Department of the Army Historical Summary

Fiscal Year 1977

CENTER OF MILITARY HISTORY
UNITED STATES ARMY
WASHINGTON, D.C., 1979

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Fiscal Year 1977

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DEPARTMENT OF THE ARMY
HISTORICAL SUMMARY

Fiscal Year 1977

1. Introduction

For over two hundred years the U.S. Army has had a continuing goal—to make the best possible use of its resources to meet a threat to the nation's security. Through cycles of feast and famine, war and peace, prosperity and depression, the Army frequently had to adjust its sights to cope with shifts in the domestic situation, but the main objective never changed. Although the means and methods employed varied in direct relation to availability of funds and the views of contemporary leaders, the overriding precept remained the same. Fiscal year 1977 was no exception to that rule.

With the end of America's involvement in Vietnam, the Army shifted its focus back to Europe and to the exigencies that might arise in the event of a major confrontation with the Communist nations. If that occurred, the United States and its allies would be faced with superior strength and would have to hold out until assistance could be dispatched from member nations of the coalition. Under these circumstances, the Army had to be prepared not only to react strongly on the battlefield, but also to move rapidly at home from a peacetime to a wartime footing. Balanced, combat-ready troops on the frontlines backed up by reinforcements, both active and reserve, that could be quickly deployed and sustained were therefore indispensible if the nation was to have any prospect of withstanding a serious threat to international peace.

The end of the war in Vietnam produced other consequences. The Army underwent a series of reductions in strength and, at the same time, had to cope with steady inflation that eroded the real value of its budget allocations and challenged its ability to remain ready for combat. Like many American wage earners, the Army discovered that it had to work harder just to stay even.

Given these conditions, Army leaders concentrated on making the best use of resources to fulfill broad responsibilities at home and abroad. Under the total Army concept, the whole Army—active, National Guard, Army Reserve, and civilian—had to work together to mold a first-class team capable of meeting any challenge. Basic to the concept was the recognition that people are the key to success in any enterprise and that the Army must do its utmost to attract, train, and retain the best available men and women.

To bolster the human factor, the Army also took the stand that it had to furnish its soldiers and civilians with superior equipment to carry out their duties. Reduced manpower inevitably demanded greater use

of machines as well as increased human productivity, and a modern army required highly sophisticated and expensive weapons, vehicles, communications, and support systems to operate on the battlefield. In the face of limitations and ever rising costs, which often delayed the replacement of obsolescent items, the Army attempted to acquire what it would most urgently need in the opening stages of hostilities when the outcome might well be decided.

Although the Army was doing everything possible to improve its ability to react swiftly and effectively to any crisis on the time-tested theory that strength and preparedness were the most potent deterrents to aggression, much remained to be accomplished. The summary that follows sets forth the record of the Army's effort in 1977 to achieve its primary goal.

2. Operational Forces

The Army during fiscal year 1977 worked to produce a 24-division force ready in all respects for successful operations in conventional warfare. A particular Army objective was to improve force readiness for operations in Europe, where the Soviet-led Warsaw Pact posed a strong threat to NATO. A collateral goal was to promote common doctrine, equipment, systems, and procedures among the diverse NATO forces so that they could function better as a team. Within the limits of new arms control measures announced by President Jimmy Carter and enacted by Congress, the Army also continued to support security assistance programs for developing the military forces of allied and other friendly nations.

Organization and Deployment

The basic structure under amplification was a total force of sixteen divisions in the active component and eight in the National Guard. The National Guard units numbered five infantry divisions, one mechanized infantry division, and two armored divisions. The active component included five infantry divisions, five mechanized infantry divisions, four armored divisions, one airborne division, and one air assault division. Of those sixteen, eleven divisions were stationed in the United States, including one in Hawaii; four were stationed in Germany; and one was located in Korea. Three of the sixteen had been activated during the past two fiscal years, and at the end of that period two of them were still short a brigade each.

While raising the three newest divisions, the Army remained under an authorized strength of about 790,000. Combat spaces for the new units were provided in part by reducing spaces allocated to headquarters and support troops. Since not enough such spaces could be made available to organize the divisions at full TOE (tables of organization and equipment) strength, the Army rounded them out by affiliating a National Guard brigade with each for training and mobilization, as it had done earlier with one division. Applying the affiliation process more widely, the Army associated reserve component battalions with other fully organized divisions stationed in the United States to augment the divisions' combat power and designated still other reserve component battalions to receive assistance from active component units to improve deployment readiness. Altogether, ninety-six reserve battalions were affiliated as round-out, augmentation, or deployment capability improvement units—eighty National Guard and sixteen Army Reserve.

Early in the year President Carter directed the withdrawal of American ground combat forces from South Korea over a five-year period. In May the Army began planning for the return of the 2d Infantry Division to the United States and considered its reorganization as a mechanized infantry division.

DEPLOYMENT OF DIVISIONS, SEPARATE BRIGADES, AND SEPARATE REGIMENTS 30 September 1977

Unit	Location
Divisions	
1st Infantry Division (Mechanized) (—)	Fort Riley, Kansas
2d Infantry Division	Korea
3d Infantry Division (Mechanized)	Germany
4th Infantry Division (Mechanized)	Fort Carson, Colorado
5th Infantry Division (Mechanized) (—)	Fort Polk, Louisiana
7th Infantry Division (—)	Fort Ord, California
8th Infantry Division (Mechanized)	Germany
9th Infantry Division	Fort Lewis, Washington
24th Infantry Division (—)	Fort Stewart, Georgia
25th Infantry Division (—)	Schofield Barracks, Hawaii
82d Airborne Division	Fort Bragg, North Carolina
101st Airborne Division (Airmobile)	Fort Campbell, Kentucky
1st Armored Division	Germany
2d Armored Division	Fort Hood, Texas
3d Armored Division	Germany
1st Cavalry Division	Fort Hood, Texas
Brigades	
Berlin Brigade	Germany
* 3d Bdigade, 1st Infantry Division (Mechanized)	Germany
3d Brigade, 2d Armored Division (Brigade 75)	Germany
4th Brigade, 4th Infantry Division (Mechanized) (Brigade 76)	Germany
6th Cavalry Brigade (Air Combat)	Fort Hood, Texas
172d Infantry Brigade	Ft. Richardson, Alaska
193d Infantry Brigade	Ft. Kobbe, Canal Zone
194th Armored Brigade	Fort Knox, Kentucky
197th Infantry Brigade	Fort Benning, Georgia
Regiments	
2d Armored Cavalry	Germany
3d Armored Cavalry	Fort Bliss, Texas
11th Armored Cavalry	Germany

* Officially referred to as 1st Infantry Division Forward.

To increase mechanization further to help counter the advantage of Warsaw Pact forces in tanks and armored infantry combat vehicles, the Army planned to convert two other divisions from light to heavy, that is, from foot soldiers to mechanized infantry and armor, and from towed to self-propelled artillery, beginning in fiscal year 1978. One of

the three newest divisions will be included, the 24th Infantry, whose remaining brigade was activated this year with two tank battalions and one infantry battalion, instead of three infantry battalions as previously programmed.

The Army inactivated three artillery battalions in South Korea: the 3d Battalion, 81st Field Artillery, which was the last Sergeant battalion on active duty; the 1st Battalion, 42d Field Artillery, an Honest John unit; and the 2d Battalion, 44th Air Defense Artillery, a Nike Hercules battalion. This year the 68th Chemical Company was activated at Fort Hood, Texas, the first such activation stemming from last year's decision to establish a chemical defense company in each division because of the Soviet Union's superior ability to conduct chemical warfare. The 68th Company was organized as part of the 1st Cavalry Division with the mission of providing nuclear, biological, and chemical reconnaissance and decontamination support.

Readiness

In personnel, equipment, and training, all major active Army units met or exceeded readiness goals set for fiscal year 1977. All but the three new divisions (5th, 7th, and 24th) and a reorganized armored brigade (194th) were either fully or substantially ready to execute their combat missions, and those exceptions were expected to reach combat readiness in fiscal year 1978.

The Army also made progress in force readiness, which includes the readiness of units as well as the ability to sustain their operations. Using the direct support system, a recently developed method of distributing supplies from depots in the United States straight to direct and general support commands, the Army eliminated intermediate distribution points, such as overseas depots and United States installations, and substantially reduced delivery time. Filling requisitions from Europe, for example, which previously required from 130 to 150 days, took an average of 51 days this year, close to the ultimate objective of 45 days.

To improve logistics and force readiness, the Army carried forward its Command Logistical Review Team Expanded (CLRTX) Program, an analysis of the logistic system from unit to national inventory control point (begun in April 1976 under the management of the Directorate for Materiel Readiness in the Office, Deputy Chief of Staff for Logistics). Major command review teams, augmented at times by members of other organizations experienced in particular areas of logistics, assessed all aspects of logistics, including doctrine, training, personnel, and funding in a number of active Army and reserve component commands.

Similar to the CLRTX program, a direct logistical support system was being developed in fiscal year 1977 on the premise that a unit's logistical readiness was affected not only by the traditional functions of supply,

maintenance, transportation, and services, but also by personnel, training, doctrine, and funding. As envisioned, new procedures would force continuous consideration of those interrelated factors. Technical channels of communication would foster a flow of information upward and a flow of guidance and solutions downward through all echelons of command. Key links in the technical channels would be logistic assistance organizations established by the Materiel Development and Readiness Command at division, corps, and major command levels. Those organizations would detect problems, help solve them, if possible, at the user level, and refer unresolved problems to intermediate commands and, when necessary, to the Army staff. At the end of this fiscal year, the new direct support system was being tested at Fort Hood, Texas.

Although with limited resources, the Army continued during the year to increase materiel readiness through stock replenishment and the modernization of equipment. Both have been problem areas since the end of the Vietnam War. In fighting that war, the Army had been forced to pare funds for modernization and for research and development, draw heavily on stocks in the United States, and pull materiel out of Europe. In addition, the 1973 war in the Middle East occurred before stocks in Europe could be replenished, and many critical items, such as tanks, armored personnel carriers, and self-propelled artillery, had been sent from Europe to Israel. Already a lengthy process, replenishment was also expensive; most of the withdrawn items were based on earlier technology, and modern replacements cost considerably more. Despite great improvement, at the end of the year the Army was still short of such equipment as tanks, armored personnel carriers, and TOW missile launchers. And for lack of funds, war reserve stocks in the United States and overseas also remained inadequate.

Europe

The Army directed its main efforts in Europe during fiscal year 1977 toward improving U.S. readiness to meet the Warsaw Pact threat. Those efforts included improving the ability of the four divisions, three brigades, and two armored cavalry regiments to bear the brunt of an opening attack, increasing the Army's capacity to reinforce them rapidly and support them logistically, and continuing to forge an integrated team from the varied NATO forces.

The Army gave high priority in Europe to completing prepositioned sets of unit equipment (POMCUS) and to building up war reserve stocks; but shortages, storage problems, and funding limitations hampered both efforts. Some of the shortages in war reserves, however, were caused by higher stock levels in anticipation of greater battle intensity in any future conflict. The Army planned to more than double the conventional ammunition to be prepositioned in Europe. It also began a study to deter-

mine which organization should manage POMCUS and war reserve stocks, U.S. Army, Europe (USAREUR), the current manager, or the Materiel Development and Readiness Command.

Logistical support provided by NATO allies has long been important to Army operations in Europe, primarily in rear areas. This year, USAR EUR asked for increased support. Several allied governments, however, objected to U.S. procurement procedures, which required contracts, or letters of agreement, with mandatory clauses for purchases with appropriated funds. Those governments did not consider themselves contractors subject to American procurement regulations but allies using their own resources to further common objectives. As a result, the Army has proposed remedial legislation that will be included in the Department of Defense legislative program for the 95th Congress.

REFORGER 77, this year's strategic mobility exercise for testing U.S. and NATO plans and procedures, was the second consecutive exercise in which troops deployed to Europe were accompanied by some of their major equipment. For the first time the Army sent along heavy tracked vehicles, including main battle tanks. Participating in the exercise were major units of the 1st Infantry Division (Mechanized); a brigade of the 4th Infantry Division (Mechanized); a squadron of the 3d Armored Cavalry; the 2d Battalion (Ranger), 75th Infantry; combat support and combat service support units from various Army installations; and several reserve component units. Command-post detachments from the 9th Infantry Division, 5th Infantry Division (Mechanized) and 3d Armored Cavalry also deployed.

The exercise began in August 1977 with the movement of some 37,000 tons of equipment by rail and highway to the Military Traffic Management Command's terminal at Bayonne, New Jersey. The ships carrying the equipment participated in a wartime convoy exercise while en route to Amsterdam, the Netherlands, and Ghent, Belgium. Unloading of the ships tested terminal facilities in western Europe and host nation support.

Almost 13,000 troops were airlifted from the United States to Ramstein Air Base, Rhein-Main Air Base, and the Saarbrucken Civil Airport in Germany, the Schiphol International Airport at Amsterdam, the Brussels International Airport, and the Luxembourg International Airport. From these terminals, the troops moved by air and road to various locations in Germany and participated in field training and command post exercises with USAREUR and NATO forces. The purposes of the exercises were to test the ability of forces to move quickly to critical areas; to examine the effectiveness of transportation and supply systems; to practice command, control, and communications procedures; and to investigate further the standardization of doctrine, procedures, equipment, and armament among NATO forces.

To give a NATO orientation to program planning, weapons systems acquisition, and the preparation of annual budgets, NATO focal points were established, as directed by the Department of Defense, in the Army secretariat and on the Army staff. The Under Secretary of the Army and the Vice Chief of Staff were made responsible for these matters. Organized to support them was the Department of the Army International Rationalization Office within the Office of the Deputy Chief of Staff for Operations and Plans. Intended as a clearing house for Army matters pertaining to NATO and international standardization, that office was made responsible for coordination with the Department of Defense, the Joint Chiefs of Staff, major Army commands, other services, and other government agencies.

NATO cooperation in the field of medicine was marked by agreements on administration, equipment, supply, treatment of battle casualties, and preventive and protective measures related to missile operations. NATO also adopted the revised U.S. handbook, *Emergency War Surgery,* and accepted two allied publications dealing with casualties and medical support during nuclear, biological, and chemical warfare operations.

Facilities required to support NATO military forces as a whole were funded through the NATO Infrastructure Program. The U.S. share for 1977, provided through Military Construction, Army, authorization and appropriation acts, was $92.6 million, including $76 million in appropriations, $4 million in recoupments, and $12.6 million in unobligated money from earlier appropriations.

The Pacific and Far East

President Carter's decision to remove American ground combat forces from the Republic of Korea within five years was accompanied by strong assurances that the withdrawal would not jeopardize Korean security or the regional balance of power in the Far East. Planning for the move, which was to begin in 1978 with about 6,000 troops of the 2d Infantry Division and other Eighth Army units, therefore included measures to strengthen and modernize South Korean forces and to withdraw in phases. The headquarters and two brigades of the 2d Infantry Division, for example, were to stay in South Korea until the last phase of the withdrawal. Army logistical, intelligence, and communications personnel remaining on the peninsula and other U.S. land, sea, and air forces located close by would thereafter provide continuing evidence of American readiness to help defend South Korea.

Meeting in Seoul in July, U.S. and South Korean officials agreed that a combined command would be established before the first phase of the American withdrawal was completed. They also decided that combined military exercises would be continued and expanded. Further,

the officials agreed that the United Nations Command Military Armistice Commission would remain in Korea to monitor the military armistice agreement of 1953.

Discussions also developed a priority list of military equipment needed to strengthen the South Korean Army. Subject to congressional approval, some of that equipment would be transferred at no cost from withdrawing American units. Congress would also be requested to continue South Korea's foreign military sales credit at a high level of $275 million per year to allow that country to obtain other needed equipment through the security assistance program. Through foreign military sales procedures, South Korea bought the missiles and associated equipment of the Honest John artillery battalion inactivated there this year.

An additional source of support for the Republic of Korea was the 1976 amendment to Section 514 of the Foreign Assistance Act of 1961, which reestablished the use of Defense funds for stockpiling materiel in support of allies. For fiscal year 1977, the Army was allocated $125 million for stockpiling additional ammunition in South Korea and began moving the stocks from Japan and the United States. The Army was also allocated $224 million for fiscal year 1978 for adding ammunition to the war reserve stockpile for South Korea. These allocations were approved in the 1977 amendment to the Foreign Assistance Act of 1961.

Last year, the U.S. Army in the Pacific developed the Westpac III report enumerating the forces, bases, and war reserves needed from 1978 through 1982 in the Pacific. That report was revised this year to take into account the forthcoming withdrawal of ground combat forces from South Korea.

The Western Hemisphere

On 7 September 1977, after more than twelve years of negotiations, President Carter and the Republic of Panama's head of state, Brig. Gen. Omar Torrijos, signed the Panama Canal Treaty and the Treaty Concerning the Permanent Neutrality and Operation of the Panama Canal. The treaties provide for the dissolution of the Canal Zone, new operating and defense arrangements, and for ensuring the canal's neutrality and accessibility. Senate hearings were under way at the end of this fiscal year.

The security of the canal is currently the responsibility of the United States, with Canal Zone police handling internal security and military forces providing external defense. Under the proposed treaty, police functions would become the responsibility of the Panamanian government. The Panama Canal Commission, an agency of the U.S. government, would continue to provide security for its operating facilities. Forces of the U.S. Southern Command with forces of the Republic of Panama would defend the canal. According to the terms of the treaty, U.S. forces

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would have primary defense responsibility for the remainder of the century. American plans also provide for rapid reinforcement of the U.S. Southern Command in the event of an emergency. After expiration of the treaty on 31 December 1999, the provisions on permanent neutrality and operation would still allow the United States to protect its interests.

Command and Control

The Worldwide Military Command and Control System (WWMCCS) provides communications among the President, Secretary of Defense, Joint Chiefs of Staff, commanders of unified and specified commands, and forces in the field. A plan for improving the system, approved by the Office of the Secretary of Defense during fiscal year 1976, called for the Army to complete certain features by 1985. This year, the Army worked on jam resistant communications (satellite terminals); an improvement in the Alternate National Military Command Center; a European Command operations center at Supreme Headquarters, Allied Powers, Europe; and mobile vans equipped for rapid and reliable command, control, and communications in a crisis environment. The Army also supported other military services and Department of Defense agencies in their work on the plan. In a related project, the prototype WWMCCS intercomputer network reached the point of experimental use. The Army used it successfully in Elegant Eagle, a command post exercise sponsored by the Joint Chiefs of Staff.

During the past year, the Army began to prepare an Army Command and Control Master Plan to guide the development of a system capable of handling both strategic and tactical requirements. The plan is scheduled for completion by mid–1979, the system by 1985.

A command and control management structure was created in May 1977 with decision-making authority at the top and responsibility for operations decentralized down the chain of command. At the top, the Army Command and Control Council, chaired by the Under Secretary of the Army, was responsible for policy and program decisions. A general officer steering committee, headed by the Deputy Chief of Staff for Operations and Plans, was to establish objectives, evaluate existing and planned programs, and recommend priorities to the council. A working group with representatives from the steering committee would assist in preparing reports and analyses of progress. In command and control planning elsewhere, U.S. Army, Europe, finished a master plan in May 1977 for developing an improved command and control system by 1984, and the master plan of Central Army Group, Central Europe, moved toward completion in January 1978.

The joint ground and amphibious operations program was reorganized by the Secretary of Defense to become the OSD/JCS program for achieving joint interoperability of tactical command and control systems.

The Army Chief of Staff continued as executive agent and an Army major general was appointed program director and given authority to make program decisions which would be binding on the participating services and agencies. A systems engineering and architecture office consisting of a chief and nine professional staff members was established within the Army to carry out the program responsibilities of the executive agent and the program director. The joint program has been expanded to include development of joint message standards for the Joint Information Distribution System. The first of five technical interface design plans, the joint interface standard for intelligence systems, was completed in draft form. In addition, a joint interface test force was established at Fort Monmouth, New Jersey.

Chemical, Biological, and Nuclear Matters

Renewed emphasis on chemical warfare preparedness led this year to the establishment of the Secretary of the Army's Chemical Warfare Program Steering Group. That group proposed to set up a directorate within the Office of the Deputy Chief of Staff for Operations and Plans or expand the chemical division within that office. Because of constraints on manpower, however, the final solution was to add six spaces to the U.S. Army Nuclear and Chemical Agency (USANCA).

The Army established USANCA at Fort Belvoir, Virginia, in December 1976 as a field operating agency under the Deputy Chief of Staff for Operations and Plans. Consolidating the Army Nuclear Agency, then located at Fort Bliss, Texas, and the Army Nuclear and Chemical Surety Group at Fort Belvoir, the new agency supervised the Nuclear and Chemical Surety Program and monitored Army nuclear and chemical weapons systems.

The surety program, set out in Army Regulation 50–6, went into effect on 1 January 1977. It improved security standards and included specific policies and procedures for the safety of personnel and for the physical security and transportation of lethal chemical agents and munitions. During this fiscal year, work to improve physical security began at twelve storage sites, ten in the United States and two overseas. Some $81 million was to be spent over four years. Clear zones, perimeter barriers, perimeter lighting, and intrusion detection and prevention systems would be improved and guard forces increased.

