DOD, but under administrative control of The Surgeon General.

The breakdown of Army medical operations costs is as follows (in millions of dollars):

Operations and Maintenance	$1,068.2
Reserve Personnel	15.3
Other Procurement	72.0
Research, Development, Test and Evaluation	123.3
Military Construction	141.0
Military Personnel	791.6
Total	$2,211.4

During fiscal year 1982, The Surgeon General was successful in obtaining increases in active component Army Nurse Corps

officers, physician assistants (warrant officers) and enlisted medical support personnel. Total AMEDD officer authorization increased by 279 over fiscal year 1981. Authorized and actual end strengths by corps were as follows:

Corps	*Authorized End Strength*	*Actual End Strength*	*Required End Strength*
MC	4,905	4,975	6,293
DC	1,815	1,788	2,301
VC	396	405	396
MSC	4,968	4,942	5,113
ANC	3,891	3,962	6,343
AMSC	463	460	502
Total	16,438	16,532	20,948

During fiscal year 1982, the medical workload was characterized by the continued trend toward outpatient care. While admissions increased somewhat, average length of stay continued to decrease. Average daily workload totals worldwide were as follows:

Medical care composite units	38,515
Admissions	1,113
Beds occupied	7,177
Live births	122
Clinic visits	63,299

When hospitals and clinics of the Public Health Services (PHS) closed in 1981, the Army obtained the former San Francisco PHS hospital for its use as well as the St. Louis PHS clinic. During fiscal year 1982, the San Francisco hospital provided selective administrative and clinical space in support of Letterman Army Medical Center as well as storage for pre-positioned war reserve stocks. The St. Louis clinic was used by Health Services Command on a test basis to provide outpatient services to beneficiaries in the area. As a result of its successful operation, the St. Louis facility will continue to be used for the foreseeable future, thus eliminating the need for a previously programmed construction project nearby, resulting in a one-time savings to the Army in excess of one million dollars. The Army also agreed to reopen inpatient hospital services at Fort Benjamin Harrison, Indiana. Those services had stopped in 1977 because of reductions in AMEDD officer authorizations. The Fort Benjamin Harrison Hospital formally reopened on 1 October 1982.

The first Strategic Planning Conference for senior leaders and managers of the Army Medical Department was conducted

during the year. The three-day event focused on Army goals and objectives; on establishing a shared understanding of AMEDD values, mission, goals, and objectives; and on developing team spirit and a collective process for setting goals.

The Civilian-Military Contingency Hospital System (CMCHS), a DOD program to provide civilian hospital beds for casualties evacuated to CONUS from a major conflict outside of the United States, was directed by the Office of the Assistant Secretary of Defense (Health Affairs) and was coordinated at the community level by commanders of designated military medical treatment facilities of the Army, Navy, and Air Force. Participation by civilian hospitals, which would be accredited and would commit at least fifty beds each, was purely voluntary. CMCHS, endorsed by the American Medical Association, American Hospital Association, American Osteopathic Association, and the Joint Commission on Accreditation of Hospitals, was initiated in 1980 with a goal to obtain a commitment of at least 50,000 beds. As of 22 October 1982, 48,187 beds had been pledged to the entire system, with the Army responsible for 11,890 of them. By the end of October, the 50,000-bed goal had been reached.

Because advances in technology ensured the development of increasingly sophisticated weapons that would subject soldiers to previously unrecognized or greatly amplified health hazards, The Surgeon General's responsibilities for health hazard assessment (HHA) were incorporated into the most recent edition of AR 1000–1, "Basic Policies for Systems Acquisition." To carry out these duties, the Office of Health Hazard Assessment was established in the Preventive Medicine Consultants Division of OTSG (Office of The Surgeon General) headed by an officer experienced in industrial hygiene. A draft AR describing policies, procedures, and responsibilities of HHA in support of the materiel acquisition process was completed, and emphasis was placed on providing timely technical and consultative medical support to program managers.

The Preventive Medicine Consultants Division, OTSG, and Walter Reed Army Institute of Research cosponsored a workshop on leptospirosis in May 1982. Leptospirosis had emerged as a disease capable of infecting large numbers of soldiers at the Jungle Operations Training Center in Panama. In the fall of 1981, the Army identified over eighty cases among soldiers who had passed through the training center. The goal of the workshop was to develop prevention and treatment measures. Discussions revealed a lack of knowledge concerning the epidemiology of the disease in Panama as well as its treatment and prevention.

As a result, surveillance activities in Panama were increased, and drug studies began which would explore methods for both prevention and early treatment.

The Army Medical Department was rebuilding its surgical capabilities, which had reached their nadir in 1977, by concentrating on retaining and recruiting quality individuals. Although AMEDD came close to its goals in certain surgical specialties (such as urology, anesthesia, gynecology, obstetrics, and ophthalmology), significant shortages still existed in general surgery, orthopedic surgery, neurosurgery, and otolaryngology. Substantial relief was not anticipated until 1986, when individuals from ROTC and the HPSP delay program would become available. In the critical specialties, the AMEDD started sponsorship programs in the civilian community, strengthened the teaching staffs of medical centers, and offered fellowships to outstanding surgeons for training in additional specialty areas, such as surgical oncology, joint replacement, pediatric surgery, and retinal surgery.

Surgical equipment was rapidly updated in medical facilities with emphasis on surgical intensive care units and anesthesia equipment. Special projects were successful in procuring surgical endoscopy and arthroscopic surgical equipment. Programs were started to modernize noninvasive vascular laboratories in medical centers and to supply appropriate vascular diagnostic equipment at the MEDDAC level.

The surgical specialties led in preparedness for possible mobilization situations, with all surgical short courses stressing military applications of surgical techniques. The Advanced Training Life Support (ATLS) Course was accepted at all Army medical treatment facilities. In April 1982, the first Mobile Army Surgical Hospital (MASH) was activated, and plans were drawn up to organize new MASH units and to convert some combat support hospitals to MASHs over a period of several years. Surgical sets and kits were reviewed and revised. The Research and Development Command continued to study trauma, while other programs focused on wound ballistics, blast injury, surgical infection, and burns.

On 1 October 1980 the Department of the Army was designated by OSD as the executive agent for veterinary matters, responsible for providing veterinary support to DOD, to all military services, and to the Coast Guard in time of war. Consolidation of Army–Air Force Veterinary Services was scheduled for completion by fiscal year 1984. During the past year the Army received responsibility for veterinary duties at ten additional Navy installations, thus completing consolidation of support for all

Navy and Marine Corps bases worldwide. The mission at forty-eight Air Force and two DOD installations was also transferred to the Army.

In fiscal year 1980, the Office of the Secretary of Defense had directed that 102 military veterinary positions in research and development be filled by civilians. Recruitment efforts were unsuccessful, however, and the military authorizations were returned to the Army in fiscal year 1982. Congressional shortening of the Army and Air Force Veterinary Service consolidation time from five years to three, coupled with an inability to recruit and train military veterinarians for research specialties during the civilianization period, seriously jeopardized DOD, Navy, and Air Force research programs. Air Force veterinarians could no longer support these programs beyond fiscal year 1983, nor could they fill positions that were given to the Army.

A memorandum of understanding (MOU) between the medical departments of the Army and Air Force was written which protected DOD, Navy, and Air Force research and development (R&D) missions by allowing specialty-trained Air Force veterinarians to be retained in R&D positions for a limited period, thus giving the Army time to train replacements and establishing an orderly transfer of all veterinary R&D positions to the Army by fiscal year 1987. This MOU met the congressional direction to protect the interests of the individuals concerned, preserve critical R&D functions, and complete the consolidation as expeditiously as possible.

A memorandum of understanding between DOD and the U.S. Department of Agriculture (USDA) provided support by the Army Veterinary Corps to the USDA in emergency animal disease eradication programs. The plan, developed in 1975, was tested in a joint USDA–FORSCOM exercise in August 1982, which simulated the introduction and subsequent spread of foot-and-mouth disease in the United States. The exercise identified shortcomings in the 1975 plan and prompted recommendations for revision.

The UH–60A Black Hawk MEDEVAC helicopter was introduced to the Army at a formal acceptance ceremony on 14 January 1982 at Fort Campbell, Kentucky. It was another first for the 101st Airborne Division and the 326th Medical Battalion. The Black Hawk MEDEVAC helicopter is a major improvement over the 22-year-old Army UH–1 Huey. The Black Hawk is the Army's first helicopter designed with a MEDEVAC litter system which provides full patient accessibility and easy loading. The speed of the Black Hawk is a major advantage, since time is critical and

rapid evacuation is vital. Furthermore, the speed and range of the Black Hawk allows the medical commander flexibility in the strategic placement of his hospital and clearing stations in any combat operation. The Black Hawk also has space for four litters as opposed to three in the Huey in the combat configuration.

The nerve agent antidote program was composed of the Atropine Autoinjector, the Pralidoxime Chloride Autoinjector (2 PAM), and one Atropine Autoinjector and one 2 PAM Autoinjector linked together with a plastic clip, known as the Mark 1 Injector System. TAB (oxime TMB4, atropine, benactizine), the old nerve agent antidote, was replaced with Atropine and 2 PAM. The injectors were saved for possible reloading. Based on TOE-supported strength, the first issue of Atropine Autoinjectors was centrally funded, procured, and allotted to MEDDACs down to the unit level by the U.S. Army Medical Materiel Agency (USAMMA).

Army Medical Specialist Corps (AMSC) activities to support readiness included the completion and subsequent DA approval of a MACRIT (Manpower Authorization Criteria) for occupational and physical therapists and their enlisted support personnel, which placed them in more forward areas. A similar MACRIT for medical food service support was awaiting DA approval.

Army dietitians, through the Academy of Health Sciences, worked on improving medical field feeding equipment and hospital rations and updating medical field feeding doctrine. During a training exercise conducted in the fall at Fort Hood, Texas, dietitians in conjunction with Natick Laboratories field tested a new ward transporter for field hospitals, with further testing scheduled for November.

Specialty consultants for medical food service and physical therapy worked on the standardization of deployable medical equipment. By increasing liaison with medical specialists in the Army Reserve and Army National Guard, they enhanced Active Duty Training/Inactive Duty Training (ADT/IDT) opportunities and increased cooperation among AMSC personnel in the Army's active and reserve components.

The AMSC increased its assistance to local commanders regarding weight control and nutrition education programs, physical fitness and injury prevention, and stress-lifestyle management. In addition, a full-time staff of a physical therapist and dietitian at the Physical Fitness Center, Soldier Support Center, Fort Benjamin Harrison, Indiana, trained physical activities specialists and battalion training NCOs and officers. A full-time dietitian was assigned to The Surgeon General's Physical Fitness Task Force.

There were 465 warrant officer physician assistants (PAs) on active duty at the close of fiscal year 1982, an increase of 82 over the previous year. This improvement was caused by a high retention rate and the input from the Army's PA training program at Fort Sam Houston, Texas, which graduated a class every six months. The orthopedic and aviation medicine programs proved to be very successful and will continue. Additional specialty areas (including ear, nose, and throat, urology, general surgery, dermatology, and family practice) were under study for PA use. Plans were under way to affiliate the PA training program at a baccalaureate level and to incorporate advanced cardiac life support certification and additional trauma training into the program curriculum.

The Optical Fabrication Laboratory at Fitzsimons Army Medical Center began providing reimbursable optical support to four selected VA hospitals during 1982. This was made possible by the Health Resources Sharing and Emergency Act. The support to the VA followed a test to determine cost effectiveness and product quality. A test protocol was developed jointly by the Office of The Surgeon General and the Veterans Administration (VA) covering such details as ordering instructions, reimbursement procedures, and materiel specifications. Test results proved that considerable money would be saved on a quality product with a favorable turnaround service time.

Active Army and reserve component personnel could now be issued spectacle inserts for protective masks when starting initial entry training. The change became effective 1 October 1981 as a result of an increased emphasis on nuclear, biological, and chemical warfare training. The optical laboratories at Fort Jackson, South Carolina; Fort Knox, Kentucky; Fort Leonard Wood, Missouri; and the Brooke Army Medical Center in Fort Sam Houston, San Antonio, Texas, supported the new mission. Directed military overstrength was approved to provide additional manpower where needed to support the increased workload. Clinics were authorized to request inserts for personnel with unaided binocular visual acuity who did not meet the profile standards specified in AR 611–201.

Chaplain Activities

The chaplaincy filled the religious and moral needs of the military community by exercising spiritual leadership and nurture of individuals, providing free access for religious practice, affirming the intrinsic worth of all soldiers, supervising material

acquisitions and future developments, maintaining a position of personal and organizational readiness for strategic deployment, and managing resources to provide for mission accomplishment.

On 24–30 April 1982, the Chief of Chaplains hosted a Minority Ministries Training Course in Atlanta, Georgia. The theme of the training course was "The Challenge of Cultural Ministry Amidst Multi-cultural Needs." The course focused on ministry and effective spiritual leadership to persons having different racial, ethnic, and religious backgrounds than the chaplain. Among the many speakers were Atlanta mayor Andrew Young and Lt. Gen. Julius W. Becton, Jr., Deputy Commander, TRADOC.

A $50,000 contract awarded to the Triton Corporation of Washington, D.C., for a study entitled "Pre- and Post-marital Chaplain Ministry to Military Personnel and Korean Nationals" was extended into fiscal year 1983. The purpose of the study is to identify problems confronting American soldiers who marry Korean nationals and to provide chaplains with strategies to assist in a more effective ministry to transcultural couples. As a result of the study a handbook on pre- and postmarital counseling for chaplains will be printed and will include recommendations about ongoing programs for Korean spouses. In addition, a series of twelve programs on Asian-American cultural awareness was conducted by the El Pomar Renewal Center at Fort Carson, Colorado.

A team-building workshop for chaplains, chapel activity specialists, and directors of religious education at Fort Carson was completed. This pilot program was developed as a research and training model and produced significant results in the areas of role clarification, norms and standards, team stability, and performance without training.

Procurement, career development, and schooling received additional emphasis. Chaplains were strongly encouraged to participate in nonresidence courses and short-term courses directly related to their work. They were also urged to seek diverse assignments which would give them experience in many different facets of soldier ministries. Every effort was made to reduce personnel turbulence, which was a continuing concern for the Chief of Chaplains.

The chaplaincy continued to improve its mobilization planning. In December 1981, the Office of the Chief of Chaplains sponsored and FORSCOM hosted a Mobilization and Army Reserve Chaplain (MARCH) Coordinators Workshop in Atlanta. MARCH coordinators from all mobilization stations, Army Re-

serve commands, and continental United States armies as well as major Army command chaplains attended. The conference was effective in providing guidance, information, and definitive instruction for mobilization preparation and also highlighted the need for more concentrated planning and coordination between key planners of chaplain mobilization.

Effective 27 May 1982, the U.S. Army Equipment Authorization Review Activity authorized that chaplain kits be issued to chaplains upon their entry to active duty or upon assignment to U.S. Army Reserve or Army National Guard troop units. This will prevent a massive stockpiling of chaplain kits for mobilization.

On 23 November 1979, two senior Harvard law students filed suit in the U.S. District Court for the Eastern District of New York and charged that the Army chaplaincy violates the establishment clause of the First Amendment to the U.S. Constitution. On 14 April 1982, the plaintiffs moved for summary judgment. On that same day, the government asked that the case be dismissed. On 19 May 1982, the government moved for summary judgment. By the end of fiscal year 1982, the above three motions, along with a fourth to compel the plaintiffs to submit a copy of their tax returns, were still before the judge.

Food Service

Major Army commands designated 221 dining facilities for upgrading under the Dining Facility Modernization Program during fiscal years 1984-1988 at a total cost of $120 million: $10 million for 1984, $15 million for 1985, $13 million for 1986, $41 million for 1987, and $41 million for 1988.

The fiscal year 1982 Army Military Construction Program included the modernization of five dining facilities (four at Fort Dix, New Jersey, and one at Fort Leavenworth, Kansas) at a cost of one million dollars. Six new dining facilities were approved for construction at Fort Benning (Georgia), Fort Ord (California), and Fort Stewart (Georgia) as well as three in USAREUR, at a total cost of $7.7 million.

At the end of fiscal year 1982, 1,108 dining facilities were in operation worldwide (653 in CONUS, 455 overseas), 18 of which were free-standing speciality or short-order facilities and 2 of which were field ration dining halls for officers. During the year, 226,119,937 meals were served, valued at $267,152,461. The one garrison bread bakery in Berlin, Germany, and the one central pastry kitchen at Aberdeen Proving Ground, Maryland, continued operation.

Initial planning began in September for a long-term study to develop a manpower staffing standard for table of distribution and allowances (TDA) dining facilities. The result will be a formal manpower standard based on workload that will accurately reflect personnel requirements for TDA facilities.

TRADOC and DARCOM, with support from the Troop Support Agency (TSA), continued to develop the Combat Field Feeding System (CFFS), described in last year's report. Preliminary TRADOC analysis indicated that the CFFS would improve mobility and responsiveness of highly mobile units for the Army of the 1990s and estimated that the CFFS would reduce requirements for food service personnel, fuel, and water at an annual operating cost savings of $210 million for a mobilized force. The Troop Support Agency published the T-Ration Menu Development and Procurement Plan to support the CFFS. The services, at OSD request, procured more than 250,000 tray packs during calendar year 1982 to ensure industrial base support for the system.

During fiscal year 1982 the Army began a major initiative to better familiarize soldiers with the wartime, nonperishable B-rations by increasing their use. Joint training exercise GALLANT EAGLE tested a new concept in menu-configured pallets of B-rations that contained all the required components for breakfast and dinner meals for either twenty-five or fifty men for one day. A program was under way to ultimately afford table of organization and equipment (TOE) units the opportunity to serve at least one B-ration meal during field training exercises and to continue evaluation of the concept for menu-configured pallets.

A major program to improve the logistical sustainability and operational readiness of the M1945 field bakery was begun this year. It seeks to overcome unavailability of repair parts, critical shortages of components, and training problems that had a severe impact on unit readiness and mobilization planning throughout the Army. Repair parts valued at $350,000 were purchased for bakery units of active and reserve components, and plans were made to consider commercial parts for the dough mix and make-up trailer in order to enhance unit mobility and responsiveness.

The five TSA-based Food Management Assistance Teams in operation visited 68 active Army commands and installations, including lengthy visits to Germany, SETAF, Korea, Hawaii, Alaska, Puerto Rico, Japan, Okinawa, and Panama during the fiscal year. They stopped at 526 active Army and 312 reserve component dining facilities and assisted 7,593 active Army and 1,974 Army Reserve and Army National Guard food service

personnel. In addition, the teams continued to help in the operation of newly constructed or modernized dining facilities.

Work continued on the Army Food Management Information System (AFMIS), which will give cost-effective automated support to Army food service operations by reducing administrative workloads, improving management controls and responsiveness, and providing more reliable and efficient accounting and reporting practices. The Assistant Secretary of the Army (Installations, Logistics, and Financial Management) approved the product manager charter on 25 February 1982, and the Army Audit Agency validated the AFMIS economic analysis.

Initiatives to support Army physical fitness objectives included the development of a nutrition training package for food service personnel and the establishment of a nutrition flasher message system, which provides information on the nutritive aspects of physical fitness and health. The Master Menu continued to emphasize low calorie items, the posting of calorie information at the dining facility level, and food preparation techniques that encourage good nutrition and diet.

In the field of joint service food-nutrition technology, prototypes of the Mobile Food Service Unit, a major component of the new Army Combat Field Feeding System, were successfully tested during three field exercises, thus verifying that the concept gives highly mobile units the ability to distribute highly acceptable hot meals with minimal setup time and manpower. A prototype of the Harvest Eagle Food Service System, a consolidated field unit capable of feeding 1,100 troops, also met with success. As a result, the Air Force planned to refit all of its war reserve field support systems and equip air units in the Rapid Deployment Force with this new system. Other elements of the Army Combat Field Feeding System were tested and evaluated by the Marine Corps in Norway and were well received. New ration dense foods were tested on Navy submarines; results indicated that these foods would significantly increase the voyage endurance of crews on both submarines and surface ships. A new hospital food service system was designed and tested at Moncrief Army Community Hospital, Fort Jackson, South Carolina, which was highly acceptable to the patients and resulted in significant labor savings. The first prototype of a liquid food supplement packaged in a flexible pouch for use by encapsulated military personnel in a toxic environment was developed, and several subsistance packaging materials were evaluated for vulnerability to toxic agent penetration. The concept for a food service unit with a low identifying signature, that was toxic rain protected, diesel operated,

and truck mounted and could be operated by personnel not trained in food service was developed to provide this necessary support for ground-launched cruise missile flights. In addition, planning began on systems that could be used at Air Force bases under chemical warfare attack.

Clothing and Personal Equipment

The temperate camouflage battle dress uniform (BDU) was introduced as the Army's field and garrison uniform on 1 October 1981. The BDU has a woodland-colored pattern, infrared reflection, and reinforced elbows, knees, and seat in a 50–50 cotton-nylon fabric. It includes coat, hat, and trousers and represents the second stage of a multiphased transition to an individual clothing and equipment system that is totally camouflaged. The temperate BDU is part of the Army's battle dress system (BDS), which includes four camouflage subsystems allowing the Army to operate in temperate, desert, tropical, and arctic environments.

Work continued on a camouflage overgarment to supplement the new battle dress uniform system. This overgarment, which incorporates the battle dress (fatigue) uniform's 6.8-ounce nylon and cotton fabric as the outer layer, passed development and operational tests and was approved for limited procurement by the U.S. Army Support Activity in Philadelphia.

The memorandum of understanding (MOU) on the transfer of the operation and management of the Army Military Clothing Sales Stores (AMCSS) to the Army and Air Force Exchange Service (AAFES) was signed on 10 July 1981 and became effective for all AMCSS in the first quarter of fiscal year 1982.

A contract study, sponsored by ODCSLOG and initiated in May 1981, examined the existing personal, optional, and organizational clothing and individual equipment management process of the Army and recommended a more economical and responsive system. The following elements of study were approved for implementation effective 1 October 1982: a simplified requirements document; a statement of need—clothing and individual equipment (SN–CIE); a MACOM-level clothing advisory group (CAG); a commodity management office (CMO) within HQ, DARCOM; an Army clothing and equipment board (ACEB), cochaired by the DCSPER (for personal and optional clothing) and the DCSLOG (for organizational clothing and individual equipment items); and an Army staff proponent office within ODCSLOG.

The Army Chief of Staff approved several recommendations of the Army Uniform Board (AUB). These included adopting the AG–344 trooper cap for optional purchase and wear by male and female soldiers when the Army green uniform is worn with the black all-weather coat, green overcoat, or green raincoat; accepting a 100-percent texturized polyester fabric for use in optional-purchase, washable Army green trousers, skirts, and slacks; adopting the camouflage maternity work uniform as organizational clothing (basis of issue will be two uniforms, either the camouflage maternity work uniform or the white maternity uniform, as determined by the commander); implementing new optional-purchase blue and white mess uniforms for female enlisted and officer personnel; and discontinuing the issue of the white scarf to female enlisted soldiers (only the black scarf will be authorized for optional purchase and wear with the black all-weather coat by all soldiers, male and female). The prohibition against male soldiers carrying an umbrella while in uniform continued.

Pay, Leave, and Travel

During the period January–April 1982, the Army participated in a joint services study group set up to determine a definitive mechanism for military pay adjustment. OSD initiated the study, and the Navy directed it. A professional, administrative, technical, and clerical (PATC) survey had been used to determine pay increases for both federal civilian and military personnel. However, the study group felt that the survey was not representative of the mix of military skill specialties, and during the assessment of various surveys and indices, they placed primary emphasis on identifying the most representative military skills. The study group recommended that the military pay mechanism be separated from the General Schedule–PATC system and that the annual wage change in the Wage and Salary Series of the Employment Cost Index (ECI) be used instead, since the ECI represented more improved skill correlation (65–70 percent as opposed to 12–18 percent).

The General Accounting Office (GAO) evaluated these recommendations and stated in a report to the Secretary of Defense on 28 September 1982 that there were advantages to using the ECI over other available indices. However, they noted some factors which deserved consideration. There was a need for an alternative pay plan option. Presidents needed such authority to deal with unusual economic situations, but it should be no easier

nor more difficult for Congress to override than similar alternative plans affecting federal civilian employees. Any proposed legislation to switch to the ECI should include a catch-up provision. The possibility of reducing the six-month time lag between the date of the index and the date of the effective pay adjustment was also considered.

The final report of the President's Military Manpower Task Force (MMTF) was released on 18 October 1982. The MMTF agreed that the ECI would be a more appropriate base point for military pay adjustments, and concluded that the President must have some flexibility in varying the pay adjustment through an alternative plan when conditions demanded.

Since 1967, annual military pay adjustments have been approved on a "matching increase" principle based on approved adjustments in federal civilian pay, which are subject to changes in the PATC. The connection between federal civilian and military pay adjustments was specifically suspended by Congress in fiscal years 1981 and 1982. Federal civilian pay comparisons with the growth of wages in the private sector showed that the pay caps imposed on annual adjustments during the previous four years had caused a decrease of 18.47 percent in comparability. Although President Reagan acknowledged this loss, he submitted an alternative pay plan calling for a 4-percent increase in support of his national economic recovery plan. The comparison of military pay with wage growth in the private sector revealed that significant increases in the past two years have regained rough pay comparability. Even though wage growth in the private sector over the past year ranged between 8 and 9.5 percent, depending on the index examined (PATC growth was 9.5 percent), a 4-percent annual pay raise was approved for federal civilian and military personnel. As a result, federal civilian pay lagged behind the private sector by 14.5 percent and military pay lagged by 5.5 percent.

In September 1982, staff members of the General Accounting Office stated that the military bonus system was not cost effective. Although Congress had instituted cash awards as a highly selective means of obtaining and retaining qualified personnel in hard-to-fill specialties, approximately one-half of all jobs qualified for reenlistment bonuses. The Department of Defense countered by stating that, as a result of the bonus system, recruitment and retention rates had increased, while turnover and training expenses had decreased.

Changes in military retirement pay were made in the Omnibus Budget Reconciliation Act of 1982 (PL–253), which affected

all military retirees. One provision limited the annual cost-of-living adjustments to one-half of the increase in the Consumer Price Index (CPI) for retirees under sixty-two years of age for the next three years. If the actual CPI increase is greater than projected, the cost-of-living adjustment is the total of one-half the projected increase plus the full amount of the difference between the actual and projected CPI increases. Another provision delayed the annual adjustments by thirteen months instead of twelve for the next three years. Since there was no catch-up clause, retired pay was permanently reduced. Military retirees subsequently employed by the federal government would offset cost-of-living increases in military retired pay against federal civilian pay for the next three years. Military personnel first employed as federal civilians on or after 1 October 1982 must buy into civil service retirement by paying in an amount equal to 7 percent of all basic pay received on or after 1 January 1957. These provisions did not apply to disability retirements resulting from injury or disease received in the line of duty as a direct result of war or armed conflict.

Travel and transportation policies in the 1970s resulted in soldiers absorbing significant out-of-pocket costs while traveling on official business. This situation adversely affected morale and retention. The Uniformed Services Pay Act of 1981 changed these policies to reduce the soldiers' out-of-pocket expenses and to improve their quality of life. A mileage allowance was granted for one-way travel while transporting a vehicle to the port of embarkation and from the port of debarkation in conjunction with a PCS (permanent change of station). Enlisted service members on TDY (temporary duty) were authorized to receive either their basic allowance for subsistence or the per diem amount allowed for food, whichever was greater. Previously, enlisted personnel were given subsistence in kind. During 1981, interest in quality-of-life issues intensified, and the policy begun in 1980, whereby service members shipped their personal household goods to Germany, was reviewed to determine its cost effectiveness and impact on the soldiers and their families. Examination revealed that the weight allowance for shipping full household goods was not cost effective and adversely affected the soldiers and their dependents. The Army changed its position in order to support the provision of government furniture in Germany, thereby saving the Army money and giving better support to the troops.

Career sea pay was approved for qualified Army personnel on 23 April 1982 with entitlement retroactive to 1 January 1981. The monthly rates depended on pay grade and cumulative years

of sea duty. Members who received career sea pay and who served thirty-six consecutive months of sea duty were also entitled to a premium of $100 a month for the thirty-seventh consecutive month and each subsequent consecutive month of sea duty served. Approximately 400 of 718 Army personnel with marine field MOSs began receiving career sea pay in August 1982, most of whom were assigned to Fort Eustis in Virginia, Hawaii, and the Azores.

As noted in last year's report, Public Law 96–579 allowed service members without dependents to decline government quarters and elect instead to receive a basic allowance for quarters (BAQ). Initially the Army excluded from this option members (E–7 or above) who were married to other members but otherwise without dependents. Subsequently, the Army Judge Advocate ruled that the law providing the option included these members; confirmation was given in legal opinions from the Army General Counsel and the OSD General Counsel. As a result, the Army instructed the major commands and installations to extend the BAQ option accordingly.

Education

During fiscal year 1982 the Army began redesigning its Basic Skills Education Program into a progressive continuum of achievement using the latest educational technology. The objectives were to develop a competency-based, military-related prototype of basic skills instruction for soldiers and to provide an opportunity for those who did not graduate high school to earn a diploma or certificate. This effort was needed because of reduced resources, increased numbers of recruits who required such education, the smaller population from which to recruit, the growing complexity of military weapons systems, and the current program's lack of both a common curriculum and a coherent assessment process to determine if functional requirements for mastering basic skills were met. The continuum will be tied more closely to the educational standards and professional development necessary for reenlistment and promotion to staff sergeant.

Although AR 621–5, "Army Continuing Education System (ACES)," was completely revised in October 1981, another overhaul was called for because of a shift from micro to macro management as well as some shortcomings discovered in the regulation. These shortcomings included limited flexibility for managers of major commands and installations, lack of clear definitions

for developing management strategies, and confused delineation in the roles and responsibilities of commands, educational services offices (ESOs), and counselors. By the end of fiscal year 1982, basic research and plans were under way to restructure AR 621–5 as a policy and goals document, allowing the major commands to develop their own management strategies.

Several other steps were taken during the year to improve ACES. A chapter of the ACES Management Handbook, containing information on methods for assessing basic needs and on data sources, was published and distributed. The Department of the Army (DA) requested that each major command select a pilot installation, pool all available expertise, and conduct a comprehensive needs assessment. A multiservice panel on educational needs was planned for the American Education Association convention in San Antonio, Texas. The Department of the Army also planned to require each major command to identify target groups to set objectives for each ACES subprogram.

Programs and services of the Army Continuing Education System were offered at 374 education centers and subcenters during fiscal year 1982 with a staff of 1,283 DA civilians, including 491 full-time counselors.

The education level of incoming soldiers rose during fiscal year 1982 because of higher enlistment standards, increased recruiting support, and greater youth unemployment. Although participation in ACES programs and services increased, 48.3 percent of Army enlisted accessions without prior service had a reading level below ninth grade, while those in category IV held at 19.2 percent.

Soldiers earned 4,162 high school diplomas and 12,605 high school equivalency certificates, 15,682 vocational or technical certifcates, 2,088 associate degrees, 1,057 baccalaureate degrees, and 1,553 masters degrees. The Army College Fund was extended nationwide and 90-percent tuition assistance was authorized for enlisted members in grade E–5 and above with less than fourteen years service.

The Preseparation Counseling Program was launched with the publication of AR 621–5, 15 October 1981, and all commands developed a program during the fiscal year. The Adjutant General, coordinator of all Army separation activities, established a special project office to analyze and operate the separation process.

The Army Education Information System (AREIS), an interactive computerized system and adjunct to counseling, was designed to offer a common set of data bases for use by both

counselor and soldier; provide an automated library of extensive information about educational and vocational opportunities, the enlisted promotion system, planning, goal setting, and value clarification for soldiers; display this information in an interesting and relevant format; and personalize the information by making use of a stored soldier record and monitoring system. AREIS has four subsystems: subsystem I will give an overview of the content and capabilities of AREIS, all ACES programs, and services of the education center; subsystem II will help soldiers identify or clarify work-related interests, aptitudes and skills, and values; subsystem III will supply soldiers with goals; and subsystem IV will aid counselors and administrators. An initial test of part of the AREIS system, consisting of an "interest inventory" and education center "information segments" at Fort Sill, Oklahoma, indicated a high degree of soldier interest and acceptance. Further field tests were to be completed by mid-fiscal year 1983.

Morale, Welfare, and Recreation

Public Law 97–35, 13 August 1981, authorized an open season, starting 1 October 1981 and ending 30 September 1982, which permitted eligible retired members to enroll or increase participation in the Survivor Benefit Plan (SBP). An eligible member could either sign up for the first time with the plan, increase existing participation to a higher level, change current children-only coverage to include a spouse, or elect coverage for a natural person with an insurable interest if the member had no spouse or dependent child. A two-year waiting period before the designated beneficiary could become eligible to receive an annuity was included in the law. As of 5 October 1982, some 35,163 retirees opted to take advantage of the open season, of whom 28,877 were newly enrolled and 6,286 changed their participation.

An appropriation of $5 million ($1.5 million for the Army) in the fiscal year 1982 Defense budget legislation resulted from congressional interest in the Family Advocacy Program. The legislation stated that funds would be used only "to establish a program of child advocacy and family counseling services to deal with problems of child and spouse abuse." Funds were used at the installation level for model family advocacy projects, contracts for services, curriculum and training materials, training, staff, and an automated data system to supply information on the incidence of child abuse and neglect, spouse abuse, and services provided.

The Defense Enrollment Eligibility Reporting System (DEERS) is a Department of Defense (DOD) computer-based system, mandated by Congress, which contains data on military active duty and retired members and eligible dependents who are entitled to military health care benefits. The system has over 9.5 million eligible beneficiaries from the seven uniformed services enrolled in its data base. DOD has not yet determined whether DEERS enrollment will be extended overseas. The DEERS Program Office, DOD, began to make the system's data base accessible to military personnel offices (MILPOs) and supplied DEERS cathode ray tube (CRT) terminals to personnel offices at thirteen Army installations along with a new personnel information screen.

The Department of Defense, because of congressional pressure to tighten control over the unauthorized issue of identification cards, designed a more tamper-proof card system. It would be tested during the second quarter of fiscal year 1983 at Fort Lee, Virginia. The Real Time Automated Personnel Identification System (RAPIDS) will interface with the Defense Enrollment Eligibility Reporting System (DEERS). Personnel offices will be on line with DEERS and will be able to determine an individual's eligibility status more accurately through RAPIDS. A major feature of RAPIDS will be a new, machine-readable identification card of durable plastic. The use of RAPIDS in conjunction with DEERS was designed to detect easily an invalid card or unauthorized use at the time it was presented for benefits.

The Army Morale, Welfare, and Recreation Review Committee (MWRRC) meets twice each year to review MWR programs and consider new initiatives to strengthen management and improve use of resources for its programs in support of unit cohesion, personnel readiness and retention, and the needs of soldiers and their families. The committee reached several major decisions in 1982. A minimum of 40 percent of the net income from package store beverages would be distributed to installations for operating programs and capital expenditure beginning in fiscal year 1984. Up to 50 percent of the package store profits could be distributed to local clubs for authorized spending, such as loan repayments, capital expenditures, and centralized administrative and training expenses. Ten percent of the package store earnings would be distributed to the Army Club Fund to increase loans available to finance major construction and renovation of Army clubs. The committee approved funding of the $4.7-million shortfall in Army Club Fund cash flow in fiscal year 1983 with a variable-rate bridge loan from the nonappropriated

fund (NAF) investment program to be repaid in fiscal year 1984. A revised list of NAF major construction projects, valued at $60.8 million, was approved for fiscal year 1982 along with design completion and contracting for construction of all fiscal year 1982 projects. Fiscal year 1983 projects, valued at $34 million, were approved subject to documentation and review. The committee also directed The Adjutant General to prepare a study of the concept of merging the Army Morale Support Fund and the Army Club Fund into a single central fund, the Army Community Life Fund, to be used primarily to finance MWR capital expenditures.