To reduce costs by consolidating stocks, the Army this year made three depot-to-depot movements of chemical agents and munitions without incident. Cost savings realized from the consolidations amounted to more than $7 million.

The Army this year allocated to major field commands substantial funds for chemical equipment. For the forces in Europe and those in the United States that would deploy to Europe in the early stages of an emer-

gency, the Army obligated nearly $40 million for such items as protective clothing, filters for masks, detection kits, and decontamination devices and solutions.

A review of overall national strategy called for by President Carter confirmed theater nuclear forces as essential to deterrence and flexible response on the battlefield. Based on a study conducted at the Army Combined Arms Center, the Training and Doctrine Command published for the first time the doctrine for tactical nuclear operations in Field Manual 100–5. Two studies, the Battlefield Nuclear Force Mix Analysis, completed last fiscal year, and the 155-mm. Modernization Analysis, finished early in 1977, led to decisions on the stockpile levels of artillery-fired atomic projectiles (AFAP). The Army also decided to continue development of an 8-inch AFAP and to begin developing a 155-mm. AFAP. In addition, the Army began a long-range program to improve nuclear storage sites by installing intrusion detection systems, better lighting and communications, and protective facilities for guard forces. Over $49 million was committed this year to improving sites in the NATO area.

The Department of Defense and the Public Health Service identified in fiscal year 1977 six cases of leukemia among former Army members who had participated in a 1957 nuclear weapons test in Nevada. Statistically, up to six cases of leukemia could have been expected in that group without exposure to test radiation. But The Surgeon General of the Army requested an interagency meeting to discuss the possible medical effects of exposure to atmospheric nuclear weapons testing and to determine the methods for any necessary epidemiological studies.

Military Support to Civilian Authorities

Carrying out its statutory responsibilities, the Army responded to 1,781 requests for assistance from the Secret Service this fiscal year. That total, about double the annual average, reflected the increased activity of the Secret Service during the latter part of the presidential election campaign and the inaugural ceremonies. Assistance consisted mostly of explosive disposal, but the Army also provided helicopters and crews, vehicles and drivers, and medical support. Besides supporting the Secret Service the Army helped the Drug Enforcement Administration and the U.S. Customs Service interdict the flow of illicit drugs. Assistance included equipment loans, such as aircraft and electronic sensors, the training of personnel, and administrative and logistical support. Equipment was also lent to the Federal Bureau of Investigation, the Immigration and Naturalization Service, and the District of Columbia Metropolitan Police Force.

Army and Air Force units supporting the Military Assistance to Safety and Traffic (MAST) Program flew 8,652 hours this year evacuat-

ing 4,011 patients. The Army also established a MAST site in Houston, Texas, manned by the 273d Medical Detachment (Helicopter Ambulance) of the Army Reserve, and took steps to bring aeromedical units of the National Guard into the program.

The Army participated in major disaster relief operations during fiscal year 1977, six foreign and five domestic, usually at the request of the Department of State or the Federal Disaster Assistance Administration. The most important operations during the period were in the northeastern United States during severe cold weather and in the aftermath of devastating spring floods in Appalachia. (Additional details are in the Civil Works section of Chapter 11.)

3. Force Development, Doctrine, and Training

While the Army was fulfilling its operating responsibilities, staff members at all levels were planning for the future. The development of forces capable of defending the nation against challenges yet to come, the necessary organizations, equipment, education, and training posed difficult problems. Despite the intangibles involved in predicting future needs and limitations in funds and personnel, the Army had to operate under peacetime constraints and at the same time build a firm base for wartime expansion.

Force Development

With technology rapidly increasing the destructiveness of weapons and introducing greater sophistication into war, the problem of planning for future conflicts and the forces to fight them becomes more and more difficult. Constantly changing, the ideal mix of infantry, armor, artillery, air, and support units to fight tomorrow's war is seldom attainable in peacetime because of personnel and budget limitations. The objective, therefore, is to push ahead slowly, to adjust along the way, and to modify organization and equipment according to tests and evaluation.

Each year the Army prepares a Total Army Analysis based upon force levels established by the Joint Chiefs of Staff. The analysis considers the phased wartime deployment of units, the proper mix of active and reserve components, and the resources available. Unsurprisingly, the 1977 Total Army Analysis indicated that the Army needed more units than it could field and more reinforcing units for sustaining combat than the reserve components could provide; units requiring 91,000 spaces in a theater of war such as Europe would accordingly be unmanned. In addition, the Army would have to restructure the reserve components to adjust to changes in doctrine and employment concepts; those shifts would result in a small increase in the Army Reserve and a corresponding decrease in the National Guard in fiscal year 1978.

The Training and Doctrine Command (TRADOC) conducted a study in 1976 on the division foreseen for the 1980's; the Chief of Staff approved the TRADOC concept in January 1977 for testing through 1979. The new heavier division would have more units, but they would be smaller and more mobile. The division would also have additional artillery, separate antitank companies in maneuver battalions, better electronic warfare and chemical defense capabilities, and logistical support

units oriented on particular weapon systems. At the maneuver level, the battalion would assume many of the administrative, logistical, and coordinating functions presently performed by the company staff, allowing the company commander to devote full attention to training and commanding his unit. The TRADOC study also recommended tests of forward maintenance, forward ammunition transfer, and centralized mess, personnel, maintenance, and supply.

The 1st Cavalry Division at Fort Hood, Texas, became the test division, and a three-phase test was set up. The battalion-level test would extend from September to December 1977 and the test for the division, less some elements, from September to November 1978; the final phase for the whole division would be conducted at Fort Irwin, California, over the next six months. But funding, logistical, and operational constraints, along with congressional concern, forced reconsideration of that schedule. In late September, the Chief of Staff decided to go ahead with the first phase as planned, but combine the second and third phases, using two restructured brigades and headquarters elements of a third brigade, and to conduct both phases at Fort Hood by September 1978. Results and analyses of Phase I would be reported by June 1978 and of Phase II by October 1979.

Accordingly, the restructuring of the 1st Cavalry Division began on 1 July 1977. The test units included three tank battalions, two mechanized infantry battalions, one direct support artillery battalion, one forward support maintenance company, one chemical defense company, one engineer company, one combat intelligence company, one Redeye battery, and one ammunition transfer point. Reorganizing, equipping, and training of these units started, but shortages in equipment made it necessary to transfer many items from other units to the test division and to reduce the scale and length of some of the tests. When the tests start in October 1977, the armor and mechanized battalions will be instrumented, using the TRADOC automated field instrumentation system at Fort Hood. Selected instrumented field exercises, such critical issues as the employment of TOW antitank-missile companies, and overall forward support coordination and execution tests are to be evaluated during the remainder of 1977.

To meet the increasing Soviet armor threat in Europe, the Army also sought to improve its antiarmor capabilities. The goal was to increase the number of aircraft that could be used against armor forces. Additional TOW/Dragon antitank missiles have been issued to ground and air elements, and the 82d Airborne and 101st Airmobile Divisions received more antiarmor units. The Army also forwarded its first Mission Element Need Statement—a new Defense document—to the Department of Defense in August requesting approval of funds for further strengthening the antiarmor arsenal.

The Army worked to improve and extend The Army Authorization Documents System (TAADS) which was established to provide an accurate, responsive, automated system for changing organizational structure and authorizing necessary personnel and equipment. In recent years, the number of changes submitted has increased to a point where the documents had to be revised as many as six times a year. In June the Chief of Staff established a study group to work out other procedures. And in August 1977 the Vice Chief of Staff decided that unit authorization documents would be updated only semiannually, except for emergencies and other unusual cases. New regulations and instructions were to be issued prior to 1 April 1978.

In the meantime, TAADS was extended down to the installation level in March, when Fort Bragg, North Carolina, and Fort Knox, Kentucky, received the necessary automated equipment. By the end of the fiscal year nineteen data processing installations were using the TAADS software, and more were expected to be added in the year ahead. The Army staff and TRADOC and FORSCOM instructors provided functional training, and the Computer Systems Command gave automatic data processing training.

One of the continuing problems in planning is the inability to foretell what kind of war the United States might become involved in and the intensity of the fighting. The Army, nevertheless, sought ways to calculate the wartime consumption of conventional ammunition, combat losses of major equipment, and combat casualties. A study was completed in December 1977 defining the methodology to be used; its development was expected to be finished by February 1978, and forecasts of consumption and loss factors could then be used in programming Army requirements through fiscal year 1985.

Under the Vertical Force Development Management Information System, the Army, along with the computer industry, explored an approach to system development that had never been attempted before on such a large scale, utilizing top-down design structured programming techniques. The system would be developed for wartime operations but would be capable of performing with equal efficiency in peacetime; it would extend from Department of the Army headquarters through the major commands down to subordinate commands and installations.

The first two phases were completed in fiscal year 1977 by representatives of the Office of the Deputy Chief of Staff for Operations and Plans, the Army Computer Systems Command, and the Army Management Systems Support Agency. They considered functional requirements at Department of the Army and major command levels, evaluated automated data processing equipment requirements, assessed available data base management systems, analyzed current force development automated systems, and were developing a communications plan for support

of the overall system. The need to withdraw members of the team for higher priority projects and indications that funds would not be available in fiscal year 1978 meant that further development of the system would probably have to be deferred, possibly as long as twenty-two months.

The Force Development Integrated Management System, originally scheduled for completion in fiscal year 1977, also ran behind schedule. Integrating four separate systems currently in use proved more difficult than expected, and a new completion date of January 1979 was established. In the meantime, the Army identified and recorded all issues pertaining to the system and completed most of the technical system design and programming for the authorization subsystem; it also prepared a user's guide for the subsystem.

Concepts and Doctrine

Since the United States signed the Geneva Conventions of 1949, which set forth the rules governing international warfare, experience, situations not fully covered by the conventions, and new weapons and technology have indicated a need to bring the conventions into consonance with the changes of the last quarter century. Accordingly, the Swiss Government sponsored a series of diplomatic conferences in recent years to consider draft protocols prepared by the International Committee of the Red Cross.

As a concerned agency, the Army helped to develop U.S. positions on the proposed protocols during the fiscal year. One dealt with international law as applied to international warfare and another with humanitarian rules to govern civil wars. The Judge Advocate General's Office assisted the departments of Defense and State and the Arms Control and Disarmament Agency by reviewing and analyzing articles adopted during earlier sessions. It also participated in developing position papers and instructions for the U.S. delegation that attended the fourth session in Geneva from March to June 1977, and provided two members of the U.S. negotiating team. That session resulted in two treaties supplementing the old conventions. After the conference, the staff of The Judge Advocate General reviewed and analyzed the new provisions and made recommendations on the U.S. position on the protocols as a whole.

The Judge Advocate General had, in addition, the responsibility for reviewing new weapons to ensure that their intended use in combat would be consistent with the legal obligations of the United States. In that connection, his staff drafted a new regulation to improve existing procedures and to make certain that new weapons would be reviewed at the appropriate time.

At the tactical level, in April the Vice Chief of Staff instructed the Training and Doctrine Command to develop a philosophy and plan for an automated system at corps level and below. The plan involved the ex-

peditious fielding of systems required for combat readiness, consideration of wartime versus peacetime requirements, and centralized control to monitor the proliferation of automated battlefield systems. TRADOC appointed a small study group at the Combined Arms Center to work out the philosophy and methodology. A progress report was to be given at the tactical battlefield appraisal session which would convene in April 1978.

To improve fire-support coordination at company level, the Army developed the concept of the fire support team. This involved consolidating artillery and mortar forward observers into teams organic to division artillery battalions but organized and assigned on the basis of the type and number of companies to be supported. Team members were trained in a new military occupational specialty, MOS 13F, Fire Support Specialist, to coordinate all fires including naval and close air. The concept also included personnel and equipment increases in the battalion and brigade fire support sections.

After a TRADOC study showed an appreciable gap between the existing and potential capabilities of U.S. tank forces, the Chief of Staff established the Tank Forces Management Group in August 1976. Since the existing Army management system was functionally oriented and strove to improve combat readiness by increasing the efficiency of functional subsystems, the group decided to approach the problem by considering the tank as a total system—a combination of personnel, training, logistics, and development. The group recommended a special management structure cutting across functional lines and organizational relationships. The structure would not be vertical and separate from the existing staff, but rather would work through existing staff elements. This structure would consist of a Tank Force Management Office (TFMO) at Chief of Staff level and focal points in staffs of subordinate agencies and commands down through corps level.

In May the Chief of Staff approved the eighty-three recommendations submitted by the Tank Forces Management Group and on 1 August the Tank Forces Management Office was established under the Management Directorate of the Office of the Chief of Staff.

Among recommendations submitted by the Tank Forces Management Group, twenty-eight concerned personnel actions. One of the most important was the establishment of a separate armor management field. Some of the broad military occupational specialties such as 11D, Armor Reconnaissance Specialist, and 11E, Armor Crewman, will be broken down into more descriptive categories and assigned new numbers in the 19-series. For example, 11E will be split into five new MOS's—19G Armor Reconnaissance Vehicle Crewman; 19H, Armor Reconnaissance Vehicle Driver; 19E M48–M60A1/A3 Armor Crewman, 19F Tank Driver, 19J M60A2 Armor Crewman; and MOS 11D will be converted

to MOS 19D Cavalry Scout. This new career management field will become effective 1 March 1978.

Education and Training

The Special Commission on the United States Military Academy, appointed by the Secretary of the Army in September 1976 to assess honor code violations, presented its report in December 1976. The commission found serious fault in some features of the honor system and proposed a number of reforms. Among those was a recommendation that the Academy keep the "nontoleration" clause in the cadet honor code, but with a reinterpretation of the clause to give cadets the additional option of admonishing violators. The clause requires cadets to report violators or be guilty of a code violation themselves. The commission also proposed the introduction of sanctions short of dismissal, introduction of a course on ethics to foster character development, and protection of the honor system to ensure that it is not used as a means of enforcing Academy regulations. The commission also concurred in the decision of the Secretary of the Army to readmit cadets implicated in the cheating scandal.

In response to the commission's proposals, the Chief of Staff formed a U.S. Military Academy Study Group, under the Assistant Deputy Chief of Staff for Personnel and headed by three general officers, to examine further the Academy's condition. After a seven-month study, the group made over 200 recommendations in the areas of academics, professional military development, and the environment at West Point. One recommendation endorsed the nontoleration clause and suggested that minor honor code violations be subject to less serious punishment than automatic dismissal. To improve management at the school, the group proposed an external advisory board as well as internal changes in administration and control. The Chief of Staff gave the recommendations to the superintendent of the U.S. Military Academy for his consideration. Some of the group's recommendations have already become policy at the Academy. Others were still under review at the end of the fiscal year.

For combat officers, the Vice Chief of Staff approved a command refresher program for colonels and lieutenant colonels selected to lead infantry, armor, field artillery, air defense artillery, and engineer battalions and brigades. Beginning in July 1977, the program consisted of a week at the officer's branch school, on training soldiers; a week at Fort Leavenworth, Kansas, on fighting; and for all commanders not bound for U.S. Army, Europe, a week on maintenance at Fort Knox, Kentucky. Officers selected to command in Europe received their maintenance training at Vilseck in Germany. The final phase of the program was the Senior Officer Legal Orientation Course at The Judge Advocate General

School. Officers assigned to Europe received six weeks of language training at the Defense Language Institute. Officers selected to command other types of battalions and brigades would continue to attend the two-week Senior Commanders' Orientation Course at Fort Knox, pending establishment of programs for combat support and combat service support unit commanders.

Centralized selection of field grade officers for attendance at the senior service schools and the Command and General Staff College continued, but Defense officials imposed stability constraints to lessen personnel disturbance. As a result, a little over one third of the officers had to be deferred until they became available for reassignment. For the first time, the Army included all promotable majors and lieutenant colonels with less than fifteen years' service as eligible for selection to attend senior service colleges.

The Director of Military Personnel Management approved the discontinuance of the Fort Leavenworth phase of the Command and General Staff Officers' Course (CGSOC) for reserve officers. The phase was no longer necessary because the same work was incorporated in the Army Reserve school and correspondence programs. By curtailing the course, the Army expects to save more than $2.3 million annually. Beginning in fiscal year 1978, officers could meet the CGSOC requirements by fulfilling one of the following options: completion of all six phases of the Army Reserve school program and completion of the writing requirement; completion of all fifteen correspondence subcourses and completion of the writing requirement; any appropriate combination of the Army Reserve school and correspondence programs.

The Chief of Staff appointed a study group to review officer education and training and come up with policies and programs that would meet Army requirements and satisfy individual needs in each specialty area, yet remain within budget constraints. The group was expected to present a report and plan to the Chief of Staff by the summer of 1978.

In the medical field, the Army had 1,196 Army and 78 Air Force and Navy physicians in its Graduate Medical Education Program. Those doctors were in twenty-one residency specialty areas and thirty fellowship areas, and the training was offered at twelve different Army teaching hospitals and several civilian institutions, all approved by the American Medical Association. An Army Nurse Corps Continuing Health Education Program was published in July 1977, and the Army Nurse Corps then applied for accreditation as an approving body for similar programs. In September, the North East Regional Accreditation Committee of the American Nursing Association visited the locations for the proposed programs. The Army Dental Corps joined the American Dental Association Continuing Education Registry in May. Maintaining a centralized, nation-wide system for recording continuing education experience for

dentists, the association provided semiannual computer printouts of that experience to the Chief of the Dental Corps, local dental commanders, and major commands.

The Academy of Health Sciences prepared and conducted 102 initial skill, skill progression, functional, and continuing education courses for active and reserve officers and enlisted men. Over 33,000 individuals (22,435 active Army, 9,373 reserve components, and 1,194 others) were enrolled in the education and training programs of the academy and its satellite organizations. In addition, with Army financial support, over 7,700 Army medical personnel attended short courses at civilian institutions.

The Surgeon General continued to have over two hundred medical courses reviewed; many are being redesignated and substantial savings are expected. A task force analysis of the basic patient care MOS (91B) led to a career plan expected to produce better training and conserve training resources. To remedy shortages in clinical specialists (MOS 91C), in December 1976 The Surgeon General approved a two-phase, sixteen-week course providing initial training in that field. After a four-week course at the Academy of Health Sciences and a twelve-week course at selected Army medical centers, 647 students were assigned to fill vacancies in medical units.

To promote Army capabilities in law, twenty-five officers were selected to begin their legal education with the aid of Army funds. In addition, sixty Judge Advocate General Corps officers completed courses at advanced Army, Defense, and civilian schools.

The one station unit training (OSUT) concept has proved entirely satisfactory. Soldiers being trained in ten initial entry military occupation skills received their instruction under OSUT during fiscal year 1977, and two more skills will be brought under the system in fiscal year 1978. The Training and Doctrine Command study of the program in 1976 suggested that the concept worked well. Nevertheless, there was still a belief that similar results could be achieved through different methods, and Congress directed the Army to conduct a test of initial entry infantry training at two stations to determine whether benefits similar to those of OSUT could be achieved with an integrated training program split between two training installations. The test will be conducted during fiscal year 1979.

After Basic Initial Entry Tests conducted at Fort Jackson, South Carolina, in the fall of 1976 were completed, TRADOC supported the adoption of Common Entry Level Training (CELT). The tests were held to evaluate the ability of women to undergo the same basic training as men and demonstrated that, except for less upper body strength, women performed comparably with men. They also showed that physical training could be modified for women without changing content or value or

lowering the male standards. Other results were that the women tested felt more challenged physically, were better prepared for service in units than those who had undergone Women's Army Corps basic training, and could use basic tactical skills and employ weapons necessary for individual and unit survival in a defensive battlefield environment.

The CELT program, as a consequence, began in September 1977 at Fort McClellan, Alabama, with all-female units, and mixed unit training was scheduled at Fort Jackson early in fiscal year 1978. Initially, men and women would be segregated in separate platoons of the same company. The more rigorous training in mixed units should prepare women more thoroughly for assignment to combat support and combat service support units vulnerable to attack on the modern battlefield.

The Army Personnel Performance and Training Research and Development Program was another sign of the growing importance of women in the armed forces. Among other topics in a $22.3 million program, the Army Research Institute for Behavioral and Social Sciences conducted research on the role of women in the Army. A major field test was held to determine whether the number of female soldiers in a unit would have a measurable impact on the unit's performance. Other subjects included the improvement of unit training techniques, training individuals within units, and the development of guidelines for skill qualification tests.

In another experimental area, the Human Factors Engineering Program, concepts for mounting the Dragon antitank weapon on the armored personnel carrier, protection for TOW antitank weapons, and an artillery fire control measuring system were tested.

To increase battlefield effectiveness and to bolster night flying combat skills, the Army started a restructured initial entry rotary wing training program in June 1977. Students trained on both the UH–1 utility and the OH–58 observation helicopters; about twenty-five percent of the students would be qualified as OH–58 aeroscout pilots. Using the self-paced mode of instruction and relying heavily on simulators and training devices, the revised course was more efficient and less expensive. The Training and Doctrine Command also set up a five-week refresher course for officers who had not had a flying assignment within three years and an aviator commander's readiness course to help key officers get the most from their aviation assets.