Ongoing major construction projects that were near completion as the fiscal year ended were phase I of the Fort Hood Belton Lake project, Fort Hunter Liggett physical fitness center and playing fields, Fort Hood Officer Club (renovation), Fort Knox Officer Club (renovation), Carlisle Barracks Officer Club (renovation), Redstone Arsenal Officer Club, Fort Jackson Officer Club, and Fort Lee Enlisted Club. Projects completed during the year included the Fort Buchanan Community Club, Fort Bliss swimming pool cover, Aberdeen Proving Ground NCO Club, Aliamanu outdoor fields, Camp Casey outdoor fields, Hanau sports complex, and Fort Meade Officer Club.

Two firsts in the construction of Army outdoor recreation facilities were accomplished at Fort Campbell in fiscal year 1982. A nature center built with funds from the Sikes Act and started in fiscal year 1981 was finished, and the search for a director to manage it began. Design work was completed for the first newly constructed check-out center for outdoor recreation equipment, which will also be located at Fort Campbell. Nearly all installations operate this type of facility, but they are located in existing structures that were designed for other functions.

Army club earnings increased 12 percent to $26.2 million on revenues of $389.9 million during fiscal year 1982. Ninety percent of the clubs were profitable, a record year for the system. Clubs alone had a net income of $20.83 million on revenues of $274.92 million, also up 12 percent. Meanwhile, the package stores operated by the club system gave $6.87 million of their earnings to fund morale support activities, a 2-percent increase from the year before. In the United States and Far East, clubs operate package stores to generate money for morale support activities at installations and to fund club construction and centralized support expenses. USAREUR Class VI agency-operated package stores earned $15.56 million on revenues of $40.26 million for distribution to morale, welfare, and recreation (MWR) activities in Europe.

The Army Morale Support Fund received $55 million from the Army and Air Force Exchange Service (AAFES) in 1982. Morale Support Fund (MSF) operating programs were supported by $23.98 million; $25.7 million was allocated for capital purchases and minor construction (CPMC); and $20.5 million went toward the nonappropriated fund (NAF) major construction program. The major commands responded to the challenge of meeting increased operation requirements by generating $104 million locally, compared with $79 million in the previous year. Package store beverage income accounted for an additional $17 million. Recurring operating costs, however, continued to drain efforts to reduce the backlog on facility improvement, with personnel costs alone absorbing 67 percent of every dollar spent on MSF programs. The Army Club Fund was abolished on 1 October because of depleting resources, and the remaining assets were consolidated into the Army Morale Support Fund. The consolidation of accounts and the creation of one fund reflected the increasing integration of nonappropriated funds at the installation, major command, and DA levels for greater flexibility in allocation.

Approval was granted to place more slot machines in Army clubs and Armed Forces Recreation Centers overseas where no violation of status of forces or other host nation agreements occurred. The decision was based on a need to improve the recreation facilities and opportunities available to soldiers, particularly in the face of continually rising operating costs and deteriorating facilities. The 250 slot machines in operation since April 1981 serving the Frankfurt and Kaiserslautern military communities earned $2.2 million through July 1982. Such results encouraged similar expansion to other overseas military communities at the option of the commander.

The Army Library Management Office (ALMO) contracted for a study on "Integration of New Technology in Army Libraries," which assessed the feasibility of introducing new automation techniques into Army library processing activities, examined and recommended appropriate systems and configurations for such automation, and determined implementation costs. Plans to carry out recommendations would establish technical processing centers at each Army installation using an integrated, minicomputer-based turnkey library automation system to increase the efficiency of technical processing functions and the exchange of resources among Army libraries.

During fiscal year 1982, 158,313 books were purchased for 276 libraries throughout the Army. Paperbound book kits

(25,930) were bought and distributed to units and activities not having access to a library, as well as to the troops from Fort Bragg and Fort Campbell who served in the U.S. contingent of the Multinational Force and Observers (MFO) in the Sinai. Special purchases were made in the areas of war games, children's books, and physical fitness and in support of Defense Activity for the Nontraditional Educational Support (DANTES) program. Forty-one libraries participated in the Federal Library Information Network for shared cataloging and interlibrary loans, with TAGO funding fifteen libraries and adding two more during the year. The remainder were funded by major commands or installations.

Army service members participated in nineteen interservice sports competitions for both men and women during fiscal year 1982, taking eight first places, four second places, and three third places. Army team members selected for armed forces teams also competed in eighteen national sports competitions, including the Conseil International du Sport Militaire (CISM) where they placed first in two events and second in two others. Thirty-five Army athletes participated in the Fourth Annual Sports Festival sponsored by the U.S. Olympic Committee in Indianapolis, Indiana, on 22–29 July 1982.

During fiscal year 1982, 106 performing units toured military installations throughout the world for DOD or combined DOD–USO shows, performing before approximately 445,000 personnel in nearly 3,000 performances. Celebrities in many fields presented a wide range of entertainment.

Although Army recruiting has generally gone extremely well, Army bands were still facing shortages in certain instrument areas. To improve this situation the Army Bands Office contiued to develop initiatives with the U.S. Army Recruiting Command (USAREC). New endeavors included a poster, "Rhapsody in Dress Blues"; a recruiting handout, "Start Your Music Career in an Army Band"; and USAREC funding of band personnel to recruit at music conventions. A new display to aid in convention recruiting was under development.

Commissary and Subsistence Supplies

During fiscal year 1982, Congress, the Office of the Secretary of Defense, the Department of the Army, and marketing organizations focused considerable attention on Army commissary operations. Assistance visits to the field and various training programs improved operations at all levels as sales reached $1.5

billion. At the end of the fiscal year, 70 domestic (in 50 states and Puerto Rico) commissary stores and 9 annexes were in operation. Overseas, 70 foreign stores and 29 annexes were open for business. The Fort Dix commissary was transferred to the Air Force on 28 June 1982. A new commissary was constructed at Fort Belvoir; the Fort McPherson store was downgraded to an annex of Fort Gillem; and new annexes were opened at Fort Story, Virginia, Kirchgeons, Germany, and Al Batin, Saudi Arabia. In July, commissary privileges were restored to all military personnel serving in Korea. In compliance with a congressional mandate, the Joint Service Commissary Committee recommended that a 5-percent surcharge be applied and collected at the point of sale. The use of scanning equipment, installed in the commissary at Fort Lee, Virginia, in September 1981 with excellent results, was expanded to the commissary at Fort Belvoir, also in Virginia, in July 1982. Installation in 63 additional stores is contemplated.

In accordance with Office Management and Budget Circular A–76, the Army began cost studies in the commissaries at Fort Leonard Wood, Missouri, and Yuma Proving Ground, Arizona, to see if operation by civilians under contract would save money. Conversion to this contract method would be carried out only if the studies indicated a savings to the government equal to at least 10 percent of personnel-related costs. The outcome of the study would have no effect on commissary food prices.

A memorandum of understanding (MOU) which transferred the troop issue subsistence supply mission from the 200th Theater Army Materiel Management Center (TAMMC) to the Defense Subsistence Region–Europe (DSR–E), a Defense Logistics Agency (DLA) activity, became effective 1 October 1982 and provided several advantages: (1) realignment of peacetime and wartime missions, thereby ensuring smoother transition to war; (2) consolidation of all personnel in the USAREUR Wholesale Subsistence Supply under one agency; and (3) improvement of the peacetime management of subsistence supply.

Family Housing and Homeowners Assistance

On 1 February 1982, a revised AR 210–50, "Installations Family Housing Management," was published. It included several recommendations made by the Army Housing Committee following its 1981 review of Army housing and the opening of family housing for diversion for unmarried chaplains. The regulation also made special provisions for COHORT family members deploying to Europe on three-year tours.

The family housing management account had been underfunded for several years. To improve the fiscal management of the program, Army leadership sought and obtained the transfer of the account back to the Department of the Army as the Army Family Housing Program, with full management effective in fiscal year 1983. Two new construction projects for 486 units were awarded during the year at an estimated cost of $37,920,000—232 units at Fort Drum, New York, and 254 units at Fort Irwin, California.

The Family Housing Maintenance, Repair, and Improvement (MRI) program consisted of the following: Line Item Improvement Program—4 projects, $8,046,000; Minor Construction Program—$2,500,000; Energy Conservation Investment Program—$27,200,000; and Maintenance and Repair Programs—$305,507,900.

The Housing Operation Management System (HOMES), a computer-aided tool to assist Army personnel in the day-to-day management of family housing, billeting (unaccompanied personnel and transient housing), community housing, financing, furnishings, and facility management, was under development. The Assistant Secretary of the Army approved the HOMES mission element needs statement and the project manager's charter, and various workshops were held to define housing functional areas and computer specifications.

By congressional direction, the domestic Family Housing Leasing Program of 1,043 units was being phased out. On the other hand, overseas leasing authority increased from 10,497 units in fiscal year 1981 to 12,961 units by the end of fiscal year 1982 and is expected to increase to 18,500 units in fiscal year 1983. The majority of these units were allocated to European installations.

On 1 October 1981 revised Variable Housing Allowance (VHA) rates took effect. The VHA program was established for all uniformed service members who lived in areas of the United States (excluding Alaska and Hawaii) where housing costs were at least 15 percent higher than the basic allowance for quarters (BAQ). The VHA was also available for members assigned overseas whose families lived in the United States (excluding Alaska and Hawaii). Its purpose was to give service members who were assigned to high cost areas more money to offset the increased cost of housing.

A major change was made in the way VHA was paid. In fiscal year 1981 a VHA rate applied to "grade grouping." For example, one rate was set to cover E–4s, E–5s, and E–6s. This method tended to overpay some members and underpay others. The VHA for

fiscal year 1982 was paid according to individual grades, including officers with over four years' enlisted service (0–1E, 0–2E, and 0–3E), to better reflect the different housing costs incurred by each grade.

Variable Housing Allowance rates were set according to military housing areas (MHAs). A thorough analysis was made in fiscal year 1982 to ensure that an MHA encompassed a geographical area where members both lived and worked, and housing costs were examined to ensure consistency throughout the MHA. This resulted in several changes in military housing areas.

As executive agent for all military services, the Army paid $3.2 million under the Homeowners Assistance Program to 436 applicants in fiscal year 1982 as a result of base closures and realignment actions. Mortgage assumptions on thirty-two properties acquired during the period totaled $335,771.

Quality of Life

In response to 1981 family-life policy decisions by the Chief of Staff, the Army established three new vehicles for overseeing communication and policy on Army family issues. First, the Family Liaison Office (FLO) was created to coordinate, review, and initiate policy, research, and studies on families. It reported directly to the Deputy Chief of Staff for Personnel. Reporting to the FLO (but located within The Adjutant General's Quality of Life Office) were the Family Life Communication Line (FLCL) and "News for Army Families," a quarterly newsletter distributed worldwide. The FLCL offered Army family members easy access to Army Headquarters for defining and resolving specific family problems via a toll-free hotline service. Although located in Army Headquarters, both the FLO and the FLCL actively promoted emphasis on quality of family life at major commands and installations.

In its first year, the FLO compiled a list of the various agencies and staffs within the Army that have conducted research or studies on Army families and examined the relevancy of specific studies, research findings, and ongoing data bases. The FLO also initiated research in spouse employment, family stress, and family demographics.

Two worldwide symposia on Army families, the second (1981) and third (1982) Army Family Symposia, were held. These symposia offered unique experiences for hundreds of family members to define and rank issues and to communicate their concerns to key policy makers. The FLO supported the Army's

participation in these pioneering events and served as the focal point for developing an action plan in response to issues raised at the symposia.

The Army expanded employment assistance to family members of military personnel and civilian employees. In January 1982 HQDA told commanders to expand family employment assistance within currently available resources. Some installations broadened their efforts to provide employment assistance to family members. This included increased efforts to publicize vacancies, development of working relationships with local state employment offices regarding jobs in the private sector, establishment of a single point-of-contact on post where family members could obtain employment information, and presentations given at meetings attended by family members regarding employment opportunities.

The Leadership Division sponsored a major conference at the Army War College in March 1982, which established the philosophy and direction for leadership initiatives. Several subsequent conferences clarified and refined these efforts. Three long-range support objectives were prepared to improve command environment, leadership doctrine and training, and the personnel system. The Leadership Division was assigned proponency for the human goal in 1982. The initial effort was to develop an expanded meaning and philosophy for this concept. Emphasis was placed on the role of the Army in society and its need to be more people-oriented.

Memorial Affairs

Numerous actions were taken during fiscal year 1982 to correct problems noted in the Concepts Analysis Agency study of the Army's ability to handle personnel killed in combat, described in last year's report. Cemetery operations and mass casualty procedures were added to the graves registration (GR) specialist program of instruction; FM 10–63, "Handling of Deceased Persons in Theaters of Operations," was revised to include nuclear, biological, and chemical (NBC) operations; and an HHC, Quartermaster Battalion (GR), was added to the force structure in the reserve components, and two additional graves registration companies will be added during fiscal year 1983. Procedures were again established requiring a fingerprint card in the military personnel record jacket, and Army staff functional responsibility for graves registration was transferred from the Troop Support Agency (TSA) to the Quartermaster School (QMS). Furthermore,

OACSI was asked to study GR doctrine of allied and Warsaw Pact nations; a program to allow GR specialists to train with civilian mortuaries was in the planning stage; and a GR field manual for soldiers not in graves registration was being written. Guidance to ensure that all active Army soldiers have a panographic dental x-ray was promulgated, and a program to investigate the interest of graduate morticians in joining the Individual Ready Reserve (IRR) was begun.

Postal Service

The Military Postal Service Agency (MPSA), organized as a field operating agency of The Adjutant General in 1980, was the single manager for DOD military postal service functions worldwide. During the first year of MPSA operations, mail service to remote areas like Korea and Diego Garcia posed severe problems. Transit times were excessive, and mail arrived irregularly. MPSA coordinated an intensive effort to review each factor affecting mail delivery, arranged an extensive network of back-up flights where possible, and had the postal elements of the services streamline their mail processing and transportation operations as well as schedules. Transit times of letter mail to Diego Garcia were reduced by two days, and over 80 percent of the letters now arrived within eight days of postmark. In Korea, well over 80 percent of the letters were delivered within seven days. The success of these efforts led to a program of intensive mail service management for other remote locations experiencing similar problems. The program consisted of special monitoring, close communications, step-by-step analysis of mail flow, and measurement of transit times where possible.

While the Military Airlift Command (MAC) provided an invaluable service to countries with no or insufficient commercial airlift, such as Guantanamo Bay, Greenland, Diego Garcia, and Turkey, commercial carriers generally gave reliable and frequent service to more accessible areas. The law required the use of U.S. commercial carriers wherever possible. Back-up resources to be used in the event of strikes or other factors affecting U.S. air carriers were required. With the help of the U.S. Postal Service (USPS), negotiations with foreign back-up carriers such as British Air, Alitalia, and Japan Airlines resulted in agreements to carry mail that exceeded the capacity of U.S. carriers from CONUS to many overseas points at the domestic rate. This was significantly lower than the universal postal union rate usually charged by most foreign carriers.

Historically there has been a shortage of U.S. commercial airlift to move the great volumes of mail to and from overseas locations during the November–February period. In the past, space available mail (SAM), excess to what the U.S. commercial air carriers could handle, was diverted to the Military Airlift Command. In many instances this was a costly and inefficient operation. For the 1981 Christmas period, MPSA coordinated a program of selective improvement of mail transportation priorities, which resulted in U.S. airlines adjusting their cargo contracts and adding additional airlift so that all military mail for Germany, the United Kingdom, and Italy was transported by commercial carriers. A significant improvement in service was achieved, and the number of times mail had to be handled was significantly reduced. This program will be repeated during the 1982 Christmas mail rush.

The Comptroller General (GAO) submitted a report in January 1980 entitled "How Military Postal Service Operations Can Be Improved." In response, the Military Postal Service Agency, working with the USPS, developed a standard, uniform measurement system that produced reliable performance data with minimum administrative work. This system, the Transit Time Information System Military Mail (TTISMM), filled the need of managers throughout the Military Postal Service (MPS), as well as commanders at all levels, to know how long it takes letter-class mail to reach armed forces overseas from various points in CONUS. TTISMM is the basis for developing mail delivery standards, monitoring actual performance, and identifying and resolving mail processing and transportation problems in a systematic, disciplined way.

Deployment of the Multinational Force and Observers (MFO) to the Sinai presented MPSA with its first from-the-ground-up MPS support requirement. The isolation and autonomy of the force presented challenges far beyond those normally encountered in establishing overseas postal service. Extensive diplomatic negotiations were required to overcome concerns such as national sovereignty over postal service, equity of service to all elements of the MFO, and problems of contraband entering postal channels. By the time the MFO arrived in the Sinai, MPSA's efforts had met with partial success—the U.S. element was able to send and receive correspondence and official material through the MPS. Persistence and accommodation brought complete success; full postal service to all national elements was achieved three months after the MFO took up its positions in the Sinai.

The distribution of MPS operating costs was not resolved during the negotiation of the 1980 USPS and DOD Postal Agreement. Because of incomplete data on the costs, USPS and DOD agreed to conduct a survey of MPS operating costs and selected revenues generated through the MPS. Conflicting perspectives on revenue data and resource requirements caused delays, but agreement was reached in May 1982 and the survey was begun in July. Results of the one-year survey will be used by MPSA in negotiations between DOD and USPS and for developing the long-range goals of the agency. Interim data from the survey will enable one long-standing goal to be realized when legislation is introduced during the first session of the 98th Congress to allow postage-free movement of personal correspondence moving solely within the MPS.

The U.S. Postal Service and DOD had discussed for years the problem of how to reduce the flow of narcotics, black market items, and other contraband through the U.S. mail to military post offices overseas. By the fall of 1981 the discussions had reached a stalemate. At that time the Secretary of Defense dispatched a letter to Postmaster General William F. Bolger asking for his help. Postmaster General Bolger set up a series of meetings between the general counsels of each organization. To prepare for these meetings, the DOD general counsel held a series of conferences with legal representatives from each service and MPSA, who represented the DOD postal operators. Subsequent meetings between the general counsels produced a proposed policy on search and seizure by DOD of mail in MPO channels overseas. The proposal was published in the April 1982 *Federal Register*. After final comments were received and reviewed, a policy agreement was reached and signed by both the Secretary of Defense and the Postmaster General in August 1982. The final policy statement is currently being processed for publication in the *Federal Register* and for inclusion in Change 1 of the DOD Postal Manual.

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Reserve Forces

Throughout its history the United States has depended upon the citizen soldier to round out the regular force during periods of widespread mobilization and major conflict. Standing peacetime forces in all periods have necessarily been scaled at reasonable and affordable levels which would help deter aggression, provide a ready defense, and furnish the ability to respond promptly to an active emergency or potential threat. Over time, an expansion in America's global responsibility, together with technological advances and a consequent loss in reaction time, placed an increasing premium on the readiness of reserve forces to back up the existing regulars.

The National Defense Act of 1920 established the Army of the United States as an organization of three components: the Regular Army, the civilian National Guard, and the Organized Reserves (now the Army Reserve). Using the regular establishment to train the reserve components fostered cooperation, promoted uniformity in procedures and professional standards, and prepared the way for an orderly and effective integration of reserve elements into the active Army when needed. The process was successfully tested in World War II.

Army reserve components today are closely affiliated with the active forces in funding, organization, training, doctrine, tactics, weapons, and equipment. Terms like *One Army* and *Total Army* are not empty catchwords, but rather phrases designed to remind one and all of the relationship between members of a team. During the year, Secretary of the Army John O. Marsh, Jr., stressed that the Total Army, today more than ever before, must appear formidable in the eyes of prospective enemies; General Edward C. Meyer, the Army Chief of Staff, placed the National Guard and the Army Reserve at the heart of milestone evolutionary processes represented in the Army 86 and AirLand Battle 2000 studies.

The Army budget provides funds for pay, subsistence, allowances, travel, and related expenses for soldiers of the reserve components as well as the active Army. In fiscal year 1982 the Army National Guard was allocated $1.3 billion to support a total end strength of 398,016; the Army Reserve received $973.1 million to support a total end strength of 251,849. Both budget

and strength figures surpassed those of 1981, and during the year a further increase was sought for 1983.

Force Structure

The magnitude of reserve force participation in the common defense is illustrated by the organizational structure of the reserve components and the missions assigned them.

The Army National Guard (ARNG), whose units must be ready to go to war upon call, provides 46 percent of the combat forces of the Total Army. In 1982, 8 of the Army's 24 divisions were National Guard organizations, and 4 of the 16 active Army divisions were each designated to receive one of the Guard's 22 brigades upon mobilization. The Guard also contained 4 armored cavalry regiments, 2 special forces groups, an arctic infantry reconnaissance group, 132 separate support battalions, 786 separate companies and detachments, 18 hospitals, and 341 headquarters of various types. Numerous actions were taken in the force structure during the year to enhance the Guard's, and thus the Total Army's, capabilities.

The Army Reserve (USAR), whose units would provide combat, combat support, and combat service support for the Army upon mobilization, would deploy 57 percent of its units within 30 to 60 days of mobilization, and virtually all units within 90 days. The importance of the Army Reserve is evident in the fact that many of its units are unique in the Total Army structure. In 1982, for example, the Army Reserve provided all of the Army's training divisions, all of its judge advocate general detachments, and all of its railway transportation units. It also had nearly all of the Army's civil affairs units, most of its psychological operations and petroleum and terminal service units, and a sizable 62 percent of the Army's postmobilization hospital units. Force structure actions were in progress during the year to improve Reserve capabilities across the board, and thus the Total Army.

Strength and Personnel Management

The assigned strength of the Army National Guard at the close of fiscal year 1982 was 409,238 soldiers. By midyear, paid and assigned strength exceeded end-of-year budget ceilings, but reprogramming of departmental funds enabled the Chief of Staff to approve an adjusted end strength of 410,000. The successful growth was the result of aggressive recruiting and retention

efforts, more attractive incentives, and flexible enlistment and training options. The state of the economy and international tensions also played a part in the favorable personnel situation.

ARNG officer strength responded to active recruitment and retention programs by reaching 40,387—the highest level ever recorded and a full 98.7 percent of authorization. The continued growth in officer strength was also reflected in minority strength. Black officers and warrant officers totaled 1,744, or 4.4 percent of all officers. While state officer candidate schools remained the primary source of career officers, the Reserve Officers' Training Corps (ROTC) emerged as a key source of lieutenants. A total of 1,101 new lieutenants were appointed in the ARNG from ROTC during fiscal year 1982. Most of these were commissioned under the Early Commissioning Program (ECP). The increase in officer accessions could be attributed to several factors, including assignment of ARNG officers to ROTC detachments, greater use of guaranteed reserve forces duty contracts, and additional funding of ROTC scholarships for the Selected Reserve. Under this program, fifty two-year scholarships were awarded to ARNG members in fiscal year 1982.

ARNG enlistments in the fiscal year reached 95,618, which was 99.6 percent of the programmed objective. Both non-prior and prior service enlistments continued to exceed objectives, to the point where enlistment controls and state strength ceilings had to be imposed to hold the Guard to its adjusted authorization. Quality recruits continued to be the goal, as it was throughout the Total Army.

Within the favorable aggregate Guard strengths, there were also gains at minority levels. Black representation increased by about 3,200 during the year, while female participation expanded by more than 2,800.

The paid drill strength of the U.S. Army Reserve at the close of the fiscal year was approximately 242,900—the highest level in a decade. As was the case with the National Guard, the USAR was so successful in recruiting and retention that, midway through the year, steps had to be taken to restrain growth in order to stay within budget and strength limits. The moving forces behind the favorable personnel situation were the same as those that influenced the Guard's progress. Despite corresponding improvements in strength levels of the Individual Ready Reserve (IRR), shortages continued in that pool of pretrained manpower. From a 1978 low of 144,000, the IRR reached 225,000 at the end of fiscal year 1982, roughly half of the desired target strength.

The Reserve Officers' Training Corps program continued to serve as a key source of USAR officers. In recent times the

ROTC program has produced about 7,000 graduating cadets per year, about 1,000 of whom enter the Reserve Forces Duty Program. By the middle of the decade, annual production under the program is expected to exceed 10,500 officers, with some 3,000 entering active duty.

As the Army Reserve personnel strength improved, minority membership gradually increased. Black representation reached 58,770—over 23 percent of assigned strength—while 39,909 women served in troop program units, which was 16.4 percent of unit strength.

Training and Readiness

The reserve components played important roles in 1982 joint readiness exercises, overseas deployment training, and training with the active Army. At home, in Europe, and in the Far East, Guard and Reserve units took part in a variety of exercises such as GALLANT EAGLE, LOGEX, BOLD EAGLE, WINTEX, REFORGER, TEAM SPIRIT, and YAMA SAKURA.

A plan for reserve component participation in joint training exercises had been devised to ensure several years of lead time in which to schedule and fund reserve unit wartime training with active Army units under the CAPSTONE program. Begun in 1980, this program seeks to align units of all components to meet wartime requirements, establish unit associations, focus organizational formats for force planning, and define equipment, training, stationing, deployment, and modernization requirements and capabilities.

In the National Guard, in addition to overseas and stateside training, a small unit exchange program with allied nations was continued, involving Norway, the United Kingdom, Barbados, and the Dominican Republic. Units of up to company size participated in this activity, enhancing relationships between countries and broadening personal perspectives and operational experience.

Key ARNG unit personnel trained with active Army counterpart units during the year. About 2,000 commissioned and noncommissioned officers from selected Guard divisions and brigades participated in this training to promote individual tactical skills and improve unit readiness. ARNG undergraduate pilot training was increased substantially during the year, tactical intelligence training was instituted on a modest scale, and training courses to promote equal employment opportunity and to combat sexual harassment were conducted at Defense and Guard locations for ARNG personnel.

To streamline mobilization processes and prepare the Guard to execute corresponding actions expeditiously, mobilization documents were revised in 1982. In other steps, ARNG officers were assigned to six active installations and to all nine Army readiness and mobilization regions in order to improve the interaction between the National Guard and the active Army. Twenty-two units participated in an evaluation of mobilization deployment readiness.

In the Army Reserve, overseas deployment training was expanded in 1982. More than 160 USAR units or cells were involved—the majority in Europe, 15 in Korea, and 1 in Japan. Experience indicated that cell participation was more appropriate than using whole units. As a part of the overseas training, 27 USAR units participated in REFORGER 82 and deployed in exercise aircraft.

The United States joined with Belgium, Canada, Denmark, France, Germany, Italy, Norway, the Netherlands, and the United Kingdom in the military competition of the Interallied Confederation of Reserve Officers held at Fort Meade, Maryland, in August 1982. Three-man U.S. teams placed 2d, 3d, 7th, 19th, and 20th in the 37-team matches.

Competitive marksmanship continued to be a useful training activity as the USAR Shooting Squad maintained its position as a dominant force in the field. USAR marksmen, as individuals and as team members, won several U.S. shooting championships and placed seventeen individuals (35 percent of team strength) on the U.S. Shooting Team that will compete in the World Shooting Championships. In the 1981 Shooting Championships of the Americas, USAR members of the U.S. team won 29 gold, 8 silver, and 12 bronze medals in the fifty events that made up the championships. The USAR Service Rifle Team also swept the Interservice Rifle Championships, winning three of the five team events.

Individual Ready Reserve aviator training continued during 1982. Approximately 400 IRR aviators participated in the program to produce qualified copilots who would fill open spaces in aviation units of the active components upon mobilization. In the medical field, a newly established physicians' assistant course for qualified USAR personnel was in its first cycle at the Academy of Health Sciences during the year.

More that 160 USAR officers were selected to participate in various fields of professional education in 1982. Seventy-nine were designated for senior service college resident or nonresident instruction, sixty-eight for command and staff college

courses, and six for the Logistics Executive Development Course. In the command and staff area, the Armed Forces Staff College was opened to USAR personnel for the first time.

Equipment, Maintenance, and Modernization

In fiscal year 1982 the National Guard's equipment status was upgraded as a result of several favorable factors, including product improvement, new procurement, delivery of late models, exchange within Army channels, and dedicated congressional appropriations. The most significant gain was the delivery of modern equipment to ARNG roundout units at the same time as their active Army host units. Issue of late model M60A3 tanks and improved TOW vehicles to the 48th Infantry Brigade—roundout unit of the 24th Infantry Division (Mechanized)—was in keeping with the Department of Defense goal of equipping units, regardless of component, in a way that would ensure organizational integrity, maintenance compatibility, battlefield interoperability, and single-generation supply support. As the year closed, the 2d Armored Division's ARNG roundout battalion was preparing to receive the Abrams tank and Bradley fighting vehicle as part of the upgrade program. New communications equipment was being issued, armored personnel carriers equipped with TOW missiles were received in exchange for vehicles without these missiles, and weapons like the self-propelled howitzer were being converted to more advanced capabilities. Aircraft were also being upgraded along with the ground equipment.

Organizational clothing and equipment received its share of attention in the upgrading process. Fiscal year funding was allocated to procure chemical defense equipment, cold weather clothing and equipment, camouflage screen systems, tents, tool sets, binoculars, and medical items, all necessary to prepare military forces to carry out their mission. In the area of command and control, the Worldwide Military Command and Control System was fielded at mobilization sites operated by the Army National Guard.

The Army Reserve's equipment status also improved during the year. The budget contained $112 million to equip units earmarked for the Rapid Deployment Joint Task Force, $12 million for stock fund equipment associated with force structure changes, and $33 million to outfit early deploying units. As with the ARNG, the USAR purchased chemical and cold weather equipment, and began outfitting unit personnel with the new battle dress uniform.

Trucks and fork lifts were added to the inventory, and the first USAR decentralized service support system, providing data processing to combat service units, was delivered in March 1982.

Despite progress in equipment acquisition, there were serious shortages in USAR wartime requirements as the year closed. An improved personnel picture also drew attention to equipment levels because of expanded training needs.

Regarding mobilization and wartime requirements, the Chief of the Army Reserve estimated early in the year that the USAR lacked about 1,200 tanks, 2,100 five-ton trucks, 210 aircraft, and 230 pieces of artillery—which added up, along with other needs, to shortages in excess of $4 billion.

Although dedicated appropriations—money appropriated by Congress for specific individual components—contributed to reserve force readiness, Army budget personnel found that separate funding was more difficult to track than a single Army procurement appropriation that was administered for the total force on a first-to-fight basis regardless of component. Separate funding made supervision of the overall equipment program more complicated for the Army managers, and units did not receive equipment in order of priority.

Facilities and Construction

Like their active Army associates, the reserve components require armories, warehouses, offices, logistical centers, and training areas, and funds are needed to purchase, construct, operate, and maintain these facilities.

In fiscal year 1982 the Army National Guard received $67.7 million in new obligational authority for facilities and construction, the largest such appropriation in ARNG history. Despite this allocation, a construction backlog of an estimated $800 million existed at year's end. Contracts were awarded for 57 major projects totaling $36.5 million, 24 minor projects costing $2.3 million, $400,000 for energy conservation projects, and $700,000 for security and other type projects.

The 1982 construction appropriation for the Army Reserve totaled $65.2 million; coupled with $13.5 million in funds carried over from previous years, this left $78.7 million available for obligation, of which $50 million was committed by year's end. USAR estimated that replacing obsolete or deteriorated facilities would require $898 million—an increase of some $560 million over the backlog of a decade before.

Support to Civil Authorities

Fiscal year 1982 was another active period for the Army National Guard as it responded to emergencies throughout the United States and its territories to assist in the protection and preservation of life and property and to maintain order. From October 1981 through September 1982, over 10,000 National Guardsmen responded to 316 call-ups in all of the states and territories, which made use of their organization and discipline as well as their training and expertise to deal with various civil emergencies.

There were six civil disturbance call-ups in as many states in 1982, requiring 492 soldiers to control antinuclear demonstrations against power plants and laboratories and to restore or maintain order in prison disturbances and strikes.

Natural disasters produced a hundred call-ups involving forest fires; snow, ice, and wind storms; tornadoes; and floods. There were search and rescue operations, medical evacuations, chemical spills, water hauls, power outages, structural fires, a train derailment, and three incidents involving explosive ordnance disposal to challenge Guard capabilities across the board. All of the states and more than 8,500 troops were involved in these operations.

The Guard's widespread role in emergency situations and its active participation in public service activities at the community level enhanced its standing with the American public and increased citizen understanding of ARNG's place in the national defense picture.

Given the realities of state government—the common defense must take its place among other constituents of national life and military forces must share in finite resources—the reserve components fared reasonably well in fiscal year 1982. The Army National Guard and the Army Reserve ended the year with improved readiness and with the prospect of increasing their preparedness through measured annual appropriations in the coming years.

7

Organization and Management

Organization

John O. Marsh, Jr., was appointed Secretary of the Army on 30 January 1981. Secretary Marsh, a man with distinguished military and political credentials, and his principal deputies had initiated several actions which, by October 1981, had begun to improve the morale and organization of the Army staff. Authority was decentralized as far as practicable, and action officers were encouraged to come up with innovative concepts and to participate fully in the decision-making process. The Army's top leaders indicated clearly their own priorities and provided timely guidelines and directives. These actions facilitated progress. For many young action officers a Pentagon assignment became a rewarding, if exacting, experience; they knew they would have to live with the results of their projects when they were transferred to the field.

During fiscal year 1982 several organizational changes occurred within the Army secretariat. Effective 22 November 1981, a new Senior Executive Service (SES) position was established in the Office, Assistant Secretary of the Army (Research, Development, and Acquisition). This new position was substantially an extention of the existing Deputy Assistant Secretary of the Army for Research and Development. However, the position now serves as a Principal Deputy (Research, Development and Acquisition). In essence, the incumbent Dr. Amoretta M. Hoeber wears two hats. Still pending is a legislative proposal by the Department of Defense to authorize another assistant secretary of the Army position.

The Army Broadcasting Service (ABS) was established 1 June 1980, under the office of the Chief of Public Affairs, in response to a DOD directive telling the secretaries of the military departments to consolidate management and control of their American Forces Radio and Television Service (AFRTS) outlets. Effective 1 October 1982 the ABS and all Army AFRTS outlets were combined under one table of distribution and allowances (TDA).

There were significant functional realignments within the Army staff. As reported last year, in October 1980 the Army established the Performance Management of the Army Staff

(PMAS) program under the Director of the Army Staff to assess the progress of the staff as a corporate body in accomplishing common objectives. Six common objectives were selected for the staff: manning the total force, training the total force, structuring the total force, mobilizing and sustaining the total force, managing modernization, and improving staff procedure. Also last year, a decision was announced in May 1981 to realign and integrate command, control, communications, and computer (C4) management within the Army staff. Accordingly, in October 1981 the Army created the Office of Assistant Deputy Chief of Staff for Operations and Plans for Command, Control, Communications, and Computers (OADCSOPS–C4) headed by the previous Assistant Chief of Staff for Automation and Communications (ACSAC). The Office of the Assistant Chief of Staff for Automation and Communications (OACSAC) merged with the Command and Control Division of the ODCSOPS Requirements Directorate.

A review of Army management duties in the Management Directorate of the Office of the Chief of Staff led to a realignment of functions between the Management Directorate and the Office of the Comptroller of the Army (OCA). The transferred functions highlight the role that OCA plays in improving efficiency—primarily in the areas of review and analysis, management analysis, installation management, and special resource management analyses, including commercial activities. The Management Directorate retained responsibility for overall management doctrine; base reduction, realignment, and closure actions; and field operating agency management. Realignment began in April 1982 and was completed in August 1982, resulting in dissolution of the Army Management Division and its replacement by the Resource Management Directorate, OCA.