In April the Army changed its policy by restricting airborne training to officers on assignment to airborne units. An exception would be made for U.S. Military Academy and ROTC cadets in the classes of 1977, 1978, and 1979, as well as OCS graduates in classes through fiscal year 1978, who did not take airborne training as students because they thought it would be available after entry on active duty. Beginning in fiscal year 1981, only 400 officers, the minimum needed to meet airborne unit

requirements, would receive airborne training. That restriction, however, would not affect the availability of voluntary precommission training for Military Academy and ROTC cadets.

The Vice Chief of Staff approved in concept the recommendations of an Army Linguist Personnel Study in early 1976, and by the end of fiscal year 1977 forty-eight had been carried out. The Army validated 5,000 out of 6,500 submissions as linguist requirements. The remaining 1,500 will have to be resubmitted. Although lack of personnel to review language proficiency questionnaires slowed down a program to identify and retest linguists, 6,200 records were received and used to update the linguist qualification data base during the period. To eliminate some of the difficulties in existing methods of reporting, the Army began to plan the automation of linguist data and requirements. Preliminary surveys and evaluations of various systems were under way at the close of the year.

Although enlistment bonuses went into effect for Polish, Czech, Slovakian, Arabic-Syrian, and Korean linguists, Defense officials ordered that the bonus be justified on a language-by-language basis beginning in fiscal year 1978. Effective 1 October 1977, an enlistment bonus will be available for enlistees who are Korean linguists. To aid soldiers in improving their language skills, the Army expended $280,000 to prepare self-paced instructional packets for persons learning Arabic-Syrian, Japanese, Korean, and Portuguese.

To secure more accurate data on training costs for budget submissions, the Deputy Chief of Staff for Operations and Plans convened a conference with representatives from the major commands in February to work out instructions to the field for providing the necessary information. The conference concluded that funding should be in five different categories: garrison operations and training costs, field training costs, operational requirement costs, special costs (one-time or occasional expenditures), and missile tests firing costs. As a result, the principal unit of measure used by the major commands to report field training costs became the number of battalion field training days regarded as essential to attain and sustain required levels of proficiency and readiness. For fiscal year 1979 submissions, major commanders were permitted to combine garrison and field training costs if they could not be separated with any degree of certainty. As cost figures were submitted, a wide variation surfaced. Some commands, such as Forces Command, had fewer battalion field training days for its units because of responsibilities for support to schools, tests, and reserve component training. Others, including the overseas commands in Europe and Korea, required more to maintain combat readiness and to participate in joint and combined exercises. Continued efforts were under way to refine the available data and to develop a model to display the relationship between funding and readiness.

Ammunition is an important item in training costs. Under a four-phase plan, the Training Ammunition Management System (TAMS) moved in February 1977 from orienting major commands and testing the computer-based information system to the second stage: the worldwide collection of data; the installation of data terminals at TRADOC and FORSCOM in the United States and in Europe and Korea; and training sessions on the use of the terminals and seminars on TAMS management functions. By the end of the fiscal year the information system had been refined, required documentation had been submitted to the Director of Army Automation, and major commands had identified and received approval for the additional manpower required. Phase III was scheduled to get under way in October 1977 with the expansion of the system to selected installations, the development of the first training ammunition authorization for the fiscal year 1979, and the revision of appropriate tables of allowances.

As in the past, special training exercises were held in environments varying from the heat of the jungle to the bitter cold of the arctic. Four battalions rotated to Alaska for four-week periods, eight went to the Canal Zone for three weeks of training; and five battalion task forces moved to Fort Irwin, California, for four weeks in the desert.

MOBEX 76, a major Army mobilization exercise, and the first of its type, was conducted from 8 November to 9 December 1976 to test recently revised mobilization plans and procedures, evaluate the Army's capability to support full mobilization for a conflict in Europe, and assess nondeploying support requirements. The exercise involved six installations—Fort Benning, Fort Drum, Fort Hood, Fort Lewis, Camp McCoy, and Camp Roberts. Elements of the Army staff, the Materiel Development and Readiness Command, the Military Traffic Management Command, and the Military Personnel Center also participated. Mobilization procedures and concepts were tested among 590 reserve component units, 31 state adjutants general, and 18 Army Reserve commands. Areas examined were alert, personnel, materiel, and movement requirements, and training evaluation; 186 mobilization problems were identified. MOBEX 76 brought to light a number of deficiencies and shortfalls associated with mobilizing and deploying both active and reserve components. These are being corrected and regulations and plans related to mobilization are being amended. The exercise also demonstrated the need for a joint mobilization and deployment exercise which has been scheduled for late 1978.

During fiscal year 1977, the Army also participated in twenty-seven exercises, including five major ones, under the Joint Chiefs of Staff Directed/Coordinated Exercise Program. The training accomplished in joint exercises is the culmination of unit and uniservice training, and gives

combat units experience with mobility, command and control, and communications under conditions that would likely prevail during wartime.

The Army Study Program

The Management Directorate in the Office of the Director of the Army Staff continued to manage the Army Study System. Priority problem areas were identified by the Army Secretariat, the Army Staff, and major commands and were published as the fiscal year 1977 Study Planning Guidance. Priority problem areas addressed were: soldier quality, recruitment, training, and retention; human, materiel, and energy resources utilization; peacetime efficiency and wartime effectiveness; readiness; modernization; future planning and forecasting; and Army roles, missions, and capabilities in light of changing conditions, relationships, and threats.

Based on the planning guidance, Headquarters, Department of the Army, staff agencies, and major commands contributed studies to the fiscal year 1977 Army Study Program. Distributed in October 1976, that program listed 363 studies covering manpower and personnel, concepts and plans, operations and force structure, logistics, science and technology, and management.

In preparing the Study Planning Guidance document for fiscal year 1978, the Office of the Deputy Under Secretary of the Army for Operations Research, working with the Management Directorate, analyzed recently completed study reports and efforts of the Office of the Secretary of Defense and Army to identify study gaps in critical areas. The fiscal year 1978 guidance document was issued in December 1976. It provided guidance from the Army leadership down; previously Army staff agencies and major commands had provided the major input. Additionally, specific staff agencies were directed to develop substudy programs addressing priority problem areas: Deputy Chief of Staff for Operations and Plans: short war survival, containment of the Warsaw Pact armored threat, Army readiness, tactical nuclear doctrine, intelligence systems, mobility and combat power, air defense, and force structure and personnel allocation—Deputy Chief of Staff for Personnel: recruiting and personnel management models—Deputy Chief of Staff for Logistics: logistics.

A substantial revision of Army Regulation 5–5, The Army Study System, was published in July 1977. The revision included findings and recommendations from the Engineer Study Group's "Results and Use of Army Studies" submitted in August 1976, and completed Army implementation of DOD Directive 5010.22 on the management and conduct of studies and analyses, dated 22 November 1976. During the year the Study Management Office of the Management Directorate served

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as the Army point of contact for the Surveys and Investigations Staff of the House Appropriations Committee to supply the cost of Army studies and the savings and benefits obtained.

The fiscal year 1977 study program of the Deputy Chief of Staff for Personnel consisted of twenty-four studies. Contract funding was $402,000, plus an in-house expenditure of twenty-four professional man-years. The program addressed problems in procurement, management, welfare and morale, mobilization, law enforcement, and the role of women in the Army. Twelve studies were completed. The program for fiscal year 1978 consisted of fifteen studies.

4. Intelligence and Communications

Without adequate knowledge of the enemy's potential and estimates of the courses of action open to him, military and political leaders operate in strategic darkness. At the tactical level, field commanders are in a similar position if uninformed on the strength, disposition, and overall condition of the opposing forces. Yet good intelligence is of little value unless it is fresh. No modern army can operate successfully without reliable information and the means of getting that information to the proper echelon quickly. Accordingly, the Army devoted considerable effort to improving intelligence and communications during the fiscal year.

Intelligence

Following the trend toward centralization established during the 1960's under Secretary of Defense Robert S. McNamara, primary responsibility for developing strategic intelligence and communications policy and overseeing activities in those areas remained with the Department of Defense. Despite some criticism of increasing civilian authority over those functions, the Secretary of Defense created a Director of Policy Review in June 1977 who was, in essence, the director of Defense intelligence activities and exercised staff supervision over strategic intelligence and communications agencies.

In the process of centralization, Defense-wide organizations have gradually taken over both functions and personnel from the services, and Army intelligence missions and staff have diminished. As a result, the Army gave increasing attention to tactical intelligence. In May 1976 a tactical intelligence committee was set up under the Vice Chief of Staff. Cochaired by the Assistant Chief of Staff for Intelligence and a general officer from the Office, Deputy Chief of Staff for Operations and Plans, the committee was to review, coordinate, improve, and facilitate procedures on tactical intelligence. Although the committee was short-lived because most substantive issues and problems were effectively handled by normal staff procedure, its functions were assumed by a newly renamed Army Electronic Warfare and Intelligence Board in early September.

More important were actions taken as a result of the broad examination of Army intelligence activities in 1974 by a study group under Maj. Gen. James J. Ursano, Director of Management in the Chief of Staff's office. In its Intelligence Organization and Stationing Study, the group made several recommendations, some of which were approved in fiscal year 1976, to be put into effect over the next six years. One of the

most notable recommendations was to place tactical intelligence units under Army commanders. In September 1976, the Chief of Staff directed that Military Intelligence, Army Security Agency, and Special Security Office functions be integrated in tactical organizations and assigned to field commands. As a first step, Army Security Agency battalions and companies in Europe and Korea were reassigned on 3 January 1977 to the commands they supported. Those units, together with tactical military intelligence organizations in the United States and overseas, will be the nucleus of fully integrated Electronic Warfare/Intelligence battalions and groups once doctrine has been tested and tables of organization have been developed. Activation of the integrated units should begin in 1979 and continue until 1982.

The main rationale for the consolidation of these units was to speed up the response to the field commander's request for intelligence and to improve management of intelligence resources. At the same time, the Army expected that concentrating resources would eventually reduce the demands for administrative and logistic support of intelligence activities.

For intelligence above corps level the Army established the U.S. Army Intelligence and Security Command (INSCOM) on 1 January 1977, consolidating the Army Security Agency, Army Intelligence Agency, selected field operating agencies of the Assistant Chief of Staff for Intelligence, the Forces Command Intelligence Group, and elements of the Special Security Office. INSCOM took over the missions and resources of these components as well as those of the nontactical organizations of U.S. Army, Europe, and Eighth U.S. Army (Korea).

Many of the transfers approved in fiscal year 1976 took place during the following twelve months. On 1 October 1976, the Army Security Agency Training Center and School at Fort Devens, Massachusetts, and the Army Security Agency Combat Developments Activity at Arlington Hall Station, Virginia, were transferred to the Training and Doctrine Command. That command continued to study the possibility of eventually consolidating the Army Intelligence Center and School at Fort Huachuca, Arizona, and the former Army Security Agency Training Center and School.

Operational control of the Army Security Agency's Materiel Support Command at Vint Hill Farms Station, Virginia, passed to the Materiel Development and Readiness Command in December 1976, and its personnel management function was transferred to the Army Military Personnel Center on 1 January 1977. Two months later, the Secretary of the Army announced formation of the Army Electronics Research and Development Command, which would take over intelligence research, development, and acquisition functions at the beginning of the next fiscal year. Similarly, in the field of telecommunications, responsibilities of the Army Security Agency and the Army Special Security Group for man-

aging and operating nontactical communications were to be turned over to the Army Communications Command in October 1977.

The Army also reassigned several units from field commands to INSCOM. Parts of the 66th Military Intelligence Group were transferred from U.S. Army, Europe, in February 1977, and the 470th Military Intelligence Group in Panama and the 502d Military Intelligence Battalion in Korea were transferred in April. The 502d was merged with other nontactical intelligence units in Korea to form the 501st Military Intelligence Group (Provisional).

Meanwhile, an INSCOM plan for carrying out the remainder of the accepted recommendations of the Ursano study group was approved. On 22 August 1977, Headquarters, Department of the Army approved an INSCOM request to delay full implementation of the plan beyond October 1977. Upon announcement of an INSCOM stationing decision, the completion date for the plan will be designated.

In fiscal year 1976 Congress asked for a combined budget request for intelligence support to tactical commanders, and the Army assigned responsibility to the Deputy Chief of Staff for Operations and Plans (DCSOPS). In turn, the Director of Requirements, ODCSOPS, became the functional manager for intelligence related activities, as such tactical support was designated. During fiscal year 1977 the major efforts in that field were the testing of an integrated intelligence and electronic warfare battalion and of new equipment in large-scale exercises, such as REFORGER. Approximately $500 million was invested in improving tactical intelligence readiness and capabilities, reflecting real growth and mounting interest of the Army in that important area.

Although the Army's role in strategic intelligence had been sharply restricted during the last decade, field commanders were encouraged to make full use of intelligence from other government agencies. Plans were also under way to exploit the results of the Army's limited efforts in strategic reconnaissance.

In accordance with the decision of October 1976 to centralize personnel security checks under the Deputy Chief of Staff for Personnel, rather than under the Assistant Chief of Staff for Intelligence, with the Military Personnel Center as the action agency, a Central Personnel Security Clearance Facility was to begin limited operations early in fiscal year 1978. Concentrating military and civilian clearances at one location should ensure that the same rules are used in adjudicating cases. Full operation of the new facility should begin in mid-1978.

In February 1976, Executive Order 11905 restricted American foreign intelligence activities, especially physical and electronic surveillance and the collection of information on U.S. nationals. Within the Army, The Inspector General and the Army General Counsel shared responsibility for formulating procedures to prevent intelligence practices that might

be construed as either illegal or improper. Although the Army issued interim guidance, final staffing of a formal regulation was deferred until the White House completed a revision of the executive order.

Overall, the trend of previous years was sustained. The accent on increased centralization of Army intelligence activities above and below corps level and the emphasis upon improving tactical intelligence were the dominant themes of the period.

Communications

Strategic communications in recent years have followed in many ways the course of strategic intelligence. Many functions formerly handled by the services passed to Defense-wide agencies. Because of the link between the two, the Office of the Assistant Secretary of Defense, Intelligence, and the Director, Telecommunications and Command Control Systems, were combined during the period. The newly titled Assistant Secretary of Defense for Command, Control, Communications, and Intelligence became responsible for both areas.

In spite of the trend toward centralizing strategic communications, many problems remained. Integrating diverse systems, improving interoperability, eliminating duplication, and, at the same time, meeting diverse requirements of the services required a long-term effort. The growing responsibility of Defense agencies did not mean, moreover, that the services no longer had a role to play in strategic communications, since they frequently acted as executive agents in developing and testing new concepts and systems.

The Army sought to keep pace with the general movement toward centralization by setting up the Army Command and Control Council under the Under Secretary of the Army in May 1977. The council ensures that the field armies are provided with efficient and complementary command and control systems and furnishes central direction to the Army in developing and fielding multiservice and multination command and control systems.

The trend toward centralization in communications led to greater attention to the tactical level. To help develop tactical communications for the period up to 1991, the Army pushed ahead with the approved recommendations of the Integrated Tactical Communications Study (INTACS), which were expected to change the entire tactical communications structure of the Army. The objective was to devise an all-digital system that would be reliable on the battlefield, compatible with those of other services and U.S. allies, and reasonable in costs over its life cycle. Representatives from the Army Staff and most major commands were designated members of an INTACS Steering Committee to help carry out the study's recommendations over the span of many years.

As part of the future system, a new family of tactical radios will be developed to be used by all services and to replace the diverse assortment of manpack, vehicular, and airborne sets that entered the Army inventory during the 1960's. The older radios are bulky, easy to jam, need considerable spectrum space, and use components that are expensive and increasingly hard to procure. The new radios will be lighter, capable of both voice and data transmission, and have antijamming features. By using the greatest possible number of common components, the Army will be able to cut down on logistic support. The Single Channel Ground and Airborne Radio Subsystem (SINCGARS–V) program was approved in October 1976, and the Army became the executive agent for development and acquisition. That program will provide the services with the next generation of combat net radios. Contracts will be let in the second quarter of fiscal year 1978 for the design and fabrication of prototypes of two radio sets, one with a slow frequency change and the other with a fast frequency change capability—characteristics that would make enemy interception or jamming extremely difficult.

The AN/UGC–74 teletypewriter, with microprocessor, continued in production. The equipment will eventually become part of the modular record traffic terminal family, which the Army is responsible for under the Joint Tactical Communications (TRI–TAC) Program. The Army also delivered the AN/TSQ–84 technical control to support the analog circuit switches sent to Europe in the summer of 1976.

The TRI-TAC program, in which the Army has participated since its inception in 1971, was designed to develop equipment for the 1980's. Besides the modular record traffic terminal, the Army is responsible for five other major items—the AN/TTC–39 automatic switch, a family of digital group multiplexers, a superhigh frequency satellite vehicle that would permit a channel to be time-shared, mobile subscribed equipment, and items to promote the compatibility of radio nets. The Army encountered the greatest difficulty with the AN/TTC–39 switch. The contractor was behind schedule and about to exceed cost limitations. After a review of alternatives, the Secretary of Defense decided in January to extend the delivery schedule to stay within the budget for the project. Work on the other TRI-TAC systems was more promising. Full-scale engineering development of the digital group multiplexers was on schedule, and development testing by the contractor began at the close of the year. The Army asked that the mobile subscriber equipment projects be designated a major program with a task force to oversee developments until the appointment of a program manager.

In military satellite communications, the Army continues to be responsible for all ground systems, including development, engineering, procurement, and installation, as well as post-installation logistical support and training personnel of all services using the equipment. The Army

also operated and maintained terminals assigned by the Joint Chiefs of Staff. During the fiscal year the Army installed a number of new terminals and moved others. Terminals in Hawaii, Kwajalein Island, and the Philippines were shifted to Panama, Taiwan, and Maryland, respectively. Plans were under way to transfer additional terminals from Hawaii, Guam, Alaska, and Berlin to Iceland, Berlin, Spain, and Augsburg, Germany, respectively, to use their capacities more fully. In May 1977 the Army also began to ship digital communications subsystems to the field; all fifty-eight of these subsystems were scheduled to be in place by 1980.

For tactical satellites, the Army signed a small production contract for its first multichannel superhigh frequency (SHF) transportable terminals. In the meantime, the engineering models of the terminals have been employed in field exercises and for special use. In June 1977 the Army successfully tested an ultrahigh frequency (UHF) manpack terminal, a 25-pound set that established a link between the United States and a satellite over Africa. That lightweight terminal will be used primarily by Special Forces and Ranger units. The AN/TSC–86 SHF multichannel transportable terminal was accepted in April 1977, and a production contract for six terminals was signed in September. The AN/MSC–61 mobile terminal was also approved for procurement in September and a multiyear production contract for twenty-one terminals was to be awarded in fiscal year 1978.

As battlefield communications became more complex, speed, reliability, and efficiency improved in many cases, but mobility frequently suffered because of weight, size, and number of components. Siting of medium or so-called mobile systems was, therefore, a matter of consequence. But in the past it had to be done manually, which often prevented Signal groups from making the best electromagnetic calculations. The Army Tactical Frequency Engineering System, a concept for employing minicomputers to work out the best choices for frequency selection, siting, antenna heights, and circuit routing, was adopted and scheduled for field trials during the next fiscal year.

The swift exchange of battlefield information has always posed a problem. To help plan future systems, the Army Signal School set up procedures for using computers to store data on communications requirements. Agencies proposing new systems would supply information on the purpose of the communications, the number of parties to be serviced, the classification level of the exchanges, and the priority of the proposal.

Conceived in 1973 as a method for developing an integrated, compatible network of computers, telephones, teletype, video, facsimile equipment, and terminals connected by a broad band distribution system using coaxial cables, the Army Base Information Transfer System (ARBITS) moved to a scaled-down testing phase as directed by the Office of the Secretary of Defense. In December the Army received Defense approval

for planning small-scale tests and then in May forwarded a subsystem plan identifying requirements, goals, milestones, and projected costs. With the acceptance of that plan in August by the Assistant Secretary of Defense for Communications, Command, Control, and Intelligence, the Army became the executive agent for ARBITS and was authorized to set up two test facilities, one at Walter Reed Army Medical Center in Washington, D.C., and the other at the Aberdeen Proving Ground in Maryland. The small-scale tests, the first of which is expected to take place at the Walter Reed Center early in 1978, should indicate whether the concept will be cost-effective if applied to other facilities. The tests at Walter Reed will include demonstrations of the patient registration and food and logistics information systems. Program activity at Aberdeen, scheduled to begin in fiscal year 1979, will include testing a prototype data system and implementation of the ballistic research laboratory data system.

Improvements in air traffic control facilities at home and abroad were made during the year. Five new towers were approved for construction, and an instrument landing system for Fort Lewis, Washington, was under consideration. Plans were also under way to replace worn or obsolete air traffic control equipment.

Although substantial progress has been made in the security of teletypewriter traffic, problems in safeguarding voice transmission defied easy solution. Despite emphasis on security in training, the large number of telephone subscribers around the world made it difficult to enforce security procedures. Budget constraints, meanwhile, slowed the procurement of more secure equipment. The situation at the tactical level was little better, since consistent voice communications discipline demanded a blend of security awareness and caution seldom found in most Americans.

Having planned to upgrade its nontactical secure voice system, Automatic Secure Voice Communications I (AUTOSEVOCOM I), by procuring more advanced equipment, refining voice quality and recognition factors, increasing the number of subscribers, and making the system more compatible with those used by tactical forces, the Army received a major setback. Although the concept, called AUTOSEVOCOM II, was approved by Defense officials, Congress deleted the funds for fiscal year 1978 for research and development and for procurement of modern equipment. Instead, the legislators recommended that the Department of Defense follow the lead of the National Security Agency in developing an analog rather than a digital system. As a result, the Army, as executive agent, and the program manager of the Defense Communications Agency worked out alternative proposals and forwarded them at the end of the fiscal year for congressional consideration.

As part of Department of Defense plans to overhaul the European military telephone system by replacing obsolete equipment and combin-

ing networks, the Army met with representatives of twenty-three American and foreign firms and agreed on the procurement specifications. As an exception to normal practices, Defense officials in February 1977 decided on open competition between U.S. and foreign companies in providing equipment and services. After the Federal Republic of Germany indicated that it wanted to upgrade its own telephone system, the Army explored the advantages and disadvantages of purchasing or leasing part of the improved German system. In July, however, congressional appropriations committees eliminated the funds earmarked in 1978 for the telephone project, stating that the European telephone system, though not the most modern, was adequate. If the system had to be overhauled, the committees suggested that Defense should consider leasing rather than purchasing. As the report period ended, the Army, accordingly, was investigating the possibility of arranging a leasing agreement with the Germans.

In the Middle East, efforts to improve communications in Iran had been delayed for several years because of diplomatic problems. Finally, in September 1976, the Army was authorized to put in new switchboards and telephone exchange equipment in the Teheran area. The Army Communications Command then began to install intracity microwave transmission media and technical controls, a task expected to be completed in fiscal year 1978.

The Army Communications Command also provided message communications support for Defense, State, and some Iranian government agencies in the greater Teheran sector. Until recently, messages received at the Iran Telecommunications Center had to be picked up by messengers. Because of the seventeen miles and poor road between the city and Mehrabad Airport, a secure teletypewriter circuit was installed. Meanwhile, a reduction of the staff at the center caused a deterioration in service between the two points. To alleviate the problem, the Army and Air Force agreed in June to switch over traffic from an Automatic Digital Network terminal at the center to the Military Airlift Command terminal at the airport.

Following American policy to help friendly nations modernize their communications, the Army prepared a plan for Saudi Arabia that would meet the requirements of U.S. agencies and the Saudi Arabian Armed Forces. As described in last year's report, the $469 million project, to be funded by the Saudis, would employ Automatic Digital Network, Automatic Voice Network, and satellite links between the two countries. Americans would train the Saudis to administer and maintain the system.

In September 1976, the Army completed a feasibility study for installing an Automatic Digital Network terminal at Amman, Jordan, to provide the Jordanian armed forces with better communications. The Jordanians would pay for the project, but the Army would operate the

terminal facilities. The survey, however, was rejected by Defense officials as requiring excessive manpower and time. A second survey was conducted, and the results were approved and forwarded to the Jordanian armed forces in May 1977 for consideration.

The Army also prepared a plan to improve the military communications of the Central Treaty Organization and recommended it to a conference of the member nations in June 1977. The plan, if approved, will modernize the links between the headquarters of the signatories.

After the advent of a new military regime in Ethiopia, relations between that country and the United States gradually deteriorated. In April 1977, the U.S. military presence in Ethiopia ended when all personnel at Kagnew Station were evacuated; most communications equipment was returned to the Satellite Communications Agency at Fort Monmouth, New Jersey, for storage. The departure of the American contingent severed close military ties that had bound the two nations since World War II.

The International Telecommunications Union will convene a general services type of World Administrative Radio Conference in 1979, at which any or all parts of the international radio regulations could be changed. Since conferences of this type are held only every twenty years, agreements made at the 1979 conference may affect use of the electromagnetic spectrum to the year 2000. During the past year the Army continued to prepare for this important meeting by collecting, presenting, and defending at the national level, the Army's present and future requirements for use of the spectrum. The Army also participated in extensive coordination work at multinational military organizations, such as NATO, to develop collective military requirements for presentation in order to influence the positions of the individual nations within the alliance.

Earlier, in 1975, the Army had established the Army Spectrum Management Steering Committee, because so many telecommunications functions had passed to major commands. Thus far, the committee has had little success in tracing the expenditure of funds spent on spectrum management, particularly funds associated with research and development and not identified in documents submitted by individual program managers.

The end results of spectrum management at the division level are multichannel systems and circuit diagrams and communication-electronics operating instructions (CEOI). Multichannel systems and circuits are engineered manually. The division CEOI, which deals mainly with single-channel communications, is automated, produced centrally at Fort Meade, Maryland, and shipped to units worldwide. Centralized production permits the use of a highly sophisticated computer, but also means a long delay between the time a division commander requests modifications

and the time he receives a changed CEOI in the field. The Army began work to apply current minicomputer technology to both systems engineering and CEOI production. These requirements are recognized in the Battlefield Automation Management Plan and will eventually be available to the commander in the field within the hardware of the TRI-TAC generation of communications equipment. The aim of the current effort is to furnish an interim, off-the-shelf capability as soon as possible.

Looking back, the main battle has been to stay abreast of the ever-changing communications situation and, concurrently, to remain within budget limitations. With technological research and development in the private sector so highly competitive, new breakthroughs and refinements followed so rapidly that anticipating the requirements for the next decade became almost impossible. By the time a new generation of equipment reached the field, its successor was already on its heels. The challenge of communications was matched, therefore, by the frustration of having to run constantly just to remain in place. The Army, nevertheless, managed to provide its personnel with superior communications equipment on the whole and continued its effort to develop and procure the best available at the lowest possible cost.

5. Personnel

When Secretary of the Army Clifford L. Alexander, Jr., and Army Chief of Staff General Bernard W. Rogers announced their goals for the total Army in September 1977, they covered readiness, materiel, strategic deployment, future development, and management; but most of all, they stressed the human element. As Secretary Alexander and General Rogers stated: "People are the most important resource in any institution. In the Army this is a fundamental tenet." People are also the Army's most costly asset. Manpower-related costs have accounted for over half of the Army budget since the end of the draft. In fiscal year 1977, those costs totaled $17.2 billion and represented sixty-four percent of the budget.

Military Strength

Congress established the end strength of the active Army for fiscal year 1977 at 789,000. Actual military strength, 782,230 on 30 September 1976, dipped to a low of 774,622 in December and then rose again by the end of September 1977 to 781,763. Thus actual strength fell 7,237 short of the congressional authorization. The Army could have recruited more young men without high school diplomas, who leave the service at about twice the rate of graduates, but this would have increased recruiting and training costs. Although the active Army did not reach its authorized strength, the force structure was, on the average, fully manned throughout the year.

The following table provides a breakdown of authorized and actual military strength as of 30 September 1977:

Active Army Strength

(as of 30 September 1977)

	Authorized	Actual
Officers	98,345	97,255
Enlisted personnel	686,355	680,062
U.S. Military Academy cadets	4,300	4,446
Total	789,000	781,763

Two years ago inflated transportation costs forced the Army to extend overseas tours. Effective 1 April 1975, long tours, in areas such as Europe, were extended three months, and short tours, like those in Korea, increased by one month. This year the Army was able to reduce overseas tours. Short-tour extensions were eliminated in April 1977, and long tours were reduced in three stages, one month at a time, between May and September. By the end of fiscal year 1977, all overseas assignments were of normal length.

Enlisted Personnel

This year the active Army surpassed its recruiting goal for men and women without prior military service and achieved 99.2 percent of the overall recruiting objective of 182,000 enlisted personnel. An unexpected decline in prior-service enlistments during the last quarter was directly responsible for the shortfall of about 1,500. Prior-service as well as new female recruits, however, continued to meet or surpass quality goals. The Army also slightly exceeded its quality goal of at least 56 percent high school graduates among men without prior service. The following table breaks down the recruiting statistics for fiscal year 1977:

Fiscal Year 1977 Recruiting Statistics

	Required	Actual	Percent
NPS males (percent of HSDG)	153,000	153,434 (56.2)	100.3
NPS females (percent of HSDG)	14,900	14,964 (89.9)	100.4
PS personnel (percent of HSDG)	14,300	12,320 (81.4)	86.2
Total	182,200	180,718	99.2

PS—prior service; NPS—no prior service; HSDG—high school diploma graduates.

Recruiting efforts have focused on high school graduates because the Army found that they tended to be more highly motivated, had much better discipline records, and were more likely to complete their enlistment obligation. The Army's long-range recruiting objective is to build a cost-effective and stable force in which at least 68 percent of new male enlistees are high school graduates, which would reduce attrition in the first three years of service to as low as 25 percent, compared to the past attrition rate of 40 percent. That, in turn, would reduce accession requirements for men without prior service to less than 140,000 a year, compared to the 160,000 to 170,000 needed in the past. The cost savings associated with those objectives were estimated at over $100 million a year.

There was steady progress toward the goal in the first two and one half years of the volunteer era, which began with the expiration of the draft on 30 June 1973. Because of inadequate recruiting resources (in both dollars and people) as well as unfavorable changes in the recruiting environment, however, the momentum was lost in the second half of fiscal year 1976 and in the transition quarter, and a downward trend began. Although fiscal year 1977 recruiting funds were the lowest since the volunteer force began, the Army prevented a further decline in quality this year. The Army also requested a substantial increase in recruiting appropriations for fiscal year 1978.

To help achieve the high school graduate enlistment goal, the Army started a recruiter aide program this year. Outstanding young soldiers, both men and women, who had completed Advanced Individual Training were assigned to their hometowns, on temporary duty for thirty days,

to assist local Army recruiters. An average of 750 recruiter aides per month returned home to relate their impressions and experiences to friends, peers, parents, teachers, and community leaders. Since they knew what type of individual the Army needed and personally knew the audience, they were able to seek out, influence, and bring to the recruiter potential enlistees of high quality. The program was especially effective because it focused on specific Army requirements, such as high school graduation and hard-to-recruit skills, and particular geographic areas. The Army plans to expand the hometown recruiter aide program during fiscal year 1978.

Because recruiters were being denied access to police records, which eliminated one method of determining the moral qualifications of prospective enlistees, the Entrance National Agency Check (ENTNAC) was established at Armed Forces Examining and Entrance Stations for applicants without prior military service. The new procedure should reduce fraudulent enlistments and should also reduce lost training time for skills that require a security clearance. Since its inception in October, about 476,000 requests have been submitted to the Defense Investigative Service. Over 39,750 applicants revealed additional information to the ENTNAC clerks at the examining and entrance stations, which resulted in 7,445 individuals being denied enlistment pending further investigation.

In the past, commanders were required to void the enlistment of any individual who had joined the Army fraudulently with the improper aid of recruiting officials. Effective 30 November 1976, commanders were granted the authority to waive certain disqualifications that existed at the time of enlistment if the character of the soldier's service warranted such action.

The Army's Delayed Entry Program provides for extended inactive duty in the Army Reserve with the ultimate objective of enlistment in the Regular Army at a future date. Extension of the program from 270 to 365 days, approved in September 1976, went into effect during fiscal year 1977. That change allowed earlier recruitment of promising high school seniors.

There was also a change in the Army's enlistment testing policy. Previously, men and women with prior military service who wanted to enlist could take the Armed Services Vocational Aptitude Battery entrance examination only once, but individuals without prior service could be retested if they failed to make a satisfactory score. Effective 1 June 1977, prior-service personnel may also be retested at any time.

Two policy changes this year concerned deployment of soldiers during their period of guaranteed stabilization. Formerly, individuals who were guaranteed stability with the unit for which they enlisted had the option of remaining with their unit when it deployed or being assigned

to another unit. Under the new policy, soldiers must remain with their deploying unit. The second change permitted temporary duty of a soldier away from his unit with a corresponding adjustment in the period of guaranteed stabilization after completion of temporary duty. The aim of these changes was to retain the recruiting incentive of guaranteed stabilization without hampering operations.

Fiscal year 1977 was reasonably successful for Army reenlistments. Although the desired number of first-term soldiers did not reenlist, the percentage of first-term eligibles reenlisting increased from 32.1 in fiscal year 1976 to 34.1 percent in fiscal year 1977, and continued to climb toward the 37 percent goal outlined in the Enlisted Force Management Plan. The number of career reenlistments achieved this year was 105.5 percent of the objective. Based on those trends, the Army expects to reach its enlisted force objective of 45.1 percent careerists (soldiers with three or more years of service) in fiscal year 1978. The quality of reenlistments also continued to improve; the proportion of high school graduates increased, and the number of individuals requiring waivers declined. The following table summarizes the reenlistment results for fiscal year 1977:

Fiscal Year 1977 Reenlistment Results •

	Objective	Achieved	Percent Achieved	Percent of HSDG	Percent on Waivers
First term	25,366	21,686	85.5	67.1	4.8
(Male)		(18,798)	—	—	—
(Female)		(2,888)	—	—	—
Career	46,611	49,179	105.5	68.1	6.0
(Male)		(47,700)	—	—	—
(Female)		(1,478)	—	—	—
Total	71,977	70,864	98.5	67.8	5.6

• These figures exclude 2-90 day prior service accessions and extensions which are reported elsewhere.

The relative success of this year's reenlistment program particularly in retaining more first-term soldiers, can be attributed to a number of factors. One of the most important was expanding the period during which first termers could reenlist from three months to six months before expiration of their term of service. That change, which gave potential reenlistees and their commanders more time and flexibility in making plans, was recommended at the first Worldwide Reenlistment Conference in January 1977. The conferees made twenty-seven recommendations, seventeen of which had been implemented by the end of fiscal year 1977. Reenlistment conferences will be held annually in order to give policy makers on the Army staff and reenlistment personnel in the field an opportunity to exchange ideas on a regular basis.

In accordance with another recommendation, a reenlistment steering group, composed of the reenlistment officer or the senior career counselor from each major Army command, was established. The group will meet at least once a year as a follow-up to the reenlistment conference. At the first meeting, held in September 1977, the consensus was that meaningful

progress had been made in recent months to solve major reenlistment problems. In March, for example, a "commander's override" permitted division and installation commanders in the grade of major general or higher to authorize reenlistment of exceptionally qualified soldiers in their current military occupational specialty (MOS) and override requirements for retraining into another MOS. Also, the first reenlistment conference had recommended that MOS reclassifications directed by the Department of the Army be held to an absolute minimum and that soldiers who were reclassified at reenlistment be given the assignment of their choice, if available, as an incentive to move to a different MOS. Another recommendation, reinstatement of the CONUS-to-CONUS reenlistment option, which guaranteed reenlistees another station of their choice in the continental United States, will be implemented on a test basis.

In addition to promising the soldier the assignment or station of his choice, cash bonuses were also available to encourage reenlistment for critically short MOS's. At the end of fiscal year 1977, the Army was offering the Selective Reenlistment Bonus in 111 out of 377 specialties.

A computer system called RETAIN has been designed to automate the reenlistment process. It verifies a soldier's reenlistment eligibility, displays the various options for which he is qualified, and matches his assignment preferences with the Army's needs. During fiscal year 1977 RETAIN terminals were installed at forty-two posts in the continental United States, Alaska, and Hawaii. Additional terminals were scheduled for Europe next year and for Panama and the Pacific in fiscal year 1979. RETAIN is compatible with REQUEST, the automated recruit quota system implemented in 1973.

Besides automated systems for use in recruiting and reenlistment, the Army also has a system called ELIM-COMPLIP (Enlisted Loss Inventory Model-Computation of Manpower Programs Using Linear Programing), which reflects the current status of Army manpower and projects manpower variables over a period of seven years. A new version of the system was adopted in July 1977. More sophisticated than the original model, it provides more detailed breakouts of data, and has proved to be a much better predictor of enlisted manpower gains and losses. Although the current ELIM-COMPLIP system is an effective management tool, several contracts have been awarded to make further improvements in order to provide more detailed and more accurate data more rapidly.

Progress continued in the development and implementation of the Enlisted Personnel Management System (EPMS). By the end of fiscal year 1977, some 559,500 soldiers (eighty-two percent of the enlisted force) were under EPMS in twenty-four career management fields (CMF). The final group of enlisted career fields was approved on 1 March 1978. Skill qualification testing began in April 1977 for CMF 11

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(Maneuver Combat Arms) and in September 1977 for CMF 16 (Air Defense) and CMF 95 (Law Enforcement). Tests for the other career management fields are being developed and will be phased in during the next three years.

The Skill Qualification Test (SQT)—a key feature of EPMS—examines the ability of a soldier to perform the critical tasks associated with his military occupational specialty (MOS). Specifically designed to replace the old written MOS evaluation test, the SQT is performance-oriented and job-relevant. It is an integral part of the Enlisted Evaluation System and, as such, affects an individual's eligibility for promotion. To be promoted, a soldier must demonstrate proficiency at the skill level of the next higher grade. The results of the SQT provide useful training data to field commanders and service schools and give Army personnel managers a valuable tool for making equitable decisions on promotions.

Changes in the promotion system this year included an increase of time in service required for advancement to grade E–2 from four to six months effective 1 October 1976. School commandants, but not unit commanders, had possessed authority to waive time-in-service requirements for advancement to grades E–2 and E–3 for a certain percentage of students. This favored outstanding students but not other outstanding soldiers. To eliminate the inequity, the Army in May ended accelerated promotion for all students except those attending Officer Candidate School, Warrant Officer Flight Training, and the U.S. Military Academy Preparatory School, and granted time-in-service waiver authority, for both grades E–2 and E–3, to unit commanders to allow them to recognize outstanding performers. The Army also gave normal promotion authority to school commandants to guarantee that soldiers attending long courses were afforded opportunities for advancement.

To stay within Department of Defense constraints on waiver promotions to grade E–4, the Army this year reduced the allowable waiver percentage from eighty to sixty percent. The change, effective in April 1977, applied to the assigned strength of both grades E–3 and E–4. The time-in-service requirement for promotion to grade E–6 was lengthened from six to seven years to halt grade escalation and lower personnel costs in fiscal year 1978. To be accomplished in phases, the change was introduced in February 1977 and was to be completed not later than September 1978.

Also affecting promotion to grade E–6 was a reduction in the minimum MOS evaluation score required for advancement. The score adjustment resulted from the suspension of MOS testing on 1 January 1977, as the Army continued a gradual transition to the Skill Qualification Test for measuring a soldier's ability and potential. While the conversion continued, however, a soldier's MOS evaluation score was to remain valid for fifteen months from the date of the last test for his MOS.

In the case of grade E–6, the Army considered a score reduction necessary to ensure that the promotion flow to that grade was not impaired during the transition to the SQT. In January, therefore, it lowered the minimum score from 110 to 100. With a waiver, soldiers with scores between 80 and 99 could also compete for promotion.

The enlisted grade structure was more in consonance with congressional authorizations and with the long-term objectives of the Enlisted Force Management Plan at the end of fiscal year 1977 than at the beginning. The main problem encountered during the year was to prevent the actual number of E–4's from exceeding the authorized total of 173,500. In May 1977, before the lower percentage of waiver promotions could have any effect, the number of E–4's peaked at 185,972. By the end of the year, however, the E–4 total was only 2,053 over the authorized number. The following table compares the Army's authorized and actual enlisted strength by grade as of 30 September 1976 and 30 September 1977:

Enlisted Grade Structure

Grade	30 September 1976 Authorized	30 September 1976 Actual	30 September 1977 Authorized	30 September 1977 Actual
E-9	3,740	3,689	3,740	3,737
E-8	12,716	12,928	12,716	12,724
E-7	45,490	45,639	45,490	45,377
E-6	71,672	71,035	71,672	71,936
E-5	116,200	108,925	114,400	112,582
E-4	176,324	168,740	173,500	175,553
E-3	92,800	101,240	98,000	98,640
E-2	102,600	98,750	83,800	78,724
E-1	66,067	69,128	83,037	78,789
Total	687,609	680,074	686,355	680,062

In the past, many members of the Army and the other military services who were discharged for disciplinary reasons received undesirable discharge certificates. Such a certificate led to perceptions that the recipient, rather than the character of his service, was undesirable. Consequently, the military services in January 1977 replaced it with a discharge under other than honorable conditions. In June, the Army also began issuing the new certificates to former members who had received undesirable discharges and requested an exchange.

Shortly before leaving office, President Ford extended a clemency program he had started in September 1974 by ordering the upgrading of discharges given for desertion to former service members who had been wounded in combat or who had received decorations for valor in Vietnam. The study of records by the Army Discharge Review Board and the issue of new discharge documents to 243 former members this year completed the actions required of the Army by the presidential directive.

A similar but far more extensive program, developed within the Department of Defense and approved by President Carter, opened a review of undesirable and general discharges issued during the Vietnam era (4 August 1964 through 28 March 1973). Excepted were discharges given for reasons involving violence or criminal intent. Former service

members given undesirable and general discharges for other causes were eligible, upon application within six months from 5 April 1977, to have their discharges reviewed for possible upgrading under newly established criteria. Deserters still at large, except those who had deserted from a combat zone, also were eligible to apply provided they first returned to military control and were discharged.