During the current fiscal year thirteen base realignment studies or actions were at varying degrees of completion. These studies fell into three groups: studies in progress, studies complete with decisions pending, and realignments already implemented.

Five studies are almost done that determine whether routine support functions for two or more installations could be provided by a single facility. These studies are evaluating the feasibility of consolidating Anniston Army Depot and Fort McClellan, Alabama; Fort Bliss, Texas, and White Sands, New Mexico; Fort Monroe and Fort Eustis, Virginia; Fort Ritchie and Fort Detrick, Maryland; and installations in and around Washington, D.C.

Studies have been completed and decisions are pending regarding the retention of Fort Indiantown Gap, Pennsylvania, and Fort Sheridan, Illinois.

Three decisions were announced which resulted in realignments being completed during this period. The operation of the Navajo Army Depot was turned over to the Arizona National Guard, thus releasing federal assets to meet other requirements. Basic training was terminated at Fort Gordon, Georgia, and transferred to other Army training centers. Additionally, the 1st Battalion, 55th Air Defense Artillery, was moved from Fort Bliss, Texas, to join its parent division at Fort Polk, Louisiana. The realignment previously announced at Fort MacArthur, California, was completed on 1 October 1982, and the installation was placed on inactive status.

The Army is reevaluating possible locations for consolidating Headquarters, U.S. Army Intelligence and Security Command. The original decision to consolidate at Fort Meade, Maryland, was reversed. Subsequently, the Secretary of the Army announced his decision to consolidate the Intelligence Threat Analysis Center at the Washington Navy Yard.

Implementation of the previously announced action to move the aircraft maintenance activity from New Cumberland Army Depot to Corpus Christi Army Depot has been delayed while questions raised by the House Appropriations Committee's Security and Investigation Team are being studied.

No further action has been taken by the Army on the proposed closure of Fort Wadsworth, New York. Action has been deferred pending resolution of litigation in Federal District Court in Brooklyn over disposal of the property.

The Director of the Army Staff ordered that the Army Force Modernization Coordination Office (AFMCO) be placed temporarily under the operational control of the Deputy Chief of Staff for Operations and Plans (DCSOPS), effective 16 October 1981. The chief, AFMCO, was designated special assistant to the DCSOPS for Modernization, although he was still assigned to OCSA.

No AFMCO spaces have been allocated to the new ODCSOPS directorate pending a review of recommendations made by a special inspector general task force on modernization, discussed elsewhere.

The Armored Combat Vehicle Technology (ACVT) System Management Office was dissolved as a part of Office of the Chief of Staff, Army (OCSA), on 30 March 1982. Headquarters, Materiel Development and Readiness Command (HQ DARCOM), and the Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA) assumed management and oversight of the program.

There were several significant changes and realignments of functions within ODCSPER. In order to reduce fragmentation of the training and development function and place it under the supervision of a member of the Senior Executive Service, to reduce overhead, and to accommodate reduced manpower authorizations, the Training and Development Office was closed. Its policy functions are being integrated with related duties in the Staffing and Career Management Office. Functions of a nonpolicy nature will be assigned to the U.S. Army Civilian Personnel Center to incorporate them with other operational training and development duties. In addition, the Staffing and Career Management Office was redesignated the Staffing, Career Management, and Training Office.

After six recommendations were proposed by the Family Action Committee to the Chief of Staff, the Family Liaison Office (FLO) was established in January 1982 as part of the Office of the Deputy Chief of Staff for Personnel (ODCSPER). Its main tasks are to advise the Deputy Chief of Staff for Personnel (DCSPER) on military family matters; to coordinate programs and develop policy for improving the quality of family life in the Army; to provide for communications with the Army in the field and a forum for conferences, symposia, and colloquia to stimulate new policy considerations; and to collect and maintain a central repository of information, data, research, and demographic projections related to Army family life. Under this charter, the FLO serves as a link between Army families in the field and Headquarters, Department of the Army. Further information can be found on page 106.

The Inspector General's agency and office underwent several significant structural changes during fiscal year 1982. These resulted from a mission analysis which led to a fundamental change in operating philosophy. During the period September to December 1981, a study was conducted on the effectiveness of the flow of information inside and outside the Inspector General (IG) system. Concurrently, an IG team studied Army systems and force modernization and their relationship to operations. The findings of both studies revealed a lack of coordination and synthesis as well as little analysis.

As reported last year The Inspector General determined that a new inspection philosophy was necessary to achieve meaningful improvement in Army and IG operations. The stress on inspections was moved more completely away from monitoring a unit's compliance with policies toward a total systems approach aimed at resolving problems which may be discovered first at the

unit level. Unit deficiencies may actually be manifestations of policy defects at far higher levels. Inspections should reveal such defects and follow through the entire Army system to find solutions (the systemic approach).

Team findings, combined with the change in operating concepts, caused The Inspector General to direct internal restructuring. Additionally, he called a moratorium on DA level inspections while DAIG members studied Army systems in order to conduct effective systemic inspections.

To make better use of information available in the DAIG system, the Information Management and Analysis Division was created. This division provides automation support to the agency. It is also the focal point for analyzing DAIG acquired information and developing DAIG's major issues concerning Army activities. In conjunction with the Audit and Inspection Followup Division, it monitors data for trends and recurring problems and makes recommendations for proper action to The Inspector General. A similar program was begun in the Assistance Division regarding the analysis of complaint data.

Another new element created as a result of the mission analysis was the Force Modernization Division. Based on the team which analyzed Armywide systems, it is the primary point for training agency personnel in system relationships and their effects and for identifying and demonstrating their dependency. Beginning with FORSCOM in September 1981, at its commander's request, the division conducted systemic inspections worldwide to define the effect of diverse systems on each other and to demonstrate the need for their coordination. Additionally, it developed techniques of inspection to be used by all inspectors general. As fiscal year 1982 closed, the division was designing a training program for inspectors to be given before a series of test inspections.

The systemic concept was also expanded to the Training Management Inspection Division. Based on priorities established by the Chief of Staff, the division conducted inspections in the areas of mobilization and training standardization. Regarding mobilization, emphasis was placed on the expansion of the training base and the effect this would have on facilities and scheduling.

The Technical Inspections Division acquired more responsibilities with the addition of chemical security evaluations. In November 1981, the Vice Chief of Staff directed DCSOPS and The Inspector General to monitor more closely management of the chemical security programs of the major commands. To accomplish this, DAIG would monitor and evaluate inspections and

their results. The agency would also evaluate the management of all organizations with chemical security or support responsibilities. DCSOPS would have overall management responsibility for the Chemical Security Program and would establish standards.

In summary, during fiscal year 1982, The Inspector General's office and agency underwent a fundamental change in inspection philosophy, completing the move from a compliance to a systemic approach. This change resulted from studies of IG information flow and of the effect of Army systems on each other. Additionally, two new divisions were created to accommodate the change, and the systemic approach was adapted to the operations of all other DAIG divisions.

Management Information Systems

VIABLE (Vertical Installation Automation Baseline), is an Armywide effort to obtain modern and efficient automated data processing (ADP) equipment to replace existing 1960s technology based on obsolete IBM 360s. It will significantly reduce the time needed to process forty or more functional management information systems of common base support operations (BASOPs).

Col. Clinton H. Black, the U.S. Army Computer Systems Command Project Manager for VIABLE, announced on 19 April 1982 that the Electronics Data Systems Corporation (EDSc) had been awarded the contract for designing, developing, and operating Project VIABLE under the supervision of his office.

EDSc received $16.6 million for the first year of a projected ten-year, $600 million contract that will revolutionize the Army's automated data processing capabilities. Initially it will modernize information processing at forty-seven installations in CONUS, Alaska, Hawaii, and Panama with an option for twenty-three more during the ten-year life of the contract.

Colonel Black called the project "probably the largest, most complex automatic data processing program the government has taken on." It will give the Army the same kind of advanced computer technology found in private industry today and will carry the Army into the next decade technologically. "VIABLE," he said, "is desperately needed by the Army because data processing systems that now perform base support functions are overloaded and unreliable. We have technology that was old in the late 1960s. It gets balky and is hard to maintain. We have difficulty keeping up with data processing demands in peacetime, and lack the technology to support the Army adequately during mobilization."

"Project VIABLE will eliminate not only the problems we face today, but also those in the foreseeable future," he said. "It will give the Army an up-to-date, modern system to process supply, finance, and personnel information." This sophisticated network of computers talking to computers will replace the Army's antiquated stand-alone data processing methods. VIABLE will enable any computer in the network to access information in any other computer in the network, transferring vital data immediately wherever it may be needed.

The VIABLE contract represents five years of planning, developing, and testing begun under Col. James E. Love—Colonel Black's predecessor as project manager—who worked on the program for four and a half years. Over one hundred top military and computer experts from the U.S. Army Computer Systems Command—where the VIABLE project management office is located—the Army staff, and the major field commands teamed up to evaluate industry proposals.

In the first phase of the evaluation, the Army team reviewed each proposal to ensure that it met the Army's formally stated needs. This was phase I, which began in February 1981 and ended in June 1981 with the selection of two corporations to proceed to the next evaluation phase.

Phase II was a live test in which the two computer firms assembled their equipment and demonstrated their ability to meet or exceed the Army's needs.

Last December 1981, the competing firms made their last technical proposals to the Army. This was followed two months later by their best and final cost bids. The Army team used computers to select the best computer system: a life-cycle cost model helped to determine the initial cost to buy as well as the cost to operate each system over a ten-year period, before it selected EDSC.

Electronics Data Systems Corporation will establish and operate five government-owned, contractor-operated regional data centers (RDC). Two of these large-scale processing centers are already in operation, at Newington, Virginia, near Fort Belvoir and at Norcross, Georgia, near Fort McPherson. The other three will be located at Central State College, Killen, Texas, near Fort Hood; Radcliff, Kentucky, near Fort Knox; and Monterey, California, near Fort Ord. The regional centers will support forty-four distributed processing centers operated by the Army. Each system user will have access to large-scale computer software packages and to data sets from the regional centers.

The hardware equipment that will be installed under this contract will come from various manufacturers. Each regional

data center will have powerful computer capabilities—multilple Amdahl 470 central processing units, Storage Technology Corporation disk drives and printers, and NCR Comten front-end processors. This hardware will communicate with an IBM 4331 central processor at the local site. Each site will have hundreds of Raytheon terminals supported by the IBM 4331 computer.

The United States Army Computer Systems Command (USACSC), the Army's central design agency for management information systems, will receive the first new computers. The first IBM 4331 will be delivered to their computer center in Falls Church, Virginia, in August. The second one, scheduled for September, will go to their Support Group Lee at Fort Lee, Virginia. These computer centers will be supported by Regional Data Center No. 1 at Newington, Virginia. The next three IBM 4331 computers will be installed at the U.S. Army Forces Command, Fort McPherson, Georgia; U.S. Army Training and Doctrine Command, Fort Monroe, Virginia; and U.S. Army Health Services Command, Fort Sam Houston, Texas. They will be supported by Regional Data Center No. 2, at Norcross, Georgia. All five regional centers and local sites will be completed and functioning by mid-1985.

By the end of fiscal year 1982 the VIABLE project was on schedule, within budget, and running very well. EDSC was required by its contract to achieve a system reliability level of at least 98 percent for a thirty-day period, but the company proved it had a reliability leel of over 99 percent.

The proliferation of Management Information Systems (MIS) throughout the Army in the continental United States and overseas has created a serious dilemma for action officers at DA Headquarters who are responsible for the balanced development of personnel and materiel resources required by the Army force modernization programs. This year the Force Management Impact Analysis System (FMIAS) was established, and a mission element needs statement (MENS) under the terms of OMB Circular A–109 and AR18–1 was approved on 25 February.

The purpose of FMIAS is to provide HQDA action officers with rapid access to required resource management information to help them assess the impact of changes in the Army's personnel and equipment. The basic concept is to consolidate selected data elements from existing resource management systems into a single data base. A request for proposal (RFP) was released in August, and in September a software development contract was awarded to Presearch, Inc., of Arlington, Virginia; the contract calls for a functional description (FD) by December 1982 and delivery of a system design by February 1983.

Since October 1973, the Army has employed a system called ELIM–COMPLIP (Enlisted Loss Inventory Model–Computation of Manpower Programs Using Linear Programming) to reflect the current enlisted manpower status of the active Army and to project enlisted manpower variables seven years into the future. The results are used in budgeting, planning, using the training base, and setting recruitment objectives. Each year the Army makes refinements to ELIM–COMPLIP that improve enlisted loss projections and enlisted force management. Although a highly successful tool, ELIM–COMPLIP is limited because it actually computes only the enlisted force and cannot discriminate by grade or military occupational specialty (MOS). Officer computations are done externally and are manually entered into the ELIM–COMPLIP system so that they are available for the various reports the system produces. A five-year project is under way to develop a more comprehensive system called FORECAST—a multilevel, modular, integrated information system which will enable projection of active Army and civilian strength both in aggregate terms and by grade, skill, and unit. The system will provide an integrated approach for improved planning, programming, and budgeting and will improve the Army's ability to test the effects of alternative policies on the force. The system will be able to operate under conditions of peacetime, partial mobilization, full mobilization, and demobilization. During fiscal year 1983, the production version of the MOS-level subsystem should be completed and placed in operation. Contracts will be let next year to continue the development of the mobilization (enlisted) subsystem and the officer subsystem and for the budget module and the civilian subsystem. These subsystems are scheduled to be operational between fiscal years 1983 and 1987. When combined with the existing capabilities of FORECAST, they will enable the Army both to project peacetime strengths and to plan for and project strengths under mobilization conditions.

Development of the Manpower Evaluation and Tracking System (METS) continued this year as a management initiative to improve information available to support Army resources management and allocation. METS is a three-phase program to monitor the use of manpower resources. It compares data from the Army manpower, personnel, and financial accounting systems. This procedure will allow the Army to verify that manpower and related dollars are being spent according to the purposes for which they were justified and authorized. During phase I, which was completed in fiscal year 1980, the essential system structure

was established to demonstrate both the feasibility and the capability of the METS project. Part of phase II, completed in fiscal year 1982, furnishes data to manage the manpower-related resources of the total Army's manned units, including data for the active military at the grade and skill level. When phase II is completed in fiscal year 1983, METS will also provide civilian cost and work hour data at the management level. During phase III, METS will be expanded to give automated, remote access to the system by major commands and interested agencies. An upgraded programming system for the United States Army Reserve (USAR) became fully operational in fiscal year 1982. This system, entitled ARMPRO, supplies manpower planning, budgeting, and programming information for USAR troop program units similar to that provided by ELIM–COMPLIP for the active Army.

The Army's Force Development Integrated Management System (FORDIMS) is scheduled to be fully operational in December 1983, while its authorization subsystem and the budget system are already in operation.

Technical systems designing and programming of the Vertical Force Development Management Information System (VFDMIS), created to meet Army force and manpower management needs in both peacetime and wartime, continued throughout fiscal year 1982. A three-day walk through of the resources allocation increment was conducted in June 1982 to verify and correct functional requirements documents for this addition to the VFDMIS data base. One hundred personnel from Army staff agencies and all major commands (MACOMs) participated. As a result of the System Development Review, held in September 1981, the product manager was trying to solve two major problems. The first one was to find a way to provide user access from unclassified remote terminals to a classified data base with assistance from Intelligence and Security Command (INSCOM). The second problem was to determine equipment requirements. USACSC and United States Army Communications Command (USACC) were both helping in this effort. In July 1982, an in-depth review of the VFDMIS concept began as well as an evaluation of the ability of the Vertical Installation Automatic Baseline (VIABLE) to support the VFDMIS requirement. By the close of the reporting period, conclusions had been reached confirming the VFDMIS concept but requiring further evaluation and cost analysis of the use of VIABLE by VFDMIS.

The Vertical–The Army Authorization Documents System (VTAADS) and Installation–The Army Authorization Docu-

ments System (ITAADS) have been developed and operated by USACSC for DCSOPS. VTAADS provides a management reporting capability in addition to its primary function of furnishing documentation of organizational structure and unit requirements as well as authorization for personnel and equipment. Approval and control of these authorizations are centralized at Headquarters, Department of the Army.

ITAADS was extended to the following locations during fiscal year 1982: Fort Irwin, California; U.S. Army Southern European Task Force, Vicenza, Italy; USA Depot, New Cumberland, Pennsylvania; USA Depot, Tobyhannah, Pennsylvania; USA Depot, Anniston, Alabama; USA Depot, Red River, Texas; USA Depot, Corpus Christi, Texas; and USA Depot, Sacramento, California.

TAADS is currently operational at 17 major commands (VTAADS) and 65 installations (ITAADS), totaling 82 data processing sites worldwide. In the logistics area the Standard Army Ammunition System Level 3 was successfully verified by MACOM representatives and was installed in Korea. The Standard Army Intermediate Level Supply System–Expanded (SAILS–ABX) completed its last extension and was fully operational at 54 sites Armywide. The Direct Support Level Standard Supply System continued its expansion at the divisional level and was successfully verified for use at nondivisional direct support units on new van-mounted mini computers. Development continued on such systems as the Standard Army Maintenance System and the Standard Property Book System, which are scheduled for extension in the mid-1980s. Major efforts were made by the logistics design centers to adapt existing systems to incorporate new source data automation afforded by bar-code scanning and to use the new data processing capabilities provided by the extension of the VIABLE computers. These computers will replace out-of-date hardware at the major Army installations.

Another important materiel information system is the Decentralized Automated Service Support System (DAS3). This is a tactical transportable computer system intended to automate manual operations or upgrade currently automated operations of active and reserve component units within the Combat Service Support (CSS) community. Each DAS3 will reflect the personality of its particular resident software. A large variety of software applications will address CSS functions of supply, maintenance, personnel, financial, ammunition, medical, transportation, and port operation management.

The first contract for the DAS3 was let on 28 April 1979 to the Management and Technical Services Company (MATSCO),

a subsidiary of General Electric Corporation. Initially fourteen prototypes were built, followed by the first production deliveries in December 1980. There are two DAS3 configurations currently planned: an A model and a B model. Both include Honeywell Level 6 Model 47 computers and peripherals mounted in a single 35-foot-long semitrailer van. The two configurations differ in the mix of peripherals, the amount of computer memory, and the inherent communications capability. The A model, currently in production at a rate of six per month, is intended for non divisional use by direct support and general support units as well as by ammunition and medical units. Current plans call for the production of 211 A models (including the 14 prototypes). The B model, scheduled to start deliveries in October 1983 at a rate of four per month, is intended for divisions, separate brigades, personnel units, and Military Traffic Management Command ports. Four test sets and 260 production sets are to be acquired.

There were also major developments in management information systems of Army medical activities and installations, which attracted the attention of some nonmedical property accountability activities.

During fiscal year 1981, efforts were made to extend the recently developed system change package (SCP) 05 to the Army Medical Department Property Accounting System (AMEDDPAS). This package represented a complete redesign of the AMEDDPAS in order to take advantage of state-of-the-art changes in software design, to correct major deficiencies in the previous AMEDDPAS programs, and to improve the capabilities of the system. SCP 05 offered a complete property management package to include property accounting, centralized visibility, equipment forecasting, automated inventory, and maintenance management modules.

A total of sixty-six medical activities, including both hospitals and research and development activities, were transferred to the AMEDDPAS system change package 05. On-site training was conducted by teams from the U.S. Army Health Services Command and the Medical Functional Requirements Group of The Surgeon General's Office. In addition, AMEDDPAS was extended to one nonmedical activity in fiscal year 1981. In May 1981 U.S. Army Western Command (WESTCOM), Fort Shafter, Hawaii, requested implementation of AMEDDPAS to automate its property management function. In July, WESTCOM became the first nonmedical organization to install AMEDDPAS.

SCP 05 was extended to the remaining ten medical activities that were scheduled to receive the system. In September 1982,

the U.S. Army Community Hospital in Seoul, Korea, changed from a manual property book to the AMEDDPAS. With this conversion, all Army fixed TDA medical treatment facilities worldwide were operating under AMEDDPAS programs except for the hospitals in SHAPE, Belgium, and Livorno, Italy. All activities of the Medical Research and Development Command had also incorporated the AMEDDPAS to automate property books.

Because of its successful use at WESTCOM in fiscal year 1981, the automated inventory capability using bar-code technology, and the lack of any other readily available automated property system, AMEDDPAS grew in popularity among other major Army commands. During the year, the system was implemented for the installation property books at Fort McClellan, Fort Stewart, and Fort Hood; for the facility engineer, bachelor housing, and family housing property books at Fort McClellan; and for the U.S. Army Japan (USARJ), the Southeast Commissary Region at Fort Lee, and the Army Communications Command, Hawaii. Based on the success of the system, the Troop Support Agency (TSA), Training and Doctrine Command (TRADOC), and USARJ have adopted the AMEDDPAS as a standard property management system and have made plans for full implementation at all subordinate TDA activity property books.

As mentioned above, the ability to perform equipment inventories using the kind of bar codes common in supermarkets was incorporated in AMEDDPAS. The use of bar coding to inventory property assets had been first investigated by OTSG in 1978, and a decision was made to integrate the technology in AMEDDPAS in the next major systems change package. Development of this concept was coordinated with the DOD's steering group for Logistics Applications of Automated Marking and Reading Symbols (LOGMARS), formed in 1976 to identify and standardize bar-code applications. The idea behind an automated inventory is that each item of equipment is assigned a unique control number in the AMEDDPAS data base and affixed with a label containing the number in bar-code configuration. A programmable bar-code reading device is used to scan and store the number on each piece of equipment within a given area. The collected data is then transferred to a computer over a telephone line where it is processed against the AMEDDPAS data base and a listing is generated to provide managers with a report of the results. This bar-code application is used not only in the government but in the commercial sector as well.

A test to determine the savings, if any, offered by the inventory of property using bar-code technology versus conventional methods was conducted at the Fort Stewart, Georgia, Medical Department Activity in March 1981. The results of the test showed an average time reduction of 67 percent using the bar-code concept. In addition, data collection was more accurate, and personnel with less experience in property management could be used to conduct inventories.

Action to extend bar-code inventory to three additional sites—the Armed Forces Institute of Pathology (AFIP), the Fort Campbell Medical Department Activity, and Brooke Army Medical Center—was begun in fiscal year 1982.

Close coordination continued with the LOGMARS steering group. Equipment and ancillary supplies and services for all Department of the Army bar-code applications were procured through the DOD Productivity Incentive Funds (PIF). As an adjunct to this, centralized procurement was recommended as the best way to obtain the economies of a large purchase. To support this action, AMEDDPAS requirements and equipment specifications were prepared and presented to the steering group so the procurement action could be started as close as possible to the release of fiscal year 1983 PIF money.

A prototype system for electronically transmitting supply orders from hospitals in Europe to commercial suppliers in the United States was developed with the cooperation of the Defense Logistics Agency and the U.S. Air Force. The system relies on electronic processing of purchase requests through the military worldwide communication network to a transfer site in the United States. At this site, the message is automatically switched to the commercial teletype network and sent direct to the supplier. The supplier ships the materiel directly to the requesting overseas unit, using either commercial transportation or the DOD system, as appropriate. At the same time, the supplier electronically advises the customer unit of the action taken on its supply order.

In the area of military operations the major emphasis was on the Military Computer Family (MCF), a project to develop standard embedded automated data processing equipment (ADPE). Development contracts were awarded to four contractors: General Electric–TRW, RCA, Raytheon, and IBM. The IBM Corporation experienced cost increases and project delays, which caused its contract to be terminated by the Army. The remaining contractors were on schedule and within budget allotments.

MCF was being developed in accordance with DOD Instruction 5000.5X, Standard Set Architecture for Embedded Com-

puters. A congressional review raised issues about the impact of the concepts in the policy: (1) the policy could lock DOD into the use of inferior technology, (2) DOD might not be able to take advantage of industry's technological innovations, and (3) the policy would restrict competition. The Army decided the MCF could continue without DOD Instruction 5000.5X. However, Congress requested OSD to conduct a study during fiscal year 1983 to determine the following: applicability of commercial off-the-shelf technology to defense missions; available standardization alternatives and their cost and impact on software portability; potential for functional standardization across military services; and plans to reduce computer proliferation.

The responsibilities of the Army Automation Security Program (AASP) were expanded in September by the Defense Intelligence Agency to include reaccreditation of contractor sites operating highly classified systems. This process gives the Army a visibility at all of these sites, which the Assistant Chief of Staff for Intelligence (ACSI) did not have before. Accreditation of Telecommunications Centers (TCC) operated by the Army became a reality with the accreditation in April of the TCC in Vicenza, Italy. Both these activities reflect continued growth and acceptance of the AASP, thus increasing confidence that these systems are capable of processing classified information as designed.

OACSI participated in developing the charter for the DOD Computer Security Center. This involvement is important since the center will have long-range impact upon the Army's security programs, especially in the critical area of multilevel security and development of security standards.

OACSI continued as a member of the Quadripartite Working Group on Automation Interoperability of the American, British, Canadian, and Australian (ABCA) armies. Participation included writing a Category III concept paper entitled "Impact of Technology on Security Aspects of Automated Tactical Command and Control Systems" and a Quadripartite Standing Agreement entitled "Principles and Characteristics of Interoperability Security." These documents formed the foundation of security for ABCA tactical command and control systems.

AASP resource management improved with a decision in April by the Army Select Committee to establish a Program Development Increment Package (PDIP) for automation security functions. This action will provide visibility over all resource requirements for the AASP.

The replacement of obsolete automated data processing systems by Project VIABLE and FORECAST was followed by the

initiation of a similar program for revitalizing the Worldwide Military Command and Control System (WWMCCS). WWMCCS is the composite of command and control center facilities; selected warning systems; automated data processing facilities; interconnecting voice, record, and data communications; and procedures, displays, and people that provide the means for command of military forces—from the national command authorities to the military commanders. The WWMCCS automated data processing (ADP) program involves data collection and processing capabilities within the Army's WWMCCS facilities. These ADP systems have been in place, with some improvements, since the early 1970s. The first steps have been taken to develop a mission element needs statement, or the equivalent definition, of the overall requirements to replace this equipment with ADPE, based on today's more advanced and sophisticated data processing technology.

Financial Management

Although Congress is supposed to enact appropriations legislation before a fiscal year begins, it has a long history of not doing so. The Army's fiscal year 1982 appropriations were no exception. The fiscal year 1982 Defense Appropriation Act was not passed until 29 December 1981, almost three months after fiscal year 1982 officially began (1 October 1981). During this time a continuing resolution authority (CRA) served as an interim measure until fiscal year 1982 Defense appropriations were passed. The CRA delayed Army spending by keeping it at fiscal 1981 levels and by placing a hold on new starts. On 10 September 1982, the Military and Civilian Pay Supplemental was passed, completing the appropriation for fiscal year 1982.

Table 8 is expressed in terms of current authorized obligations, while the Army's actual expenditures include obligations incurred in previous fiscal years. Overall obligation performance was good. The obligation shortfall occurred because a portion of the planned program supplemental was not received. Outlays were within the acceptable range. The total variance was attributed to either not receiving the program supplemental or receiving it too late, to reprogramming actions which were not in the budget, to favorable foreign currency fluctuations, and to deobligations and obligation shortfalls during much of the year.

While simultaneously closing out fiscal year 1982, the Director of the Army Budget, Brig. Gen. Harold J. Davis, Jr., issued a statement on 30 September explaining the status of the Army's

TABLE 8—OBLIGATION AND OUTLAY STATUS
30 September 1982
(in millions of dollars)

Category	Obligations			Outlays		
	Planned	*Actual*	*% Variance*	*Planned*	*Actual*	*% Variance*
Military Personnel . .	16,779	16,772	0%	16,459	16,456	0%
Operations	19,151	18,817	−1.7%	16,887	15,456	−8.5%
Procurement	14,768	14,759	0%	8,692	8,386	−3.5%
RDTE	4,253	4,303	+1.2%	3,366	3,229	−4.1%
Construction	1,868	1,849	−1.0%	869	877	+ .1%
Funds and Accounts	12,150	11,862	−2.4%	−249	−179	+28.1%
Total	68,969	68,362	− .9%	46,024	44,225	−3.3%

fiscal year 1983 appropriations bill. The Senate Appropriations Committee reduced the Army budget request by almost $4 billion— from $58.5 billion to $54.7 billion, or by 6.5 percent. Despite this large reduction, the Senate's approved funding level for fiscal year 1983 exceeds the current fiscal year 1982 budget by almost $3.5 billion, or 5.8 percent. Only the Ammunition Procurement Appropriation showed a decrease compared to fiscal year 1982 levels. The appropriations showing the greatest percent reduction from the requested amount included Aircraft Procurement (−11.0 percent); Procurement of Weapons and Tracked Combat Vehicles (−11.5 percent); Procurement of Ammunition (−19.4 percent); and RDTE (−14.8 percent). The Authorization Joint Conference reductions of Cooperhead and chemical ammunition and the Senate Appropriations Committee decision not to fund the Viper were major factors in the severe 19.4 percent overall reduction in ammunition procurement.

In fiscal year 1982, three new accounts were established: an Army procurement appropriation for National Guard equipment; a revolving fund, the Army Conventional Ammunition Working Capital Fund, which was created to finance the manufacture and sale of conventional ammunition; and an allocation received from DOD for research into infectious disease in India. These three funds increased the number of accounts managed by the Army to forty-four.

Effective with fiscal year 1982 the Operations and Maintenance accounts were subject to review and approval by the re-

spective armed services committee (authorization process) in addition to the House and Senate appropriation committees.

Execution performance data was added to the Planning, Programming, and Budgeting System (PPBS). The amended process is retitled the Planning, Programming, Budgeting, and Execution System (PPBES). The initiation of quarterly reviews, called the Program Performance and Budget Execution Review System (PPERS), enabled the Army staff to make better functional assessments of program and budget execution data.

A Special Defense Acquisition Fund (SDAF) was established by DOD. Foreign Military Sales (FMS) proceeds for one-time costs (for example, non-recurring costs and asset use charges), formerly turned over to the U.S. Treasury, are now being deposited into the SDAF and will be used to begin procurement action in anticipation of FMS customer requirements.

In support of the President's program to eliminate waste throughout the entire federal government, the Army established and implemented the Economies, Efficiencies, and Management Improvement (EEMI) program as well as the Debt Management Plan. The EEMI aim is to capture bona fide auditable savings from actions taken to streamline operations thereby reducing costs. Money saved can then be used to finance priority, unfunded requirements Armywide. The Debt Management Plan called for an aggressive attempt to identify all monies owed to the Army and to improve the rate of collections. The Office of Management and Budget (OMB) directed that the Army improve this rate by $12.5 million, which the Army has done.

The Army's major commands have been developing plans to carry out the EEMI program. For example, TRADOC has established Project SPIRIT (Systematic Productivity Improvements Review in TRADOC), which consolidates the management of many current activities in such areas as manpower and equipment surveys; waste, fraud, and abuse; energy conservation; and capital investment. DARCOM's Resource Self-Help and Affordability Planning Effort (RESHAPE) is aimed at increasing the productivity of the work force by using initiatives such as carefully monitored overtime and overhire, capital investment, and profit sharing. FORSCOM has been advancing the Army's Summary Level Standards Program and plans to complete standards for all functions of the Directorate of Industrial Operations by the end of calendar year 1982.

A new data base, Force Modernization Reporting System (FORMS), is in use at major Army commands accumulating and reporting operation and support costs by weapons systems for the Army's Force Modernization Program.

In fiscal year 1982, 25 percent of the profits from the sale of lumber and timber products on military installations was turned over to the states by the Army. Beginning in fiscal year 1983, the Army will be DOD's executive agent for the Lumber and Timber Products Program.

The Army Procurement Appropriation module of the Program Budgeting Accounting System (PBAS) became operational in fiscal year 1982. This first of fourteen PBAS modules was a major step toward increasing the ability of the Comptroller of the Army to respond to Army staff requests for financial data.

In response to Secretary of Defense Weinberger's call for substantial reductions, the Army in February 1981 identified the following as areas in which significant savings could be achieved: procurement; consolidation and realignment of functions; distribution and use of manpower training; statutory and regulatory reform to permit, for example, multiyear contracting; management in such areas as transportation and logistics; and capital investments that improve productivity.

A framework for the identification, integration, and improvement of cost savings activities was announced in an HQDA action plan issued in December 1981. In approving the plan, the Chief of Staff encouraged the entire Army community—active, National Guard, Army Reserve, civilian employees, and family members—to develop a positive cost-saving attitude. The plan makes the Comptroller of the Army responsible for managing the documentation and integration of savings data into Army planning, programming, budgeting, and execution processes.

The Army is expanding its proven Capital Investment and Value Engineering programs. Returns on investment of between ten to one and fifteen to one have been realized in these programs. Pursuant to DOD guidance, the Army is planning to conduct efficiency reviews of all in-house activities that are not studied under the Commercial Activities (CA) program. This will involve on-site evaluations of processes, procedures, organization structures, missions, functions, resources, facilities, and equipment to identify means to improve operations, performance, and efficiency.

During fiscal year 1982, the Capital Investment programs have continued to serve as major pillars in the Army's Economies, Efficiencies, and Management Improvement program. Investments of $33 million approved under the Quick Return on Investment Program (QRIP) and OSD Productivity Investment Funding (PIF) are expected to result in savings and benefits exceeding $330 million during the economic life of the equip-

ment. Many administrative accomplishments have also been made regarding new policies and procedures for decentralized funding and transferral of project approval authority to the command level, which will become effective in fiscal year 1983. Fiscal year 1982 also marked the first year in which total integration of the Capital Investment programs into the Planning, Programming, and Budgeting System (PPBS) was achieved through the Command Operating Budget (COB) and Program Analysis Resources Review (PARR).

Value Engineering (VE) savings increased from $391 million in fiscal year 1981 to $457 million in fiscal year 1982. Savings from the approval of 1,311 in-house VE proposals produced an estimated one-year net savings or cost avoidance of $396 million, and the approval of 426 contractor VE change proposals resulted in savings of $61.5 million. The overall return investment from VE actions in fiscal year 1982 was thirty dollars for each dollar invested. A proposal was developed and approved to implement VE Armywide.

The implementation of Office of Management and Budget (OMB) Circular A–76 continued during the year. During the second quarter, OMB revised this circular to allow the use of simplified costing procedures. This alternative method helps reduce the time it takes to complete cost studies. OMB has started a total revision of Circular A–76, which is expected to be published during fiscal year 1983.

At the current rate of progress, the Army cannot complete all required cost studies by the end of fiscal year 1985, the deadline set by OMB. Several factors slowed the execution of this program. These included congressional concerns and legislative actions, overly protective policies with respect to commercial activities and small business program interfaces, not enough people trained in A–76 and Army acquisition procedures, rapid turnover of key personnel, and too many cost studies undertaken simultaneously. These issues and others are being addressed by the Commercial Activities Division as organizational objectives for fiscal year 1983.

The Deputy Secretary of Defense issued three directives on how to structure CA packages for cost study. On 15 October 1981, guidance indicated that these activities should be set up to take full advantage of the potential to contract them out under the A–76 program and to pursue aggressively strategies to improve contracting, consolidation, and productivity. The Army responded by consolidating commercial activities whenever logical and practical to meet the requirements of the installations concerned. Where consolidations were made, prospective con-

tractors were required to submit subcontracting plans along with their proposals to ensure that small business received a fair share of contract dollars spent. On 17 April 1982, the Deputy Secretary of Defense stated that his use of the word *consolidation* in his 15 October 1981 memorandum did not mean that he endorsed total base-services contracts to the extent that small and disadvantaged businesses were precluded from competition as prime contractors. This clarification allowed the Army to proceed with its strategy of using a balanced program. On 1 June 1982, the Deputy Secretary of Defense directed the armed services to package future solicitations so as not to preclude small and disadvantaged concerns as prime contractors. This major change in policy caused the Army to restructure its cost studies planned for fiscal year 1984 and to request that OSD restore the manpower spaces previously programmed as anticipated savings from commercial activities cost studies. An ad hoc committee has been established by the Assistant Secretary of the Army for Installations, Logistics, and Financial Management (IL&FM) to develop a policy which will enable the Army to accomplish all CA effectively and efficiently and still accommodate the goals of both the commercial activities and small business programs.