The Department of the Army became the executive agency for carrying out the program. Handling initial inquiries about it for all services was a Joint Liaison Office in St. Louis, Missouri. A Special Discharge Review Activity established in St. Louis processed applications from former Army members, and the Army Discharge Review Board in Washington examined the files of applicants to determine whether the upgrading of their discharges was warranted. The other services operated similar processing centers and review boards. As desired by the President, the boards reviewed all applications in a spirit of compassion.

By the end of fiscal year 1977, over 60,000 former service members and about 1,100 deserters-at-large inquired about the program. Approximately 38,000 former members were found eligible for the review program, of whom about 23,000 were former Army personnel. More than 900 deserters, of whom some 640 were Army members, returned to military control and were discharged in order to become eligible for consideration.

Officer Personnel

At the beginning of fiscal year 1977, the officer strength of the active Army was at the lowest level since 1950. During the year it declined further from 97,876 to 97,255. The number of commissioned officers decreased slightly while the number of warrant officers increased somewhat, as shown in the table below.

Officer Grade Structure

	30 September 1976	30 September 1977
Commissioned Officers		
General officers	430	431
Colonel	4,368	4,518
Lieutenant Colonel	10,835	11,073
Major	16,850	16,483
Captain	31,436	30,539
First Lieutenant	10,320	9,381
Second Lieutenant	10,951	11,739
Total	85,190	84,164
Warrant Officers		
CW-4	1,282	1,309
CW-3	3,093	3,528
CW-2	6,055	5,351
CW-1	2,256	2,903
Total	12,686	13,091

Officer accessions for fiscal year 1977 totaled 9,839. The following table provides a breakdown of the various sources through which the Army procured its new officers:

Fiscal Year 1977 Officer Procurement By Source

United States Military Academy	718
Reserve Officers' Training Corps	3,889
Officer Candidate School	705
Voluntary Active Duty	320
Direct Appointment	
Judge Advocate General's Corps, Chaplains, and Medical Service Corps	204
Women's Army Corps	446
Medical Corps	601
Dental Corps	287
Veterinary Corps	46
Other	75
Nurses and Medical Specialists	512
Warrant Officers	1,921
Miscellaneous *	115
Total	9,839

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

For the third consecutive year, enrollment in the Reserve Officers' Training Corps (ROTC) increased. During the 1976–77 school year, there were 54,671 Army ROTC students, compared to 48,400 students in 1975–76. Female enrollment increased at an even faster rate, from 9,324 to 11,838. For some time ROTC has been the major source of officers for the active Army. Now a concerted effort is being made to increase the number of officers entering the reserve components through ROTC. By 1981, the ROTC program will have to produce about 10,000 officers a year to meet the retirements of the total Army. In order to reach that goal, the Army intensified its management of the entire ROTC program.

In addition to fostering continued growth in enrollment, the Army this year placed particular emphasis on improving unproductive ROTC units. The number of units with fewer than seventeen students enrolled in the third year decreased from eighty-seven in school year 1975–76 to thirty-six in 1976–77. Better management of ROTC cadets selected for active duty for training (ADT) with the Army National Guard and the Army Reserve also received high priority, and an automated system specifically designed to keep track of ROTC–ADT officers was developed. Of the 1,942 ROTC seniors selected for the ADT program, forty-nine percent were scheduled to attend the Officer Basic Course during the summer months, compared to only ten percent of last year's 1,747 ADT selectees.

Approximately twenty percent of this year's ROTC seniors were assigned to the infantry and about ten percent to armor, because those two branches had the greatest officer shortages. In addition to the Army's mobilization requirements, criteria for branch assignment included previous experience and education, recommendations from professors of military science, and individual preferences. Fifty-two percent of the cadets received their first choice of branches and seventeen percent their second choice; only eight percent did not receive any of their four choices.

During fiscal year 1977 Congress passed two laws relating to the ROTC program. Public Law 95–79 provided for at least one Senior ROTC unit in each state. The unit must be located at an approved edu-

cational institution, sanctioned by the governor of the state, and must have at least forty students. Public Law 95–111 precluded expenditure of funds for schools whose third-year military science enrollment was lower than seventeen students for five consecutive years.

The Office of the Deputy Chief of Staff for Personnel convened a study group in August 1977 to find out whether current and projected officer accession programs would support the Army's mobilization requirements in the current fiscal year and in fiscal years 1979 and 1983. The study group recognized the need for a more detailed examination of commissioned and warrant officer requirements and assets by specialty and branch. It recommended actions that should increase accessions, use present assets better, and improve the training of ROTC cadets and ROTC–ADT junior officers. Separate annexes for the Army Medical Department, Chaplains, and The Judge Advocate General's Corps isolated their particular problems and presented specific recommendations applicable to their situations.

The authorized commissioned officer end strength for the Army Medical Department (AMEDD) for fiscal year 1977 was 15,822, compared to 15,159 for fiscal year 1976. Authorized and actual strength by corps as of 30 September 1977 was as follows:

Corps	Authorized Strength	Actual Strength
Medical Corps (MC)	4,738	4,056
Dental Corps (DC)	1,914	1,876
Veterinary Corps (VC)	438	405
Medical Service Corps (MSC)	4,682	4,620
Army Nurse Corps (ANC)	3,608	3,559
Army Medical Specialist Corps (AMSC)	442	457
Total	15,822	14,973

The following table summarizes AMEDD officer procurement (active duty accessions) during fiscal year 1977 by branch and source:

	MC	DC	VC	ANC	MSC	AMSC	WO	Total
Berry Plan	141							141
Student programs [a]	340	190	45	205	[c] 369	42	[d] 110	1,301
Direct procurement [b]	150	104	6	230	132	8	[e] 13	643
Carrier programs	41				8			49
Total	672	294	51	435	509	50	123	2,134

[a] Includes ROTC.
[b] Includes reserve recalls and reserve officers brought to active duty.
[c] Includes 11 Health Professions Scholarship Program withdrawals.
[d] For MOS 911A/SSI 011A (Physicians' Assistant).
[e] For MOS/SSI 202A (Medical Maintenance Officer).

As shown in the table above, student programs were by far the largest source of new officers for the Army Medical Department in fiscal year 1977. A total of 1,834 students participated in the Army's Health Professions Scholarship Program. There were 517 graduates, distributed as follows: 330 in medicine, 132 in dentistry, 32 in veterinary medicine, 22 in optometry, and 1 in podiatry. From a total of 1,745 scholarship applicants, the Army selected 528 medical, 59 dental, 32 veterinary medicine,

and 22 optometry students. After this year, incoming dental students will no longer be eligible for scholarships under that program.

In August 1977 the Uniformed Services University of the Health Sciences at Bethesda, Maryland, began its second year of operations. At the end of the fiscal year, 98 students were attending the university, 37 of whom were designated as Army participants. The first graduating class is expected to provide twelve physicians for the Army in 1980.

This year the Army Medical Department intensified its recruitment efforts and directed them toward fully qualified specialists as well as potential participants in Army graduate medical education programs. In the Army Nurse Corps procurement of officers with baccalaureate degrees in nursing received special emphasis. Applications for the Walter Reed Army Institute of Nursing, which will close in 1978, were no longer accepted. Recruitment for direct accessions to the Dental Corps was delayed for two months in the spring of 1977, pending a decision on year-end strength authorizations. To reduce anticipated losses, selected dental officers scheduled for release were encouraged to remain on active duty. The congressional decision to discontinue the special pay of $100 per month for veterinary officers entering active duty after 30 June 1975 continued to impede recruitment of veterinarians. There were no problems with the procurement of officers for the Army Medical Specialist Corps, and accessions for the Medical Service Corps were sufficient to meet requirements, except in the nuclear medical science and optometry specialties. Since fiscal year 1977 was the final year for warrant officer accessions from the Military Physicians' Assistant Program, direct appointment of civilian-trained physicians' assistants will begin in the active Army effective 1 October 1977. Such a program has been in effect in the reserve components since 1976.

Although the Army expects to acquire increasing numbers of physicians through ROTC and the Health Professions Scholarship Program, the Medical Corps during the next five years will need more than 250 volunteers a year. Special efforts this year to increase Medical Corps accessions included revised application procedures and shorter application processing times, greater emphasis on media advertising, national mail campaigns, invitations to selected former medical officers to return to active duty, and a contract study of the factors that motivate physicians to enter and remain in the Army. Nevertheless, Medical Corps strength continued to decline. The assigned strength of the corps at the beginning of fiscal year 1977 was 4,368; by the end of the year it was 4,056, well below the authorized year-end strength of 4,738.

Recognizing the seriousness of increasing Medical Corps shortages, The Surgeon General in March 1977 called together a group of forty-five officers to identify the barriers to retention of physicians in the Army and to develop a plan for overcoming them. The plan developed by the group

focused on eleven major issues and seventy-six distinct goals. The most important issue was that retention will be impeded unless mission is adjusted to match available resources. Incentives, such as special pay and continuing health education funding, should be predictable and evenly applied. Orientation and transition to active duty and career progression planning should be improved. Efforts should also be devoted to improving professional satisfaction and the physician's image in the military community. Other major issues included expansion of a contract surgeon program and protection of benefits from erosion. The Surgeon General accepted the plan in concept and created an ad hoc panel, chaired by the Deputy Surgeon General, to review it and oversee its implementation.

The number of officer promotions increased for the third consecutive year. Excluding the Medical and Dental Corps, 663 officers were promoted to colonel, 1,821 to lieutenant colonel, 3,023 to major, 4,957 to captain, 278 to CW–4, and 1,155 to CW–3.

In January 1976 Secretary of the Army Martin R. Hoffmann had established promotion reconsideration boards, known as relook boards, to give another chance to officers not selected for temporary promotion to the grades of lieutenant colonel, major, CW–4, and CW–3 in 1974 and 1975 by boards that did not include reserve officers. The relook boards that met between 30 March and 18 October 1976 recommended 1,177 officers for promotion. Additional boards met later in fiscal year 1977. By the end of the year, a total of 1,203 officers had been recommended for promotion and 1,006 of these had been promoted, including 204 former officers who returned to active duty in their new grades. Meanwhile, on 11 May 1977 Secretary of the Army Alexander directed that new selection boards with appropriate numbers of reserve officers be convened to reconsider all primary zone officers originally considered for promotion to the grades of lieutenant colonel, CW–4, and CW–3 in 1971 and 1972. The first of those relook boards convened on 13 September 1977.

In a major step toward full implementation of the Officer Personnel Management System (OPMS), the Army for the first time considered OPMS specialties in the promotion selection process. Official guidance to the board that met in July and August 1977 to select officers for promotion to full colonel required consideration of each officer's primary and alternate specialty. After the board made its initial selections, it received a list of twenty-seven specialties in which a shortage in the grade of colonel was projected for the next twelve months. The board was given minimum promotion quotas for these specialties and instructed to select additional officers from those best qualified to fill the projected shortages. Officers selected to meet the additional quotas were to be true specialists, as shown by previous experience and demonstrated expertise. Furthermore, only those who have already been recommended by at

least one of the board's voting panels were to be considered eligible. It was understood that if the board determined that the total number of best qualified officers within a specialty did not support additional selections for promotion, a shortfall would be acceptable.

An important element of the Officer Personnel Management System is centralized selection of commanders for Army troop units, logistical organizations, and engineer districts. This year 161 colonels and 443 lieutenant colonels were selected for command positions, while overall command opportunity at these levels declined to approximately thirty-two percent and thirty percent, respectively. The Army extended command tours in Europe to twenty-four months, but command tours in the Forces Command and the Training and Doctrine Command remained at eighteen months. Procedures for selecting project managers for weapons systems and other complex programs were more closely aligned to the colonel-level command selection process, and twenty-five project managers were selected.

The Army Medical Department (AMEDD) has its own command selection program tailored to the specific needs of the department. During fiscal year 1977, the program was fully implemented for the Medical Corps, Dental Corps, and Medical Service Corps, and the first AMEDD Corps Immaterial Command Selection Board met to consider eligible Medical Corps and Medical Service Corps officers to command certain medical research and development units. A total of forty-one colonels and thirty lieutenant colonels were selected for fiscal year 1977 AMEDD command positions. Also, after two years of preparation and staffing, the AMEDD Officer Professional Development and Utilization Guide was issued as DA Pamphlet 600–4 in May 1977.

By the end of fiscal year 1977, Congress still had not enacted the Defense Officer Personnel Management Act (DOPMA). The proposed legislation would amend existing laws governing the appointment, promotion, separation, and retirement of commissioned officers serving on active duty in the Army, Navy, Air Force, and Marine Corps below the grade of brigadier general or rear admiral. By establishing common personnel management procedures for all officers, it would eliminate or reduce inequities between regular and reserve officers, male and female officers, and officers of the same grade in different services. The Department of Defense expects passage of the DOPMA legislation by the 95th Congress.

Manpower Management

The Army defines manpower management as the planning, programming, development, and evaluation of organizational structures to include determination of requirements, allocation of resources, and review of manpower use. The objective of manpower management is to maintain combat effectiveness with minimum manpower.

An important Army study completed in fiscal year 1977, the Manpower Management Survey Program Study, concluded that the on-site manpower management survey (an organizational survey, a functional survey, a management review, a consultative study, or a combination) is a necessary and vital part of the total integrated manpower cycle in the Army. Such surveys measure past and projected work loads and translate them into terms of minimum manpower requirements.

The Use of Military Manpower Study, also completed this year, addressed the potential conversion of military to civilian positions. The study concluded that, aside from changing requirements, the Army has met, if not exceeded, its capacity to fill military positions with civilians without seriously reducing its combat potential.

Although borrowed military manpower—soldiers who perform work other than that to which assigned—has been used for essential support requirements by armies throughout the ages, manpower managers have always tried to minimize its impact on unit training and readiness. The Army's manpower management policies generally have not permitted the use of military personnel to offset losses in the civilian work force. In recent years, however, the cumulative effect of military and civilian strength reductions without corresponding decreases in mission or work load has been so adverse that commanders could not sustain essential operations without borrowed military manpower. In fiscal year 1977, the Army had to divert an average of 13,000 soldiers a day from their normal military duties in order to perform necessary support tasks.

After another civilian manpower reduction was announced for fiscal year 1978, the Assistant Secretary of the Army for Manpower and Reserve Affairs informed the Assistant Secretary of Defense that the Army would not use reduction-in-force to achieve that cut. Instead, the Army would decrease civilian strength through attrition and would eliminate an equivalent number of positions from authorization documents. When possible, work loads would also be decreased. When the work load could not be reduced, the Army would increase the use of borrowed military manpower, but only to the extent necessary.

In December 1976 the Army completed a major civilian substitution program begun in July 1973. During that period, 14,080 positions were converted from military to civilian. The converted positions were largely in the continental United States and in clerical work, administration, supply and maintenance, motor transport, food service, recreation, and medical care. The average grade of the former military position was E–4; the average grade of the new civilian position was GS–4. The conversion made soldiers available for reassignment to troop units, diminished the impact of civilian manpower reductions by creating new jobs, and increased stability and continuity, since civilians tend to stay longer in the

same job than soldiers. Net savings to the Army associated with the substitution program were approximately $21 million.

Further large-scale conversion of military to civilian positions cannot be absorbed within the current enlisted force structure without inhibiting development of military specialty skills and reducing the number of military positions below the level necessary to maintain an adequate rotation and expansion base in support of the sixteen-division force. Accordingly, the Army has not planned any additional civilian substitution programs for the near future. New rotation base instructions issued in July 1977 listed the military skills which must be retained in units stationed within the continental United States in order to provide proper career development and at least a minimum tour in the United States between overseas assignments. The directive forbade further civilian substitution or contractual service in selected military occupational specialties and should alleviate the rotation base problem. The instructions will be updated annually to reflect current Army requirements.

The Army's budgeted grade structure projects the number of personnel, by grade, available for assignment and provides the basis of procurement and promotion programs. For several years an imbalance has existed between the budgeted grade structure and the grades reflected in The Army Authorization Documents System. A primary cause was that grades in authorization documents had been established through grading standards and job evaluation factors that did not consider career progression and the budget, which largely controlled the actual grades of personnel available to fill these positions.

Efforts to reduce the imbalance have centered on developing grading standards and a grade structure for each specialty that would produce a better alignment of positions and people. Grade standards for commissioned officers are currently under review to improve the grade structure while maintaining the integrity of the grading system. Changes in career management fields within the Enlisted Personnel Management System, especially the revision of standards of grade authorizations, will relieve enlisted grade imbalance. For officers and enlisted persons alike, however, those are long-term efforts.

As an interim measure to prevent any increase in the grade imbalance, the Army in 1975 added command grade objectives to program and budget guidance documents distributed periodically to commands and operating agencies. The grade objectives informed each command and agency of its share of grades projected to be available during a particular fiscal year. The commands and agencies were not required to change authorized grades arbitrarily to match the objectives. But in proposing upward adjustments that would exacerbate the imbalance they had to include compensatory downgrading. For The Judge Advocate General's Corps, Chaplains, and the Army Medical Department, grade

objectives were managed separately to take into consideration special missions and requirements. Although complete elimination of grade imbalance is still some distance away, improvements have been steady. An ad hoc working group was organized this year within the Army Staff to reduce the imbalance further.

A General Officer Steering Committee sponsored by the Office of the Deputy Chief of Staff for Personnel and a Manning Criteria Working Group supported by the Office of the Deputy Chief of Staff for Logistics were also formed during the year. The two groups inquired into a long-standing disagreement between the Training and Doctrine Command and the Materiel Development and Readiness Command over what constituted adequate manning to perform automotive maintenance. Their preliminary findings suggested a need to review manning criteria for all maintenance functions as well as a stringent examination of the basic planning of all manning criteria. In a related matter, the General Accounting Office undertook a review of manning criteria for aviation maintenance below the depot level.

In December 1976 the Chief of Staff directed the Army Staff to develop an improved system for determining officer requirements. Before that could be accomplished, a more precise procedure was needed for deciding whether a position should be filled by a commissioned officer, a warrant officer, an enlisted person, or a civilian. The Army intends to award a contract for a thorough study of that problem in fiscal year 1978.

Military Compensation

The Third Quadrennial Review of Military Compensation, a comprehensive two-year study that began in January 1975, was completed in January 1977. The draft report submitted to Secretary of Defense Donald Rumsfeld included the following recommendations: Military compensation should be a modernized pay and allowance system rather than a salary and should be comparable with the private sector and the federal civil service. Basic pay should be adjusted in relation to civil service salaries; allowances for quarters and subsistence should remain tax-free. The unique conditions, obligations, and hardships of military service should be recognized by the traditional institutional benefits of commissaries, post exchanges, health care, and morale, welfare, and recreation programs. Assignments involving a particular risk or hazard, such as demolition or parachute duty, should be recognized through the system of special and incentive pays.

Secretary Rumsfeld decided not to take action on the report in the last days of the Ford administration, referring it to the new Secretary of Defense, Dr. Harold Brown. In June 1977 President Carter appointed a blue-ribbon panel to restudy the question of military compensation from a fresh point of view. That group was to review the findings of the Third

Quadrennial Review and several other studies on the same subject, including the Defense Manpower Commission report that recommended a fully taxable salary for members of the armed forces. The President's Commission on Military Compensation was expected to resolve those differences and to propose an integrated, long-term policy fair to both taxpayers and military personnel. The commission was to submit its report through the Secretary of Defense to the President by 15 March 1978.

Maximum military basic pay does not increase automatically with each military pay raise but is limited by law to the rates established for civilian positions classified at level V of the Executive Schedule. Effective 1 October 1976, that level was $39,600, which meant that all three- and four-star generals received the same basic pay. When the ceiling was raised to $47,500 in February 1977, basic pay for three-star generals increased to $43,805 and that for four-star generals to $47,500.

The mechanism to adjust military as well as civilian retired pay in relation to changes in the Consumer Price Index (CPI) was revised and the so-called one percent "kicker" to retired pay was eliminated in October 1976. Before that, whenever the CPI rose by three percent over the index figure that had generated the last retired pay increase and remained at or above that level for three consecutive months, retired pay increased by the highest percentage reached during that period plus an additional one percent. Now, increases in retired pay occur on 1 March and 1 September of each year and increase by the same percentage as the CPI increased between the preceding January through June or July through December.

Last year President Ford reallocated twenty-five percent of the October 1976 military basic pay raise to basic allowance for quarters, which is the maximum permitted by law. This year, President Carter decided that only twelve percent of the October 1977 pay raise would be reallocated to the tax-free quarters allowance.

On 30 September 1977 President Carter signed a bill extending variable incentive pay for physicians and dentists for another year and reinstating special pay for veterinarians and optometrists. Although stipends for students already enrolled in the Armed Forces Health Professions Scholarship Program continued to be tax exempt, Congress deferred relief for new students entering the program after 1976, pending further study of tax relief for all federal health professions scholarship recipients. The Department of Defense, however, remained confident that the tax exemption would be reestablished or stipends would be increased to cover the tax liability.

Legislation enacted in July 1977 set the pay for new service academy and Senior ROTC cadets at $313.20 per month and provided that it be

adjusted annually when active duty pay is increased. Special provisions were made for cadets who were enrolled in an academy or ROTC program at the time of enactment.