The fiscal year 1983 Defense Authorization Act, PL 97–252, made certain changes to the commercial activities program. Section 305 placed a six-month limited moratorium on the initiation of new cost studies (those which had not been announced to the Congress before 1 October 1982). Section 1111 set a one-year prohibition against entering into new contracts for firefighters and security guards during fiscal year 1983. Section 1112 removed cost study notification requirements for commercial activities with ten or fewer DOD civilian employees and eliminated these requirements entirely during mobilization.

During fiscal year 1982, the Army completed 70 cost studies of in-house activities: 39 of these studies showed in-house performance to be the most advantageous method, and 31 studies found contracting to be most cost effective for the government. As a result of these decisions, 1,070 civilian spaces and 188 military spaces were released for other Army requirements. These actions will also result in estimated savings to the government of approximately $37.2 million over the next three years.

In April 1980 the Logistics Division, Office of The Surgeon General, began action to protect certain active duty enlisted medical specialists from being reviewed under the CITA program. Studies indicated that even if all such actions were protected, there would still be shortages in certain medical specialties. An-

other complication is that all medical TOEs are being revised to increase the amount and sophistication of equipment assigned to field medical units. This will result in increasing the requirements for specialists trained to maintain the equipment. The Assistant Secretary of the Army (IL&FM) has already approved the exemption of medical logistics personnel from CITA cost-based reviews.

The Army Audit Agency issued several reports covering problems found at various installations. Actions on the audit report recommendations should result in improved management of resources at all levels of command. The agency made the following observations:

a. Maximum benefits were not being realized from operational tests of nonmajor materiel systems because of conflicting test and acquisition responsibilities.

b. New organizational clothing and individual equipment items were being introduced into the Army supply system that did not fully meet the user's requirements or were not tailored to actual needs.

c. Logistical planning for postmobilization repair parts support in Europe was outdated and did not reflect changes in troop strengths or equipment types and densities.

d. Army policy concerning female soldiers in combat did not fully recognize the geographic extent expected in modern warfare or the use of noncombat units in combat areas.

e. Army finance and accounting offices were not following cash management policies intended to produce significant savings in interest.

f. Improvements were needed in planning for personnel, training, product improvement, and logistics support for the Improved Hawk missile system.

g. Significant savings were possible by consolidating and eliminating mail transportation routes in Europe.

h. Acquisition of medical care support equipment for new facilities was not justified on the basis of historical workload and the population to be served.

i. Improvements in real property management were needed to reduce the backlog of maintenance and repair and to improve the soldiers' living, working, and training conditions.

j. Enlisted replacement personnel arriving in Europe were not assigned to the subordinate commands that needed them most.

The Army Audit Agency issued advisory reports to field commanders concerning civilian pay, medical management, reserve

component operations, club systems, and installation contracting. The common problems discussed in these advisory reports were within the means of installation commanders to correct or avoid through intensive management.

The Army Audit Agency also reviewed ninety-six commercial activity cost comparisons. The reviews identified the need for extensive adjustments to initial estimates of government costs used to decide whether to perform activities in house or by contracts. These reports helped ensure that decisions were based on realistic cost estimates.

The Army Audit Agency, together with other investigation, inspection, and audit groups, examined the potential for fraud in the Army and Air Force Exchange Service. Their reviews resulted in indictments and convictions of Exchange Service officials and vendors. Procurement prices were analyzed to gather audit evidence for fraud detection. When significant unexplained price fluctuations were found, audit results were passed to investigative agencies.

Records and Publications Management

Closely related to Project VIABLE is another ADPS project under The Adjutant General, announced by the ASA (IL&FM) in September, called the Installation Integrated Administrative Support System (IIADSS). A product manager office will direct the development, standardization, and management of automated administrative systems at Army installations and will prepare standard documentation of several labor-saving software packages already in use, including post locator, separation and transfer paperwork, military personnel office support, and publications management.

The Adjutant General along with the Soldier Support Center has sponsored a project this year called Personnel and Administration Concept Evolution (PACE) to automate selected administrative functions at Fort Lewis, Washington, through use of microcomputers, telecommunications, and an administrative support computer. The purpose of PACE is to develop the use of automated support systems in Army divisions.

This year the Administrative Management Directorate of TAGO sponsored a project to upgrade the administrative support systems of Army Civilian Personnel Offices (CPOs). The survey included a detailed requirements analysis of Army CPOs in the Washington area, a comprehensive study of the U.S. Army Civilian Personnel Center, and the design of model offices in the

field. Requirements for data processing, micrographics, word processing, and communications equipment were established in a nine-volume report. By the end of the fiscal year, most of the equipment had been installed in the Washington offices, and a project team was designated for worldwide implementation. The Army requested $22.5 million in fiscal year 1984 funds for 7,000 items of equipment through Productivity Improvement Funds, discussed earlier. Savings and benefits will be almost $100 million in time, paper, and postage.

The Adjutant General in December 1981 briefed the Reserve Components Coordination Council on the status of the effort to reduce the administrative workload. At the 1981 Division Commanders Conference, attending division commanders requested that the Reduction of Administrative Workload Program be extended to the active Army. Their request was approved by The Adjutant General, and surveys were conducted in 1982 to determine the extent to which administrative publications, forms, and reports were interfering with the efforts of active Army and reserve component unit commanders to train personnel and maintain equipment. Based on the findings of these and other published surveys, a concept paper outlining The Adjutant General's plan to institute a program to control the proliferation of administrative requirements on company-, battery-, and troop-level commanders was presented first to the Personnel Program Review Committee (PPRC) and then to the Army staff agencies and major Army commands for review and concurrence.

In July and September 1982, briefings that elaborated on the concept were conducted at most stateside and overseas major Army commands. A baseline report study on the number of Department of the Army publications distributed to unit-level commanders was prepared, published, and furnished to the Army Reserve Forces Policy Committee. This baseline report will also be presented to the Reserve Components Coordination Council in December 1982. Proliferation of administrative publications will be monitored, and decreases will be determined annually by comparing future inventories with the baseline report. Evaluations of these findings will be furnished to the individuals concerned.

In June 1982 a student study at the Army War College evaluated the manpower impact, procurement cost, and practical (publishing) considerations of the Department of the Army's system for issuing printed regulatory guidance to small units. The study found that the publications system resulted in slow communications for Army policy makers and a heavy manpower

burden on small units. It included persuasive evidence that using alternative publishing techniques would speed up printed communications and would sharply cut red tape without exceeding existing cost levels.

In lieu of the Army's standard page replacement or pen-and-ink change processes, the study endorsed adoption of information service techniques used in industry. These techniques build on electronic typesetting to assimilate changes directly into an established body of text. Updated text is then furnished to subscribers periodically as throw-away publications. This method requires no processing by the user to make the new information understandable.

Having participated as adviser for the War College paper, the Director of Army Publications invited the study's author, Lt. Col. R. F. Milwee, Jr., an Army reservist, to work with the Publications Directorate in developing an information service publication demonstration using the strategy recommended in the paper. Actual work began on 28 June 1982.

Sixteen personnel regulations published by the Reserve Component Personnel and Administration Center were selected to make up a test volume. Arrangements were made to use an electronic text-editing demonstration for electronically creating updated copy. With the close cooperation and assistance of the Government Printing Office's Superintendent of Procurement, printing specifications were developed for a product that will compare in every way to current sophisticated commercial information service publications—including their systemic efficiency and the economy which their production characteristics make possible, together with a production schedule guaranteed by a large bond not to exceed five days.

The cover date for the first volume has been set for 1 December 1982. Everything has been digitized, a dramatically more efficient copy layout has been developed, and every other milestone has been successfully reached. Estimates from the Government Printing Office indicate that the average page cost for the prototype *Update* publications will be less than 25 percent of the cost the Army now pays for standard format publications. Entered as second-class mail, projected postal rates will be about one-third of the usual mailing costs, though faster handling will be received. Composition tests indicate that two pages of standard format copy will fit on a single new-style page—without impairing readability, according to scientifically proven indicators. If this savings is verified when the text of all sixteen regulations has been composed, the potential for more savings in composition, printing, and postage costs will be demonstrated.

Considering the needs of Army policy makers, it is important to note that the complete publishing and production cycle of this prototype *Udate* publication is limited to a single month. Initial data base creation is not included. Such a turnaround would save about 80 percent of the time now consumed in the processing of standard printed communications. In this light, the ultimate promise offered by the demonstration is to reestablish a printing option for routine handling of urgent communications that originate at the Department of the Army level.

To provide low-cost written documents to the soldier in the field, TAGO is concentrating its efforts on making microfiche documents, which will replace bulky paper documents and provide additional space for storage of other publications.

The current DA Form 12-series that is used to project which publications the units in the field will need to receive is an area of major concern to TAGO. The many forms that need to be filled out by a unit are complex and require extraordinary effort to complete and maintain. The project to improve the 12-series was instituted to streamline operations, to make the process for obtaining new publications easier to understand, and to provide timely service. Once improvements have been made, they will be fully tested before being released to the field.

The Publications Center at Baltimore began a multimillion dollar warehouse modernization program which is expected to be completed in fiscal year 1986. The job of storing and issuing test materials and accountable blank forms was transferred to the St. Louis Publications Center, making it the sole source of supply for those items. In response to complaints from employees at the Baltimore Publications Center about poor working conditions in areas where packing equipment and storage pallets were involved, people and equipment were moved to a light industrial area within the center's warehouse where there was better lighting and air conditioning. At a cost of $250,000 the center's 1.7-mile conveyor system was modernized. This has improved the center's packaging system, eliminated equipment maintenance problems, reduced complaints, and provided additional storage space within the warehouse.

Personnel at the St. Louis Publications Center have developed a method of providing faster initial distribution of publications through the use of microcomputer technology. They are obtaining a robotlike machine controlled by a microcomputer which would determine the kind and amount of publications to be sent to a customer. The robot would pick up the customer's order, place it in an envelope, and send it through the postal

system. A robotlike Bell and Howell machine coupled with an Apple microprocessor has been selected, and the system should be fully operational within a year.

The Adjutant General Center's Publications Directorate has completed the first phase of its micropublishing program. During this phase, high standards and quality specifications were developed for Department of the Army microfiche publications and procedures, and means for producing them efficiently were generated. During the same period, 735 publications were produced and distributed in microfiche, including regulations, circulars, pamphlets, supply catalogs, and technical bulletins and manuals. They were distributed at a cost of $5.1 million. It would have cost $28.7 million to print and distribute them on paper. These publications are more quickly and easily produced, updated, revised, and mailed than their paper counterparts. On the average, distribution time is cut by two-thirds.

The Editorial Control Division continued its program to improve readability and limit the size of new Army administrative publications while reducing the number of existing publications. Efforts to improve readability resulted in reducing the overall reading grade levels of publications from an average of 18 to 11.4. Through editing, over 1,000 pages were deleted from new publications issued by HQDA; also, sixty-seven Armywide publications were either consolidated with other publications or were eliminated entirely.

Installation of an electronic printing system was completed in January 1982. Thirteen standard photocomposition formats were developed and tested for Army administrative publications. A standard locator code structure for these formats was created to minimize coding and data entry and to enable the data base to be moved easily from one vendor to another or to the Government Printing Office if required. In addition, documentation was developed to help new users understand the system. Formal operator training courses were conducted for the employees. Administrative procedures and records for processing manuscripts under the new system were also developed and documented. The development phase of the project was completed on 20 September 1982, and the production phase of the test, which will take two years to complete, was begun.

8

Logistics

In September 1977, when Secretary of the Army Clifford L. Alexander, Jr., and Chief of Staff Bernard W. Rogers first prepared the statement "Total Army Goals," they defined the materiel goal as "developing, fielding, and maintaining a balanced warfighting and sustaining capability." In the context of the times, with the Army aware of the need to modernize the force structure but with the new generation of weapons and support systems still largely on the drawing boards and even the most advanced ones not yet in the tactical units, the emphasis of the materiel goal on just obtaining equipment was understandable. By December 1981 when the Secretary of the Army, John O. Marsh, Jr., and the Chief of Staff, General Edward C. Meyer, issued the current statement "Total Army Goals," much of the new equipment had begun to arrive in the field. Consequently, the emphasis of the materiel goal shifted from obtaining equipment to using it. The reworked goal simply said: "A Total Army equipped and sustained to win any land battle."

At the end of the 1982 fiscal year General Meyer noted that the Army still faced serious problems in the logistics area. Some units lacked the equipment called for in their tables of organization. The introduction of new systems had only begun in 1982. Eventually the Army would have to field 583 new systems, a task "guaranteed to tax the imagination, innovation, and patience of the entire Army." Finally, he noted that, while the Army had made great strides in the past few years, maintenance management remained a problem. Army maintenance was, he observed, a "laborious, paper-intensive system." In 1982 the Army found no final solutions to these problems or related ones, but it did make considerable progress toward achieving the materiel goal as set forth by Secretary Marsh and General Meyer.

Management and Planning

The Office of the Deputy Chief of Staff for Logistics (ODCSLOG) last published DA Pamphlet 701–1, "Direction of Army Logistics (DIALOG)," in January 1981. Early in fiscal year 1982 the office discontinued it. Lt. Gen. Richard H. Thompson, the Deputy Chief of Staff for Logistics (DCSLOG), provided

broad direction for Army logistics, previously found in DIALOG, in an ODCSLOG white paper entitled "Logistics Directions for the 1980's." Published in April 1982, it identified and discussed nine logistics objectives that supported the seven Total Army goals outlined by the Secretary of the Army and the Chief of Staff on 7 December 1981. General Thompson incorporated specific projects and actions, called thrust items, previously identified for the ODCSLOG staff in DIALOG into an ODCSLOG Performance Management Program based on the nine DCSLOG objectives. As of the end of the fiscal year, the program consisted of a series of initiatives not yet codified into a single document.

In March 1982 the Chief of Staff appointed General Thompson as co-lead agent with the Assistant Secretary of the Army for Installations, Logistics, and Financial Management, Joel E. Bonner, Jr., for the Total Army materiel goal under the Performance Management, Army, program. They were responsible for identifying objectives, determining tasks, and setting milestones to support the goal. At the end of fiscal year 1982, ODCSLOG was in the process of specifying the tasks necessary to ensure achievement of the materiel goal and assigning offices to accomplish them.

The ODCSLOG program of studies makes analytical examinations to clarify problems, provide assessments, prepare alternative solutions, develop conclusions, make recommendations, and construct methodologies to measure performance in the general areas of installations and logistics. In short, the program exists to help decision makers. First developed in the 1970s, it consisted of twenty-two studies in fiscal year 1982, with thirty-three more planned for the following year.

On 1 April 1982 the Army redesignated the Logistics Studies Steering Group as the Logistics Studies Steering Committee (LSSC). Chaired by the Director for Plans and Operations in ODCSLOG, the committee consists of representatives from eighteen staff agencies and commands. Its primary function is to provide a forum at which the different agencies can compare what they are doing. They can eliminate studies which duplicate one another or, if the overlap is less, redefine or combine them. The committee met on 26 May 1982 and reviewed 166 in-process or planned Army studies—primarily ODCSLOG, DARCOM, and TRADOC studies—valued at more than $44 million. ODCSLOG published and distributed the results of the committee's deliberations in July.

Recent Army interest in reducing the administrative burdens and streamlining the procedures associated with property accountability dates from the work of the Property Accountability

Task Force in 1977 and 1978. During 1982, General Thompson reemphasized the subject. He identified the management and accountability of Army materiel as a high-priority issue. The Office of the Deputy Chief of Staff for Logistics initiated the Total Army Property Accountability Revitalization Program (TAPARP) to improve this function within the Army. The program included the review and revision by ODCSLOG of all Army regulations setting forth policy and procedures to account for government property. Other portions of the program included Proper Count II messages to inform commanders of ongoing property accountability initiatives, articles submitted to various Army publications, field visits by Department of the Army staff members, and assessments of the status of the property accountability program through the Inspector General Management Information System (IGMIS), the Army Audit Agency (AAA), and Command Logistic Review Team Expanded (CLRTX). Inherent in the revitalization program is the belief that the current property accountability system tends to reduce readiness by forcing the unit commander to focus time and attention on administration that would be better devoted to training.

Supply and Maintenance

During fiscal year 1982 the Total Army Equipment Distribution Program (TAEDP) received increased emphasis at all levels. TAEDP is a computer program that uses all other automated data processing programs dealing with major pieces of Army equipment, that is, Class VII end items. It is a mathematical model which encompasses requirements, assets, inputs, equipment undergoing repair and rebuilding at depots, washouts, stocks, and the planned force and which uses this information to generate a master distribution list for Class VII equipment throughout the entire Army, active and reserve.

The Office of the Deputy Chief of Staff for Logistics, the Office of the Deputy Chief of Staff for Research, Development, and Acquisition, the Depot Systems Commands, and the U.S. Army Management Systems Support Agency (USAMSSA) worked on various improvements to the program during 1982. The most important included strengthening the analytical capabilities of TAEDP. These agencies also extended the program to cover the five Program Objective Memorandum (POM) years as well as the current and budget years. During 1982, TAEDP gained the ability to note the substitution of one model of equipment for another, for example,the M1 main battle tank for the

M60A3. In 1982 TAEDP also received the capacity to produce a number of on-call reports, that is, to respond to special user requirements by reformatting the data. Finally, in 1982 the Army used the troop list generated by the TAEDP as the standard by which unit requests for new equipment were approved or rejected, a change referred to as the new requisition validation process.

The Office of the Deputy Chief of Staff for Logistics and the U.S. Army Materiel, Development, and Readiness Command initiated several major improvements of TAEDP in 1982 which were not complete by the end of the year. Depot Systems Command (DESCOM) concentrated on creating a major item data base that would consolidate TAEDP's four linked data bases into one on-line transactional data base located at DESCOM. A second improvement, displacement distribution planning, would trace the cascade effect created by the introduction of new equipment in the Army. The third major enhancement begun in the fiscal year was called support item management. Support items are needed to maintain Class VII equipment in the field, such as tool kits for M1 tankers. The improved program will link these items with the equipment so that the Army staff can determine how many pieces of major equipment are actually operable at any given time.

The ability of the U.S. Army, Europe, to sustain itself against a conventional attack until resupply arrives continued to be a major concern. Because the United States does not have all the strategic airlift and sealift that it needs, the Army pre-positions supplies in Europe and other potential theaters of operations. During 1982 the Ammunition Office in the Office of the Deputy Chief of Staff for Logistics began a major study of the call forward and retrograde programs for Europe according to each type of ammunition during the period fiscal year 1983–1988. This study was associated with a more comprehensive one, Resource Constrained Procurement Objective for Munitions (RECPOM). RECPOM is a computer-assisted simulation designed to provide the most lethal mix of munitions, given the various constraints operating on the Army.

The Army continued to build up ammunition stocks in Europe at a reasonable rate during 1982. The Ammunition Office still consider it possible to reach the number-of-days supply targeted by the Department of Defense by the end of the funded delivery period for fiscal year 1987. Due to limited funding from NATO, however, a serious storage problem existed in 1982. The Army thought it was prudent to wait until the study on the call

forward and retrograde programs was complete in order to determine future needs for warehouse space more accurately before opening negotiations with NATO.

Funding levels for secondary items financed by appropriations in fiscal year 1982 amounted to $1,099.4 million, compared with $856.5 million in fiscal year 1981. The increase would support new weapons systems fielded under the modernization program. During 1982, the Army lacked $139.7 million worth of initial and replacement parts for aircraft. The Department of the Army submitted a reprogramming request of $70.4 million to Congress in order to remove the deficit at least partially. Congress approved $22.0 million. The Department of the Army planned to seek funding for the remaining spare parts during fiscal year 1983.

Because of unusual delays in Congress, the Army Stock Fund did not receive final funding of the midyear program until very late, and execution fell short of the target by approximately $135 million. Late receipt precluded obligation of the total program. In the field, this situation caused back ordering for parts, kept the available supply level below the target figure of 85 percent, and caused the Army to lower its safety level of spare parts. At no time, however, did this unfortunate situation result in any unit being less than mission ready. The Army Stock Fund sales program was virtually on target at $5.8 billion.

The working capital of the Army Industrial Fund, acquired initially through congressional appropriation, is sustained on an annual basis by customer reimbursements for goods and services furnished. Activities financed with the fund are arsenals, depots, laboratories, missile facilities, and port terminals. The total cost of goods and services produced in fiscal year 1982 was approximately $2.8 billion. The Army Industrial Fund prepared to implement a new capitalization policy in 1983 that will allow activities to purchase equipment with Industrial Fund money rather than depending on appropriated funds, which is the current policy.

Depot maintenance activities provide for the overhaul, repair, conversion, and renovation of equipment. Backlog is defined as that portion of the total workload which the Army cannot fund within available resources. In 1982 the Army took steps to reduce the hardware backlog to zero and keep it there. ODCSLOG expected to receive $1,312 million out of the $1,355 million needed for maintenance, overhaul, and repair during fiscal year 1983. The addition of new, more sophisticated equipment in fiscal year 1984 and after will add to the total depot maintenance

requirement. ODCSLOG expected that the materiel maintenance backlog would reach $450 million in 1984.

This problem not withstanding, the materiel condition of most Army systems and equipment remained satisfactory during 1982, although it was difficult to keep some aging and low-density tactical and engineer equipment in good repair. (Low density means that there are only a few pieces of equipment within the worldwide Army inventory, often only five or less.) ODCSLOG expected improvement in the mission-capable rate of artillery over the next few years as a result of the deployment of the new M198 155-mm. towed howitzer, the upgrading of the M109-series 155-mm. self-propelled howitzer, the M110A2 self-propelled 8-inch howitzer, and the overhaul of the M163A1 20-mm. Vulcan air defense gun. A modernization program in progress during 1982 for the M113 armored personnel carrier family of vehicles will extend benefits beyond the artillery.

Field audits and inspection reports during the late 1970s indicated a need for improved maintenance practices. Under the leadership of Lt. Gen. Eivind H. Johansen, the Deputy Chief of Staff for Logistics from August 1977 through May 1979, and in conjunction with other staff agencies and major Army commands, ODCSLOG developed the Maintenance Management Improvement Program (MMIP), formalized in Chief of Staff Memorandum No. 79–5–4, 5 February 1970, which was still current in 1982. The office designed the MMIP to attack the root causes of maintenance shortfalls identified by various audit and inspection reports. These causes included lack of troop interest and motivation, insufficient involvement by leaders, lack of command attention and emphasis, poorly trained personnel fragmented quality control, improper use of mechanics, and outdated maintenance practices.

Problems that developed at the organizational level as a result of these root causes included the improper use of equipment; failure to detect, identify, report, and document failures; unnecessary replacement of serviceable repair parts; and improper preventive maintenance. Problems at the support maintenance level included low mechanic use and production, improper diagnosis of equipment fault, inadequate unit training programs, and excessive evacuation to higher maintenance levels.

ODCSLOG developed five primary objectives for the Maintenance Management Improvement Program, which General Rogers, the Chief of Staff of the Army from October 1976 until June 1979, approved. The objectives served to provide a framework for both near-term and sustained improvement action. The

first objective was to focus command emphasis and attention on the maintenance area. Briefings for general officers and various organizations and activities began in 1979 and have continued ever since. ODCSLOG developed a how-to maintenance guide for leaders in comic book style, DA PAM 750–1, "Maintenance: Commander's Guide of Preventive Maintenance Indicators," 20 August 1979, which replaced three publications cast in a more traditional format—DA PAM 750–I, "Preventive Maintenance: Commander's Guide of Preventive Maintenance Indicators," 12 January 1971; DA PAM 750–4, "Maintenance of Supplies and Equipment: Commander's Maintenance Evaluation Techniques, A Guide for Commanders," 19 April 1974; and DA PAM 750–18, "Commander's Maintenance Guide," 12 March 1973. The new pamphlet provided guidance for leaders at all levels on topics such as maintenance management, equipment inspections, repair parts, and motor pool and maintenance shop operations. During fiscal year 1982, the User Support Policy Branch in ODCSLOG revised and expanded DA PAM 750–1, renamed "Organizational Maintenance Guide For Leaders." The branch anticipated that the Army would publish the revised edition during the first quarter of fiscal year 1983.

The second primary objective in the Maintenance Management Improvement Program was upgrading maintenance operations. The Directorate for Plans and Operations in ODCSLOG initiated actions to simplify procedures and reduce administration. The directorate had streamlined The Army Maintenance Management System (TAMMS), first developed in the early 1960s, in TM 38–750, published in 1978. Other reforms included upgrading serviceability standards, developing standards for the transfer of equipment between units, and updating AR 750–1, "Maintenance of Supplies and Equipment: Army Materiel Maintenance Concepts and Policies," which was published on 1 April 1978. The regulation set the standards for determining whether a unit is fully mission capable, as well as standards for preventive maintenance and equipment serviceability. Modified in both 1979 and 1981, the regulation was under review during 1982 by the Office of the Deputy Chief of Staff for Logistics in preparation for a major revision.

A third objective was to strengthen maintenance training. The U.S. Army Training and Doctrine Command (TRADOC), beginning in 1979, reviewed the entire spectrum of maintenance training, including course curriculum baselines for individual training (that is, the core curriculum common to the supervisor and leader training of all the branch schools), training devices,

and materials. TRADOC initiated corrective actions to improve conditions at the service schools and at the unit level. The command has had supervisory leader and precommand courses under development since 1979, although during fiscal year 1982 precommand courses received the most attention.

The fourth objective was to improve the management of people. The U.S. Army Materiel, Development, and Readiness Command (DARCOM) expressed concern over the lack of a well-thought-out maintenance career. Under prompting from the Office of Deputy Chief of Staff for Logistics, the Office of the Deputy Chief of Staff for Personnel reviewed personnel policies in the maintenance career fields and analyzed proposals intended to improve conditions. Operating under the supervision of ODCSPER and ODCSLOG, TRADOC developed a systems mechanic (master mechanic) career management field and studied the consolidation of maintenance officer specialties. Pressure from the General Accounting Office of the Army Audit Agency caused FORSCOM to develop, on a test basis, a maintenance manpower utilization system, which FORSCOM and TRADOC subsequently adopted for all their direct support and general support units. ODCSPER, at the instigation of ODCSLOG, also adopted several reforms to improve the acquisition and retention of maintenance personnel, including the establishment of a minimum score on the enlistment test to get into maintenance career fields and a reenlistment bonus for maintenance specialists.

The final objective called for an improvement in publications, tools, and repair parts support. Beginning in 1979, ODCSLOG, TRADOC, and DARCOM updated maintenance publications to improve operations and reduce tasks. The U.S. Army Logistics Evaluation Agency initiated Armywide implementation of skill performance aids which combined technical documentation and associated training materials in one complete package. ODCSLOG expected these aids to reach the troops during the first quarter of fiscal year 1983. Steps to improve authorized lists of combat stock, procedures for returning repairable equipment, and means for the direct exchange of repair parts between units, sponsored by ODCSLOG and implemented by DARCOM, began in 1979 and have continued to the present.

The Maintenance Management Improvement Program included procedures for getting information to the field immediately. Since 1979, numbered "Maintenance Improvement Flashers" have announced policy and procedure updates and changes to the field, and "Maintenance Improvement Grams"

have provided general information and coordination. The Office of the Deputy Chief of Staff for Logistics has held in-process reviews periodically since 1979 to ensure that the program remains viable. The most recent in-process review occurred in February 1982.

The Standard Army Maintenance System is an automated logistics management system, twelve years in development, that will provide maintenance management from the direct support and general support units at retail level up through DARCOM at the Army wholesale level. When extended to battalion and division maintenance companies, sometime during 1986, the system will improve the use of resources in the Army and provide automated maintenance support to combat service support units. The Assistant Secretary of the Army for Installations, Logistics, and Financial Management had approved the combat service support modules for automation on the division-level data entry device, a military minicomputer system designed for logistics applications. In fiscal year 1982 this minicomputer program was terminated. Consequently, the Army started a replacement program entitled The Tactical Army Combat Service Support Computer System. During the fiscal year, the Logistics Center and the Computer Systems Command worked toward adapting the combat service support applications of the Standard Army Maintenance System to this replacement computer.

Maintenance support activities include maintenance engineering, technical assistance, publication updates, and new equipment training for the whole Army. During 1982, the growth of requirements for these activities outstripped available resources. Fiscal year 1983 promises no relief because the increased funding for maintenance support will go primarily for new systems scheduled for fielding. Funding of maintenance support for equipment not being modernized will actually decline because the Army has decided to provide full funding for maintenance support activities for the new equipment. Funding for 1983 will furnish only $530 million of the $734 million needed for maintenance support.

The Army did not experience any major shortfalls in the base operations line of the 1982 budget. Congressional support for the fiscal year 1982 budget amendment resulted in the creation of additional civilian personnel spaces to replace military personnel who had been temporarily borrowed from units to perform critical base operations missions. During 1982 the major commands were able to apply funds to existing shortfalls and backlogs in bachelor housing furnishing, support for morale, welfare

and recreation activities, maintenance work, and replenishment of operating supply stocks. The Army applied the funds made available in 1982—due to congressional action on the pay and program supplementals—toward the purchase of furniture for bachelor housing in Europe and FORSCOM.

Transportation

There were no major new initiatives in the transportation area in fiscal year 1982. Rather the Army concentrated on following up programs begun in previous years. Six programs received major emphasis: the "CONUS Mobility Analysis," logistics over the shore, containerized shipping, the nontactical vehicle fleet, the Department of the Army Movements Management System, and the Department of the Army Standard Port System–Enhanced.

Until fiscal year 1981, deployment planning had focused on reinforcing theaters of operation by aircraft until the first ships started to arrive. Because of the inadequate number of Air Force C–5As compared with the Army's strategic airlift requirements, some units that did not have the highest priority on the staging list would arrive more quickly in the theater of operations if they deployed by ship rather than by air. Therefore, the Office of the Deputy Chief of Staff for Logistics planned to integrate air and sea movements so that seaborne units would arrive at the time and in the order desired by the theater commander. This shift followed a study of reinforcement rates called the "CONUS Mobility Analysis."

During 1982, ODCSLOG and other concerned agencies worked on actions designed to correct deficiencies noted in the study. The Navy purchased several commerically built sea-land container ships, designated as SL–7s, which were converted to carry roll-on, roll-off equipment such as tanks, armored personnel carriers, and self-propelled artillery; the ships can travel at thirty-five knots or more. They provide a more efficient method of moving an armored division overseas than the C–5As. Prepositioning of unit basic load permits, discussed at length in the fiscal year 1981 *Historical Summary*, continued during 1982. During 1982, work was completed on the port for the U.S. Army Military Traffic Management Command (MTMC) at Sunny Point, North Carolina. Work continued on the Navy's port at Earl, New Jersey.

In 1980 ODCSLOG proposed and MTMC sponsored the contingency response program. It involved preparing and main-

taining an inventory of private trucking firms within specified geographic areas which would be able to move Army equipment in an emergency. The installation transportation capability survey, begun by ODCSLOG and run by the MTMC—specifically by its Transportation Engineering Agency—is an ongoing program to assess receiving and shipping capabilities at military installations. During 1982 the survey concentrated on depots.

The "CONUS Mobility Analysis" and the actions resulting from it affect planning for operations in all potential foreign theaters. The logistics over the shore (LOTS) program focuses primarily on operations by the Rapid Deployment Force in regions of the world without extensive port facilities. During 1982 the DCSLOG led the move to have over one billion dollars included in the Program Objective Memorandum for LOTS for fiscal years 1984–1988. The LOTS program procures commercially available landing craft, utility (LCU), and logistics support vessels (LSV) as well as other essential supporting craft and lighterage. In addition to the POM initiative, funding of the second company of lighter air cushion vehicles (LACV)–30 was realized in the fiscal year 1982 and 1983 budgets. LACV–30 is a medium amphibian, air cushion vehicle that can be used on 70 percent of the world's beaches, compared with only 17 percent now acceptable to conventional lighterage. The LACV–30, which can transport twenty-five to thirty short tons of containerized or break-bulk cargo at a cruising speed of forty-six miles per hour, operates independently of tides, reefs, mudflats, water depths, underwater obstacles, or bottom gradients. DARCOM signed a contract for construction of the twelve craft needed to equip the new company. Also during 1982 the Army accepted the first production model LACV–30 at Fort Story, Virginia. At the end of September 1982, ODCSLOG expected the last of the twenty-four craft required for the two companies to be delivered by fiscal year 1985.

Containerized shipping is one of the most important innovations for moving supplies and equipment in the last three decades. In 1982 the Army's containerization program was dominated by actions stemming from the general officer review of June 1981. Following an analysis of the review's conclusions by the Army staff and the major commands, the Transportation Management Division in ODCSLOG consolidated all the material into a comprehensive overview of the Army's efforts to develop, field, and sustain a wartime container capacity. This overview was presented to the Army Staff Council at an information briefing in July 1982. The office spent the rest of the year trying to resolve

areas of concern. General Thompson requested that the J–4 (Logistics) on the Joint Staff study long-range shipping capabilities to correct what he perceived to be a deficiency in long-range containerization planning. He hoped that the Joint Staff study would give the services a benchmark by which to measure future development of the program. TRADOC began reviewing the requirement for a unit storage and deployment locker, an item of unit equipment, as a replacement for the CONEX, the standard container used for transporting unit equipment and for storage. A test of containers conducted jointly by the Military Airlift Command and the U.S. Army Materiel, Development, and Readiness Command in early April 1982 provided the basis for developing a prototype container for air delivery. III Corps conducted a test at Fort Hood, Texas, also in April 1982, of the equipment and doctrine for a general support ammunition company to receive, store, and issue containerized ammunition. The eight-by-six-foot containers proved satisfactory in rough terrain under combat conditions.

While developments in containerized shipping, logistics over the shore, and the "CONUS Mobility Analysis" were promising, the condition of the Army's nontactical vehicle fleet remained bleak. During fiscal year 1982 the fleet continued to deteriorate as Congress adhered to the policy begun in 1977 of not adequately funding replacements. During the year the number of vehicles declined from approximately 70,000 to about 68,000. As of 30 September 1982, 38 percent of all vehicles required replacement, the same level as during fiscal year 1981. To partially offset its deficiencies, the Army leased over 2,000 vehicles during 1982.

The Army had two major computer software systems under development in the transportation area in 1982: the Department of the Army Movements Management System (DAMMS) and the Department of the Army Standard Port System–Enhanced (DASPS–E).

DAMMS consists of three major modules, the cargo movements module (CMM), the movements planning module (MPM)—both discussed in some detail in the 1981 *Historical Summary*—and the MODE management module (MMM). The MMM provides information about transportation assets within a theater as well as driver availability and scheduled maintenance. In September 1982 the Strategic Mobility Division, ODCSLOG, prepared and submitted an update of the DAMMS functional description and economic analysis to the Assistant Secretary of the Army for Installations, Logistics, and Financial Management for review.

In the same month the Logistics Center distributed to users for their review a major systems change package (SCP–05–08) for DAMMS, which will furnish a data base on break-bulk cargo. Another systems change package (SCP–04), sent to units in the field in May, provides an interface between the Standard Army Intermediate Level Supply System (SAILS) and DAMMS that records and controls requisitions in transit. The Strategic Mobility Division expected the SAILS portion of the interface to become operational in April 1983. The Command, Control, Communications, and Computer Division of the Office of the Deputy Chief of Staff for Operations and Plans completed the replacement of the DAMMS computers (IBM 4331s) with modern hardware (IBM 36B–40s) in October 1981. The new equipment made it possible to redesign the movements management system and replace batch processing with interactive processing—that is, substitute on-line processing, in which each unit of information is processed immediately at the time of presentation, for a sequential procedure that uses an accumulation of information divided into groups or batches before processing.

The development of the Department of the Army Standard Port System–Enhanced progressed satisfactorily during 1982 and remained on schedule for initial fielding in the second quarter of fiscal year 1984. A system acceptance test (SAT) training in-process review (IPR) at Fort Lee, Virginia, was held in June 1982. In May 1982 the Assistant Secretary of the Army for Installations, Logistics, and Financial Management approved the hardware (DAS3, Model B) for the DASPS–E software acceptance tests, and subsequently approved the remaining DASPS–E hardware needed to implement the full fielding plan in the required operational capability (ROC) paper of September 1982. At the end of the fiscal year, the Logistics Center and Computer Systems Command planned to hold the software acceptance review for DASPS–E in March and April 1983.

Security Assistance

The security assistance program supports U.S. foreign policy by helping friendly and allied governments to achieve and maintain the ability to defend themselves. Army security assistance programs for fiscal year 1982 consisted of seven different types: Military Assistance Programs (MAPs); International Military Education and Training (IMET) programs; Foreign Military Sales (FMS) programs; Foreign Military Construction Sales (FMCS) programs; Foreign Military Sales financing programs; coproduction programs; and commercial sales programs.

During 1982, security assistance received more high-level attention than in previous years. Two factors contributed to this situation. First, senior officials and officers in the Department of Defense recognized the need to become more involved in revitalizing and improving the program. In this regard, the Joint Chiefs of Staff decided to play a more prominent role in justifying the program before Congress and the public. Second, the department needed to obtain revised legislation as a statutory basis for the new conventional arms transfer policy promulgated by the Reagan administration in July 1981, discussed in that year's *Historical Summary*.

Fiscal year 1982 saw an extraordinary amount of activity in security assistance legislation. At the beginning of the year, Congress was still debating the authorization of the International Security and Development Cooperation Act of 1981 for the fiscal year. Congress finally passed compromise authorization and appropriations bills in mid-December, and President Reagan signed them into law on 29 December 1981. The legislation doubled the dollar ceilings of FMS sales to $50 million and increased the ceiling to $200 million for FMCS sales to foreign countries that require review by Congress; it also removed the dollar ceiling on commercial sales of arms and services to foreign countries and authorized the Department of Defense to lease arms to them. The act expanded the duties of the overseas security organizations (SAOs), which are the groups charged with administering the security assistance program in country. The old law limited the SAOs to essentially administrative functions: logistical support management, transportation, fiscal management, and contract administration. The new law allowed officers in SAOs to help host governments evaluate their military requirements and plan the military force needed to meet them. The legislation authorized assistance to Nicaragua, Argentina, Chile, El Salvador, and Pakistan under specific conditions and removed restrictions on assistance to Jordan and Panama. Finally, it established the Special Defense Acquisition Fund (SDAF) to acquire defense articles in anticipation of their transfer to other countries.

The establishment of the Special Defense Acquisition Fund was especially gratifying to the Army. Since 1976, both the Office of the Secretary of Defense and the Department of the Army had tried to obtain funds from Congress for defense articles and services to meet urgent requests from friendly governments. Money for the Special Defense Acquisition Fund would come from three sources: (1) receipts from the sale of defense articles which the services did not intend to replace; (2) receipts from

charges and recoupments from nonrecurring research, development, and production costs; and (3) other funds appropriated by Congress for this account. The International Security and Development Act authorized $300 million for the fund in fiscal year 1982 and $300 million for the following fiscal years, with a cumulative ceiling of $600 million. Congress appropriated $125 million for the fund in the fiscal year 1982 supplement to the Department of Defense budget. The Director of the Defense Security Assistance Agency provides day-to-day management and operation of the fund.

In conjunction with all the legislative activity in the security assistance area, the Office of the Deputy Chief of Staff for Operations and Plans conducted a review of all international programs; it then proposed legislative and Department of Defense policy changes. Maj. Gen. J. W. Seigel, the Director of the Strategy, Plans, and Policy Directorate in ODCSOPS, proposed standard pricing for all Foreign Military Sales training and a comprehensive exchange program, as well as continued emphasis on the "total package approach" in the Foreign Military Sales process as the sales program expanded with new and more sophisticated weapons and systems. Under this policy, the U.S. Army Materiel Development and Readiness Command makes customers aware of support items and services needed to maintain and operate the equipment. In the area of policy development, the Security Assistance Division in ODCSOPS published revised guidance on providing Army tanks for security assistance and on transferring and supporting Nike Hercules air defense systems.

New orders in the Department of Defense for security assistance for fiscal year 1982 totaled $21.5 billion, of which the share managed by the Army amounted to $4.2 billion. New security assistance business is generated from amendments and modifications to prior-year cases and from new orders implemented during the year. At the end of the fiscal year, the Army security assistance open cases amounted to $42.4 billion. (Table 9)

The general upward trend in equipment diversions continued during fiscal year 1982. President Reagan approved diversions to support allies and friendly nations faced with ongoing or imminent threats and to fulfill certain foreign policy commitments. The principal recipients included El Salvador, Pakistan, the Sudan, and Somalia. The diversions involved 126 tanks, 32 helicopters, 75 howitzers, 623 machine guns, 15,602 rifles, 492 radios, and 4,517 TOW missiles. In addition the Army diverted 198,559 rounds of large-caliber ammunition during the fiscal year, a 74 percent increase over the 114,146 rounds diverted the previous year.

Table 9—Army Security Assistance Open Programs
30 September 1982
(in billions of dollars)

Category	*Total Program*	*Delivered*	*Undelivered*
DARCOM	21.7	12.0	9.7
Non-DARCOM	20.7	10.3	10.4
(COE)	(18.0)[a]	(9.6)	(8.4)
(DLA/GSA)	(2.4)	(0.6)	(1.8)
(Other)	(0.3)	(0.1)	(0.2)
Total	42.4	22.3	20.1

[a]Most of the $18.0 billion managed by the Corps of Engineers is for its substantial construction program in Saudi Arabia.

Current high-demand items are pieces of Army equipment and munitions used by the active Army and by foreign armies. The list below contains the most important items in fiscal year 1982.

Current High-Demand Items

Armored personnel carrier (APC), M113A1/2
Howitzer, self-propelled, M110A2, 8-inch
Howitzer, self-propelled, M109A1/2
Howitzer, towed, M198, 155-mm.
Recovery vehicle, M88A1
Tank, M60 series
TOW, launcher
TOW, missile
Improved (I) Hawk, missile
Improved (I) Hawk, battery set
Chaparral missle
Chaparral launcher
Stinger weapons system

The lead-time of Foreign Military Sales for most of these items exceeded two years. They were prime candidates for Special Defense Acquisition Fund purchases in order to allay the competition between the U.S. Army and foreign buyers and to minimize the need for future diversions from Army units.

During fiscal year 1982, the U.S. Army Corps of Engineers provided various degrees of engineering and construction management support to nine foreign governments—Saudi Arabia, Israel, Jordan, Oman, Egypt, Nigeria, Sudan, Honduras, and the Federal Republic of Germany—under the Foreign Military Construction Sales program, formerly a part of the Foreign Military Sales program. The Corps also continued to provide support to the Saudi Arabian Army Ordnance Corps Program (SOCP).

Coproduction enables a foreign government, commercial firm, or international organization to acquire the technical know-how to assemble or manufacture an Army weapons system in whole or in part. The Army initiated its first coproduction program

with the North Atlantic Treaty Organization (NATO) in 1960 for the Hawk missile system. Since then the Army has participated in programs with thirteen foreign countries and NATO. A memorandum of understanding requires the foreign producers to purchase American components. The total dollar value for all coproduction projects through fiscal year 1982 was $6.3 billion, with $2.4 billion in value returned to the United States.

Concern that international coproduction was adversely affecting the Army's mobilization and production base led DARCOM to develop a method of evaluating the impact of individual coproduction projects on the production base. At the same time Congress, concerned about the lay-off of skilled workers at defense-oriented manufacturing plants, passed legislation that prevented foreign governments from receiving technical data and assistance from government-owned and -operated defense plants manufacturing large-caliber cannon. These issues, coupled with foreign government requirements for offsets—that is, the U.S. government or a U.S. company would have to purchase products of the coproducing country—affected several coproduction projects in 1982. ODCSLOG expected these constraints would continue.

The International Security and Development Cooperation Act of 1981 authorized the President to furnish grant aid to any friendly country or international organization when he believes that the assistance will strengthen the security of the United States. President Reagan used this provision to send aid to El Salvador. Other aid fell under the International Military Education and Training Program, which provided instruction to military and related civilian personnel of friendly countries on a grant basis. The Army conducted the training in the United States, on overseas U.S. military facilities, or through mobile teams in the foreign countries. Barbados, Honduras, Portugal, Spain, Thailand, and Tunisia received training aids and devices under the IMET. During fiscal year 1982, the IMET program consisted of $19.1 million for seventy-one countries. The total ongoing undelivered grant aid program for all years included twenty-five participating countries and was valued at $221 million.

A total of 8,599 foreign students received military training in the continental United States under U.S. Army sponsorship during fiscal year 1982—2,316 under the IMET program and 6,283 under the Foreign Military Sales program. Training funded under the former exceeded $4.5 million; under the latter, $34 million. Participating countries financed the International Fellows Program (IFP) at the U.S. Army War College through FMS

or IMET. During the 1982–1983 academic year, Japan, Korea, Malaysia, Pakistan, Sri Lanka, France, West Germany, China, Kuwait, Spain, Somalia, Tunisia, Turkey, the United Kingdom, Venezuela, and Canada participated. Eight of these countries were in the program for the first time.

The Personnel Exchange Program (PEP) expanded during fiscal year 1982 from 94 positions with sixteen countries participating to 102 positions with nineteen countries. Expansion included agreements with Ecuador, Paraguay, and Jordan and an increase of positions with the United Kingdom, Venezuela, Australia, Canada, and New Zealand. Exchanges with Australia, Canada, New Zealand, and the United Kingdom still made up the bulk of the program in 1982—77 of the 102 approved positions. General Meyer, Army Chief of Staff, decided to shift the priority of effort toward expanding the program with non-English-speaking armies in 1980. In line with this policy, at the end of the fiscal year he was considering expanding PEP to include the armies of Egypt, Spain, Paraguay, Greece, Portugal, and Turkey.

In September 1982, the *Washington Post* broke a story about Capt. Jesse A. Garcia, U.S. Army, serving with the Guatamalan Army under PEP. Some congressmen confused PEP with a military adviser program. Congressional prohibitions concerning reciprocal arrangements for formal training combined with a misunderstanding over the intent of the program and its legal basis threatened to hamper PEP greatly in the future.

In 1982, 110 countries and international organizations participated in Army security assistance programs. The programs varied greatly in size and technical sophistication. The largest Army country program, Saudi Arabia, amounted to over $22 billion. Other large programs included Israel, $3 billion; Egypt, $2 billion; Jordan, $1 billion; Korea, $1 billion; and West Germany, $1 billion. These six country programs made up over 75 percent of the Army's open case value.

NATO's interest in security assistance remained high in fiscal year 1982 as the member armies continued their efforts to improve combat effectiveness significantly by modernizing the armament. The continuing expansion and modernization of Soviet forces provided ample impetus for NATO efforts. The most notable event of the year was the entry of Spain into the alliance on 5 June 1982. The United States and Spain also concluded a base rights treaty on 2 July 1982 after approximately one year of negotiation.

Eight countries in the Middle East qualified for either Foreign Military Sales credits, IMET, or economic support funds in 1982. Egypt and Israel were the largest FMS credit clients, while Egypt and Jordan were the largest IMET recipients.

During the year the existing security assistance programs for Saudi Arabia continued to expand. Ongoing programs included the mechanization of two Army brigades, the Saudi Arabian National Guard (SANG) Modernization Program, and the Saudi Naval Expansion Program. Work also continued on the Saudi Arabian National Guard Medical Program. Toward the end of fiscal year 1981, the United States and Saudi Arabia signed a memorandum of understanding covering the entire medical project. The Army Medical Department (AMEDD) put together a team of officers to develop a comprehensive plan covering Saudi Arabian National Guard health. The plan addressed six basic areas: preventive medicine and public health, hospitals, clinics, field medical service, the office of the director of health services, and support systems. The section on support systems included medical logistics, patient administration, information systems, communication, and training. After the plan was reviewed by the relevant agencies on the Army staff, the DCSLOG, as the focal point on all security assistance matters for the Army, approved and forwarded it to the director of the Defense Security Assistance Agency in October 1982.

The Camp David Accords of 1979 committed the United States to replacing two air bases, at Etam and Etzion, which Israel would have to abandon when it withdrew from the Sinai. The new bases at Ramon and Ovda were completed this year. Each consists of two 10,000-foot runways, a taxiway of similar length which can be used as a runway in an emergency, hardened underground hangers, and the ancillary facilities needed to operate military air bases.

Israel continued to maintain a generally recognized margin of military superiority over any possible combination of opponents in the region. During fiscal year 1982, the United States used Foreign Military Sales financing to address Israel's priority needs for air defense, armored and tracked vehicles, artillery, missiles, and ammunition. In response to requests from the government of Lebanon, the Army expedited delivery of various communications items, tactical vehicles, recoiless rifles, and machine guns.

The total Foreign Military Sales program for Egypt, through fiscal year 1983, has a planned value of $3.95 billion. The Army portion is $2.3 billion. The most significant items were 439 M60A3

tanks, 220 of which were purchased in 1982; 1,214 M113 armored personnel carriers; and twelve IHawk batteries. Technical Assistance Field Teams (TAFTs) sent to Egypt included a team on logistics management, the armor project manager, a team from the U.S. Armor School, and CH–47 helicopter and IHawk teams. The Corps of Engineers assisted the U.S. and Egyptian Air Forces in designing facilities at An Shas Air Force Base to support F–16 fighter aircraft. A total of 221 Egyptian officers received training under the International Military Education and Training program. In addition there were twenty-eight Defense Production Assistance projects during 1982. The objective of these programs was to strengthen the capabilities of the Egyptian defense industry as well as the Egyptian economy.

The U.S. government continued to emphasize the importance of U.S.-Pakistani relations. The two governments targeted security assistance to remedy deficiencies in Pakistani defenses and obsolescent equipment. Pakistan was mainly concerned with the early delivery of F–16 aircraft. The U.S. Army also addressed armor, air defense, and other combat capabilities. Pakistan purchased field artillery, armored vehicles, helicopter missiles, and ammunition valued at $394.2 million.

Relations with India remained cool because of improving relations with Pakistan. The BMY Division of Harsco Corporation conducted the one major Foreign Military Sales arrangement with India, an in-country test of the M109A2 self-propelled 155-mm. howitzer, which American Army officers attended as observers.

In 1982 the Army conducted Defense Requirement Surveys, the first step in initiating or expanding security assistance relationships, in Liberia and Botswana. Thirty states in sub-Sahara Africa qualified for either Foreign Military Sales (FMS) or economic support funds. Sudan and Kenya were the largest FMS clients as well as the largest IMET recipients. There was also an increase in the number of mobile training teams (MTTs) south of the Sahara. Most of the training teams were equipment-oriented. However, some conducted nation-building projects.

The guaranteed credit program under Foreign Military Sales increased from $126.4 million in fiscal year 1981 to approximately $247.6 million in fiscal year 1982 for fourteen African countries excluding Egypt. Djibouti and Senegal became eligible for FMS credits in 1982. Somalia, in conflict with Ethiopia along their border, received expedited delivery of vehicles, ammunition, small arms, and antitank systems in July 1982. Tunisia and the United States formally agreed that the Army would provide Tu-

nisia with IChaparral and M60A3 tanks and spare parts as well as the training required to operate and repair them. Morocco, in conflict with the Polisario, received expedited assistance to train and equip an infantry brigade. Survey teams visited Botswana and Liberia to help in future security assistance programs, and Congress lifted the Brooke Amendment restrictions for Zaire, which permitted further extensions of military assistance even though the government of President Mobutu Sese Seko had fallen behind on its payments for equipment previously received.

The security assistance programs for the Pacific region during fiscal year 1982 continued to be affected by several events: the instability in Southeast Asia caused by the occupation of Kampuchea by the Socialist Republic of Vietnam coupled with Thailand's tacit allowance of anti-Vietnamese elements operating inside Thailand; internal problems in the Philippines; and the potential for conflict on the Korean peninsula. During fiscal year 1982, follow-up U.S. support continued for defense equipment previously furnished to Taiwan. Major Army end items delivered during fiscal year 1982 included self-propelled 155-mm. howitzers, .50-caliber machine guns, and IHawk missiles. Under the fiscal year 1982 Taiwan Foreign Military Sales training program, seventy-five Taiwanese—forty-two officers and thirty-three enlisted men—received U.S. Army courses of instruction.

In South Korea, extensive coproduction and coassembly programs continued to operate effectively. They included small arms munitions, M16 rifles, Vulcan air defense guns, helicopters, and tank munitions. During 1982, the Army added ammunition valued at approximately $130 million to U.S. war reserve stocks in Korea, which are designated for use by the Republic of Korea (ROK) ground forces in the event of war. The U.S. Army provided instruction to 160 ROK personnel in various professional development and technical training courses during the fiscal year.

Japan continued to purchase military equipment, services, and training of a defensive nature from the United States during fiscal year 1982. Japan also kept up its vigorous licensed production program. This program enhanced Japan's defense posture, expanded its defense production industrial base, increased its capacity for wartime sustainability, and promoted the interoperability of Japanese and U.S. forces. Coproduction agreements with the United States involved building systems to produce 8-inch howitzers and Nike and IHawk missiles. Discussions continued for coproduction of additional systems including TOW, Copperhead, Stinger, Patriot, and the AH–1S helicopter. During

the year, 25 Japanese Ground Self-Defense Force troops received professional or technical training in the United States, and 1,643 officers and enlisted men participated in IHawk and Nike annual service practice at Fort Bliss, Texas.

The threat of incursions by the Socialist Republic of Vietnam along the Thai-Kampuchea border continued to stimulate Thai concerns and requests for security assistance. Air defense and additional armor remained high on Thailand's priority list. The Director J–4 (Logistics) on the Joint Staff, Lt. Gen. O. E. DeHaven, began bilateral logistics planning with the Thai Supreme Command in order to provide Thailand with the expertise needed for long-range planning.

Twenty countries in the Western Hemisphere received security assistance from the United States during fiscal year 1982. Security assistance in FMS guaranteed credit and Military Assistance Program (MAP) grants increased from $56.3 million in fiscal year 1981 to approximately $151.9 million in fiscal year 1982. The number of countries in the region that were authorized MAP or FMS credit programs grew from seven in fiscal year 1981 to nineteen in fiscal year 1982, including Costa Rica, Colombia, Panama, and nine island nations of the eastern Caribbean. The high points of the security assistance program in 1982 came when President Reagan used Section 506, "Emergency Drawdown Authority," of the Foreign Assistance Act to provide El Salvador with $55 million, and Congress passed Supplemental Fiscal Year 1982, Military Assistance Program, authorizations for Honduras ($10 million) and Costa Rica ($2 million). TRADOC trained a Salvadorian light infantry battalion at Fort Bragg, North Carolina, and an officer candidate battalion at Fort Benning, Georgia. Honduras received a total of $30 million in security assistance. The Department of Defense directed the Corps of Engineers to manage the design and construction of two airfields in Honduras which will be able to support F–15 aircraft. The Mobile District of the Corps South Atlantic Division started design work for upgrading the airfields, with construction scheduled to start on one site during fiscal year 1982. Central America received the bulk of military assistance in the area, but Colombia, Ecuador, Brazil, and Paraguay participated in substantial programs. Colombia received howitzers, helicopters, and antitank missiles. Ecuador became the first Foreign Military Sales customer to obtain the M198 155-mm. towed howitzer. Brazil implemented Foreign Military Sales cash cases for ammunition, and Paraguay purchased UH–1B helicopters.

Military-to-military relations with Latin America suffered as a result of U.S. support for Great Britain during the Falkland

Islands war between Argentina and the United Kingdom. As a result of this crisis, western solidarity against insurgencies and subversion supported by the Soviet Union and Cuba weakened considerably and thus dampened the effects of U.S. security assistance efforts in the region.

The Security Assistance Affiliated Program consists of training U.S. Army officers in security assistance and related policies. Lt. Gen. W. R. Richardson, the Deputy Chief of Staff for Operations and Plans, directed the Security Assistance Division to undertake a comprehensive study of the foreign officer specialty in July 1982 in order to identify the Army's requirements for officers in the Foreign Area Officer Specialty through the year 2000, to examine different options in training foreign area officers and recommend the best training strategy, and to design the most efficient management structure for career progression in the specialty. General Richardson forwarded the completed study to Lt. Gen. M. R. Thurman, the Deputy Chief of Staff for Personnel, on 8 September 1982 for approval and implementation. The study projected an increase in the number of foreign area officers from the current level of 1,138 positions to 1,929 by calendar year 2000, stated that the Army would need to train approximately 209 specialists each year to meet future requirements compared with the current level of 100 officers per year, and asserted that the increased training requirement would mean the addition of eighty-three more in-country studies per year at an estimated cost increase of $3.6 million. Subsequent studies will determine how best to train officers for each region within the foreign area officer specialty.

Beginning in fiscal year 1983, U.S. Army foreign area officers will no longer study Chinese at the Ministry of Defense Chinese Language School (MODCLS) in Hong Kong. The British school took over third-year foreign area officer training when the United States reduced its presence in Taiwan. The Army found the school to be very structured with no flexibility and focused exclusively on language training. The Army wanted its foreign area officer students to have third-year training designed to meet their individual needs: a mixture of language training, area studies, and travel. The British would not agree. The Defense Language Institute will provide third-year training in Chinese.

Significant innovations in the affiliated program also occurred at the United States Army Russian Institute (USARI) at Garmisch, West Germany, and the U.S. Army Institute for Military Assistance at Fort Bragg. The Russian institute contracted with George-

town University to provide a graduate degree in Russian studies, which Georgetown will conduct concurrently with the two-year institute program. A one-year trial will begin in the summer of 1983. The Institute for Military Assistance started a graduate degree completion program with several North Carolina universities. The foreign area officer course at the institute will count as six of the twenty-five hours of credit needed for a master-of-arts degree. The pilot program, a joint degree in government with Campbell University, began in July 1982. Eventually, the joint program will expand to include area studies, international relations, political science, economics, history, anthropology, and sociology. The Institute for Military Assistance planned to inaugurate one-year language training programs in Spanish and French in January 1983. The Institute for Military Assistance also began a visiting professors program in 1982. Five visiting professors drawn from among the fields involved in the degree completion program will serve on a one- or two-year basis.

9

Research, Development, and Acquisition

In the 1970s, following the Vietnam War, the Army planned a modernization program that would increase the Army inventory by more than 500 new weapons and equipment systems. According to General Donald R. Keith, the commanding general of the Army Materiel Development and Readiness Command, it would be the largest modernization program "in the history of the Army." During fiscal year 1982, this program was beginning to pay important dividends—thanks to budget increases in 1981 and 1982—as the M1 Abrams tank, the Black Hawk tactical helicopter, the new Stinger air defense weapon, and the Bradley fighting vehicle, along with other items, reached the field.

The purpose of this program, as explained by Lt. Gen. James H. Merryman, General Keith's successor as Deputy Chief of Staff for Research, Development, and Acquisition, was to modernize an army that had fallen increasingly further behind the armies of the Warsaw Pact nations. This situation had developed in the 1970s during which the Soviet Union exceeded U.S. production outlays for weapons and equipment by about 75 percent and outspent the United States for research and development by more than 50 percent. There was, however, more to the modernization program than simply bringing the Army up to standards after a period of neglect; an army that is to maintain itself in the years ahead must press forward with a program of research and development today, if it is to field the weapons and equipment it will need tomorrow.

In planning for the conduct of future operations against numerically strong, well-equipped forces such as those of the Warsaw Pact nations, the Army in 1981 developed the concept of the AirLand Battle. Under this concept the Army described an extended battlefield in which there would be an integrated use of conventional, nuclear, chemical, and electronic means to attack an enemy "to the full depth of his formations." Basing its projections on an intelligence estimate of the nature of Warsaw Pact forces to the year 2000 and beyond, the Army sought to ascertain its weapons and equipment needs for the AirLand Battle 2000. The Army set out to meet these needs in its research and

development program for the next decade, building on the work already under way.

The Army's operational and technological projections were, of course, simply predictions and not revelations of things certain to come, but they were based on experience and on the Army's best estimates of what contemporary developments meant for the near future.

As Eric C. Ludrigsen noted in a recent issue of *Army*, a historically interesting and significant aspect of the modernization program is that it appeared at inception to be system oriented rather than manpower oriented. That is, it seemed to look more and more toward substituting machines for manpower, in contrast to past tradition in which the Army, composed largely of marching infantry, was clearly labor intensive. In the years ahead, it seemed likely that in the Army, as was always the case in the Navy and Air Force, machines would be paramount.

As might be expected, the Army's modernization program is enormously expensive and takes place during a period of several years in which the Army's share of the defense budget has been shrinking. When Congress passed the 1983 defense authorization in the summer of 1982, it cut the Army's procurement budget request by 4.35 percent. In spite of this, procurement funds for fiscal year 1983 increased over those of fiscal year 1982.

In common parlance, procurement is the step following research and development (R&D). Today's Army, however, thinks in terms of research, development, and acquisition, a term that encompasses the complex life cycle of Army materiel from conceptualization through validation, development, production, and deployment. Conceptualization grows out of the study of threat projections, technological forecasts, and determinations concerning potential equipment or materiel systems, including complex weapons, that would be useful to the Army under known or projected circumstances. In the validation phase, the Army verifies preliminary designs and engineering plans, resolves or minimizes identifiable logistical problems, and in general validates the concept for full-scale development. During the development phase the Army generates, engineers, fabricates, and tests an item, after which it decides whether or not to accept the item into the inventory. Finally, in the production and deployment phase, the Army trains the operational units to use the item, procures it, and then distributes it to the field. This phase is a long process of applied science, manufacturing, and distribution. At various steps in this process, several important official committees become involved.

Research

The Defense Science Board (DSB), the senior advisory body in the Department of Defense, consists of thirty-three members, including the chairmen of the primary public advisory committees of the three military departments as ex officio members. The thirty members-at-large are appointed for four-year terms and are selected on the basis of their preeminence in the fields of science and engineering, including management and long-range planning. A group of senior consultants, also outstanding scientists and engineers, assists the board in its deliberations. Under the direction of the Undersecretary of Defense for Research and Engineering (USDRE), the DSB forms various task forces composed of board members, senior consultants, and other experts to study questions raised by the Secretary of Defense, the Undersecretary, and the Chairman of the Joint Chiefs of Staff. When a study is completed, the task forces present a formal briefing to the board and to appropriate DOD officials. They also submit a written report to the USDRE for approval and forwarding to the Secretary of Defense and Chairman of the Joint Chiefs of Staff that contains findings, recommendations, and a suggested implementation plan. After final approval, the report is published and distributed to concerned government agencies and other organizations. Durng fiscal year 1982 approved recommendations focused on the responsiveness of universities to defense research needs, very high speed integrated circuits, forward area laser weapons, and structural hardening of the B–52.

At the Army level, the Army Science Board (ASB) advises the Secretary of the Army and Chief of Staff on research and development directions and programs, on system acquisition policies and procedures, and on other matters affected by science and engineering. During the past year, ad hoc subgroups and review panels checked on the status of the Deputy Secretary of Defense's Acquisition Improvement Program and worked on new ways to improve the Army's acquisition process. These groups also examined options for using the limited number of Roland fire units and missiles that will be delivered to the Army with the close-out of the U.S. Roland program, and assessed the potential of artificial intelligence and robotics technologies in meeting Army needs relative to battlefield technology, research and technology insertion, management of research and development personnel, and plant automation. They also focused on means to ensure the smooth operation and maintenance of new, more advanced sys-

tems in terms of personnel qualifications, training, hardware, operational burdens on weapon systems, and systematic changes pertinent to the overall process of research, development, and acquisition. The Army Science Board sponsored studies on terrorism, including the problems of hostages, terrorist arsenals, terrorist incidents, the plausibility of mass destruction terrorism, and the use of bacteriological and chemical warfare agents by terrorists. The board also examined past and present hypervelocity technology and special armor programs and investigated general principles dealing with the impact of complex battlefield software systems. Two summer studies were conducted in August 1982. The first took up the acquisition and retention of Army scientists and engineers, both military and civilian. The second reviewed the Army's Research, Development, Test, and Evaluation, Army (RDT&EA), programs on chemical warfare and biological defense, including content, balance, funding, support facilities, and management.

The Advanced Concepts and Technology Committee (ACT), a high-level group of scientists, engineers, and professional Army officers representing ODCSRDA, ODCSOPS, ODCSPER, TRADOC, DARCOM, and the Army Research Institute, is responsible for evaluating unsolicited proposals received from private industry that have significant potential for the Army. During fiscal year 1982, ACT funded twenty-nine different projects conducted by firms under contracts signed with the Army's development commands for a total of $5.9 million. Areas under investigation included an advanced tunable laser, a rocket-assisted kinetic energy projectile, a synthetic aperture radar, elimination of tail rotor on helicopters, ceramic turbines, polymeric microelectronics, nitramine propellant, and a solid-state near millimeter wavelength source.

The Laser Weapons Technology program for fiscal year 1982 continued to emphasize early demonstration of laser weapon concepts and advancement of the high-energy laser technology base. Primary technology accomplishments were the initiation of ultraviolet preionization laser experiments, construction of a propagation cell for performing in-house experiments, assessment of in-band laser damage, continuation of prime power development at MICOM (U.S. Army Missile Command) in conjunction with MERADCOM (Mobility Equipment Research and Development Command) and ERADCOM (Electronics Research and Development Command), and the conduct of joint Army-Navy hot spot tracking experiments.

Two contracters, Hughes and TRW, continued with the com-

petitive preliminary design for the forward area laser weapon, demonstrator (FALW–D), but Congress cut the funding for the program, causing its suspension.

A contract was let to Westinghouse on 1 April 1982 for the design and fabrication of the Roadrunner, which will demonstrate the close combat laser assault weapon (CCLAW) concept. The preliminary design review was held in September 1982. On 29 July 1982 the House Armed Services Committee blocked a request to move CCLAW to a separate program and added the funds to the laser weapons technology program. The authorization bill of 8 September 1982 affirmed this action.

The U.S. Army Engineer Waterways Experiment Station (WES) carried out a successful program in the area of military engineering research and development, military hydrology, and civil works engineering research and development during fiscal year 1982. Among the more significant projects was the demonstration of a new antiarmor obstacle using a developmental blasting agent. It involved pumping a slurry explosive into buried pipe, detonating it, and creating a ditch. In the demonstration neither an armored personnel carrier nor an M48 tank could cross the blasted barrier. A microprocessor-based procedure to forecast tactical streamflow was developed and tested. In addition, two initiatives were begun under the Dredging Operations Technical Support Program—one would address the long-term impact of dredged material disposal, while the other would evaluate disposal alternatives and would document existing procedures for predicting the effects of contaminated dredged material on the environment.

WES's Aquatic Plant Research Program provides assistance to Corps of Engineer districts, to state and local agencies, and across U.S. borders to the governments of Panama and Canada. During fiscal year 1982, an evaluation was completed on the effectiveness of introducing three insects and a pathogen into Louisiana waterways to control the growth of the water hyacinth, which was clogging the state's rivers and lakes. The study showed that, since the project began in 1977, the proliferation of the water hyacinth had been checked and that the area of its infestation had been reduced from 1.75 million acres to 350,000 acres.

The Corps of Engineer's Cold Regions Research and Engineering Laboratory (CRREL) coordinated the SNOW-ONE-A field experiment, which was conducted at the Vermont Army National Guard's Ethan Allen Training Center in Jericho, Vermont, from 30 November 1981 through 23 February 1982. As with the previous year's SNOW-ONE experiment, SNOW-ONE-A had the

objective of addressing problems posed by the winter environment on the performance of electro-optical and millimeter-wave systems. Specific goals of the experiment, which were met successfully, were to expand the data base for electromagnetic energy propagation through falling and blowing snow that had been initiated during SNOW-ONE, document the influence of snow cover on look-down sensor performance, conduct a preliminary winter-battlefield dust and debris subtest, and carry out a helicopter-induced obscuration subtest.

Construction of CRREL's Frost Effects Research Facility moved forward during fiscal year 1982, and the structure was expected to be ready for use in the winter of 1984–1985. The 29,000-square-foot building will house twelve test basins, an instrumentation and operation room, a mechanical and electrical equipment room, and a storage and staging aisle. The facility will permit seasonal and perennial (permafrost) frozen-soil conditions to be created and maintained artificially, and will provide the capability to assess, under controlled conditions, the effect of winter conditions on the durability of engineering structures, such as foundations, pavements, and underground utility lines. The new facility will substantially improve the reliability of test data because research projects will no longer be dependent on the vagaries of weather; it will also increase research productivity since the structures under examination can be subjected to a number of winter test cycles each year.

Ballistic Missile Defense

The Ballistic Missile Defense (BMD) program gained increased significance in 1982 when the Reagan administration announced its strategic modernization plan on 2 October 1981. This plan would terminate multiple protective shelter (MPS) basing of the Air Force's MX intercontinental ballistic missile (ICBM); direct immediate deployment of 100 MXs in U.S. Minuteman ICBM silos as a temporary means of improving strategic capability; and direct further research and development on BMD and two other potential basing options, one or more of which would be chosen in 1984 for increasing long-term survivability of the missile. The US. Congress moved up the decision date to July 1983, and then to December 1982.

The BMD program manager and deputy program manager relocated from Huntsville, Alabama, to the BMD Program Office in Washington, D.C. The purpose of the move was to improve efficiency in responding to increased management de-

mands from Washington. At the same time as the relocation, which occurred in September 1982, command of the organization's Ballistic Missile Defense Systems Command (BMDSCOM) in Huntsville, a dual function of the program manager since 1976, reverted to a separate position.

In 1982 the BMD organization was authorized 106 military and 523 civilian spaces. Funding obligations totaled $596,948,233 and included $125,473,224 for the Advanced Technology Program, $333,061,981 for the Systems Technology Program, and $138,413,028 for the Kwajalein Missile Range.

Responding to the President's strategic modernization decision, BMD management in 1982 reassessed and reoriented the Systems Technology and Advanced Technology programs. A balance was sought between two major objectives: first, the preservation of cost-effective defense options which could be developed and deployed rapidly to meet near-term objectives with low development risk; and second, the maturation of advanced technology systems concepts which could counter projected Soviet threat growth and still be cost effective.

Attention was focused on two major efforts within the Systems Technology Program: (1) the preprototype program in progress since 1979 to demonstrate technology associated with an endoatmospheric low-altitude defense (LoAD) system capable of defending land-based ICBMs deployed in MPS or fixed silos; and (2) the homing overlay experiment (HOE) concerning technology for a nonnuclear exoatmospheric interceptor. Work also continued on other aspects of the program: advanced systems analysis, systems definition studies, development of threat and weapon effects data, evaluation of BMD in relation to current proposals resulting from strategic arms limitation or reduction talks, and formulation of options for the second of the reviews required every five years on the Antiballistic Missile Treaty. The strategic evaluations supported systems definition studies and also provided responses to requests from the Army's Office of the Deputy Chief of Staff for Operations and Plans, Office of the Undersecretary of Defense for Research and Engineering, Office of Director of Defense Program Analysis and Evaluation, and the Arms Control and Disarmament Agency.