In June 1977 Congress amended the law authorizing garnishment of pay of federal employees, including members of the armed forces, for child support and alimony. Since the original law of 1 January 1975 had placed no limit on the amount of pay that could be withheld, some state courts took up to 100 percent of a soldier's pay. The new law provided that only half of the pay of an individual having a second family could be withheld and set a 60 percent limitation for individuals without second families. An additional garnishment of 5 percent was authorized in cases where child support and alimony payments were more than twelve weeks in arrears. The U.S. Army Finance and Accounting Center, the agency responsible for processing all garnishment orders for active duty, reserve component, and retired Army personnel, honored approximately 3,000 writs and paid out over $1.5 million during fiscal year 1977.

Since passage of the Tax Reform Act of 1976 many states have concluded agreements with the Treasury Department for automatic withholding of state income taxes from service members' pay. In July 1977 the Finance and Accounting Center began withholding state income tax from the pay of soldiers who were legal residents of Alabama, Delaware, Iowa, Kansas, New Mexico, North Carolina, South Carolina, Utah, and Virginia. Soldiers whose legal residence was in Idaho, New Jersey, New York, or Pennsylvania, also had income tax withheld, but only if they were stationed in their home state. In August automatic withholding began for legal residents of Colorado, Indiana, Maryland, Massachusetts, Rhode Island, Wisconsin, and the District of Columbia; Kentucky, Louisiana, Nebraska, and Oklahoma were added in September.

Effective 28 October 1976 the mileage allowance for military personnel performing permanent change of station travel was increased from eight cents to ten cents per mile, which is the maximum authorized by law. With the concurrence of the other services, the Army has forwarded proposed legislation to the Department of Defense to authorize the service secretaries to establish appropriate rates.

In December 1976 the Deputy Chief of Staff for Personnel decided that programs which affect service members, retirees, and dependents financially should be reviewed quarterly to give the Army staff more information on the needs of the soldier as well as on budget, congressional, and Department of Defense requirements. During fiscal year 1977, sixty-two programs were reviewed and the results published and distributed thoughout the Army.

Equal Opportunity

The Total Army goals announced by the Secretary of the Army and the Chief of Staff in September 1977 included the following statement:

> An army which is to be creative, dynamic, and effective in the fullest sense is an army which identifies and then employs to the fullest degree the talents of all those who fill its ranks. There will be equal opportunity for all, and the assurance of this equal opportunity is a major managerial and command responsibility. Support of affirmative actions programs within the Army is unequivocal.

The goal of the Army's Affirmative Actions Plan (AAP) is to identify and eliminate institutional discrimination in the active Army and in the reserve components. The new AAP, adopted in June 1975, provided for an annual assessment of race relations and equal opportunity programs in the Army. The first annual assessment, published in December 1976, noted statistical trends which indicated progress in many areas. Of particular importance was the heightened awareness of individual commanders and supervisors resulting in closer monitoring of personnel matters. In addition to describing current status and trends, the report outlined significant management actions undertaken as a result of the 1975 AAP, identified problem areas where discrimination still existed, and recommended actions to isolate and correct causes.

Existing equal opportunity regulations and directives were revised, updated to reflect changing conditions, and combined into a single regulation, AR 600–21, published in June 1977 with an effective date of 1 September. The new regulation stressed greater flexibility and command involvement in two major areas of the Army's equal opportunity program: affirmative action and training. Commanders were to establish their own goals, develop action-oriented plans, and follow through to achieve those goals. They were also required to tailor training to meet local needs, using their own judgment as to the frequency, length, method, and type of training. Finally, the regulation emphasized more active participation and greater command involvement in the Army's equal opportunity program for the reserve components. The new regulation was one of the major discussion topics at the Army's Equal Opportunity and Equal Employment Opportunity Conference, held in the Pentagon in June 1977.

Opportunities for women in the Army have been growing steadily and rapidly. In the past five years, female strength in the active Army has quadrupled, rising to a total of 51,796 by 30 September 1977. During fiscal year 1977, the number of women officers increased from 5,150 to 5,696 and the number of enlisted women from 44,461 to 46,094. At the end of the year, women constituted 6.7 percent of the commissioned officer strength and 6.8 percent of the enlisted force.

Female strength in the reserve components also continued to expand. As of 30 September 1977, in the selected reserve there were 12,334 women in the Army National Guard and 21,660 in the Army Reserve. The Army has been able to fill its enlisted women quotas consistently with high caliber applicants. Projections indicate about 89,500 women on active duty by the end of fiscal year 1983, with an additional 22,030 in the National Guard and 44,900 in the Army Reserve.

Precommissioning programs for women also gained momentum. As of 30 September 1977, the United States Military Academy at West Point had 81 female cadets in the class of 1980 and 92 in the class of 1981. Of the 119 women who entered the academy in July 1976, 32 percent dropped out, compared to a 30 percent attrition rate for male cadets from the same class. In general, women performed as well as men during their first year at West Point, and there were few problems resulting from their admission.

In the 1976–77 school year, 11,838 women were enrolled in ROTC, 21.65 percent of the total ROTC enrollment and an increase of 2,514 since last year; 495 women received commissions through ROTC this year, and about 845 were expected to graduate in the summer of 1978. ROTC will soon become the Army's major source of female officers; the Women's Army Corps direct commission program ended in September 1977. Women began to attend Officer Candidate School at Fort Benning, Georgia, together with men, in November 1976. In order to equalize opportunities for women to seek commissions from civilian life, the previously all-male Officer Candidate School enlistment option for college graduates was opened in June 1977 to females.

Also in June, the Army decided to provide common entry-level training for all men and women without prior service. Conversion to the new basic training course began in September at Fort McClellan, Alabama, and Fort Jackson, South Carolina. Officer and noncommissioned officer positions will be interchangeable for men and women at the company, battalion, and brigade level, giving women the opportunity to command and occupy leadership positions. Meanwhile, the Women's Army Corps (WAC) Center and School at Fort McClellan was discontinued on 31 December 1976 and the two WAC training battalions, headquarters, and all training facilities merged with the Military Police School to form a new training brigade of six battalions that will train both men and women.

A comprehensive study on women in the Army, conducted by a special study group under the guidance of the Deputy Chief of Staff for Personnel, was completed and published in December 1976. The study group concluded that the Army's program provided for full and effective employment of women consistent with the current and future needs of the Army. It also identified areas requiring further investigation. In April

1977 the Army held a symposium, attended by representatives of the Department of Defense, the Secretary of the Army, the Army staff, major Army commands, and the other services, to assure continued high-level interest in activities and issues relating to women in the Army. This year, for the first time, female soldiers participated in the annual REFORGER exercises, as the Army studied the effect of women on unit mission during deployment and operations under extended field conditions.

At the end of fiscal year 1977, women officers were serving in all branches except infantry, armor, field artillery and air defense artillery. Of the 377 enlisted military occupational specialties, 348, or 92 percent, were open to women, including such nontraditional jobs as diver, construction surveyor, dog trainer, air traffic controller, and military police. A total of 190 female officers and 1,728 enlisted women were performing the full spectrum of law enforcement duties in various types of military police units worldwide, representing 6.11 percent of the active Army's military police force. The number of female judge advocates increased from 42 to 56 during the year.

As of 30 September 1977, there were also 57 blacks, 11 Mexican Americans, 7 Puerto Ricans, and 10 Orientals in the Judge Advocate General's Corps, out of a total of 1,691 officers. About 7.4 percent of all commissioned officers, 6.7 percent of warrant officers, and 29.1 percent of enlisted personnel in the active Army were members of minorities. Members of minorities were serving in combat units in proportion to their total number in the Army.

Leadership and Motivation

Each year the Chief of Staff meets with senior commanders to discuss issues and challenges facing the Army. Seventeen generals, including commanders of unified and major Army commands, attended the 1976 Army Commanders' Conference, held in the Pentagon from 29 November to 2 December. The agenda, organized around the theme "the total Army," provided for discussions of active and reserve component programs and initiatives.

The Chief of Staff also hosted the third annual Army Leadership Seminar in August 1977. Sixty-three retired four-star generals were invited, and forty attended. The purpose was to seek the counsel of the Army's former leaders on current policies as well as programs and goals for the future.

In May 1977 the Chief of Staff directed the Deputy Chief of Staff for Personnel to review Army regulations and eliminate policies which undermine the special trust and confidence vested in officers. The review group identified 197 Army policies detrimental to officer trust. Some were essentially sound management practices or were required by other

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overriding considerations. Others misrepresented Army policy, were established by local directives rather than Army regulations, or were resolved before the review was completed. Finally, some unnecessarily degraded officer trust. The majority in the latter category were traceable to such factors as excessive certification and documentation, needless centralization and overmanagement, and the tendency to do extra, unnecessary work "just to be on the safe side." In addition to recommending specific policy changes, the review group noted that the Army must have a comprehensive and systematic approach to ethical education and that commanders must discipline officers who violate their trust.

Organizational effectiveness (OE) is a systematic military adaptation of modern management practices, behavioral science methods, and leadership techniques that have been used successfully in industry since the 1950's. After three years of intensive study, the Army officially adopted the OE concept on 1 July 1975 when it established the Organizational Effectiveness Training Center at Fort Ord, California. The center, which became a special activity of the Training and Doctrine Command (TRADOC) on 1 April 1977, trained 139 organizational effectiveness staff officers during fiscal year 1977. TRADOC meanwhile developed training modules to provide OE instruction at all Army service schools. Courses were also designed for senior officers, and OE seminars were conducted at the Command and General Staff College and the National Defense University. In November 1976 the Chief of Staff convened a study group to assess the status of Army-wide OE activities and training and to recommend an appropriate long-term strategy for the development of organizational effectiveness in the Army.

As a result of the study group's recommendations, approved by the Chief of Staff in April 1977, a separate division was formed in the Directorate of Human Resources Development in the Office of the Deputy Chief of Staff for Personnel with responsibility for overall management of OE matters. A special office was also established within the Management Directorate, Office of the Chief of Staff, to provide OE consulting services to the Army staff. By the end of the fiscal year, major Army commands had converted 205 manpower spaces for organizational effectiveness staff officers and were conducting active OE programs.

The decision by the American Federation of Government Employees (AFGE) to open its membership to military personnel attracted national attention and was the subject of considerable discussion throughout the year. The decision was made at the AFGE national convention in September 1976, but no funds for recruitment of military members were authorized at that time. When the question of permitting union leaders to organize military personnel was submitted to a vote of the general membership in June 1977, it was soundly rejected; some eighty percent

of those voting said no. As a result, the president of the union announced that AFGE did not expect to renew its efforts to unionize the armed forces in the foreseeable future. Nevertheless, legislation that would make military unionization illegal was introduced in both houses of Congress. The Senate passed the bill by a vote of 72 to 3, but by the end of the fiscal year the House of Representatives had taken no action. Meanwhile, the Department of Defense completed an extensive legal review and was preparing a directive that would prohibit the formation of military unions.

The Army has consistently maintained that military unions are totally incompatible with effective command and military discipline. In addition to supporting legislation and directives forbidding unionization, Army leaders also addressed the fundamental factors that would make union membership attractive to the average soldier. The Secretary of the Army and the Chief of Staff stressed the importance of reaffirming commitments already made to service members and their dependents, stopping further erosion of benefits, and expressing, through word and deed, concern for their welfare.

Alcohol and Drug Abuse

A total of 22,543 soldiers started rehabilitation under the Army's Alcohol and Drug Abuse Prevention and Control Program (ADAPCP) during fiscal year 1977 (53.8 percent for alcohol-related problems and 46.2 percent for abuse of drugs). This was a substantial decrease from the 31,322 in fiscal year 1976 and the transition quarter, of which 40 percent had been for alcohol and 60 percent for drugs. Average monthly case loads also dropped from 16,370 to 14,770. Abuse of hard drugs appears to be a greater problem overseas, while alcohol abuse is greater among soldiers stationed in the United States. This year, admissions for drug abuse rehabilitation declined markedly, particularly for hard drugs in Europe.

The main emphasis throughout the year was on alcohol abuse, which remains a serious problem in the Army as well as in the civilian population. New methods of early detection and better treatment of alcohol abusers were explored, so that individuals would voluntarily seek help for their problem. The greatest efforts, however, were in the area of prevention. The Army continued to stress that abstinence from alcohol is as acceptable as its use at all social functions and is definitely preferable to overconsumption. Regulations were published aimed at controlling the accessibility and attractiveness of alcoholic beverages at Army clubs around the world. Among the instructions to deglamorize and deemphasize the use of alcohol were: discontinuing service of alcoholic beverages to intoxicated individuals and arranging for transportation to their quarters, reducing the number of hours per week when alcoholic

beverages were served at lower prices, and prohibiting stacking of drinks. Some commanders issued more stringent rules. The Commander in Chief, U.S. Army, Europe, for example, prohibited all "happy hours" or reduced prices on any alcoholic beverages in Europe.

Crime, Discipline, and Military Justice

Crime continued to decrease and discipline improved in the Army during fiscal year 1977. The rate of crime and incidents dropped from last year's levels in virtually all categories. Command emphasis on discipline and professionalism, stabilization of tours, and effective administrative procedures for eliminating unsatisfactory personnel contributed to the overall improvement. The statistics are particularly impressive when compared to the figures for fiscal year 1973, the last year of the draft. Table 1 shows the various statistical indicators of lack of discipline by quarter from January 1972 to September 1977. The substantial decreases in absence without leave, desertion, and courts-marital reflect the improving quality of the volunteer Army.

Court-martial statistics for fiscal year 1977 were as follows:

	Convicted	Acquitted	Total
General	1,020	143	1,163
Special	*4,340	728	5,068
Summary	1,679	297	1,976
Total	7,039	1,168	8,207

* In 739 of these cases, the approved sentence included a bad conduct discharge.

In accordance with a Department of Defense directive, the Army once again prepared the annual report on foreign criminal jurisdiction over Defense personnel and their dependents for submission to the Senate Armed Services Committee. Between 1 December 1975 and 30 November 1976 there were 52,422 cases in which U.S. military or civilian personnel stationed overseas or their dependents were charged with offenses subject to the jurisdiction of foreign courts. Of those offenses, 47,717 were charged against military personnel, including 35,129 against members of the Army. A total of 18,617 charges against military personnel involved violations of both U.S. and foreign law, with the host country having primary jurisdiction, but foreign countries waived that right in 15,527 cases (83.4 percent). The worldwide waiver rate for soldiers was 97.2 percent, for Army military personnel stationed in NATO countries 98.3 percent. As of 30 November 1976, there were 214 members of the U.S. armed forces in foreign confinement, including 99 soldiers, compared to a total of 302 service members and 124 soldiers on 30 November 1974.

In recent years the management of law enforcement, particularly at larger installations, has become increasingly complex. After evaluation and testing, Forces Command recommended that one headquarters man-

TABLE 1—INDISCIPLINE INDEX

(Rate per 1,000)

Calendar year	Quarter	Absence without leave	Desertion	Crimes of violence	Crimes against property	Marihuana use and possession	Other drug offenses	Courts-martial	Nonjudicial punishment	Separations less than honorable
1972	1	37.9	14.1	1.92	21.64	2.79	1.99	8.03	61.67	11.15
	2	44.8	14.6	1.87	22.07	2.79	1.63	7.20	53.93	12.16
	3	40.6	12.9	1.84	22.76	3.20	1.77	5.85	57.78	9.90
	4	34.2	11.2	2.04	20.38	3.78	1.51	6.13	50.40	7.98
1973	1	43.9	13.2	2.02	19.87	5.34	1.83	7.01	57.05	7.76
	2	40.9	14.8	1.93	20.76	5.55	1.87	7.57	56.38	9.35
	3	42.9	14.4	1.99	23.27	5.98	2.21	7.42	57.71	8.83
	4	28.8	9.0	2.01	22.78	6.85	1.94	6.88	51.80	8.69
1974	1	30.1	8.8	2.04	21.70	8.59	2.24	6.85	56.49	7.79
	2	28.1	8.9	1.90	22.12	7.96	2.06	6.50	54.32	7.21
	3	28.0	8.3	2.21	22.45	7.79	1.92	6.02	52.78	7.05
	4	21.8	6.8	2.10	23.50	8.16	2.00	5.25	48.01	6.38
1975	1	22.9	5.7	2.09	21.95	8.49	2.24	5.05	57.48	5.95
	2	19.6	5.2	1.98	21.96	7.58	2.31	4.25	55.76	6.21
	3	18.8	5.0	2.14	22.72	6.11	2.06	3.83	52.24	7.47
	4	12.9	3.7	1.75	22.04	6.45	1.82	3.33	45.72	6.11
1976	1	14.2	3.2	1.65	20.44	8.61	1.61	3.18	51.87	6.05
	2	15.1	3.5	1.66	22.33	8.04	1.53	2.92	53.05	6.02
	3	16.0	4.0	1.93	22.79	8.33	1.58	2.63	56.95	5.01
	4	11.1	2.9	1.58	19.48	7.60	1.38	2.71	50.58	4.66
1977	1	10.0	2.6	1.43	18.23	8.08	1.48	2.85	54.16	4.83
	2	13.6	3.4	1.51	19.28	7.33	1.47	2.34	54.34	4.32
	3	15.3	3.9	1.76	21.81	6.90	1.22	2.44	54.50	4.45

age all law enforcement activities at a given Army installation. The test demonstrated that law enforcement, crime prevention, resource management, and readiness could be substantially improved under centralized management. At the end of September 1977, the Army staff was evaluating that concept.

This year the Army made a special effort to align military police resources with requirements and identify potential manpower savings. Plans developed by the Army staff during fiscal year 1977 should result in savings of more than 3,000 military spaces by the end of fiscal year 1980. In another action to improve efficiency, the Training and Doctrine Command and the Forces Command were authorized to obtain 227 heavy duty commercial sedans for use as police vehicles; the use of compact and subcompact automobiles in law enforcement proved to be a drain on the maintenance system and less economical.

The Army's Military Police Investigator (MPI) Program continued to develop during fiscal year 1977. MPI responsibilities were expanded to include the investigation of all offenses punishable by one year of confinement or less and all crimes against property valued under $250. As a result, criminal investigation agents were able to concentrate on more serious crimes and on crime prevention. When the Under Secretary of the Army delegated telephone tracing authority to major Army commanders, the response time in investigating bomb threats was considerably reduced. The Army has encouraged attendance at drug enforcement training courses taught by the National Training Institute of the Drug Enforcement Administration; this year sixty military police investigators and supervisors successfully completed the two-week course.

The various subsystems of the Military Police Management Information System (MPMIS), designed to automate and standardize certain reporting functions, continued to expand. Forty-three installations were operating under the Vehicle Registration System, and seventeen confinement facilities were using the Correctional Reporting System by the end of the fiscal year. The Prisoner of War Information System was installed at three sites: Fort Meade, Maryland; Fort McClellan, Alabama; and Camp McCoy, Wisconsin. This subsystem will be useful in training reserve component units responsible for handling prisoners of war. The Offense Reporting System, as redesigned and approved by major Army commands, has been scheduled for testing in fiscal year 1978.

Last year the Chief of Staff directed the Army staff to evaluate existing standards regarding the acquisition, use, disposition, and dissemination of criminal records. The Army Crime Records Policy Study, completed and approved in July 1977, concluded that the Army's law enforcement agencies were maintaining and using criminal records in accordance with the Freedom of Information Act and the Privacy Act

of 1974. It did, however, point out some areas of concern and recommended broad policy guidelines as well as specific changes to current regulations and directives in order to clarify Army policy. The study also recommended coordinated efforts to develop compatible automated Army criminal justice record keeping systems and established the basis of the commander's authority to use crime records for criminal justice and administrative purposes.

Another Army study completed during fiscal year 1977 determined the proper role for law enforcement agencies in countering terrorism on military installations and in assisting other federal agencies to counter the terrorist threat. Also, a plan called PEOPLE was developed as a result of an Army-wide assessment of provost marshal and military police activities, conducted from March to September 1976. PEOPLE is the acronym for the official title, "Plan to Elevate Organizational Professionalism in Law Enforcement."

Meanwhile, a professional ethics committee, established in March 1975 by The Judge Advocate General, continued to review cases of alleged professional misconduct by judge advocates. The committee can recommend that the individual involved be counseled by his staff judge advocate, be reprimanded, or, in extreme cases, be indefinitely suspended or have his certificate withdrawn. If approved, the recommendations of the committee are carried out by order of The Judge Advocate General.

A new policy delaying the certification of judge advocates as defense counsel went into effect on 1 April 1977. In the past, officers had been certified upon completion of the judge advocate basic course. Under the new policy, attorneys must have a minimum of four months of practical experience as assistant defense counsel or as trial counsel in general or special courts-martial before they can be recommended for certification.

The military magistrate program underwent further development in fiscal year 1977. In August 1976 military judges had been empowered to perform magisterial duties, and by the end of June 1977 they had replaced all full-time judge advocate magistrates. Effective 15 November 1976, a military magistrate of the Navy, Marine Corps, Air Force, or Coast Guard could review the pretrial confinement of Army personnel in the other service's facilities, provided such review was authorized by the Chief, U.S. Army Judiciary, or his designee.