Activity was stepped up for the LoAD effort, which was given the name Sentry in April 1982 and later altered to Sentry–D. The Sentry Project Office performed extensive analyses to determine BMD effectiveness in defense of the MX in various basing modes, including closely spaced basing (CSB). The office also participated in MX basing studies with the Air Force Ballistic Missile

Office–BMD Core Group and with the Air Force staff panels. On 14 June 1982, the Secretary of Defense issued formal directions reorienting the Sentry effort from support of the MPS-based MX to the MX in a CSB mode. Management then redirected development of major components, such as the interceptor, radar, and data processor, for the system to address specific issues peculiar to CSB. Testing progressed on the major components, most of which were based on technology proven in the Site Defense and other programs. The accelerated and restructured Sentry effort was designed to support the fiscal year 1983 decision called for in the President's plan regarding a U.S. strategic deployment option.

Development progressed rapidly on the vehicles for the scheduled HOE flight tests, which would decide technical issues associated with optical homing and nonnuclear kill capability in the exoatmosphere. Special emphasis at all management levels resolved problems encountered during 1981 in developing the long wavelength infrared homing sensor, and fabrication was completed on several sensors. Calibration of the flight-1 homing sensor was concluded in August and begun on the flight-2 sensor, which will also be used as a backup for flight 1. Structural elements were finished for some HOE flight vehicles. Systems tests were completed for the first HOE flight vehicle (FTV–01) and started on the second. Flight preparations began using FTV–01, and refinement of launch operational procedures and training of launch crews and support personnel proceeded. Following an in-process review to determine its readiness, the FTV–01 was shipped to the Kwajalein Missile Range.

In systems definition efforts to provide U.S. responses in the event of unconstrained growth of the Soviet threat, primary attention was given to pursuit of an endoatmospheric nonnuclear kill (ENNK) capability to replace or augment the nuclear interceptor in the Sentry system. Obvious advantages of an ENNK system include greater public acceptance, avoidance of nuclear release requirements, more siting and handling flexibility, and the ability to be thoroughly tested. An intensive study of the feasibility of such a system was conducted from 13 November 1981 to 8 January 1982, and the results were briefed to the Undersecretary of the Army and to the Office of the Secretary of Defense (OSD). Interest in the project led to the establishment of an ENNK task force on 6 July 1982 to determine top-level system performance parameters, to develop ENNK system concepts, and to formulate specific technology requirements.

Also under consideration as a cost-effective option of the

BMD growth was a layered defense concept in which an exoatmospheric defense system such as HOE combined with an endoatmospheric underlay defense such as Sentry to provide a two-tiered defense for fixed-base ICBMs and other high-value targets. In the BMD study initiated in 1981 to define a layered defense system for the 1990s, three prime contractors submitted separate concepts for such a system. In March 1982, BMDSCOM extended the study of these proposals, which were (a) a concept for high-value target defense, (b) a concept for sea-launched ballistic missile (SLBM) defense, and (c) a concept for ICBM defense.

In June 1982, in response to an inquiry from OSD, the BMD program manager established the Spartan Defense System Task Force to determine the efficacy of the Spartan missile in defense of the MX ICBM deployed in a CSB mode. Using Spartan for this purpose was appealing since both the missile and its warhead had already been developed and thoroughly tested, and a number of both had been stockpiled when the Safeguard BMD system was deactivated. Using Spartan, however, required definition of a system to perform those functions previously done by other components of the Safeguard system. The task team defined such a system based on existing hardware, and it determined Spartan's effectiveness in defending the MX in a CSB mode against a number of plausible attack scenarios. Results were given to OSD in September 1982.

The Simple-Novel System Working Group was established in July 1982 to evaluate rapidly deployable concepts for defense of CSB. Analysis of two concepts, conventional guns and environmental dust, was completed before the end of the year.

In August 1982, the Systems Technology Project Office initiated phase II of the Airborne Optical Adjunct Study in which a versatile, multimission threat acquisition system would be defined and a development program planned for a tactical prototype demonstration.

In the Advanced Technology Program, conducted by the BMD Advanced Technology Center (BMDATC), management focused attention on efforts offering substantial potential for improving BMD capabilities. Major technology efforts included the ENNK Technology Program, the Designating Optical Tracker Program, the Forward Acquisition System Program, the Optical Aircraft Measurements Program, the Miniature Kill Vehicle Program, the Distributed Data Processing Program, and the Cobra Judy program.

Operating under a severely constrained budget, BMDATC

limited its ENNK efforts to establishing key technologies that were critical to the operation and effectiveness of the system. Concept definition studies determined an ENNK capability. Installation of radar was completed at the Kwajalein Missile Range for use in collecting ENNK data. By direction of the Undersecretary of the Army, BMDATC began planning for an expanded ENNK development program to provide a broad technology base from which lower-risk ENNK systems of the future could be constructed.

A successful flight of BMDATC's Designating Optical Tracker Program was concluded in August 1982. This flight, as well as previous ones, progressively demonstrated the capability of long-wavelength infrared sensors to perform more complex, generic BMD functions under realistic engagement geometry and environmental conditions. Additional flights are planned.

Significant progress was made in the Forward Acquisition System Program, designed to resolve critical system and technology issues associated with the BMD forward acquisition function through comprehensive ground testing. Critical design reviews were completed, and system, subsystem, and interface performance specifications were published. However, this program was terminated at the end of fiscal year 1982 to make funds available for a higher-priority program.

Several milestones were achieved in the Optical Aircraft Measurements Program in 1982. In the aircraft platform area, a Boeing 707b aircraft was purchased from American Airlines through an Air Force contract and was delivered to Wright-Patterson Air Force Base, Ohio, in March. In June 1982, the 60-percent design review of the aircraft hangar was conducted satisfactorily. Separate contracts were awarded for the focal plane array development and the sensor integration effort. The preliminary design review of the focal plane array was done in September 1982. In August 1982, the Army and the Air Force signed a memorandum of agreement outlining their respective responsibilities and roles in the program.

In the Miniature Kill Vehicle Program, BMDATC successfully tested lightweight motors and designed a more advanced optical sensor. Management identified the most expensive items in the technology areas in order to cut potential production costs.

Cobra Judy, a shipborne S-band phased array signature instrumentation radar system, underwent rigorous testing and evaluation before becoming fully operational in 1982. The system's performance was outstanding. In fiscal year 1983, it will be transferred to the U.S. Air Force Eastern Space and Missile

Center. Specifications have been finished for adding a single-beam X-band radar to the system. Unlike the basic system which was jointly funded, the modification is to be completely funded by BMD, and then all funds for operating the modified system are to be provided by the Air Force.

A number of projects completed in 1982 improved Kwajalein Missile Range (KMR) capabilities. A high-speed digital data transmission link set up between Lexington, Massachusetts, and the missile range provided almost immediate delivery of mission information to Lexington for data reduction operations. Crypto equipment, incorporated at the terminals of the link, ensured secure communications. A multistatic measurements system, developed under joint BMDATC and KMR sponsorship, improved calculation of the pierce point of a reentry vehicle as well as flight diagnostics. This system uses multiple remote sites for tristatic reception of TRADEX L-band radar echoes as well as bistatic echoes of the Advanced Research Projects Agency's long-range tracking and instrumentation radar (ALTAIR) UHF signals for signature analysis and netted defense technology tests. Modifications to the ALTAIR made it a fully operational contributing sensor of the Air Force Detection and Tracking System. Also completed was installation of a millimeter-wave instrumentation radar. When this system, a BMDATC project begun in 1981, is fully calibrated, it will collect data on reentry targets and satellites.

In 1982, the missile range successfully completed development of the C-7A Terminal Area Support Aircraft and the Kwajalein-Broad Ocean Area Tugboat projects in support of MX testing. In engineering tests using two targets of opportunity, the aircraft and tugboat demonstrated terminal area scoring with the Sonobuoy Missile Impact Location System (SMILS), telemetry with a wide-angle luneberg lens, and optics with streak and motion picture cameras. A Department of Energy vessel was leased to reference the SMILS array geodetically. The availability of land reference in the Marshall Islands allows the MX impact area to be extremely accurate for reentry vehicle scores.

In 1982, negotiations regarding present and future use of the KMR continued between the U.S. and the Republic of the Marshall Islands (RMI), one of the self-governing entities which make up the Trust Territory of the Pacific Islands. On 30 May 1982, U.S. and RMI officials signed an agreement to end the 35-year U.S. trusteeship. When ratified by the United States and the Marshall Islands, this Compact of Free Association would recognize the islands' autonomy but would give the United States

extensive access to Kwajalein and other Marshall Islands over the next fifty years in exchange for $1.5 billion in economic aid and rent. An interim agreement provided continued U.S. access pending ratification of the compact. On 18 June 1982, the Kwajalein Atoll Corporation, an association of Kwajalein landowners, began an organized occupation on two major KMR installations, primarily to protest the terms of the compact. Since the demonstration was illegal according to the interim agreement, the U.S. waited for RMI and the landowners to settle the matter themselves. However, when the issue remained unsettled, the United States began discussions with the RMI and the landowners on 2 September 1982 in an attempt to determine what issues needed to be resolved to end the demonstration. These discussions set the stage for further negotiations in Washington, D.C., in October 1982.

Command, Control, and Surveillance

During fiscal year 1982, the Army continued its participation in the Joint Tactical Communications Program, known as TRI–TAC, and achieved another major milestone in the successful completion of the production decision process and contract award for the Family of Digital Group Multiplexer Program. The start of production for this major element of TRI–TAC, in conjunction with the ongoing Army manufacture of the AN/TYC–39 and AN/TTC–39 switches, will provide our tactical forces with secure, reliable transmission of tactical command and control data, voice, and message traffic communications. The Army also received and accepted its first production quantities of the C–6709 basic net radio interface device and successfully fielded the C–6709 in Europe. Progress continued on the development of other major elements of TRI–TAC. Specifically, the Army Communications Development Laboratories fabricated an improved version of the existing AN/TSC–58, now called the Improved Message Facility (IMF). The IMF was tested and received favorable reviews in a live-exercise scenario. The IMF will now be fielded in lieu of developing a longer and more expensive alternative, will result in savings of hundreds of millions of dollars, and will provide an earlier capability to our fighting forces. Other Army TRI–TAC programs, such as the Single Subscriber Terminal, will enter operational testing and will soon be ready for production.

In November 1981, Congress terminated development of the Standoff Target Acquisition System (SOTAS) because of its high

cost. Congress agreed, however, that a SOTAS-like capacity—the ability to see what an enemy or potential enemy was doing behind its borders or frontlines—was needed; it directed the Army to seek a less expensive system to provide this "see-deep" capability. The Army examined various alternatives to SOTAS, concluded that less costly alternatives were available, and designed a program to develop them. Meanwhile, the Air Force was pursuing a program of its own, Pave Mover, which would possess, among other features, radar-guided weapons delivery. On 19 May 1982, the Undersecretary of Defense for Research and Engineering (USDRE) directed the Army and Air Force development programs to merge in order to provide a basic radar that could be expanded to satisfy each service's wide-angle surveillance and weapons guidance requirements, thereby reducing the duplication that would be inevitable with two separate programs.

The resultant program, the Joint Surveillance and Target Attack Radar System (Joint STARS), was financed by funds programmed for the two parent programs—Battlefield Data Systems and Pave Mover. The Air Force appointed the program manager, and the Army named the deputy program manager. A Joint Program Office (JPO), staffed with Army and Air Force personnel along with appropriate technicians and administrators from the civilian sector, was established at Hanscom Air Force Base in Massachusetts, with a subelement at Fort Monmouth, New Jersey. Since the JPO began work in June 1982, four radar contractors have been directed to examine the feasibility of designing a single radar to be carried on the TR–1 and OV–1D platforms (these studies were completed and reviewed by the JPO on 3 Setember 1982). Furthermore, the JPO has begun to prepare general specifications for the Joint STARS radar and system; the Motorola ground station, designed in the SOTAS program and practically completed, has been evaluated for applicability as the Joint STARS ground station; and preparation has started on the Program Management Plan, which would include acquisition strategy and concomitant cost and schedule estimates.

Tactical Satellite (TACSAT) Communications Terminals are being developed to support Army and Marine Corps mobile ground forces by providing reliable communications between widely dispersed and rapidly moving forces. Each system uses a communications satellite as a relay station between two terminals, thereby eliminating the need for a line of sight between the terminals. In the initial phase of the TACSATCOM program, two single-channel and one multichannel system will be fielded.

The single-channel systems will operate in the ultrahigh frequency (UHF) range, while the multichannel system will function in the super high frequency range. The single-channel Special Communications system (AN/MSC–64) is in full-scale production and will provide secure command and control communications from the National Command Authority to various special units worldwide. The single-channel manpack (AN/PSC–3) will support ranger and special forces units. A production contract for the AN/PSC–3 has been awarded. The Multichannel Initial System (MCIS), or AN/TSC–85A and 93A, provides super high frequency communications down to brigade level. Low-rate multiplexers and antijam modules will be added to fielded systems following procurement in 1985. In the objective phase, one single-channel and one multichannel system will be fielded. The Single Channel Objective Tactical Terminal (SCOTT), currently in advanced development, is an extremely high frequency (EHF) system, and fielding depends on the availability of an EHF satellite. The Multichannel Objective System (MCOS), also an EHF system, is still in the concept validation stage.

Fiscal year 1982 began with the Single Channel Ground–Airborne Radio Subsystem (SINCGARS) still in advanced development with three competitors: Rockwell-Collins, Cincinnati Electronics, and ITT. The Army dropped Rockwell-Collins after the Electromagnetic Environmental Test Facility, a subactivity of the Test and Evaluation Command, determined that the Army did not need the technology being developed in the Rockwell-Collins system. DARCOM and the Army staff investigated ways to increase the production rate anticipated for SINCGARS. Possible options ranged from dual-source producers for maximum rates starting in the first program year to accepting the single-source, slow rate of production previously approved. After four months of effort, the Army decided that the option it could afford for SINCGARS during this fiscal year was to increase the production rate, although not as significantly as desired, and to begin dual-source production later.

As a separate action, the Army decided in the summer of 1982 to delete the aircraft radio version from SINCGARS development. This action followed DARCOM's and TRADOC's proposal that the Army modify the existing AN/ARC–186 to be compatible with SINCGARS. DARCOM has assigned development of the modified AN/ARC–186 to the Aviation Research and Development Activity (AVRADA).

The Army, with Marine Corps participation, conducted a

successful operational test II on the Position Location Reporting System (PLRS) during the period October to December 1981. The Marine Corps performed additional testing for amphibious forces at Camp Lejeune, North Carolina, in January 1982. Despite the successful tests, Congress denied production funding for fiscal year 1982 because of unresolved development problems. The Army responded by restructuring the PLRS program to prepare for production in fiscal year 1983 and to correct deficiencies in reliability, availability, and maintainability noted during development and operational test II (DT–OT II). Additionally, in the spring of 1982, the Army deployed the system to the 9th Infantry Division, High Technology Test Bed, Fort Lewis, Washington, for innovative concept testing. A full-scale development contract for the PLRS test set was awarded in June 1982.

PLRS was presented to Marine and Army Systems Acquisition Review Councils III (MSARC, 30 July 1982; ASARC, 1 September 1982) for a production decision. The Army and Marine Corps endorsed the acquisition strategy and approved PLRS for production. At the ASARC III for PLRS, the acquisition strategy of the Army Data Distribution System (ADDS) was approved, subject to future milestone decision reviews. Based on PLRS guidance from the ASARC III, the production request for proposal (REP) was amended and forwarded to the contractor.

The development contract for phase one of the Advanced Field Artillery Tactical Data System (AFATDS) program—a Communications Control System (CCS) that will be used on the current field artillery's Tactical Fire Direction System (TACFIRE) and subsequently for AFATDS—was awarded to Singer Librascope in May 1982. The CSS will greatly upgrade the protocol interface for current digital communications with TACFIRE and will allow both TACFIRE and AFATDS to use communication technology from the emerging current generation.

Regarding TACFIRE, Litton received the final procurement contract for 139 sets. Fielding of the system continued on schedule with approximately 33 percent of the force being equipped with TACFIRE. Fielding should be complete in the third quarter of fiscal year 1986.

The third production contract for the ground laser locater designator (GLLD)—for 225 units with an option for 214 more in fiscal year 1983—was awarded in July 1982. Delivery of prior procurements continued, and sixteen GLLDs were fielded to the 82d Airborne Division. Hughes Aircraft Company received a contract for 125 laser designator range-finder modification kits for the fire suport team vehicle (FISTV). Other provisions of the

contract provided for adapting the GLLD to use on the FISTV and for improving the GLLD design.

After completing force development test and experimentation (FDTE) at Fort Hood during the first quarter of fiscal year 1982, the mortar locating radar, AN/TPQ–36 (Firefinder), underwent configuration adjustments. Its conveyance was changed from the M561 Gama Goat to an M35 21/2-ton truck. The antenna transceiver group was changed from an M116 3/4-ton trailer to an M103 11/2-ton trailer. The main reason for these modifications was the inability of the Gamma Goat and the 3/4-ton trailer to handle the weight of the AN/TPQ–36 and its antenna. The decision was also made to drop the 10KW turbine generator in favor of a more reliable power source. The interim replacement, the PU 304A generator, is used with the MPQ–4 radar. The new generator, which should be available by fiscal year 1985, will consist of two MEP 112A l0KW 400 Mz diesel generators mounted on the M103 trailer. First article testing on the AN/TPQ–36 neared completion as the fiscal year ended, with only humidity testing left. Major problem areas were uncovered in low-temperature performance, electromagnetic interference, and water fording. In each case, corrective action was taken and each radar was screened to ensure full operability. These corrections resulted in improved reliability of the system's hardware and software. At year's end, the first set of radars that met the requirements of the tactical user was delivered to the field.

Regarding the other version of Firefinder, the artillery locating radar (AN/TPQ–37), six complete sets were shipped to U.S. Army, Europe (USAREUR). Three USAREUR divisions underwent new equipment training, and one division was issued the item. Further issues were awaiting the receipt of spare parts. A grid deck failure during testing at Fort Hood led to a major design and reengineering effort for the antenna assembly and the subsequent replacement of all grid deck and associated hardware. To achieve greater durability, the antenna transporter has been changed from an M–832 dolly set to a flatbed trailer. Contractor testing of the trailer has been completed, and government testing has begun. Work continued on developing a low-temperature quality assurance procedure to increase the reliability of the AN/TPQ–37 in the field.

Regarding night vision devices, production continued on manportable common thermal night sights (MCTNS): AN/TAS–4 (TOW), AN/TAS–5 (Dragon), and AN/TAS–6 (night observation device, long range). Production contracts were awarded to Texas Instruments to add a missile-tracking capability to the AN/TAS–4,

using hardware developed under a Hughes Aircraft Company TOW 2 contract, and to convert the night sight to closed-cycle cooler operation. Program management responsibility for MCTNS shifted to the U.S. Army Missile Command. Production of second generation AN/PVS–5A night vision goggles continued in order to maintain a warm production base while third generation devices were phased into production. The third generation, aviator's night vision imaging system (ANVIS), AN/AVS–6, was type classified, and first production contracts were awarded. The first third-generation image intensifier system has been extremely well received by users from all services. Engineering development for the third-generation night vision goggles, AN/PVS–7, began, while advanced development continued on a thermal viewer (a common module-based periscope) for drivers of the M1 tank and the M2 and M3 combat vehicles.

Full-scale development of the remotely piloted vehicle (RPV) continued in fiscal year 1982. The first series of RPV flight tests began on 16 July 1982 at Fort Huachuca, Arizona. While problems were encountered in two of the first three flights, these were corrected, and the last five flights of the eight that were conducted were 100-percent successful. Advanced development continued on a forward-looking infrared (FLIR) navigational system to enable the RPV to fly at night and under adverse weather conditions. Extended flight testing was conducted, with full-scale development of the FLIR system expected during fiscal year 1984. At the close of the fiscal year the Army Systems Acquisition Review Council (ASARC) validated the RPV requirement, completely funded RPV full-scale development, and approved funds for additional sets of hardware for early user tests and training and to help in the transition from research and development to production.

The Technical Control and Analysis Center–Division (TCAC–D) is designed to manage, analyze, and report signal intelligence (SIGINT) and electronic warfare (EW) information. It will provide the tactical commander with near real-time information on enemy movers, shooters, and electronic emitters. Each TCAC–D system contains three standard S–280 shelter modules mounted on five-ton trucks. In each of the modules are three analyst work stations equipped with military microprocessors and the software necessary to support the functions assigned to the particular work station, an ADP system which is linked with the three work stations, a magnetic tape unit, a line printer, and a moving head disk. This modular design enables continuity of operations during a geographical move, because each of the modules can func-

tion either independently or in conjunction with the others. Although the TCAC–D system has experienced problems in software development, most have been resolved, and government acceptance is near. Field deployment of the system is scheduled early next year.

Combat Support

The ground emplaced mine scattering system (GEMSS), which is one of the family of scatterable mines (FASCAM), continued in development and procurement in fiscal year 1982. A competitive, single-year contract with fixed-price incentive was awarded to the AAI corporation for twenty-two dispensers.

First article tests on the extended trip lines for the M74 antipersonnel mine were successfully completed; first article tests were also successful on the electronics assembly for the M75 antitank mine. Fiscal year 1982 procurement contracts for the M74 mines were also awarded on a competitive basis. This resulted in Lockheed Corporation being selected as a third producer for scatterable mines in addition to Honeywell, Incorporated, and the Aerojet-General Corporation. The Army expects cost reduction benefits from this expansion of the mine production base.

Production deliveries of the M712 Copperhead cannon-launched guided projectile began in October 1981, but early start-up problems hampered production and the contractor did not reach the limited production rate of 200 rounds per month until May 1982. Performance was also a problem. During an OSD reliability demonstration, Copperhead achieved a reliability rate of only 67 percent, well below the 80-percent rate required by OSD for authorization to begin the economic production rate of 700 rounds per month. The Copperhead project manager took remedial action, and by November 1982 the projectile's reliability had increased to 84 percent. Production will continue through June 1984, with a three-year buy (fiscal years 1980–1982) of 7,695 rounds compared with the originally planned contract quantity of 9,169. The reduction reflected inaccurate estimates of actual production costs and changes that increased the projectile's cost. Production equipment will be stored.

During fiscal year 1982, the government of Japan signed a production contract for twenty-five Copperhead projectiles to be delivered for testing in June 1984. In addition, the United States and the United Kingdom began preparations for a 25-round Copperhead interoperability test scheduled for April 1983.

Several actions taken during the past year helped move the Army's tactical truck program forward. Fiscal year 1982 was the second year of five-year contracts on the AM General Corporation five-ton and Oshkosh Truck Corporation ten-ton truck programs. Initial production testing on both of these vehicles began during the year and will be completed in early fiscal year 1983 for the five-ton truck and later on for the ten-ton truck. Similar testing also began on the AM General M915A1 line haul tractor. Deliveries of Maschinenfabrik Augsburg Nuernberg (MAN) ten-ton trucks to support Pershing II and the ground-launched cruise missile (GLCM) were also made.

On 13 July 1982, a competitive four-year contract was awarded to General Motors Corporation for 53,000(+) commercial utility and cargo vehicles (CUCV)—48,000 for the Army and the remainder for the Air Force and Marine Corps. The CUCV comes in three basic body styles: utility (resembling a Chevrolet Blazer), cargo (pickup truck), and ambulance. Vehicles from the CUCV family will replace all of the M880-series trucks (Dodge pickup) and those of the M151 1/4-ton truck fleet not replaced by the companion high mobility multipurpose wheeled vehicle (HMMWV). The CUCV program also follows congressional direction to commercialize 20 percent of the M151 1/4-ton jeep fleet.

Additionally, there were significant acquisition programs for a variety of trailers as well as a procurement of 134 lightweight trail bikes (motorcycles) for the 101st Airborne Division (Air Assault), the 82d Airborne Division, and the 6th Cavalry Brigade. The request for proposal (RFP) for the Swedish BV206 small unit support vehicle (SUSV) was released on 11 August 1982. The SUSV is a fully tracked, diesel powered, articulated vehicle (10,500 pounds curb weight, 3000 pounds payload) designed to carry platoon materiel and to evacuate wounded over all terrains in arctic and alpine locations.

The high mobility multipurpose wheeled vehicle (HMMWV) program focused on development testing (DT) and operational testing (OT) of the contractor vehicles in fiscal year 1982. As a result of the development contracts signed in July of 1981 with AM General Corporation, General Dynamics Land Systems Division (formerly Chrysler Defense, Incorporated), and Teledyne Continental Motors, eleven prototype HMMWVs each were delivered in April 1982 for development testing, operational testing, and physical teardown and logistics demonstration.

Development testing was conducted by the U.S. Army Test and Evaluation Command at Aberdeen Proving Ground, Mary-

land, and Yuma Proving Ground, Arizona. Operational testing was conducted at Hunter Liggett Military Reservation, California, by the Combat Developments Experimentation Command under the auspices of the Operational Test and Evaluation Agency. Marine Corps operational testing was conducted at Coronado, California. Other subtests were run at the U.S. Army Tank Automotive Command, Warren, Michigan; Natick Laboratories, Natick, Massachusetts; and Fort Bragg, North Carolina. Operational testing was completed in September 1982, with development testing extending into October 1982.

A request for proposal for the HMMWV multiyear production contract was released to contractors on 22 September 1982. At the completion of the reporting period, all three HMMWV contractors remained in the program and are expected to compete for the HMMWV five-year production contract.

Plans to award an initial production contract for the M9 armored combat earthmover during the year were delayed because of a protest filed with the General Accounting Office (GAO) over the Army's intention to continue with the developing contractor (PACCAR) during initial production, and over the decision, following a comprehensive review of the M9 program, to reduce the planned initial production from eighty-seven in fiscal years 1982 and 1983 to fifteen in fiscal year 1982 and to move up multiyear procurement from fiscal year 1985 to 1984. GAO upheld the Army's position on obtaining an initial production contract, and negotiations with PACCAR were resumed late in the fiscal year. The follow-up multiyear procurement for about 1,300 units will be awarded through competition.

The Army and the Department of Energy (DOE) continued production of the M753 improved 8-inch nuclear projectile, but at a slightly slower rate as minor mechanical redesigns were made to correct deficiencies that surfaced during testing. And while the prohibition on deploying enhanced radiation warheads was in force throughout the year, equipping Army units for the M753 mission was completed in Europe and continued for active Army units in the continental United States. A key decision was made to equip all reserve units for the M753 mission. Procurement of the unit equipment needed by the reserve components to handle the M753 will begin in fiscal year 1984.

Development of the improved 155-mm. nuclear projectile (XM785) fell behind by eleven months because of congressional reductions in the fiscal year 1982 budget requests for DOE capital equipment and long lead-time procurement. The addition of eleven months to the development schedule had the positive

effect of eliminating the need to order hardware for development test II (DT II) and operational test II (OT II) before completing the engineering design phase, thereby significantly reducing the chance for program error. The extra time also allowed the Army to begin developing an integrated control unit which combined several functions and saved the government $30 million in procurement costs.

The Army decided to equip all reserve component units for the XM785 nuclear mission. The NATO FH70 cannon in-bore environments were characterized, and verification testing to qualify the 155-mm. nuclear projectile for NATO cannons was begun. Also, the program to demonstrate ballistic similitude with the M549 conventional projectile was started.

During fiscal year 1982, the 8-inch binary intermediate volatility agent (IVA) continued in advanced development, which was also begun on a medium altitude proximity (MAP) fuse to support the 8-inch binary program. Regarding the multiple launch rocket system (MLRS) binary program, which also continued in advanced development, the Vought Corporation received a contract for the integration, design, development, and testing of the concept definition hardware. Furthermore, construction began in November 1981 on the 155-mm. projectile facility at Pine Bluff, Arkansas. Completion of the facility is scheduled for December 1984.

Missiles and Air Defense

The Hellfire modular missile system (HMMS), an evolutionary system to accommodate a family of terminal homing seekers placed on a common airframe, was type classified as standard by the Army Systems Acquisition Review Council (ASARC) in November 1981. Although Hellfire is a major system, the Undersecretary of Defense waived review by the Defense Systems Acquisition Review Council (DSARC), and authority for a production decision was returned to the Army. The Vice Chief of Staff approved Hellfire for production, and contracts were awarded to Martin Marietta Corporation for Hellfire laser seekers and to Rockwell International Corporation for 680 Hellfire missiles and 135 launchers.

In tests of the Hellfire conducted during the year, three warheads functioned normally at impact, but one missile fell far short of the target, demonstrating that the fuse had remained in the safe condition as required by the actual trajectory. The structural feasibility of installing four Hellfire launchers and sixteen

missiles on the Black Hawk UH–60A helicopter was demonstrated by Sikorsky Aircraft with support from Rockwell International Corporation and the Hellfire/GLD Project Office. The feasibility of launching from the Black Hawk was successfully demonstrated at Redstone Arsenal. The Environmental Storage Program was initiated in August 1982 by delivering six missiles in containers and four launchers to both the Tropic and Arctic Test Centers. Two ballistic missiles were successfully launched to verify the redesigned latch on the lightweight launcher, which will be the production launcher.

Hellfire's engineering development program, which was concluded in August 1982, was an outstanding success from both a technical and cost standpoint. The HMMS met or exceeded every criteria specified in the materiel need document except weight (99.8 pounds actual weight was slightly more than the goal of 95 pounds). The project manager and TRADOC agreed to accept the higher weight

Several improvements to the Hellfire were begun during the year. These included work on a minimum smoke motor, a sealable container, an improved autopilot, a change in the design of the wire harnesses, and several design advancements in the laser seeker. The prime contractor started developing AN/USM–410 software and adapters for the depot-level repair of Hellfire launchers. In addition, efforts were made to improve the design of the test program sets developed for intermediate-level aviation maintenance of the launcher. The High Technology Test Bed at Fort Lewis, Washington, will test two prototype ground-launched Hellfire systems early in fiscal year 1983.

Substantial increases in estimated production costs for the Pershing II missile—program acquisition unit cost rose by 56.8 percent, and the unit cost for procurement in fiscal year 1982 increased by 29.5 percent—did not deter the Army from pushing forward. In June 1982 a contract was signed with Martin Marietta for the production in fiscal year 1982 of twenty-one missiles and associated ground support equipment with the option of purchasing an additional ninety-one missiles and ground support equipment in fiscal year 1983. On 22 July 1982, the first engineering development flight of the Pershing II failed seventeen seconds into the flight. The cause of the failure, a leak in the forward dome of the first-stage motor case, was a relatively minor problem that did not require redesigning the case; however, there was a two-month delay in the flight test program while corrections were made. By the end of fiscal year 1982, the engineering development program was about 75 percent

completed, and close to 95 percent of the qualification tests were done.

Pending availability of the Pershing II, work progressed on Pershing Ia modifications to extend the missile's operational life. Improvements to the erector-launcher, hoisting beams, and programmer test station and power station adaption kits, begun in July 1981, were completed during the past year. The increased reliability of the system seen in fiscal year 1981 continued, and the operational readiness rate of the Pershing Ia was the highest of any system managed by the U.S. Army Missile Command (MICOM). Maintaining high readiness and reliability will require increased attention as the availability of spare parts becomes a critical problem during the remaining years of Pershing I deployment. The aging system is outdated from a technological standpoint, and many vendors no longer manufacture some parts used in the system's hardware.

Improvements to the basic tube-launched, optically tracked, wire-guided (TOW) system, called TOW 2, will enable this system to defeat anticipated threats from enemy armor and also preserve the Army's large investment in its primary infantry heavy assault weapon. Over 300,000 TOW missiles have been produced for the Army, the U.S. Marine Corps, and the armed services of forty foreign countries. The development of TOW 2 culminated in October 1981 with a decision to begin production of TOW 2 missiles and modification kits to convert basic TOW launchers to the TOW 2 configuration. Contracts were awarded in fiscal year 1982 to procure a total of 12,600 TOW 2 missiles and 2,852 launcher modification kits. These items are in production, and first deliveries are planned for early 1983. The overall TOW improvement program is managed by MICOM at Redstone Arsenal, Alabama. Advances in the warhead are directed by the Army Research and Development Command's Picatinny Arsenal. The prime contractor for TOW improvement is Hughes Aircraft Company, and the primary subcontractor is Texas Instruments, Incorporated.

The Army initiated two major product improvement programs (PIPs) to upgrade the nonnuclear and nuclear warheads for the Lance missile. The nonnuclear PIP is an exchange of the old submunition for a much improved one, while the nuclear PIP upgrades the technology of the warhead. Both improvements should be completed by the end of fiscal year 1983.

Approximately ten years of Dragon missile production at Redstone Arsenal, Alabama, ended in November 1981. Before production was phased out, it was determined that the Dragon

met the criteria for the layaway mobilization program and plant equipment package assignment. All Dragon equipment was removed from the Redstone Arsenal assembly site and placed in a holding area. The Raytheon Company received a layaway contract in May 1982.

A relook study on the Infantry Manportable Assault Weapon System (IMAAWS), completed in April 1981, proved inconclusive and led to a delay in starting development with the reallocation of funds to other high-priority programs. A subsequent TRADOC study defined the infantry antiarmor requirements of a more comprehensive review entitled the Close Combat Light Mission Area Analysis (CCLMAA). The larger study, which was completed in March 1982, addressed light infantry scenarios and, through war-gaming and analysis, clearly supported the need for Rattler—the new name given to IMAAWS in November 1981—in dismounted infantry units. In June 1982 the Army leadership approved an RDTE program for Rattler missiles and launchers for light forces. On 1 September 1982 the Deputy Chief of Staff for Operations and Plans formed a Rattler working group to expedite planning and to respond to concerns on the need, affordability, and technology of Rattler.

During fiscal year 1982, the third year of Patriot production, a contract was awarded for 9 fire units and 176 missiles, bringing the total to 19 fire units and 423 missiles under contract out of a program goal of 103 fire units and 6,217 missiles. The first production missiles and fire units from the fiscal year 1980 contract were accepted by the government and delivered to Fort Bliss, Texas, and White Sands Missile Range, New Mexico, for training and integration testing. The first Patriot battalion was activated at Fort Bliss, and all initial training of instructors and key personnel was completed in preparation for the battalion to reach its operational capability in the continental United States by the spring of 1983.

The third of four series of confirmation tests was completed, as directed by the Defense Systems Acquisition Review Council to demonstrate that problems with Patriot software maturity, electronic countermeasures, and reliability had been corrected. The results were reviewed by OSD, and authorization was given for the Army to proceed with the fourth, and last, series of tests. Additionally, OSD delegated responsibility fr the Patriot program's management review to the Army.

The United States continued to support a NATO acquisition study effort for Patriot. Germany, the Netherlands, and Greece have indicated an interest in pursuing bilateral programs with

the United States. The Netherlands and Greece submitted requests for price and availability, and discussions with Germany are under way. Under a foreign Military Sales case, the government of Japan began a study of Patriot as a replacement for their Nike Hercules and basic Hawk systems. The study is scheduled for completion in January 1983.

Following a decision to extend the life of the Hawk missile indefinitely, the Army formed an evolution task force to study technologies, concepts, and improvements for the support of U.S. air defense through the year 2000. In a related development the U.S. Army Missile Command prepared a study on the evolution of the Hawk missile. The report particularly emphasized changes that would reduce manpower requirements, improve strategic transportability, and increase firepower. The study would serve as the basis for future (phase IV) Hawk product improvement programs. During the past year, the Army has continued to concentrate on improving Hawk readiness, producing hardware for phase II improvements, and refining requirements and design concepts for phase III. Fielding of phase I advancements was completed, and deliveries of phase II software were made.

Deliveries of Stinger missiles were delayed during the year because of problems with gripstock fabrication and the rejection of Lot 8 for two "eject only" malfunctions. An engineering change proposed by the contractor and approved by the Army resolved the gripstock problem, and Lot 8 was requalified. As a result, there were only short delays in Stinger deployment, which was continued to USAREUR and which was begun to the 82d Airborne Division. USAREUR units fired forty basic Stinger missiles during the first annual European service practice held at NAMFI Range on Crete. The gunners recorded thirty-seven successful firings during this training exercise for new equipment. The ten-round Stinger-Post contractor flight test program ended in May 1982. Negotiations with Germany continued on the memo of understanding for NATO coproduction of the Stinger. FMS sales of the Stinger to the Netherlands and Japan got under way during fiscal year 1982.

Because of budgetary constraints, the Army halted production of the Roland air defense missile after procuring 27 fire units and 595 missiles. Also, the fire unit will be mounted on a wheeled vehicle (M812 derivative) rather than a tracked vehicle. The New Mexico Army National Guard's 5th Battalion, 200th Air Defense Artillery, will be the only unit in the Army equipped with the Roland.

The division air defense (DIVAD) gun continued under research and development through fiscal year 1982. A two-month test begun in January 1982 verified that the system performed satisfactorily. The Defense Systems Acquisition Review Council met on 4 May 1982 and recommended that the DIVAD gun, which was renamed the Sgt. York division air defense gun, go into production. The recommendation was approved, and Ford Aerospace and Communications Corporation received an initial production contract for fifty units. Following the award of the contract, several measures were taken to ensure that units delivered to the Army satisfied requirements completely. Durability and mobility testing was conducted at Aberdeen Proving Ground. The contractor facility worked on integrated logistical support, software maturation, and built-in test capabilities.

Ground Combat Systems

The M1 Abrams tank went into full-scale production in fiscal year 1982, and by the end of September a total of 612 tanks had been accepted. Fielding the M1 tank to Europe began in January 1982, and by the close of the fiscal year, four M1 Abrams tank battalion sets had been issued within USAREUR. Three of the Abrams-equipped battalions have completed all maintenance and crew transition training at the Vilseck-Grafenwoehr training area. The fourth battalion will complete its training in November 1982. The three M1 battalions that had finished transition training participated in the REFORGER exercise of 13–24 September 1982. The performance of the vehicles and units was superb. Training and fielding at FORSCOM was begun in August 1982. Three companies of the 2d Battalion, 5th Cavalry, 1st Cavalry Division, at Fort Hood, Texas, have their tanks; the fourth company is expected to have tanks in October 1982. Maintenance training was completed, and the battalion was well into crew transition training.

Work continued during the year to correct two of the thirteen requirements for reliability, maintainability, availability, and durability that had not been met during DT–OT III testing. These deficiencies involved track life and power train durability. It had been determined that track life was limited by state-of-the art rubber technology, but investigations were under way to extend track life. To correct the power train durability performance which was 4 percent short of the requirement, a follow-up durability test was instituted to validate corrections made during production and to raise power train durability to acceptable levels.

First production delivery of the 120-mm. tank gun, which will replace the 105-mm. gun as the main armament of the Abrams tank, slipped from August 1984 to the fourth quarter of fiscal year 1985 because of problems with the U.S.-produced 120-mm. ammunition. The cartridge cases posed special problems with regard to field serviceability and survivability if the ammunition compartments were penetrated. Tests for special shock and isolating techniques were under way at Aberdeen Proving Ground to resolve the problems.

Production of the M60A3 tank in fiscal year 1982 reached 342 vehicles, of which 122 were for the U.S. Army and 222 were for foreign customers. Of the U.S. Army's new production requirement of 1,666 M60A3s, a total of 1,542 had been produced by the end of the year.

Significant progress was made during the year in converting the M60A1 tanks in the Army's inventory to the M60A3 tank thermal-sight configuration—made in light of the Vice Chief of Staff's decision of October 1981 to have a two-tank fleet (M1s and M60A3s) by the 1990s. Anniston Army Depot made 286 conversions, and the Mainz Army Depot accomplished 161. Considerable cost savings, realized through a fiscal year 1982 multiyear contract on fire control solid-state computers and laser range-finders, were applied to the conversion program, thus enabling the M60 tank program manager to fund extra quantities of A1 to A3 conversion kits and increase the annual out-year conversion rate from 360 to 460. This will allow Mainz to complete its part of the conversion program by fiscal year 1990, and Anniston by fiscal year 1994.

During fiscal year 1982, deployments of M60A3s to USAREUR continued from both Anniston and Mainz. CONUS deployments began this year, with the first increment of M60A3 tanks converted at Anniston being fielded to elements of the 24th Infantry Division at Fort Stewart, Georgia. Furthermore, in July 1982, a historic first was realized when eighteen M60A3 tanks were issued to the 48th Infantry Brigade (Mechanized) of the Georgia National Guard. This event marked the first time in history that a National Guard unit received a new weapon system before active Army units did.

Work continued in fiscal year 1982 on M60-series tank product improvements, which were being developed on the basis of two objectives. The primary objective was to advance tank performance in the areas of firepower, mobility, reliability, availability, maintainability, and deployment. The secondary goal was to ensure commonality, or interoperability, with the M1 Abrams tank

in order to standardize logistic support and increase training efficiency. Design of adaption hardware for the M8 chemical alarm was finalized, testing of hardware developed in the Clean Air Program was initiated, and development of an automatic fire suppression system continued.

On their own initiative, some contractors developed plans to upgrade the M60 tank beyond the M60A3 tank's thermal-sight configuration. In the fall of 1981, the M60 program manager performed an in-depth study of several upgrade alternatives for the M60A3 tank. Primary areas under consideration were improved lethality, survivability, and fire control. Several options were addressed in each area. Also, the U.S. Marine Corps reviewed alternative concepts to upgrade its M60A1 tank fleet.

The FMC Corporation received a fiscal year 1982 procurement contract for 600 Bradley fighting vehicles. Delivery of 143 vehicles during the year represented the full purchase of 100 vehicles made in fiscal year 1980 as well as 43 of the 400 vehicles bought under fiscal year 1981 authorizations. The vehicles were furnished to service schools and to DARCOM for development of logistics support and training. The Bradley fighting vehicles completed first article testing in August 1982. Meanwhile, initial production testing of seven vehicles had begun at Aberdeen Proving Ground in June 1982 and was expected to continue until the following January. In addition to the vehicle program, the 25-mm. gun and the 5.56 firing port weapon were in production.

The overhaul and modification of M113A1 armored personnel carriers of the Eighth Army and Western Command, in order to bring them to M113A2 status (improved cooling and suspension), was being accomplished at the rate of fourteen per month at the DAEWOO Industries plant, Chang Won, Korea. The limited buying of 180 new M113A2 carriers forced deliveries under contract to be stretched out in order to keep production lines open until fiscal year 1983 purchases were made. FMC Corporation invested its own resources and began building approximately five hundred M113A2 carriers in anticipation of foreign sales.

The Improved TOW Vehicle (ITV) is an M113A2 armored personnel carrier modified by the addition of a two-tube launcher head, mounted on a hydraulically driven cupola with a 360-degree traverse capability. It provides armor protection for the crew and TOW systems components against small arms and indirect artillery fire. Fielding of the ITV to active Army and selected Army National Guard units continued throughout fiscal year 1982. A production contract for the kits needed to modify

the ITV for firing the TOW 2 missile was awarded in January 1982. Deliveries are scheduled to commence in November 1982, with initial installation on TRADOC training base vehicles in January 1983 and full implementation of the retrofit program scheduled to start with the upgrading of TOW system equipment beginning in July 1983.

While modernization of the howitzer system remained a relatively low priority during fiscal year 1982, some improvements were made. In the area of towed artillery, 204 M198 155-mm. howitzers were procured for units of the Army National Guard and Army Reserve. With regard to self-propelled artillery, the Army neared completion of an investigation of possible improvement of the M109 155-mm. howitzer that would maintain it as an effective system through the 1990s. And although upgrading the M109 was preferred, the Army also considered developing a new system or adapting a foreign system to meet U.S. defense needs. Additionally, the Army was moving forward with the Howitzer Extended Life Program (HELP). Prototype HELP kits, which are designed to improve reliability, maintainability, survivability, and NBC protection, should be ready for testing in the next two years.

The field artillery ammunition support vehicle (FAASV) is an armored ammunition carrier built on a modified M109 chassis. It presently incorporates a crane for loading ammunition onto the vehicle, an X-Y stacker for moving ammunition inside the vehicle, and a conveyor for moving ammunition from the FAASV into the howitzer. The conveyor can also be used to move ammunition into the vehicle. Development testing was begun on 16 November 1981 and was completed on 21 April 1982. Operational testing started on 11 January 1982 and ended on 21 April 1982. The development acceptance in-process review, at which a decision will be made on the FAASV type classification, will be held in December 1982. Contract award for initial production is planned for February 1983.

In response to a solicitation to thirty-nine firms on 29 June 1981 requesting offers on a proposed five-year procurement of a standardized 9-mm. personal defense weapon (PDW), four acceptable proposals and weapons samples were received from Beretta USA Corporation; Smith and Wesson, Inc.; Maremont Corporation; and Heckler and Koch, Inc. The sample handguns were subjected to extensive tests to demonstrate the characteristics of each weapon in relation to the requirements set forth in the solicitation. The results of this thorough evaluation and analysis showed that no samples met all essential requirements. Pri-

mary areas of failure were reliability and operation under adverse conditions (low temperature, mud, and sand). On 19 February 1982, the Army canceled the solicitation.

On 30 June 1982, the Deputy Secretary of Defense directed the Army, as lead service, to revise the joint service operational requirement, acquisition plan, and test plan for the 9-mm. PDW. A contract award date was set for the fourth quarter of fiscal year 1983 in order to meet an urgent Coast Guard requirement and to comply with the request of the chairman of the House Appropriations Committee for an expedited procurement process. Progress in carrying out this instruction was brought to a halt by language in the fiscal year 1983 Authorized Bill and Conference Report prohibiting the Army from obligating or expending fiscal year 1983 funds for the evaluation or purchase of 9-mm. handguns. The bill further advised that this prohibition did not preclude the Army from purchasing 9-mm. handguns for the Department of Transportation law enforcement function.

Aviation

Following presentations to the Army Systems Acquisition Review Council (ASARC III) on 9 November 1981, the AH–64 Apache advanced attack helicopter was type classified as standard. The Defense Systems Acquisition Review Council (DSARC III) met on 26 March 1982 and approved production of the AH–64; the Secretary of Defense confirmed the decision on 15 April 1982. Production contracts were signed with Hughes Helicopters, General Electric, and Martin Marietta; deliveries were expected in 1984.

Throughout the year, tests conducted on various components of the AH–64 proved successful. Flight testing of the Apache's target acquisition designation system (TADS) at Yuma Proving Ground was also accomplished. This covered verification of day and night detection and recognition ranges, forward-looking infrared direct view optics and day television designations, automatic and manual tracking performance, and automatic bore sight verifications. The 500-hour endurance test of TADS and the pilots night vision sensor (PNVS) ended successfully on 12 December 1981. TADS–NVS tower testing began on 1 June 1982 and was not concluded by the close of fiscal year 1982.

A reassessment of the Cobra program, entitled Cobra 2000, led to the termination of engineering development for the forward-looking infrared augmented Cobra TOW sight (FACTS); in addition, improvements for the AH–1S Cobra/TOW were lim-

ited to night capability, a four-blade rotor system, and a mechanical environmental control unit, among others. The limitations were imposed by a series of general officer reviews by the Army staff, which acted upon a list of improvements recommended by TRADOC. The four-blade rotor system was later determined not to be affordable, and development was stopped. Work on other advancements continued. During fiscal year 1982, 129 AH–1Gs were converted to AH–1S fully modernized Cobras, and five new production AH–1Ss were received for the Army National Guard. Fielding of the fully modernized Cobra was completed in Korea and continued in Europe.

Full-scale development of the Scout helicopter under the Army helicopter improvement program (AHIP) began 1 November 1981, following successful negotiations with Bell Helicopter Textron over production option ceiling prices for sixty aircraft for fiscal years 1984 and 1985. Preliminary design review for the AHIP Scout was completed in March 1982, after milestone II reviews by ASARC and DSARC. The design phase of the program was essentially done by the end of the fiscal year, by which time Bell Helicopter Textron had finished modifying five OH–58A airframes to the AHIP Scout configuration. Limited engineering support testing on "brassboard" hardware was conducted to demonstrate the feasibility of the selected AHIP Scout design concepts.

In December 1981 the Secretary of Defense approved the establishment of the joint advanced vertical lift aircraft (JVX) program, with the Army as lead service. A joint technical assessment group met on 4 February 1982 to examine existing technology that might be applicable in developing the JVX. The group evaluated the high-speed conventional helicopter, the compound helicopter, the tilt rotor concept, and the lift–cruise fan concept. It concluded that requirements could be met with a common airframe. The joint technical assessment group worked in conjunction with the joint service operational requirements group, which had its first meeting on 8 February 1982. Its task was to document and provide a detailed definition of requirements for a common aircraft. The service secretaries signed a memorandum of understanding on 4 June 1982 which set program objectives for the JVX. An implementing memorandum of agreement was being staffed as the fiscal year ended.

A multiyear (fiscal years 1982–1984) procurement contract for 194 UH–60A Black Hawks was awarded to Sikorsky Aircraft on 12 April 1982. The $950-million contract saved the Army $81.1 million over the three-year period. The Army awarded a

triservice multiyear contract for fiscal years 1982–1983 to General Electric for T700–GE–700 engines to support procurement of Army, Navy, and Air Force Black Hawk aircraft and the Army's Apache helicopter for fiscal years 1982–1984. In May 1982 three Hellfire missiles were successfully fired from the Black Hawk during tests at Redstone Arsenal as part of a congressionally mandated feasibility demonstration. Later the ESSS (External Stores Support System) contract was modified to require the developer to perform, among other things, justification tests for increasing the Black Hawk's maximum operating gross weight from 20,250 pounds to 22,000 pounds.

The CH–47 modernization program continued on schedule as it entered its second year of production. Following the contract award to Boeing Vertol in December 1981, nineteen aircraft were received at the factory for modernization into the much-improved CH–47D configuration. The first production delivery was on 20 May 1982, eleven days ahead of contract schedule. The aircraft was sent to the Patuxent River Naval Air Test Center in Maryland for electromagnetic capability testing. The second production aircraft was delivered on 16 July 1982, one and a half months ahead of schedule. This aircraft underwent 400 hours of first article production testing at Fort Rucker, Alabama. Negotiations were under way at the end of the year for the third-year production contract and for potential three-year procurement (fiscal years 1983–1985). This multiyear procurement was not approved by the Congress.

International Cooperation

Since fiscal year 1979, Belgium, France, the Federal Republic of Germany, the Netherlands, Norway, and the United States—all members of the NATO Army Armaments Group (NAAG)—have been involved in negotiations which led to the approval of a memorandum of understanding dealing with the comparative testing and evaluation of anti-infrared smoke for the protection of combat vehicles. The six NATO countries successfully completed the summer phase of the tests at Bourges, France, in September 1982. Eight smokes were evaluated.

In another NAAG activity, the United States hosted for the first time the biannual meeting of NAAG's Panel X Interservice Group on Six Vehicles for Tactical Air Mobility. The discussions, which were held at the Naval Postgraduate School in Monterey, California, focused on Soviet bloc capabilities, icing problems, and antiarmor helicopter systems. Fiscal year 1982 activities of

the Antitank Guided Weapons (ATGW) Working Group, composed of France, the Federal Republic of Germany, the United Kingdom, and the United States, focused on codevelopment of the next generation of ATGWs: the United States worked on the next manportable replacement, the Europeans on a new vehicle-mounted weapon. Although the memorandum of understanding authorizing cooperation in this area expired in March 1982, the working group met in June to discuss Rattler, formerly IMAAWS (Infantry Manportable Assault Weapon System); a completed feasibility study; and plans for the next phase of system development. At the September meeting of the Senior National Representatives held in Bonn, the ATGW Working Group advised that there was no basis on which a program package could be recommended at that time.

Language in the fiscal year 1982 Department of Defense Appropriation Bill left out the previous exception to the restriction on purchases of foreign-produced specialty metals—nickel, cobalt-base alloys, zirconium, zirconium-base alloys, titanium, and titanium-base alloys—given to buys that furthered NATO rationalization, standardization, and interoperability or that were made in compliance with offset agreements. This omission threatened the purchase of the improved 81-mm. mortar from Great Britain, the squad automatic weapon (SAW) from Belgium, and the Maschinenfabrik Augsberg Nuernberg (MAN) truck from the Federal Republic of Germany. Relief came with the passage of the Department of Defense Authorization Act for fiscal year 1983, Title XI of which restored the exemption.

Over the years, the Department of Defense has lent equipment to allied and other friendly countries for tests and evaluation under the heading of international research, development, and standardization. The Department of Defense also borrows equipment for the same purpose. Before 31 December 1981, the Army had authority to approve equipment loans. On that date, Congress amended the Arms Export Control Act of 1968 so that now the United States must lease equipment rather than loan it, under agreements such as the American, British, Canadian, Australian (ABCA) Program, the North Atlantic Treaty Organization memoranda of understanding, and data exchange agreements. On 28 May 1982, an executive order delegated leasing authority to the Office of the Secretary of Defense. Leases for the purpose of cooperative research and development, electronic interface projects, and military exercises or for equipment past three-quarters of service life may be made at no cost to the lessor–tantamount to a loan. However, many requests for equip-

ment do not satisfy these criteria and require certain rental payments although they support standardization and interoperability. The International Office, ODCSRDA, has taken action to seek legislative relief allowing the loan or no-cost lease of materiel for standardization and interoperability purposes.

Procurement

The obligation plan of the Army procurement appropriation for fiscal year 1982 amounted to $14.644 billion: $12.622 billion for direct Army procurement, and $2.022 billion for reimbursable customer sales. The plan covered all obligations in fiscal year 1982 from funds appropriated for fiscal years 1980–1982. Actual obligations incurred during the year exceeded the plan by $131 million ($139 million over the plan in direct procurement and $8 million under in reimbursable sales). Total obligations of $14.775 billion were made up of $12.760 billion in direct Army procurement and $2.015 billion in reimbursable customer sales. The lapse of funding for the expiring fiscal year 1980 program came to $189.3 million.

The Army procurement portion of the budget request for fiscal year 1983 amounted to $17.829 billion—$3.2 billion over the fiscal year 1982 appropriation. This increase would permit higher production for several weapon systems, including the Black Hawk utility helicopter, the advanced attack helicopter (AAH), the multiple launch rocket system (MLRS), the Sgt. York division air defense (DIVAD) gun system, Pershing II, Patriot air defense missile system, and the precision guided and improved nuclear-conventional missile systems. Requests to the weapons and tracked combat vehicles (WTCV) appropriation included initiatives to improve combat power, particularly in support of NATO. Funding requests for the procurement of ammunition included substantial increases in the laser-guided Copperhead round and the initial procurement of binary chemical round components. The funding request for items under the "other procurement" appropriation included $2.339 billion for communications and electronic equipment, $1.256 billion for tactical and support vehicles, and $971.8 million for other support equipment. Final congressional action on the Army procurement appropriation for fiscal year 1983 had not been completed by the close of the reporting period (30 September 1982).

10

Construction, Facilities, Real Property, and Physical Security

An army must perform a whole series of mundane but necessary activities far removed from the realities of the battlefield. It must, for example, take on the roles of real estate broker, landlord, and policeman: to buy land for training and housing troops and sell it when no longer needed; to build structures in which to house troops and to develop, test, repair, and store equipment; to maintain the land and the structures; and to protect these assets from vandalism and the people who live and work there from crime. In 1982, the Army found much to be optimistic about concerning its performance of these missions.

Construction

In fiscal year 1982, the Army requested $1,079,700,000 and received a total obligational authority of $943,701,000 from Congress. During the year the Department of Defense construction fund transferred some $7 million to the Army, increasing the obligation authority to approximately $951 million. Based on this figure, the Military Construction Directorate of the U.S. Army Corps of Engineers (USACE) predicted an award of $826,071,000 under the 1982 Military Construction, Army, program. The field operating agencies of the Corps of Engineers made an exceptional effort and obligated $823,041,000 before the end of the fiscal year. Congress allocated the $951-million appropriation among various needs. The largest portion, $328 million, was invested in troop housing and medical, community, and related facilities, including an $18-million barracks in Korea; barracks modernization worth $19 million at Fort Dix, New Jersey; an $81-million hospital at Fort Carson, Colorado; a $7-million physical fitness center at Fort Lewis, Washington; and alterations to an administrative and support facility at Walter Reed Army Medical Center, Washington, D.C. Operations and training received $75 million from the Military Construction, Army, budget. Major projects included a $12-million tank crew qualification range at Grafenwoehr, Germany, and construction of battalion headquarters and classrooms at

Fort Drum, New York; Fort Hood, Texas; Fort Irwin, California; and Fort Stewart, Georgia. Congress authorized $157 million for maintenance and production facilities to equip the field forces. It provided $103 million to facilities for supply, research and development, administration, and utilities. Some $61 million went for conserving energy, $5 million for combating water pollution, and $7 million for cleaning the air. Congress gave the Army $28 million to acquire land at Fort Carson and $11 million to correct Occupational Safety and Health Act deficiencies. It appropriated $128 million for general authorization planning and design and $12 million for management services in support of construction projects funded by foreign nations where U.S. forces were the sole or primary user. It allocated $10 million for access roads. The 1982 appropriation provided $26 million in new obligational authority for exigent minor construction projects and $6.78 million for specified minor construction projects. Exigent minor construction projects are those costing $1 million or less which may demand the immediate attention of the Corps of Engineers and which are not specifically authorized by Congress. Instead it appropriates a lump sum. Specified minor construction projects are those costing $1 million or less which Congress specifically authorizes. By the close of the fiscal year, the Army had placed more money in minor construction projects than ever before, $32.2 million.

In view of significant backlogs in military construction and the tightening of budgetary constraints, the Army placed increased emphasis on the more efficient use of installations. Accordingly, the Office of the Assistant Chief of Engineers initiated a review of Military Construction, Army, projects contained in the installation's five-year defense plan, using the recently developed Directed Stationing System (DSS). DSS is a computer program which provides a breakdown, by building category codes, of information on the ability of an installation to house a given force as well as what housing the force requires. DSS indicates surpluses and shortages in the unit under consideration and estimates the expense of expanding facilities to house the force properly. DSS obtains data on current assets of the facilities from reports given by the installation in the Integrated Facilities System and the Real Property Inventory. For comparison purposes, DSS generates data on facilities requirements based on the force structure and equipment information drawn from the Personnel and Logistics Structure and Composition Systems which is incorporated into the Army Stationing and Installation Plan.

The Production Base Support (PBS) program provides the construction necessary to develop, maintain, and retain an effi-

cient industrial base. Although the funding for construction of industrial facilities came from five procurement appropriations, the Army concentrated most of its current work on the ammunition and tank programs. During 1982, these programs received $64 million and $38 million, respectively, of the $102 million in the Production Base Support program. Design continued on projects valued at about $355 million.

In fiscal year 1982, the Corps of Engineers started ten Military Construction, Army, medical projects, of which five were in Europe, one in the Pacific, and four in the continental United States. At the same time, the Corps completed fifteen projects, the largest of which was the Col. Florence A. Blanchfield Army Community Hospital at Fort Campbell, Kentucky. The first hospital named for an Army nurse, the Blanchfield Army Community Hospital contained the most modern medical equipment available. It was, observed a representative from the Office of The Surgeon General, "state of the art." The Mobile District of the Corps of Engineers started the project design in April 1974 and completed it in June 1977. The district office awarded the construction project to a contractor in August 1977. The hospital followed a new design concept that would allow it to survive earthquakes intact. The building consisted of three asymmetrical blocks: one containing beds, another housing administrative offices and diagnostic facilities, and the third having the outpatient clinics. Each block had a different structural system. The contractor completed construction in July 1982. Brig. Gen. Hazel W. Johnson, the Chief of the Army Nurse Corps, officially dedicated the hospital on 17 September 1982.

At the end of fiscal year 1982, the Corps of Engineers had twenty-one medical projects under construction. The eleven hospitals, four dental clinics, one health clinic, and five combination health and dental clinics had a total value of $379 million. By 30 September 1982 Congress had reviewed, authorized, and appropriated the fiscal year 1983 Medical Military Construction, Army, program as submitted and had added a $1,050,000 health clinic to be constructed at Fort Benning, Georgia. The remaining projects approved included hospital alterations at Bremerhaven, Germany, for $29 million; at Gorgas, Panama, for $2.65 million; and at Fort Leavenworth, Kansas, for $13.6 million. Also approved were construction of troop clinics at Camp Casey, Korea, for $3.8 million and at Fort Ord, California, for $5.8 million and a project to upgrade the heating, ventilating, and air conditioning (HVAC) system at the Armed Forces Institute of Pathology, Walter Reed Army Medical Center, for $9.8

million. The Surgeon General's five-year program for modernizing health facilities provided for the following funding: $31.5 million in fiscal year 1984, $323.0 million in fiscal year 1985, $332.1 million in fiscal year 1986, $299.4 million in fiscal year 1987, and $232.3 million in fiscal year 1988. The huge increase beginning in 1985 came from the simultaneous programming of three major Army medical construction projects, a situation resulting from budget cuts and project delays. The Office of The Surgeon General found that anticipated budget cuts made implementation of the total program questionable at best.

The Military Construction, Army Reserve (MCAR), program provides for the design and construction of various facilities to support the Army Reserve's training requirement and mobilization mission. Typical facilities include Army Reserve trainig centers, organizational maintenance shops, equipment concentration sites, weekend training areas, and annual training facilities. During fiscal year 1982 the Corps of Engineers awarded construction contracts for thirty-two MCAR projects worth at $52.7 million. Contractors finished work on projects costing $11.2 million.

The Corps share of the fiscal year 1982 Air Force military construction program amounted to $699.2 million. The Corps had forecast $622 million for award, but actually let $635 million. The Corps awarded contracts for 93 percent of the projects in the 1982 Military Construction, Air Force, program for which it had responsibility, thus exceeding the goal established by the Office of the Secretary of Defense. The unawarded part of the program comprised projects affected by late design and criteria changes. Design continued on an Air Force fiscal year 1983 program that totaled $1,282 million and a fiscal year 1984 program in excess of $1,676 million. The lack of an approved basing mode in 1982 delayed support by the Corps for the Air Force's MX missile. On 1 October 1981 President Ronald Reagan canceled the horizontal protective shelter system in favor of studying several other options. The Corps of Engineers MX Program Agency (CEMXPA), located with the Air Force program manager, redirected its efforts in order to support research and development efforts of the Air Force. The Corps expected a decision on a new basing mode early in fiscal year 1983.

The Corps also let contracts for the construction of projects funded by other Department of Defense agencies. The total amount of construction awards for each agency during fiscal year 1982 was as follows:

Defense Logistics Agency	$10,237,000
Defense Mapping Agency	2,263,000
Defense Dependents School System	39,460,000
National Security Agency	55,100,000
Defense Communications Agency	565,000
Other Department of Defense agencies	$27,264,000

In keeping with the expanded U. S. presence in the Indian Ocean and Persian Gulf, the Department of Defense assigned the responsibility of construction agent for the bases of the Rapid Deployment Joint Task Force (RDJTF) in Egypt and Oman to the U. S. Army Corps of Engineers. During 1982, the Rear Echelon Office of the Corps Middle East Division at Berryville, Virginia, continued to plan and design a base at Ras Banas, Egypt. In Oman the Middle East Division awarded two construction contracts to improve air base facilities at Masirah Island and Seeb. Construction continued at the Thumrait and Khasab air bases. The Middle East Division also designed additional facilities for the two bases to be included in the budgets for fiscal years 1983, 1984, and 1985.

Other overseas construction subject to oversight by the Corps of Engineers, excluding the work discussed in the security assistance section of Chapter 8, included projects in Saudi Arabia and the Soviet Union. During 1982, the Corps continued to design and construct the $56.9 million U.S. Geological Service Mission in Saudi Arabia. Four Corps construction management engineers continued to assist the Department of State in building the new U. S. Embassy complex in Moscow.

During fiscal year 1982, Congress provided $5.9 million in Military Construction, Army, funds for the Corps of Engineers to support construction in Japan and Korea paid for by the host nations. The governments of Japan and Korea designed, funded, and awarded contracts and oversaw the construction of facilities for U. S. forces, which supplement those funded and built by the U.S. government. The Corps participated in preparing the criteria and overseeing the design and construction of facilities funded by the host nation. Japan budgeted $226 million for the program in fiscal year 1982; Korea provided $144 million.

The U. S. Army Construction Engineering Research Laboratory (CERL) at Champaign, Illinois, is the newest of the four Corps of Engineers laboratories. Established in 1968, it is located on a thirty-acre site at the Interstate Research Park, where it takes advantage of the resources and facilities of the University of Illinois and other Midwestern universities. During an average

year, one hundred graduate students perform research on the site as part of their academic program. The CERL interdisciplinary research team consists of 124 scientists and engineers supported by twenty-nine technical and fifty-eight administrative personnel. Nine of the staff members are military personnel.

In fiscal year 1982, CERL's program totaled $18.5 million, of which $9.5 million was direct funding for research, development, test, and evaluation and $9 million was reimbursable funding from the Office of the Chief of Engineers, Corps divisions and districts, major Army commands, the Defense Logistics Agency, the Defense Nuclear Agency, the Defense Communications Agency, the U.S. Air Force, and the U.S. Navy. In the twelve-month period ending 30 September 1982, the U.S. Army Construction Engineering Research Laboratory had a number of products which the Corps successfully field tested and implemented.

Lt. Gen. Joseph K. Bratton, the Chief of Engineers, recommended that the Army adopt the Pavement Maintenance Management System (Paver), developed by CERL, as an optional system. Paver is a computer program designed to help Army facility engineers determine the best maintenance program for streets and roads. In addition, the American Public Works Association selected Paver to test in six cities: Ann Arbor, Michigan; Hayward, California; Kansas City, Missouri; Sparks, Nevada; Tacoma, Washington; and Tampa, Florida. Some sixty cities and counties contributed $200,000 for the test. The city of Hamilton, Ontario, also chose it for implementation. Paver is the first system to assist the city manager, the pavement engineer, the airport manager, and the state highway engineer in finding optimal solutions with limited repair and maintenance funds.

Another CERL project, the Computer-Aided Engineering and Architectural Design System (CAEADS), received pilot testing at the Office of the Chief of Engineers by a private architectural and engineering firm under contract to the Corps. CERL created CAEADS to produce the first 25 percent of any Military Construction, Army, design and the associated cost estimates. Congress, in an effort to have realistic cost estimates, required the Corps to submit 35 percent of the design of any new construction project before it would consider funding the project. The pilot test produced more than one hundred projects in the fiscal year 1984 Military Construction, Army, program at a fraction of the cost and time required by standard methods. CAEADS became the first system in the public domain that architects and engineers could use to evaluate their facilities.

The U.S. Army Training and Doctrine Command (TRADOC) used the Directed Stationing System, originally called the Mobilization Facilities Planning System, at Fort Monroe, Virginia, in MOBEX 83. Within minutes this automated system developed by CERL allows planners to test various responses to any assigned scenario to discover how an installation might best meet real or anticipated mobilization needs.

The Corps of Engineers implemented the Vehicle Maintenance Facility Pollution Control Concept, another CERL project, following successful field tests at Fort Lewis, Washington, and Fort Polk, Louisiana. The concept called for centralized washrack facilities to control and treat waste water from washing vehicles. It also improved waste-oil handling and maintenance cleaning at vehicle maintenance complexes. Following the new procedures, washing a tank took six minutes in the tests compared with thirty minutes using the normal routine.

CERL made a breakthrough in corrosion protection with the development of the ceramic anode. Anodes are constructed with sacrificial coverings and are installed on metal structures, such as lock walls, hinges, water towers, and water pipes, to prevent their corrosion through contact with water. The invention makes corrosion protection available at one-fourth the cost and in a reduced size—500 times by weight—that allows installation in areas previously too small. The ceramic anode has at least the same life as the bulky, forty-pound, silicon-iron anodes used in cathodic protection for the past thirty years, a technology now obsolete. At the end of the fiscal year, CERL was field testing ceramic anodes on lock gates at Millers Ferry in the Mobile Engineering District; on water towers at Fort Eustis, Virginia, and Fort Ord, California; and on underground pipes at Fort Carson, Colorado, and Fort Polk, Louisiana. CERL also successfully field tested its pipe corrosion monitor at Fort Carson and Fort Polk. The monitor is an automated device that can determine the degree of corrosion of underground pipes without having to excavate.

During 1982, CERL published technical reports explaining the purpose of the Engineering Modeling Study. These included three manuals: one explaining how engineer officers in the field might use the model; another showing how a systems programmer would physically load the magnetic tapes containing the program into a computer; and the executive summary for decision makers, written in nontechnical language. The Combined Arms Research Activity tested the model at Fort Leavenworth, Kansas. At the end of the fiscal year, CERL and the Combined Arms Research Activity were in the last stages of integrating it

into the Combined Arms Center's Corps-Division Evaluation Model, one of the hierarchy of computers at Fort Leavenworth used to simulate combat. The engineer model is the first one developed to determine the impact of engineers on the outcome of battle.

The U.S. Army Materiel Development and Readiness Command (DARCOM) approved the weld-quality monitor developed by CERL and included it in the Manufacturing Methods and Technology Program for the production of the M1 tank. The weld-quality monitor is an automated technique for evaluating welds during the welding process. The welder's torch is actually connected to a computer programmed to monitor certain factors, such as whether the rods are receiving the correct current, whether the right temperature is achieved, and whether the metal is melting as desired. The information allows the welder to correct errors before he finishes. The cost savings that led DARCOM to adopt the monitor are twofold: (1) a reduction in the number of post-weld inspections and (2) a reduction in the incidence of defects. The Navy investigated the problem and concluded that between 10 percent and 12 percent of all welds done in the traditional manner are defective. Furthermore, the Navy discovered that it cost five times as much to repair a weld as to make it originally. The monitor reduces defects to less than 3 percent.

CERL completed work on the Solar Economic Feasibility Assessment Method (SOLFEAS). This user-friendly computer program allows solar energy to be evaluated for new construction processes, as mandated by Congress, within fifteen minutes and at an average cost of $50, compared with a cost of $5,000 to $20,000 using traditional methods. Also in the area of solar energy, construction ended on a photovoltaic power demonstration project at Fort Huachuca, Arizona, developed by CERL. The project, a five-kilowatt system that converts solar energy to electricity at a remote site, is connected directly to the commerical utility without battery storage. At the end of the fiscal year, CERL had begun a checkout test.

Fort Leonard Wood, Missouri, successfully tested the Portawasher, a CERL device to clean dumpsters by using high-pressure, hot-water washing equipment while employing a vacuum system to retrieve the dirty wash water. During the first six months of 1982, Fort Leonard Wood cleaned 1,000 dumpsters with the Portawasher at a savings of nearly 75 percent.

As part of ongoing research to evaluate technology for the problem of handling human waste at remote sites, CERL began field tests of the composting toilet at Fort Leonard Wood in June

1982 with the installation of two units at a firing range. Based on the results of this research, the Army ordered six additional units—two for Fort Irwin, California, two for Fort Dix, New Jersey, and two more for Fort Leonard Wood. The toilets, still in the testing stage, had an average cost of $15,000 to $18,000 per unit, an expense which CERL hoped to reduce markedly once the toilets went into full-scale production.