A proposal to amend the Uniform Code of Military Justice was part of the Department of Defense legislative program for the 95th Congress. The major goal was to simplify and reduce work loads created by the automatic appellate review of all courts-martial in which the sentence includes a discharge or dismissal or confinement of one year or more. Under the proposed change, cases would receive appellate review only if the accused filed a timely appeal, but the accused would retain all

existing appellate rights if he chose to appeal. The discretionary appellate review would establish procedures in the military judicial system similar to those in federal appellate courts. Other proposed changes included significant reductions in the role of the convening authority, entitlement to no more than one military defense counsel, and a modified record of trial.

One of the most important responsibilities of the Judge Advocate General's Corps is to ensure that each soldier accused of an offense under the Uniform Code of Military Justice receives the best possible defense services. The Judge Advocate General established the Field Defense Services Office effective 1 October 1976. During its first year, the office quickly took an active role in helping military defense lawyers improve their trial skills. In addition to providing trial tactics advice, legal research assistance, and ethical guidance in response to over 775 telephone inquiries from around the world, the Field Defense Services Office held eighteen regional trial practice seminars in the United States, Europe, and the Pacific. Those seminars have been accredited by Iowa, Minnesota, and Wisconsin, the only states that have mandatory continuing legal education requirements for lawyers. The new office also assumed managerial control of *The Advocate,* a bimonthly journal for military defense counsels.

Civilian Personnel

Civilian personnel strength, about one-third of the Army's total manpower, has been declining steadily since 1969. During fiscal year 1977, appropriated fund civilian employees decreased by another 3.1 percent, from 417,700 to 404,900 (333,100 U.S. citizens and 71,800 foreign nationals).

Continuing reduction in strength, numerous reorganizations and realignments, transfers and consolidations of functions, as well as actual and projected base closures have all contributed to the high degree of turbulence that has been a persistent civilian personnel problem since the end of the war in Vietnam. Curtailment of missions at the Lexington-Blue Grass Army Depot in Kentucky, further reorganization of the Materiel Development and Readiness Command and its subordinate elements, and the decision to close Frankford Arsenal in Philadelphia affected large numbers of civilian employees during fiscal year 1977.

The Army continued its efforts to control the average grade of General Schedule (GS) employees, with particular emphasis on the reduction of positions at grade GS–13 and above, as directed by the Department of Defense. After an Army-wide average-grade goal of 7.5 had been set, staff agencies and major commands were assigned specific high-grade and average-grade ceilings for fiscal years 1977 and 1978. As of 30 September 1977, the average grade of the Army's full-time GS em-

ployees was 7.58. In the last five years the Army reduced the number of GS–13 through GS–15 positions by eight percent and supergrade positions (GS–16 and above) by twenty percent. Nevertheless, as a result of legislative and administrative actions, there will be further high-grade reductions during the next three years.

In October 1976, the Army staff completed a study on the impact of pay compression and retired pay inversion on the morale, recruitment, and retention of civilian executives. The results of the study, showing an urgent need for relief, were presented to the Commission on Executive, Legislative, and Judicial Salaries. The commission subsequently recommended a substantial executive pay increase, which went into effect in February 1977.

At the beginning of fiscal year 1977, forty-eight installations were operating under the Standard Army Civilian Payroll System (STARCIPS). By the end of the year, the number had increased to sixty-two, and the total number of civilian payroll systems used in the Department of the Army had decreased from thirty-three to only eleven. Extension of STARCIPS to remaining Army installations will continue in 1978. The Assistant Secretary of Defense (Comptroller) has decided, however, that no further consideration will be given to the development of a single Department of Defense Standard Civilian Payroll System.

The Army maintained its good working relationships with labor unions at both the national and local levels. The number of civilian employees covered by exclusive recognition declined slightly during the fiscal year, from 231,000 in 722 bargaining units to 228,000 in 719 units. As of 30 September 1977, about sixty-two percent of the Army's civilian work force had union representation. The first nationwide bargaining unit in the Department of the Army was established when the National Marine Engineers Beneficial Association was recognized in July 1977 as the exclusive representative of 188 licensed marine engineers employed by the Corps of Engineers.

This year the Army again emphasized a variety of special employment programs. A plan for employing disabled veterans and the handicapped increased awareness of the program throughout the Army and expanded opportunities. As a result, 3,054 or 5.3 percent of all civilian accessions during fiscal year 1977 were handicapped persons. The Army continued to fulfill its special obligation to help veterans readjust to civilian life by hiring 9,174 Vietnam-era veterans, 16 percent of newly hired employees. The Army's 1977 summer employment program provided 14,088 jobs for young people, including 8,432 poor youths.

Since enactment of the Equal Employment Opportunity Act of 1972, representation and distribution of minorities and women in the civilian work force have increased despite a steady decline in total civilian strength. During fiscal year 1977 members of minorities increased from

17.5 percent to 17.8 percent of the work force, while women rose from 33.9 percent to 34.5 percent. As of 30 September 1977, 2,734 jobs at grades GS–12 and above were held by members of minorities and 2,516 by women, increases of 41 and 21 percent respectively since 1971. The upward trends were particularly encouraging because the total number of such jobs fell by 9 percent during the same period.

In January 1977 the Department of Defense Affirmative Action Board was established to coordinate efforts throughout the department to increase employment and promotion opportunities for minorities and women at grades GS–15 and above. In a related action, the Assistant Secretary of the Army for Manpower and Reserve Affairs approved expansion of efforts to locate and attract highly qualified minority and female candidates for executive positions whenever Army sources did not produce such candidates.

The Army continued to stress recruitment of minority and women career interns at the GS–5 and GS–7 levels as a means of assuring them equal opportunity for progression into higher paying, more responsible jobs. Upon completion of a formal training program, interns are eligible for noncompetitive promotion to journeyman positions within their career programs. This year the Army hired 181 minority and 447 women interns out of a total of 2,058 career interns selected.

At the end of fiscal year 1977, twenty-one Army-wide civilian career programs covered over 72,000 employees in technical, professional, and administrative occupations. The Army relies on those programs to provide highly qualified civilian specialists and managers. This year, a new records management career program was created, and the manpower and force management career program included an executive development workshop, the first of its type to be held for any Army civilian career program. Also, the basic guidelines within which the career programs operate were revised. The revision defined more clearly the responsibilities and authority of program officials at various levels, standardized procedures for manpower analysis, and changed appraisal, referral, recruitment, training, and equal employment opportunity.

The Army continued to improve and expand its executive development program, using the specific budget line item for civilian executive training approved last year as a valuable tool for managing its executive development funds. The number of managers trained increased from 3,646 in fiscal year 1976 to 5,570 in fiscal year 1977. Efforts to identify future managers continued, as various career program screening panels met and reviewed individual records in search of high executive potential.

Last year the Army began a new Facilities Engineer Apprentice Program to train skilled replacements for the blue collar work force, and by

the end of September 1976 about 300 apprentices were employed in nine trades at fifty-nine Army installations. Another 300 apprentices were scheduled to enter the program during fiscal year 1977, but the Department of the Army had no funds for the required spaces. Nevertheless, plans have been made to extend the apprentice program to several dozen installations, and six new trades have been added to the program. In accordance with instructions to major Army commands from the Vice Chief of Staff, starting in October 1977, at least twenty-five percent of all vacancies created by retiring facilities-engineer wage grade workers will be filled with apprentices.

On 8 October 1976 the Secretary of the Army personally presented high level civilian awards for exceptional achievement, including outstanding cost saving suggestions, to recipients who came from as far away as Europe. The reinstitution of the awards ceremony as an annual event was part of a special effort to give public recognition and greater visibility to the civilian component of the Army team. The Army also designed a medal for the new Commander's Award, established last year, and introduced a new promotion certificate for presentation to employees (both U.S. citizens and foreign nationals) in appropriate local ceremonies. In addition to recognizing outstanding individual employees, such ceremonies and awards help to improve the morale of the entire civilian work force and make soldiers more aware that civilians are a vital part of the total Army.

6. Reserve Forces

The Army National Guard of the United States and the Army Reserve have 52 percent of the Army's armor and infantry battalions, more than 58 percent of its field artillery units, 45 percent of its aviation units, and 65 percent of its tactical support units. Manning, equipping, and training the reserves to perform wartime missions is one of the major challenges facing the Army today.

Force Structure

The reserve components have not undergone a major realignment since 1968, but numerous unit inactivations, activations, and reorganizations are carried out each year to meet changing requirements set forth in the Total Army Analysis, locate units where community support is strong, and improve management. Because reserve component units take up to three or four times longer to recover from organizational change than active Army units, the Army is seeking to limit the number of annual changes in the guard and reserve to affect no more than two percent of units.

The consolidation of Army National Guard tristate divisions into single state or bistate units moved forward during fiscal year 1977. On 1 March 1977 all units of the 38th Infantry Division were consolidated within Indiana and Michigan; a brigade from Ohio was replaced by the 73d Infantry Brigade. The 47th Infantry Division, with units in Minnesota, Iowa, and Illinois, remained as the only tristate division in the guard.

The Army National Guard made several realignments to prepare units for round-out missions. The 256th Infantry Brigade, a Louisiana unit, was mechanized. It and the 41st Infantry Brigade (Oregon) and Georgia's 48th Infantry Brigade served as the third round-out brigades for the 5th, 7th, and 24th Infantry Divisions, respectively.

The 69th Infantry Brigade was mechanized; the 278th Armored Cavalry was organized in Tennessee with two squadrons relocated from Ohio and Idaho; the 2d Battalion, 130th Field Artillery converted from 105-mm. towed to 8-inch self-propelled howitzers; and the 2d Battalion (Honest John) of the Oklahoma National Guard's 158th Field Artillery was replaced by the 2d Battalion (TOW), 180th Infantry, which is also located in Oklahoma. The new battalion, known as TLAT (TOW, light, antitank), is the first unit of its kind in any of the Army's components. It consists of a headquarters and headquarters detachment and five TOW companies, each equipped with twelve jeep-mounted missile launchers.

As of 30 September 1977, the Army National Guard contained 3,297 units. The organizations in the structure were:

5 infantry divisions
1 mechanized infantry division
2 armored divisions
8 infantry brigades (sep)
2 infantry brigades (r–o)
6 mechanized infantry brigades (sep)
2 mechanized infantry brigades (r–o)
3 armored brigades (sep)
4 armored cavalry regiments
1 infantry group (arctic recon)
2 Special Forces groups
126 separate battalions
723 other company- and detachment-sized units

The Army Reserve made substantial progress during the past year in aligning its structure to meet Total Army Analysis requirements. Approximately seven percent of the Army Reserve force structure was affected by reorganizations, activations, or inactivations. Fewer changes were planned for the coming year, and the strain on unit readiness resulting from organizational changes should diminish.

At the close of the fiscal year the Army Reserve contained 3,200 units of company or detachment size. Major organizations in the force structure were:

19 USA reserve commands
12 divisions (training)
2 brigades (training)
2 maneuver area commands
2 engineer commands
1 military police command
1 theater army area command
3 civil affairs commands
9 maneuver training commands
2 infantry brigades
1 mechanized infantry brigade
2 transportation brigades
3 military police brigades
2 engineer brigades
1 corps support command
2 support brigades
2 medical brigades
4 hospital centers
5 hospitals (1,000-bed)
100 hospitals (miscellaneous)
1 IX Corps (augmentation)
78 separate battalions

Personnel

Army National Guard assigned strength fell to 355,721 in July 1977, a fourteen-year low. By the close of the fiscal year assigned strength had climbed to 363,777, still 12,364 less than the number one year earlier. Paid drill strength also declined from 366,841 on 30 September 1976 to 354,706 on 30 September 1977. Inactive National Guard strength at the close of the fiscal year was 1,629 as compared to 1,560 one year earlier.

A similar situation prevailed in the Army Reserve, where paid drill strength dropped from 191,919 on 30 September 1976 to 189,420 on 30 September 1977. Individual Ready Reserve (IRR) strength also declined to 149,427 on 30 September 1977, a loss of 68,194 during the year. Unless the trend is reversed, the IRR will be in excess of one third of a million persons short of mobilization requirements by 1982, a situation made even more acute because the peacetime selective service system is expected to take four months after mobilization to get organized and begin inductions and another three months are required to provide trained replacements for overseas duty.

The strength of the Standby Reserve, which is composed primarily of individuals in the sixth and final year of their military obligation, fell to 152,784 as of 30 September 1977 as compared to 184,478 on 30 Sep-

tember 1976. Retired Reserve strength increased from 376,037 to 386,368 during the same period.

During fiscal year 1977 the IRR voluntary mobilization preassignment program attracted some 12,800 applicants, approximately the same number as for the previous year. But losses due to expiration of terms of service exceeded gains, and the number preassigned dropped from 8,567 at the beginning of the year to about 7,000 at year's end. Plans are under way for testing an alternative preassignment program for all IRR members during fiscal year 1978.

The revitalization of the mobilization designation program, under way since early 1976, moved forward as problem areas were identified, responsibilities for correcting shortcomings established, and steps taken to put the program on a firmer footing. Those steps included consolidating policy into a single regulation, allocating positions to additional organizations, and, for a limited number of positions, the period between notification of recall to active duty and reporting for duty was reduced from thirty days to seven days.

Funds authorized to expand the Army Reserve recruiting force were insufficient to support fully Forces Command's plan to expand the force from 638 to 2,022, phase one of which was described in last year's report. The budgeted strength has been set at 1,992 (174 officers, 1,388 enlisted persons, and 430 civilians).

A program started on 1 October 1976 to process National Guard and Army Reserve recruits without prior service through Armed Forces Entrance and Examination Stations (AFEES). During the past year 54 percent of Army Reserve enlistments in that category were processed by AFEES, and 100 percent processing will begin some time in fiscal year 1978. The AFEES provided mental examinations for 3,779 Army National Guard recruits and physical examinations for 18,125 during the past year. The National Guard Bureau has encouraged the states to make greater use of the AFEES. The Army National Guard plans to place sixty-six guidance counselors in the stations during fiscal year 1978 and move to full processing in fiscal year 1979.

State officer candidate schools continued to be the primary source for newly commissioned officers in the Army National Guard, but emphasis was shifting to the accession of recent ROTC graduates. The Ohio National Guard's experimental tuition assistance program for members taking ROTC at Ohio University had an enrollment of fifty-six for the 1977–78 school year, an encouraging number that may influence other states to adopt similar programs.

The Army took a number of actions during the past year to improve recruitment, retention, and readiness of reserve component medical forces, many of which were in response to recommendations made in a Medical Department study in 1976. Those actions included providing malpractice

protection for medical personnel, establishing a more liberal assignment policy for medical officers, providing funds for attendance at professional short courses, waiving mandatory military education requirements for promoting certain Army Medical Department officers, and establishing a program that allows qualified medical and dental students who have completed their first year of professional schooling to be commissioned as second lieutenants in the Medical Service Corps pending eligibility for appointment in the Medical Corps or Dental Corps.

On 1 July 1977, the Army Reserve began a program to retain in troop program units selected commissioned and warrant officers who have twenty or more years of service. Because of the heavy initial workload, only colonels and lieutenant colonels will be considered in the program's first year. Retained officers will be considered every two years for further retention. Excluded are general officers, officers subject to mandatory removal dates fixed by statute, and officers below the grade of lieutenant colonel who have twice failed to be selected for mandatory promotion.

Since November 1975 a working group within the Office of the Deputy Chief of Staff for Personnel (one active Army, one National Guard, and one Army Reserve officer) has been developing officer objective force computer models for the reserve components, including the Individual Ready Reserve, to complement existing enlisted objective forces models. The three-member group completed its work on 30 September 1977, and responsibility for the models was transferred to the Reserve Components Personnel and Administration Center. The new models provide a description of officer objective forces by grade and years of service, including information on accession capabilities, retention rates, and promotion opportunities. Comparing the actual force to the objective force will help identify potential problems in appointment, promotion, and loss management. The objective force will also aid in long-range planning, programming, and budgeting.

Both the Army National Guard and the Army Reserve began to use the Officer Personnel Management System (OPMS) in fiscal year 1977. Because some states lack sufficient manpower to administer the program, the National Guard Bureau has postponed the date for completing OPMS to 31 December 1978. As of 1 October 1977 OPMS was in full use in twenty-five percent of the states, half operational in fifty percent, and up to twenty-five percent operational in the remaining states. The Army Reserve completed Phase I of OPMS, involving some 10,000 officers in Army Readiness Region VI, on 30 September 1977. In fiscal year 1978 another 26,000 officers will be brought under the system in Army Readiness Regions I, III, VII and VIII. During fiscal year 1978 and 1980, the remaining 38,000 officers will be included.

Preparations for testing the Enlisted Personnel Management System (EPMS) in the Army Reserve were completed. The test, to be conducted in fiscal year 1978, will involve 5,000 Individual Ready Reservists.

Slow progress has been made in developing a Standard Installation/Division Personnel System for the Reserve Components (SIDPERS–RC). Originally intended to replace the Reserve Personnel Information Reporting System and the Individual Ready, Standby, and Retired Reserve Personnel Systems, the SIDPERS–RC was expanded in October 1976 to cover the Army National Guard as well. At the close of the reporting period user requirements were being identified so that a detailed functional system requirement could be developed.

Army National Guard technician requirements increased from 32,210 in fiscal year 1976 to 32,369 in fiscal year 1977. Authorized technician strength for the year was 28,200, or 85.3 percent of requirements. On 30 September 1977, 27,598 technicians were assigned. Army Reserve technician strength was 8,622 at the close of the fiscal year, less than the number authorized, and considerably less than established requirements for 10,100 technicians.

Equipment and Maintenance

During the past year the logistical readiness of Army National Guard and Army Reserve troop program units continued to improve as the amount of equipment on hand increased by about ten percent. But guard and reserve units still lacked much of the major equipment required to perform wartime missions, and some items needed for training were also in short supply.

The Army National Guard received about $700 million worth of equipment in fiscal year 1977. The issues included tanks, M880 vehicles to replace M37's, UH–1H helicopters to replace the older UH–1B's, and tactical FM radios and multichannel communications equipment. A serious shortfall exists in 155-mm. and 8-inch self-propelled artillery, mortar carriers, and medium recovery vehicles.

The Army Reserve has on hand about eighty percent of the major equipment items required in war. There are shortages in such items as area communications equipment, self-propelled howitzers, automatic data processing equipment, and heavy engineer construction equipment. Available assets are being reallocated to high priority units. The organization of new artillery and signal units has been delayed because sufficient equipment for training is not available.

Facilities

Army Reserve training centers, organizational maintenance shops, equipment concentration sites, and annual and week-end training areas are examples of facilities needed to support the Army Reserve's training requirements and mobilization mission and provided for in the Army Reserve military construction program. During fiscal year 1977 construction contracts for forty-seven projects costing $53.1 million were

awarded, and construction was completed on projects costing $52.9 million. Design continued on other projects valued at approximately $140 million.

During the past year the Corps of Engineers reduced Army Reserve facilities design and construction costs and obtained approval to use the same construction standards for both Army Reserve and Army National Guard facilities. Standard designs for annual training facilities were completed, and a design manual for Army Reserve centers was being prepared.

New obligational authority for the Army National Guard military construction program came to $61.0 million, or $1.7 million less than in fiscal year 1976. An additional $11.9 million in carry-over funds brought the amount available for the program to $72.9 million, of which $66.1 million was obligated. During the year contracts for 117 major construction projects were awarded, including 44 armories. The backlog at the close of the fiscal year was $586 million, $26 million less than one year earlier. Some sixty percent of the backlog is to replace, improve, or supplement armories. Of the National Guard's 2,771 armories, 603 are inadequate structures that waste training time, lower morale, do not allow proper equipment maintenance, and cause recruiting and retention problems and an overall decline in unit readiness. The remainder of the backlog is for administrative and logistical facilities, state-operated training sites, and two semiactive Army posts used for Army National Guard and Army Reserve training.

Training and Readiness

Inadequate strength has replaced lack of equipment as the most critical factor in the inability of the reserve components to meet readiness objectives. In August 1976 the Secretary of the Army directed the Army staff to develop ways to increase drill pay strength, improve the quality of training, and raise the readiness status of reserve component units. The result was a comprehensive set of proposals that comprise the Reserve Component Readiness Improvement Package. The improvement package contained three principal segments: fiscal year 1978 budgeted initiatives; programmed initiatives for fiscal year 1979; and legislative proposals to increase the attractiveness of service in the reserve components.

The Army staff requested $111.8 million for fiscal year 1978, of which $50.7 million survived the budget cycle, including $24.1 million for the Army Reserve recruiting structure, $6.3 million for improving Army Reserve training, $6.2 million for the National Guard recruiting structure, and $3.9 million for Army Reserve recruiting advertising. In addition, Congress authorized $5 million to test the effectiveness of a reenlistment bonus in retaining trained personnel in the guard and reserve.

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On 27 July 1977 the Vice Chief of Staff chaired a meeting of selected general officers to generate ideas to improve strength and readiness in the National Guard and the Army Reserve. A total of thirty-eight actions were developed. Major actions in recruiting give the Army Recruiting Command responsibility for Army Reserve recruiting and provide for varied enlistment options, national support programs, career counselor spaces, and professional development teams. Actions in individual training include split training options, short basic training with completion in units, programs to salvage trainees, self-paced instruction, accelerated distribution of training materials, and improved USAR–TRADOC school coordination. Other actions provide pay for those awaiting basic training, increase commissary and post exchange privileges, and improve ROTC assignments. On 29 August 1977, the Vice Chief of Staff approved three proposals of the Office of the Deputy Chief of Staff for Personnel: reviewing grooming standards and education programs and equalizing male and female enlistment standards. All improvements are expected to be in effect by the end of fiscal year 1978.