Three foam domes each with twenty-eight-foot diameters, designed by CERL and constructed at Fort Leonard Wood in December 1981, continued to meet design criteria at the end of the fiscal year. The domes, constructed of polyurethane foam sprayed on an inflated membrane form, were built in an average of twelve hours each under adverse weather conditions—40° F., in a wind gusting from ten to twenty-five miles per hour. Similar-sized domes, previously constructed under more favorable weather conditions, required approximately eight hours each to build. The domes are cost competitive with general-purpose tents and are more durable, insulated, and structurally stable. They offer impressive opportunities for mobilization housing.

CERL also developed a Multiattribute Aid for Prioritization System (MAPS), a computer program which ranks the development of products and systems according to user needs. The ranking is based on six major characteristics, which are broken down into fifteen elements, each with a scoring range from zero to one hundred. Each element is weighted based on its importance to the characteristic. Products and systems are then scored. Examples of elements include such questions as who is interested in the project and how long the Army will use the information gathered in the project after it ends. If a major general is interested in a project, it receives one hundred points. If a colonel is interested, the project receives eighty points. Projects in which lower-ranking officers are interested receive no points. The same system operates with regard to the second element. Projects which the Army will find useful ten years or more after completion receive high scores; projects useful for shorter periods of time receive correspondingly fewer points. The usefulness of the system depends, of course, upon the assumptions built into weighting the elements. The weighting was done by a committee consisting of the commander of CERL, the CERL laboratory director, and the CERL technical director. During 1982 representatives from Bell Telephone Laboratories and the Gas Research Institute requested additional information about the system for possible application to their research and development decisions.

In 1982, several federal agencies used the Environmental

Technical Information System (ETIS) developed by CERL to assist in preparing environmental impact statements and assessments within the Department of Defense. State and local governments, planning firms, and architectural and engineering businesses expressed strong interest in the system. To meet this increasing demand, CERL in 1981 began to transfer the system to the Bureau of Urban and Regional Planning Research at the University of Illinois. The bureau functions as the sole operating contractor; it serves as a clearinghouse for all ETIS information. With this increase in access, the system recorded 550 log-ins, which are separate uses of the program, in July 1982 alone.

CERL also developed the Installation Compatible-Use Noise Zone technology consisting of sensors and mapping equipment. The sensors define the noise patterns at military installations and provide raw data for the production of noise-pattern maps. The maps, which look much like elevation lines on a terrain map, define the noise footprint produced by machine shops, airports, firing ranges, and similar activities as well as the movement of men and materiel to and from these locations. They indicate where planners should not locate housing, troop quarters, hospitals, and other facilities for which external noise might disrupt their smooth operation. The existence of noise zone technology has allowed a cooperative effort to develop between installations and adjacent communities in order to prevent noise-sensitive developments in high-noise areas. CERL estimated that cost savings using this technology amounted to $30,000 per installation.

The hand-held calculator for combat engineers contains five military engineering programs developed by CERL, a critical path method computation program, and several utility routines. Critical path computation means that the calculator follows sequential steps that mirror those taken by combat engineers to complete their assigned tasks. Utility routines refer to software programs that deal with certain complementary tasks often assigned to engineers, such as survey work. Engineer troop units in the United States, Europe, and Korea were testing the programs at the end of the fiscal year. The U. S. Army Engineer School at Fort Belvoir, Virginia, procured 140 calculators for student instruction and training. This marked the first time that the combat engineer had been able to work with a calculator rather than with charts and tables in field manuals.

During fiscal year 1982, CERL, in conjunction with the U. S. Army Mobility Equipment Research and Development Command (MERADCOM), the U. S. Army Waterways Experiment Station, and the U. S. Army Engineer School successfully field tested the

Foam Overhead Cover Support System. CERL designed and developed the system to provide protective cover for TOW and Dragon missile launchers and operators. Tests were held at seven Army and two Marine Corps installations. The participating troops generally accepted the system.

The Department of the Army named four CERL employees as recipients of the Army Research and Development Award in 1982. Janet H. Spoonamore, Kenneth H. Crawford, and Dale L. Herron received the award for their contributions to CAEADS. Mohamed Y. Shahin was honored for developing the Paver system.

Facilities and Real Property

The Corps of Engineers acts as the executive agent for the Department of Defense Recruiting Facilities Program. During 1982, the Corps completed 1,807 actions involving the establishment of new recruiting offices and the relocation, expansion, and upgrading of existing offices. At the end of the fiscal year the four services had approximately 7,750 recruiting offices.

The Office of the Assistant Chief of Engineers (OACE) established a Worldwide Military Command and Control (WWMCC) terminal room to deal with the enormous changes produced by the Army's force modernization program. The WWMCC system will provide the proper management tools for the mission of the Office of the Assistant Chief of Engineers with regard to Military Construction, Army, appropriations; the Family Housing Management Account (FHMA); the Homeowners Assistance Program; and the Wildlife Conservation Program. The Directed Stationing System (DSS), a module of the Integrated Facilities System, became operational on the Worldwide Military Command and Control System during 1982. The Directed Stationing System made Department of the Army Real Property Utilization Studies more responsive to the Army staff, the major commands, and installations. DSS assets analyses provided answers to questions about the facility shortages in major commands and during mobilization exercises.

The Worldwide Military Command and Control room provided the Installation Planning Division of the Office of the Chief of Engineers with an efficient reporting system on which to base its studies. This division—the proponent for installation planning and utilization, stationing of the Army, realignment studies, the Directed Stationing System, and the Army Stationing System and Installation Plan (ASIP)—in the past had prepared station-

ing studies with a "stubby pencil." Using the Worldwide Military Command and Control terminal room, the division prepared studies of activations, inactivations, interservice or intraservice transfers of units, redesignations, and changes of jurisdiction of installations for the Army staff, the major commands, and installations in one-quarter the time. The division also acquired the capability to publish the Army Stationing and Installation Plan on WWMCC terminals. This report helps the Army staff and the major commands to plan construction at installations based on aggregate strength within the five-year plan.

On 23 November 1979, Lt. Gen. J. W. Morris, the Chief of Engineers from July 1976 to September 1980, formally committed the Corps of Engineers to supporting the Army's modernization program. This program calls for the fielding of over 500 new materiel systems in the 1980s together with several force restructuring efforts, including Division 86, the high technology Light Division, and Army 90. General Morris assigned the task of providing technical support to the Army staff and the major commands in identifying all support facilities requirements for the force modernization program to the Military Construction Directorate in the Office of the Chief of Engineers. To accomplish this new mission, the division formed a team of engineers and architects from among current personnel to develop facility support plans (FSP) and other advanced planning guidance. During the fiscal year, the Force Modernization Group had published twenty-two force structure plans together with fifty-five facility worksheets for the new heavy and light divisions. The purpose of the worksheets is to identify bottlenecks which might retard or even halt fielding of the Division 86 and high technology Light Division organizations.

The backlog of maintenance and repair (BMAR) is a measurement at the end of each fiscal year of planned maintenance and repair work which was required but not done because of inadequate resources. As facilities aged and inflation made work more costly, the resources available did not keep pace with deterioration of the physical plant. Consequently, more and more work was added to the backlog during the 1970s. This growth reached its apex at the end of fiscal year 1981 when the Operation and Maintenance, Army, appropriation for BMAR reached some $2.288 billion. The major portion of this backlog was in Europe where BMAR was conservatively estimated at $1.271 billion. Actually, the condition of facilities in Europe was so poor that the BMAR did not realistically portray the requirements in relation to maintainance standards.

Fiscal 1982 proved to be a turning point in the Army's commitment to fix facilities. For the first time in nearly ten years BMAR growth not only stopped, but declined by some $249 million. This was the result of a significant increase in funds. Obligations for maintenance and repair in fiscal year 1982 was 45.8 percent higher than fiscal year 1981. With a sustained multiyear program that meets the new annual requirements and allows for resources to work off the backlog, the Office of the Chief of Engineers anticipates significant improvement in the Army's deteriorating physical plant as well as betterment of the living and working conditions of U.S. forces worldwide.

During fiscal year 1982, the Corps of Engineers acquired 150,000 acres of land for the Army, using both military and civil works appropriations, at a cost of $83 million. Continuing its program of obtaining land for other federal agencies, the Corps acquired 1,895 acres for the Air Force. This included approximately 200 acres with improvements, at a cost of $5.4 million to expand clear zones at fifteen Air Force bases. The Corps purchased 31 tracts of land containing 2,523 acres at a cost of $3.1 million for the Department of the Interior's Big Thicket National Preserve in Texas. This brings the total acquisition for this project through fiscal year 1982 to 1,275 tracts consisting of 73,879 acres at a cost of $69.6 million. The Corps obtained 6 tracts containing 7 acres at a cost of $1,700 for the Department of Energy's Strategic Petroleum Reserve Program. This brought the total acquisition for the program through fiscal year 1982 to 1,085 tracts consisting of 5,590 acres at a cost of $116.4 million. During 1982, the Corps spent $1.1 million in payments to help relocate 150 applicants displaced by its acquisition activities.

At the close of fiscal year 1982, the Department of the Army controlled 11.8 million acres of military land worldwide and 11.7 million acres of civil works land which, with improvements, had an acquisition cost of $16.3 billion and $18.9 billion, respectively. During the fiscal year, the federal government disposed of 3,598 acres of Army land, acquired through both military and civil works appropriations and having an acquisition cost with improvements of $3.9 million. In addition the Army declared and reported to the General Services Administration 74,745 acres of land and improvements for disposal, which had an acquisition cost of $240.8 million. At the end of the fiscal year the Army had leased to others 37,666 parcels of land covering 6.8 million acres. These "outgrants" represented land for which the Army had no immediate use, but to which it wanted to retain title either because of mobilization needs or projected changes in the force structure.

It was in this context that President Reagan announced his plan to sell surplus federal real property and use the proceeds to reduce the national debt. Secretary of Defense Caspar W. Weinberger asked the military services to explore the possibility of declaring as excess real estate which they could give up with little or no effect on defense capabilities. The goal was to identify for this purpose several billion dollars of real property, based on its current fair market value. In a related matter, President Reagan signed Executive Order 12348 on 25 February 1982, which placed increased emphasis on the management of real property under the control of the federal departments. It required each executive agency to review its property holdings and to report as excess those lands either not used or underused or not put to best use. The executive order established the Federal Property Review Board (FPRB) and prescribed the duties of the board, one of which was to set an annual target amount of property that each agency must declare as excess. After considerable review, the Corps of Engineers determined in fiscal year 1982 that 33,518 acres of civil works lands were excess to project requirements. The Department of the Army reported these lands to the Property Review Board and the Administrator of General Services. Of that total, the Property Review Board included 27,642 acres in its preliminary inventory of unneeded federal real property.

Physical Security

One objective of the Army physical security program is to provide commanders with the flexibility to tailor their resources to meet local security needs. In this endeavor, the U. S. Army Military Police Operations Agency, a field operating agency of the Office of the Deputy Chief of Staff for Personnel with assistance from the U. S. Army Concepts Analysis Agency, developed a risk analysis methodology that local commanders could use to assess their particular security risks and determine the level of security necessary to protect the unit's assets. The risk analysis procedure encompassed five major categories: importance and cost of the assets, mission impact, vulnerabilities, criminal threat, and terrorist or hostile threat. The Physical Security Branch of the Military Police Operations Agency drafted a series of questions for each risk category, which it distributed to the major commands for comments. Responses to these questions would determine the risk value—low, medium, or high—for each category. The commander would then place the risk values on a

matrix that would indicate the level of security most appropriate for implementation. Maj. Steven Petersen, who developed this risk analysis procedure, found the approach especially useful because it could be adapted to the individual needs of each command. It allowed flexibility for requirements to change as the threat changed, and it considered internal as well as external risks. Because of its simplicity, the commander could become actively involved in deciding what physical security measures to use. He did not have to depend on a specialist to manipulate the matrix. Its simplicity also meant that the procedure could be completed in a short time and that all levels of the command could easily understand it.

In June 1981, discussions between Maj. Gen. Willard L. Webb, the Assistant Deputy Chief of Staff for Personnel, and Lt. Gen. LaVerne E. Weber, the Chief of the National Guard Bureau, resolved the issue of whether AR 190–11, Physical Security of Arms, Ammunition, and Explosives, should apply to the National Guard Bureau. They agreed to allow the Army National Guard to establish its own policies and procedures for the physical security of arms, ammunition, and explosives under the control of the nonfederalized Guard. They also agreed that the Army National Guard would follow the spirit and intent of AR 190–11 and Department of Defense Manual 5100.76–M, Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives, and that General Weber would forward all proposed regulations to the Department of the Army for approval before publication. The resolution of this issue allowed the Department of the Army to publish AR 190–11 on 15 October 1981 and distribute it to the field.

During fiscal year 1982, the Army discovered 178 weapons missing from arms storage facilities. The U. S. Army Military Police Operations Agency blamed weapon losses during the year on negligence by the individual to whom the weapon was assigned or on theft by unit members or unknown persons. Losses of ammunition and explosives amounted to 98,695 items. The Military Police believed that these losses were due to thefts by members of the unit or by persons unknown and to inventory shortages. Missing items consisted of single weapons or small quantities of arms, ammunition, and explosives. The Military Police attributed the reduction in losses of conventional arms, ammunition, and explosives during 1982 to a continuation of the policy of providing security to areas where the weapons are stored and an Armywide command emphasis on management of weapons from the time of their production until their destruction, that is, throughout their life cycle.

11
Special Services

Civil Works

The Assistant Secretary of the Army (Civil Works) supervises, directs, and manages the Army Civil Works Program. In that capacity he has exercised leadership in setting forth the Reagan administration's policy of increased cost sharing and upfront financing for planning, constructing, operating, and maintaining federal water resources projects. Legislation was introduced this year, but not enacted, to recover capital operational and maintenance costs for deep draft and inland waterway projects. Initially, recovery would be sought for the starts of both new project construction and new feasibility studies and for recreational development.

Development of "Two-Phase" Planning

During fiscal year 1982, the administration's policy of greater reliance on state and local initiative and the reduction of federal outlays was extended to planning studies for potential new civil works projects. The Assistant Secretary of the Army (Civil Works), in conjunction with Corps of Engineers planners, developed a proposal for two-phase planning, under which costs for an initial reconnaissance study would be borne entirely by the federal government, but costs for a full feasibility report and environmental impact statement would be shared with local project sponsors.

Testifying before the Subcommittee on Energy and Water Development, House Appropriations Committee, in February 1982, Assistant Secretary of the Army William Gianelli stated:

> I am concerned with the length of time it takes to complete a typical feasibility study, the high cost of individual studies, and the high proportion of unfavorable studies upon which substantial resources have been expended. I, therefore, feel it is imperative that we take steps to allow the Corps to concentrate its planning resources, manpower and budgetary, on the more important studies which have the best chances of implementation.
>
> I am proposing that, beginning in fiscal year 1983, all new studies pertaining to specific problem areas be undertaken in two phases. The first phase will be a reconnaissance phase financed 100 percent with

Federal funds and normally completed within a year. The second phase will be a feasibility study to be cost shared with local project sponsors. I would view the reconnaissance study to be fully funded when it receives its initial appropriation. It would establish: the definition of the problem and its potential solutions; a determination of whether or not the study proceed further, based on a preliminary appraisal of costs, benefits, and environment impacts of alternative solutions; an estimate of the costs of the second phase of the feasibility study; and identification of local sponsors and indications of their willingness to participate in the feasibility study on a cost-sharing basis.
I believe that this procedure will not only speed up the planning process, but will increase the proportion of studies which leads to successful solutions of problems.

Regulatory Program

The Corps of Engineers reviews applications for permits for dredge and fill projects and other construction-related activities in U.S. waters. Under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and Section 103 of the Marine Protection Research and Sanctuaries Act, 16,800 permit applications were reviewed and decisions reached in fiscal year 1982. Tens of thousands of additional minor activities are covered each year by general permits, which are issued to the public at large and eliminate the need for formal processing of individual permit applications.

The regulatory program of the Corps of Engineers had become needlessly burdened by red tape that caused excessive delays in the processing of individual permit applications. Consequently, the program was designated for review by the Task Force on Regulatory Relief, chaired by Vice President George Bush. On 7 May 1982, the task force announced a series of reform measures the Corps would undertake to streamline its regulatory program.

These reforms, to be implemented over an extended period of time, addressed the following areas: reducing uncertainty and delay in the processing of permit applications, giving the states more authority and responsibility, reducing conflicting and overlapping policies, expanding the use of general permits, and clarifying the jurisdictional scope of the program.

Pursuant to the task force directive, in July the Army signed new memoranda of agreement with the Environmental Protection Agency and the Departments of Interior and Commerce. These agreements sought to alleviate "to the maximum extent practicable, duplication, needless paperwork, and delays in the issuance of permits."

These federal agencies have the responsibility of commenting to the Corps about the environment, wildlife, and other aspects affected by proposed dredging or filling operations. The previous memoranda had provided for four layers, or elevations, of automatic review of individual permit decisions whenever a commenting agency disagreed with the approach adopted by the Corps. This procedure often resulted in long delays, which would be greatly reduced by the new memoranda.

In addition, on July 22, the Corps issued its first formal regulations implementing some reforms. The regulation primarily covered administrative procedures to reduce processing time and the expansion of nationwide (general) permits.

In May 1982, President Reagan directed the Secretary of Defense to prepare a comprehensive plan for the long-term solution of flood control and navigation maintenance problems in the Mount St. Helens area. The eighteen-month $1.25-million investigation was scheduled for completion in November 1983. An emergency situation arose at Spirit Lake caused by the rising water level, which heightened concern over the stability of the debris avalanche trapping the lake.The increased potential for failure of the debris dam during the 1982–1983 water year and the resulting damages downstream on the Toutle and Cowlitz rivers caused President Reagan to make an emergency declaration on 19 August 1982, calling for both interim and long-range solutions to the problem. The Portland District Office contracted to have an interim solution—pumping—in place and operating by November 1982 to alleviate the immediate emergency. The cost estimate for this was $11.5 million, which was funded with Public Law 84–99 supplemental funds provided by Public Law 97–216.

The Dam Safety Assurance Program, initially funded in fiscal year 1980, examines older completed Corps of Engineers dam projects in order to identify and modify those which are considered potential safety hazards. Studies of potential problems, and all preconstruction, planning, and construction estimates of under $5 million, would be accomplished with Operation and Maintenance funds. All construction estimated to cost over $5 million would be done with Construction, General, funds. Fiscal year 1980 appropriations included $8 million of Operation and Maintenance, General, funds for studies and designs involving 170 projects, while from fiscal year 1981 appropriations came $20.3 million for 130 projects. Fiscal year 1982 appropriations included $21 million of Operations and Maintenance, General, funds for studies and designs on 124 projects and $9.3 million for construction on 3 projects.

In the EPA (Environmental Protection Agency) Superfund (toxic and hazardous waste clean-up) field, an interagency agreement between EPA and the Army, signed on 3 February 1982, allowed the Corps to carry out design, construction, and technical assistance programs for the EPA. Assignments through fiscal year 1982 were the following:

Construction:

North Atlantic Division—Lehigh, Pa.	$1,157,200	Contract under way
Kin Buc, N.J.	2,145,000	Unawarded
LiPari, N.J.	1,589,150	Unawarded
Bruin Lagoon, Pa.	3,358,000	Unawarded
Ohio River Division—Chem Dyne, Ohio	2,798,000	Unawarded
Missouri River Division—Aidex, Iowa	$465,000	Unawarded

Design: None

Technical assistance: Seven assignments under way

EPA provided a general fund of $200,000 to cover small and miscellaneous tasks, which could be authorized at the EPA headquarters level.

Work assignments from the EPA regions came more slowly than first expected, and by the end of fiscal year 1982, it appeared that the workload would not reach full momentum until fiscal year 1984. Since the EPA Superfund program was an opportunity to demonstrate the Corps' ability to perform work for other agencies, responsive service and close working relationships with the EPA regions were critical for success. The design center concept was being implemented at the Corps' Missouri Division, which provided the specialized expertise and capabilities necessary to perform Superfund assignments. Central to this concept was the development of "centers of competence" in specific technical disciplines that could support the entire Corps. For the Superfund, these disciplines included chemists, chemical engineers, toxicologists, and industrial hygienists. Integrating chemical health and safety aspects into Corps design and construct activities was a major responsibility of the design center.

A five-year, $8-million Shoreline Erosion Control Demonstration Program to develop, demonstrate, and disseminate information on low-cost shore protection was completed. The program involved the evaluation of means, including vegetation, that private property owners on low wave-energy shorelines could use to protect against erosion damage. More than 250 devices were investigated, while over 70 were planned, designed, constructed, and monitored by selected Corps of Engineers coastal districts at sixteen sites. Data was analyzed and a series of reports was

prepared. A final report on the program detailed the experience with each device at the sites and included extensive evaluations of the structural and functional behavior, along with time, cost, and maintenance estimates. This report was submitted to the Secretary of the Army on 1 June 1982.

The major results of the program, however, were the production of a 36-page, full-color brochure, which presented an overview of the program, and three reports that took specific site results and transformed them into generic design and decision criteria for three specific audiences. The first report, for the private property owner, instructed the reader on how to make rational decisions on whether or not to commit responsibilities on the problems, actions, and consequences involved with shoreline erosion and control. A series of workshops was conducted to transfer the results of the program effectively and efficiently to the Corps coastal districts. In addition, an audio-visual package was prepared to assist district personnel in disseminating the results of the Section 54 program to the public.

Section 12 of the Water Resources Development Act of 1974 (Public Law 93–251) enabled the Secretary of the Army to review annually and recommend to Congress deauthorization of selected water resources projects. As a result of this program, seven annual reports have been submitted to Congress and 465 projects have been deauthorized. The aggregate construction value is $4.43 billion in terms of actual dollars calculated at the time of the last update of project costs—in some cases, in the late 1800s. The funding appropriated for this program to date was $1.9 million. Key benefits included the clarification of federal intent for potentially affected local residents, improved management of information, and more accurate representation of the backlog of unconstructed projects.

Environmental Protection and Preservation

During fiscal year 1982, the Army revised and published AR 200–1, "Environmental Protection and Enhancement." This regulation brought Army policy into line with national goals for protecting and enhancing the environment. Major policy changes were put into effect in the areas of hazardous waste management, environmental noise abatement, and toxic and hazardous material management.

To implement the National Environmental Policy Act, the Army published Interim Change 101 to AR 200–2 on 22 December 1981. It emphasized the need to integrate environmental

documents with other planning documents, rescinded the requirement to prepare environmental impact statements (EIS) for ongoing missions, and provided for major command processing of certain EISs. On 15 September 1982, these interim changes were incorporated into Change 1, AR 220–2.

In the field of waste management, Congress passed the Military Construction Codification Act, Public Law 97–214, on 12 July 1982. This law increased the amount of proceeds from the sale of recyclable materials that could be spent at a military installation from $50,000 to $2,000,000. The scope of the recycle programs was expanded beyond wastepaper, used oil, aluminum, and glass to all material sold as scrap or waste. Reporting requirements were deleted. In addition, several important decisions were made in the field of hazardous waste management. On 26 July 1982, the Environmental Protection Agency promulgated final regulations for hazardous waste land disposal facilities. This was the final step needed for Army facilities that handled (treated, stored, or disposed) regulated hazardous wastes to obtain full permit status. This process, however, would take several years and would depend on EPA and state priorities. In addition, the Army identified its requirements for hazardous waste storage facilities for Defense Logistics Agency programming action under policies set forth in DOD Defense Environmental Quality Program Policy Memorandum, DEQPPM 81–3, "DOD Hazardous Material Disposal Policy." This cooperative effort should culminate in the construction of adequate facilities to store hazardous materials that meet regulatory permit conditions and is expected to continue beyond fiscal year 1985. DEQPPM 81–5, "Department of Defense Installation Restoration (IR) Program," was published in December 1981. It directed DOD components to revise their IR programs to conform to a new concept plan. Additionally, the Army was to develop a charter for an IR technical coordination committee, which it would chair. Both actions were completed during the fiscal year.

On 20 April 1982, the Assistant Secretary of the Army (Installations, Logistics, and Financial Management) directed the Assistant Chief of Engineers to establish a hazardous materials management working group at the Army staff level to develop a streamlined approach to managing hazardous material. Under the leadership of the Environmental Division, the group drew up a list of issues with milestones and conducted several work sessions. Major changes in functional responsibility for Army staff elements should follow upon acceptance of the group's recommendations.

The EPA issued the National Oil and Hazardous Substances Contingency Plan (NCP) on 16 July 1982 with an effective date of 10 December 1982. The NCP named the Department of Defense as the on-scene coordinator for oil or hazardous substance releases from DOD facilities or vessels and provided procedures to be followed in such emergencies.

Aberdeen Proving Ground, Maryland, won the Secretary of the Army Environmental Quality Award for its superior program during 1981. Fort McClellan, Alabama, was selected as first runner-up, and the Red River Army Depot, Texas, was picked as second runner-up. An Army staff environmental committee of the Army staff judged seven competing installations on the overall quality of their written presentation and their program achievements. Secretary Marsh presented the award at Aberdeen Proving Ground on 22 October 1982.

Army Energy Program

AR 11–27, "Army Energy Program," was extensively revised to update and consolidate responsibilities and to provide guidance on the Army energy program. For the first time, the program required full-time energy management offices at all levels, down to and including installations.

The Army's energy goal for fiscal year 1982 was a 15.6-percent reduction from a baseline consumption level in fiscal year 1975 of 288.15 trillion British thermal units (BTU). It only achieved a 13.5-percent reduction because of increased training requirements and equipment modernization. While the goal was not met, the reduction represented the equivalent of saving 6.7 million barrels of oil for a cost avoidance of $355 million.

The DOD Energy Conservation Investment Program (ECIP) promotes energy conservation by retrofitting existing buildings. It remains the backbone of the Army's Facilities Energy Conservation Program. To accomplish Army energy goals, $955 million is required for the program in fiscal years 1983–1987. Since fiscal year 1976, $356,543,000 has been appropriated for ECIP. When all ECIP projects have been completed, the Army expects to realize a yearly savings of $68,690,000. In addition, an annual savings equivalent to 3.1 million barrels of oil is anticipated.

In 1976, the Army initiated the Energy Engineering Analysis Program (EEAP) to reduce energy consumption in existing facilities. Since then, energy conservation techniques at each major Army installation have been studied to determine their practicability and to calculate energy savings and cost. Techniques

analyzed included both major and minor building and equipment modifications, equipment replacements, energy management and control systems, and operational and procedural revision. The results of the EEAP studies were listed by project and given a priority rating in terms of energy savings and economic considerations for funding under ECIP or by military construction authorizations. Low- and no-cost projects were developed for implementation by installation personnel. In addition, conversion from critical petroleum-based fuels to coal or renewable energy sources such as solar or biomass was analyzed on a selective basis.

The Energy Monitoring and Control System (EMCS) controls the operation of mechanical and electrical systems in building to optimize energy consumption and reduce energy and operating costs. During fiscal year 1982, EMCS suppliers and installers continued to experience significant delays in fielding new systems. The most notable problems were in the areas of the development of computer program software and the inability to demonstrate required system operating capabilities as specified in the procurement contracts. An EMCS Program Management Plan was developed and implemented which provided for a consistent and coordinated approach to solving EMCS problems. In addition, the Corps of Engineers began developing a new guide specification that covered the preparation of new buildings to be serviced by EMCS. It also continued work on seven new guide specifications dealing with requirements for EMCS transmission media and fielded requests for EMCS descriptive literature, as well as coordinated and developed joint-service EMCS training courses for both construction inspection and operating personnel.

In fiscal year 1975, the Office of the Chief of Engineers directed field offices to include solar heating, cooling, and domestic hot water heating on MCA projects in order to demonstrate the potential of solar energy and to allow the field offices to become experienced in the design and construction of these systems. The initial effort was limited to sixteen projects—three bachelor enlisted quarters, three dining facilities, three reserve centers, a school, a dental clinic, a hospital, and a range operations center. The remaining three projects (a headquarters and classroom building, a family housing unit, and a central plant for forty housing units) were partially funded by the Department of Energy. Since cost effectiveness was not a prime consideration, these systems probably will not meet current economic requirements.

A solar energy requirement was included in the fiscal year

1979 (PL 95–356) and fiscal year 1980 (PL 96–125) Military Construction Authorization acts. Essentially these acts required that engineering economic studies be undertaken and that solar energy systems be installed, where cost effective, in all new facilities. As a result, in fiscal year 1982, 8 solar projects were operational, including approximately 950 housing units. In addition, close to 115 other projects were studied and were found not to be cost effective. A few projects were cost effective, but could not be constructed because of a lack of funds.

Several incidents during the late 1970s at command, control, and communication (C3) facilities crucial to the national defense had caused considerable concern within the Office of the Joint Chiefs of Staff (OJCS) over the reliability of power supplies. Following an investigation of the incidents, conducted by the National Academy of Engineers, the OJCS recommended to the Secretary of Defense that the Secretary of the Army be the executive agent for a program to assure power reliability at critical C3 facilities. The Secretary of Defense agreed and in December 1981 directed the Secretary of the Army to develop and implement a program through the Corps of Engineers; the secretaries of the Air Force and Navy and the directors of the Defense Communications Agency (DCA) and the Defense Nuclear Agency (DNA) would provide support. The Corps of Engineers assigned responsibilities for technical program management to the U.S. Army Facilities Engineering Support Agency (USAFESA) and the Huntsville Division Engineer. They proceeded to develop and implement the Power Reliability Enhancement Program (PREP) for six C3 sites that the OJCS had identified as first priority. The sites were visited, a management plan developed, and a study advisory group (SAG) appointed to advise the program managers. The Director of Engineering and Construction for the Corps of Engineers chaired the SAG, which was composed of senior technical managers from the services and other agencies. The technical program managers developed the scope of the work and awarded contracts for gathering data at these first sites in February 1982. Subsequent contracts were awarded for analyzing the data and for preparing documentation for projects or work to correct deficiencies. Corrective actions would be programmed for funding over five years beginning in fiscal year 1984. The technical program managers would also continue to evaluate sites and ensure that corrective actions were completed and that all work performed at the sites contributed to and did not detract from power availability and reliability.

Small and Disadvantaged Business Utilization

The Director of the Office of Small and Disadvantaged Business Utilization (SADBU) reported directly to the Secretary of the Army as his principal adviser and assistant for the implementation and administration of all matters under the Small Business Act, Labor Surplus Areas, and Woman-owned Business Programs. The SADBU office developed policies and procedures to implement the Army's small business programs, established and monitored the agency's goals, and ensured that offices at major commands were properly staffed to execute these programs effectively. The office conducted outreach, liaison, and source development activities and seminars. It also cooperated with and consulted 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.

In fiscal year 1982, the Department of the Army awarded $5.94 billion in small business prime contracts, or 24.4 percent of the amount awarded to all businesses. This was very close to the goal of 24.6 percent. Beginning in fiscal year 1982, small business goals were expressed in percentages instead of dollars. Set-asides exclusively for small businesses—those items which could only be bid on by small businesses—increased from $2.6 billion to $3.3 billion, or 13.7 percent of the total dollars awarded. This was the highest percentage of small business set-asides attained by the Army in any fiscal year. Contract awards to small disadvantaged firms totaled $859 million in fiscal year 1982 against a goal of $676.1 million. This was an increase of $58 million over the previous fiscal year. These figures do not include subcontracting dollars. It was estimated that an additional $1.5 billion in subcontracting dollars was awarded to small business firms during the year.

Federal policy states that businesses owned by women shall have the maximum opportunity to participate in contracts awarded by the government. Although there was no requirement to give preference to such firms, Army contracting offices put forth their best efforts to assist businesses owned by women to compete for awards. These businesses received a total of $166.6 million in fiscal year 1982 awards, which significantly exceeded the goal of $108.2 million.

During fiscal year 1982, the Department of Defense initiated the Defense Small Business Advanced Technology Program (DESAT) to promote innovative solutions to important scientific

and technical problems facing the defense community by using the resources of small science and technology firms. The Army awarded thirty-nine contracts under this program, totaling $1.87 million. Among the areas under investigation were chemical vapors, cryogenic milling, carbon-carbon rotating turbine components, ceramic gun barrels, artificial intelligence, laser gas containers, fuel cells, and water purification.

On 22 July 1982, the President signed into law the Small Business Innovation Development Act (Public Law 97–219), which directed that small businesses get a fixed, minimum percentage of research and development awards made by federal agencies with sizable R&D budgets. The program was administered in the same manner as the DESAT program. Small businesses would be asked for proposals of up to $50,000 for phase I, with a possibility of $500,000 for phase II efforts.

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Summary

Fiscal year 1982 witnessed the most comprehensive military modernization program undertaken since World War II. The program's magnitude, diversity, and degree of technological complexity had ramifications affecting both the military forces and American civilian society. Presidential commitment, public consensus, and congressional funding made possible this long overdue upgrading of U.S. military forces. With its share of the increased defense funding, the Army could plan and program the development of modern, well-equipped, adequately supported, and fully trained forces capable of meeting worldwide military contingencies. Although stating a quantitative need for additional divisions, the Army concentrated on the qualitative improvement of its personnel, equipment, training, and readiness. This policy included the goal of fully manning all field units with well-trained personnel equipped with high-quality, modern weapons and materiel.

The active Army exceeded both its qualitative and quantitative recruitment goals. The percentage of high school graduates among enlistees increased during the year. The Army also reached its recruitment objective three months before the close of fiscal year 1982, making it the best recruiting year since the draft ended in 1973. The Army was in the enviable position of being able to select the best people for recruitment and retention. Bonus incentives, generous educational benefits, and increased pay contributed to the attractiveness of Army service. The Army made a similar improvement in the retention of officers. In order to reduce personnel turbulence and to improve readiness, the Army also began to implement major elements of the New Manning System.

Budget and strength figures of the reserve forces surpassed those of fiscal year 1981. Greater incentives, flexible enlistment and training options, as well as aggressive efforts to enlist and keep high-quality personnel contributed to their success in recruitment and retention. The nation's depressed economic state along with increased international tensions that created a patriotic groundswell were favorable influences on reserve forces as well as on active Army enlistment and retention goals.

The Army made considerable progress in meeting the mate-

riel goal of a "Total Army equipped and sustained to win any land battle," which Secretary Marsh and General Meyer established in December 1981. Furthermore, the Army had numerous new weapons systems either in production or being fielded. Among the more important were the M1 Abrams tank, the Bradley fighting vehicle, the AH–64 and CH–47D helicopters, and the Patriot air defense missile system. Several previously distributed systems were now entering field units in quantity. Eventually, the Army will field more than 500 new systems.

Although fiscal year 1982 was a successful one for the Army, problems remained. Severe equipment shortages still existed and only a long-term investment in the modernization and production of Army materiel could alleviate these deficiencies. In addition to many units having shortages of authorized equipment, war reserve stocks were also insufficient for the Army's needs. Moreover, airlift and sealift capabilities were inadequate to transport Army forces to meet global requirements and commitments.

The reserve forces, even with improved equipment and manpower, still did not meet all requirements to fulfill Total Army commitments. In particular, the strength level of the pretrained individual manpower pool (Individual Ready Reserve, Inactive National Guard, Standby Reserve, and military retirees) remained unsatisfactorily low. A numerical imbalance also existed among the enlisted specialties of the reserve components, with a shortage of personnel in the combat arms, but a surplus in several noncombat specialties. Moreover, serious deficiencies in wartime equipment requirements remained unresolved.

The pressures of inflation, deficit spending, and increased public demand for reduced defense funding and for expanded expenditures for social programs probably will affect future Army budgets. Faced with these constraints, the Army nevertheless must plan and program for improved modernization, sustainment, readiness, and training in the future.

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