Collaboration of guard, reserve, and active Army units in the affiliation program has improved training and readiness of the reserve components. The current program includes four round-out brigades, eleven round-out battalions, four augmentation brigades, four augmentation battalions, and forty-four other "deployment capability improvement" battalions, including engineer, signal, field artillery, and special forces units, designated for early mobilization in case of war. The program will be expanded in fiscal year 1978 to include approximately seventy reserve component companies and detachment-size combat support and combat service support units.

A board of active and reserve component engineer officers convened in December 1976 to study deficiencies in reserve component engineer units. Actions taken as a result included adjustments in the force structure to reflect the state of the art in equipment and doctrine for small, highly specialized engineer units; more realistic unit training (an example was the 412th Engineer Command's participation in the U.S. Army, Europe, exercise WINTEX in March 1977); and reserve component assistance to installation facilities engineers in operations and maintenance. And the gaining command program aligns reserve component units during peacetime with their wartime command and control headquarters and provides more specific training and mission guidance to unit commanders.

Participating in LOGEX–77, a Joint Chiefs of Staff command post exercise held at Fort Pickett, Virginia, from 11 through 24 June 1977, were seventeen active Army, fourteen Army National Guard, and twenty-eight Army Reserve units. The scenario based on a short (sixty-day) conventional war, involved an independent corps of three and one-third divisions, plus Navy and Air Force elements. Objectives were to

train participants in command and staff relationships for combat support and combat service support, stressing interdependence among the services; to emphasize the interrelationships between combat support and combat service support organizations, activities, and functions; and to stress current doctrine and introduce new concepts for combat support and combat service support.

MOBEX 76, which is described in Chapter III, revealed the lack of a clearly defined exemption policy for members of the selected reserve during mobilization. Historically, many members of mobilized units have been exempted based upon criteria existing at the time a mobilization was announced. A new policy, approved by the Department of Defense on 1 July 1977, will bar such exemptions in the future.

Innovations during the year in individual training included shortening the periods of basic training, developing programs to reduce trainee dropouts, using more self-paced instruction, improving the distribution of training materials, and improving contacts between Army Reserve and active Army schools.

In other training activities, 40,728 members of the Army National Guard participated in school training programs during fiscal year 1977. Another 54,079 were enrolled in Army correspondence courses. Army National Guard aviators flew 337,611 hours, 103.13 percent of the 327,324 hours programmed, in individual training, unit training, and support missions. Major training programs covered instrument qualification, aerial gunnery, terrain flying qualification, and day and night unit tactical training.

Support to Civil Authorities

In its role as the organized militia of the states, the Army National Guard responded to the call of civil authorities on 217 occasions during fiscal year 1977. More than 19,737 guardsmen from forty-four states participated.

National Guardsmen were placed on state active duty nine times to assist local authorities in controlling civil disorders. Incidents in eight different states involved 5,965 troops. They were committed on seven occasions. Incidents included four public employee strikes, one demonstration, one prison disorder, and three potential civil disturbances. Units assigned to civil disturbance control operations conducted up to twenty hours of refresher training in control operations.

Some 13,772 guardsmen assisted civil authorities during 208 emergencies in forty states. Natural disasters accounted for 88 call-ups: 29 forest fires, 22 floods, 7 tornados, 27 blizzards, a volcanic eruption, a hurricane, and drought conditions. The 120 other emergencies included 43 searches and rescues, 33 water hauls, 11 medical evacuations, 11 support missions, and 7 security missions. Traffic control, chemical spills,

power outages, a train derailment, and delivery of emergency fuel accounted for the remainder.

The Army Reserve's 273d Medical Detachment (Helicopter Ambulance) was at the forefront in evacuating victims after an explosion in the harbor at Houston, Texas, and became the first Army Reserve unit authorized by the Department of Defense to participate in the Military Assistance to Safety and Traffic program. Other air medical units were expected to enter this program; it may become an important peacetime mission for the Army Reserve.

7. Organization and Management

Organization

President Carter nominated Clifford L. Alexander, Jr., as Secretary of the Army. Mr. Alexander, the first black to serve as secretary of any armed service, was sworn in on 14 February 1977. In March Mr. Alexander appointed Jill Wine-Volner as General Counsel of the Army, the first woman appointed to a major subcabinet post in the armed services.

Two major changes in the Army secretariat were made in June 1977. The installation support functions of the Assistant Secretary for Installations and Logistics were merged with the office of the Assistant Secretary for Financial Management. Mr. Alan J. Gibbs, recently appointed Assistant Secretary for Installations and Logistics, became the first person to serve in the new position, redesignated as the Assistant Secretary for Installations, Logistics, and Financial Management. Functions of the Assistant Secretary for Installations and Logistics dealing with procurement and acquisition of materiel were taken over by the Assistant Secretary for Research and Development, Dr. Percy A. Pierre, whose title was changed to Assistant Secretary for Research, Development, and Acquisition. The number of assistant secretaries was thus reduced from five to four.

The January 1976 Office of the Secretary of Defense (OSD) program and budget guidance directed the services to reduce departmental headquarters manpower by ten percent. The Army eliminated 543 spaces, 337 civilian and 206 military, from its headquarters by 30 September 1977. In the midst of this reduction, the Secretary of Defense ordered the services to reduce their staffs by twenty-five percent. The Army's plan, submitted to OSD on 16 September 1977, transferred or eliminated functions and spaces from the Secretariat, the Army staff, and staff support agencies. Completion of the reduction was expected by the target date of 1 February 1978.

Concurrent with and related to these reductions, the Director of Management in the Office of the Chief of Staff began two studies—on resource management and the integration of command and control, computers, and communications (C^4). Positive experiences with a Deputy Chief of Staff for Resource Management at two major Army commands (Training and Doctrine and U.S. Army, Europe) and various Army staff problems in programming and budgeting for manpower had prompted the Vice Chief of Staff to consider a single staff agency for

resource management. The C^4 study was recommended at the March 1977 Select Committee meeting which established the position of Director of Army Automation. The study seeks to assess C^4 organization and management, and will be especially concerned with the distribution of C^4 functions among Army staff agencies, the integrated approach to C^4 adopted by other services, the convergence of computer and communications technologies, and the potential for savings. Instead of using a formal study approach, the C^4 issue will be resolved at a special conference in March 1978.

Increased congressional interest, the need for improved management, especially financial, and greater emphasis on total package management of major sales to foreign governments caused the Army to reorganize its security assistance on 1 November 1977. The reorganization discontinued the positions of Coordinator for Army Security Assistance in the Office of the Chief of Staff and Director of International Logistics in the Office of the Deputy Chief of Staff for Logistics (ODCSLOG). Security assistance policy became the responsibility of a new Assistant Deputy Chief of Staff and a Security Assistance Policy Coordinating Office within ODCSLOG. The Commanding General, Materiel Development and Readiness Command, was designated as the Department of the Army executive agent for the management of foreign military sales, military assistance (grant aid) programs, and international military education and training programs. The Commanding General, Training and Doctrine Command, is responsible for preparing and executing foreign military sales training cases and executing military assistance programs and international military education and training programs. The International Logistics Command was redesignated the Army Security Assistance Center.

The Combat Developments Command, established in 1962, had centralized responsibility for long-range planning but spent much of its time working for the assistant Chief of Staff for Force Development on Five-Year Defense programs. Abolished during the Army's Project Steadfast reorganization (1973–1974), the command's long-range planning mission was assigned along functional lines to Army staff agencies and major commands, particularly Training and Doctrine Command and Materiel Development and Readiness Command.

During 1976 and 1977, it became clear that a focal point in the Army staff for long-range planning was needed. In August 1977 Lt. Gen. Edward C. Meyer, Deputy Chief of Staff for Operations and Plans, ordered a point of contact for long-range planning established in the Strategy, Plans, and Policy Directorate. He also directed that efforts to secure a long-range perspective in current decision making be directed primarily through the Strategy and Planning Committee, which was established in June 1976 as a subcommittee of the Select Committee—the Army

staff's senior committee on policy, program, and budget matters. As the year ended, efforts were under way to institutionalize the focal point for long-range planning on the Army staff.

In March 1977, the position of Director of Army Automation (DAA) was established in the Office of the Chief of Staff. The DAA replaced the Director of Management Information Systems who had supervised mainly business oriented management systems and commercial equipment. The DAA is responsible for policy, planning, and resource management of all Army automation. This includes not only computer systems that support business or mission functions, but also those designed for combat operations or special environments and part of weapons systems. The director deals with major policies and problems and delegates operating responsibilities to Army staff agencies and major commands.

Along with the DAA, the Army Automation Steering Committee (AASC) was established as a subcommittee of the Select Committee. Principal members are the Director of Army Automation, Director of Management, Director of Program Analysis and Evaluation, and general officer representatives of the Assistant Chief of Staff for Intelligence, Deputy Chiefs of Staff for Operations and Plans; Research, Development, and Acquisition; Logistics; and Personnel; of the Comptroller of the Army, the Chief of the Army Reserve, and the Chief of the National Guard Bureau. During its initial sessions, the AASC examined such major issues as cost, mobilization, training of personnel, computer security, and the wartime requirements of automated systems, also the Army Automation Planning and Programing Evaluation System which links automation resource management with the Army Planning, Programing and Budgeting System.

Two structures were formed to support the DAA at various levels: automation management offices and the Command and Control Management Structure. An automation management office is the coordinator for each Army staff agency, major command, and installation and replaces the information system offices. Under the Deputy Chief of Staff for Operations and Plans, a command and control council, committee, and working group seek a cohesive Army effort in the development, fielding, and integration of command and control systems for all organizational levels. The council, chaired by the Under Secretary of the Army, is responsible for policies and programs. A general officer steering committee, headed by the Deputy Chief of Staff for Operations and Plans, establishes objectives, evaluates programs, and recommends priorities to the council. The Director of Army Automation, as a member of the steering committee, provides a computer resource link to the council. A working group assists the steering committee in its mission.

A General Accounting Office report, an Army study, and interest by the House Committee on Government Operations caused the Army

to strengthen the independence of the U.S. Army Audit Agency (USAAA). The agency was transferred from the jurisdiction of The Inspector General and Auditor General's office and made a field operating agency under the Chief of Staff of the Army. A civilian Auditor General will head the agency and report concurrently to the Chief of Staff and the Secretary of the Army. Audit policy and technical direction are provided by the Assistant Secretary of the Army (Installations, Logistics, and Financial Management). The Inspector General and Auditor General was redesignated The Inspector General. The Inspector General remains responsible for audit compliance and the decentralized internal review program.

Since the 1950's advances in management and applied behavioral science in conjunction with successful command and leadership practices have provided the foundation of organizational effectiveness concepts, methods, and skills. In the broadest sense the use of operational effectiveness represents an effort to (1) more systematically understand the human forces that shape the efforts of large military organizations and (2) use this understanding to improve combat readiness and the motivation, involvement, commitment, and development of people. To provide operational effectiveness consulting services to the Army staff, the Office, Organizational Effectiveness, was established 1 January 1978 within the Management Directorate in the Office of the Chief of Staff.

As reported last year, transfer of the functions and activities of the Armed Forces Military Postal System to the U.S. Postal Service, as ordered by Congress, ran into difficulties. Members of the House Subcommittee on Postal Personnel and Modernization conducted an overseas inspection of the U.S. Armed Forces Military Postal System. Final reports revealed several basic problem areas. The special congressional study group recommended renovating facilities, replacing aged equipment, reducing the excessive transit time required to deliver mail overseas, revising the Defense-Postal Service agreement, and developing a system which would reduce parcel damage in transit. A joint Defense-Postal Service task force has been formed to address the problems and keep the congressional committee informed of progress.

The reorganization of the major commodity commands of the Materiel Development and Readiness Command (DARCOM) into separate organizations for research and development and for materiel readiness, begun in 1976, continued. Plans for reorganizing the former Tank-Automotive and the Missile and Armaments Commands were approved last year. In fiscal year 1977 plans were approved to divide the Aviation Systems Command and Troop Support Command in St. Louis into an Aviation Research and Development Command and a Troop Support and Aviation Materiel Command at the same headquarters location. Also approved was a similar division of the Communications-Electronics

Command at Fort Monmouth, New Jersey, into a Communications Research and Development Command and a Communications and Electronics Materiel Readiness Command, both remaining at Fort Monmouth. A new Electronics Research and Development Command would be located at Adelphi, Maryland, with the Harry Diamond Laboratory, the principal DARCOM electronics research laboratory. DARCOM also acquired from the Air Force a helicopter engine plant at United Technology's Sikorski helicopter plant in Stratford, Connecticut, renaming it the Stratford Army Engine Plant.

Continued reductions in funds and authorized civilian and military personnel resulted in special studies in 1976 to determine the advisability of closing, reducing, inactivating, consolidating or relocating Army operations at eighteen installations in the United States. Final decisions were made to continue operations at Fort Story, Virginia; close Schilling Manor in Kansas; reduce operations to a minimum at Fort Buchanan, Puerto Rico; contract out a portion of base operations at Stewart Army Sub-Post, New York, and Selfridge Air National Guard Base, Michigan; retain Fort Devens, Massachusetts in an active rather than a semiactive status; and to retain Savanna Army Depot, Illinois, and Jefferson Proving Ground, Indiana, in their current status.

Minor changes made the Lexington-Blue Grass Army Depot in Kentucky a subinstallation of the Red River Army Depot in Texas. The Volunteer Army Ammunition Plant in Tennessee was placed on an inactive status, while the Riverbank Army Ammunition Plant in California was reactivated. A more recent study led to a decision in October 1977 to eliminate the 6th Signal Command in Hawaii, while other studies involved relocation of the Chaplains Center and School at Fort Wadsworth, New York, and other possible realignment actions.

All base closure studies since 1972 have been accompanied by detailed, time-consuming analyses of the economic effect such changes would have in the surrounding communities. Many installations affected have been in the midwestern and northeastern industrial regions with high unemployment rates. Consequently, over two hundred congressmen and senators from these areas formed the Northeast-Midwest Economic Advancement Coalition, seeking greater military industrial activity in these areas rather than less. When the Army decided this year to close the old Frankford Arsenal in Philadelphia, the coalition exerted strong political pressure, and the White House requested one more reevaluation. The Secretary of the Army finally approved the decision to close the arsenal in March 1977.

The Deputy Chief of Staff for Logistics is responsible for supervising the Army's Commercial-and-Industrial Type Activities, consisting largely of base and installation support functions. There were 3,883 such activities at the end of this year, an increase of seven percent over the 3,630

reported in 1976. Capital investment increased from $4.3 billion in 1976 to $4.7 billion in 1977, and annual operating costs remained the same (2.4 billion).

Army Automation

In fiscal year 1977, the Army had more than 10,000 automatic data processing systems (ADPS). Many were obsolete, worn out, or inefficient. Others were overloaded, and the Army's Computer Systems Command lacked the resources to develop, field, and maintain new systems. At the same time the Office of Management and Budget and Congress hope to reduce funds for expensive ADPS in the next few years. Because the Army intended to replace much of its older ADPS with modern equipment, a reduction could impair combat readiness. The Director of Army Automation, therefore, ordered a review of all pending ADPS projects. Based on that appraisal, priority was assigned to projects that directly affected the Army's combat forces and less urgent projects were to be curtailed, deferred, or eliminated.

A major project in the Army's efforts to manage ADPS was the Army Automation Planning, Programing, and Evaluation System, begun in 1976 to review progress under the Army's automation master plans and to link the objectives with the planning, programming, and budgeting system. One investigation, known as Go-to-War Automation Appraisals, sought to determine how effectively ADPS support combat missions. A review conducted at Fort Belvoir, Virginia, revealed, among other things, that many systems could not handle wartime workloads.

In April 1977 another review, the second Tactical Automation Appraisal at Fort Hood, Texas, examined automated tactical command and control systems, intelligence systems, and supporting communications networks. The review revealed the need for a basic Battlefield Automation Management Plan and for centralized control over tactical ADPS and supporting networks.

In August 1977 the Select Committee approved a Training and Doctrine Command plan centralizing authority over developing battlefield ADPS (up to and including corps headquarters) in the Combined Arms Combat Developments Activity at Fort Leavenworth, Kansas. Under the approved Battlefield Automation Management Plan, that agency would expedite the development, fielding, and integration of ADPS required to support a corps.

As reported last year the Combat Service Support System (CS_3) was developed as a mobile, nontactical ADPS to provide administrative and logistical support required by active Army divisions. In June 1977 all sixteen active divisions were equipped with that system. Extension of CS_3 to reserve forces and to three separate brigades was postponed.

In 1973, the Chief of Staff, General Creighton W. Abrams, greatly expanded the size and missions of the army corps by assigning major

administrative and logistical functions in addition to tactical roles. But existing corps ADPS were inadequate to support those nontactical missions. To determine what new information systems were required, the Corps Automation Requirements (CAR) Project was started in May 1976 under the jurisdiction of the Operational Test and Evaluation Agency.

Forces Command, meanwhile, directed development of an experimental corp tactical management information systems concept. Using the system as a starting point, the Training and Doctrine Command, the developer for Project CAR, would devise an ADPS pilot project to determine the data processing workload and define the military requirements for corps combat service support. With those specifications, the Computer Systems Command, responsible for the technical development, could design the necessary systems.

Several years ago the Management Information Systems Directorate, predecessor to the Directorate of Army Automation, decided that the Base Operating System, which provided information required for installation and base management, was no longer adequate. Project VIABLE (Vertical Installation Automation Baseline) was established to install gradually more modern ADPS. A pilot project based on the Standard Installation-Division Personnel System confirmed that the program was economically justifiable, and a project office was set up at the Computer Systems Command to determine the types and amounts of information needed and develop detailed specifications for ADPS.

Paralleling those developments was the Computer Evaluation of Utility Plans programs assigned to the U.S. Army Construction Engineering Research Laboratory. The four utilities involved were electrical, water, and sanitary and storm sewer systems. When completed, the project would provide prompt information about utilities, displayed on a cathode ray transceiver similar to those employed in banks and major retail stores.

The General Accounting Office (GAO) continued to audit the Army's management information systems. In previous years it had approved the Standard Army Installation Logistics System, the Test and Evaluation Command's Test and Evaluation Activities System, the Mechanical Research Center of the Materiel Development and Readiness Command, the active Army portion of the Joint Uniform Military Pay System, and the Panama Canal Zone Government's system. During 1977 the GAO was auditing other Army management systems, including the Standard Army Financial System and the Standard Army Civilian Payroll System.

Company commanders have complained for generations about the paper work they have had to perform at the expense of combat readiness and training. In 1973 the Army's Administrative Center prepared a study

recommending that such functions be performed at the battalion level. The Training and Doctrine Command adopted the recommendation, and other major commands followed suit. In March 1976 the program was adopted throughout the Army. Companies would no longer have to wrestle with formal paper work concerning personnel, supply, mess, and the administration of maintenance and training.

Financial Management

The Army submitted a request for $28,654 million to the Department of Defense on 30 September 1975. Following reviews by Defense and the Office of Management and Budget, the President submitted a request to Congress for $26,802.8 million for the Army. The Congress in September 1976 enacted an Army budget of $26,254.4 million by Public Law 94–419. A supplemental budget request of $622.9 million for the Army was then submitted to Congress in January 1977, and an appropriation of $556.3 was enacted in April.

During fiscal year 1977 many reprogramming and transfer actions were requested. These totaled $85 million and are shown by appropriation category in the following chart. At the end of the year $26,219.6 million or 97.8 percent of the $26,810.7 million authorized by Congress had been obligated, with $1.3 million being transferred via programming action, leaving a total of $26,809.4 million.

President Carter ordered zero base budgeting, and in late July 1977 the major commands provided the Army staff with information to revise the Army's budget requests. The general consensus was that zero base budgeting provided for a more disciplined budget preparation. Budget offices could identify problems, alternatives, and trade-offs not apparent previously and could focus on high priority projects and programs.

One temporary problem developed when the Army submitted its budget changes in traditional appropriations categories. Defense budget officials chose different categories, grouping all Army Reserve and National Guard appropriations together, for example.

Congress decided to limit Defense expenditures for legislative liaison and public affairs activities during fiscal year 1977 to $7.4 million and $24 million respectively. The Army's share was $2.1 and $5.553 million.

This year the Defense Department's standardized procedures for cross-disbursement of funds among the services went into effect. Under this system the three services now receive and send punched cards, vouchers and other financial transmittal forms which are processed through computers and checked for accuracy. Included in the cross-disbursements system are charges for the construction and engineering services the Corps of Engineers provides for other Army, Department of Defense, and federal agencies under the so-called Project Order Law passed in 1920. The procedure followed under that legislation led to untidy accounting prac-

TABLE 2—CHRONOLOGY OF THE FISCAL YEAR 1977 BUDGET

DIRECT BUDGET PLAN (TOA)

(In millions of dollars)

	DA Submission to OSD	Amended President's Budget	Budget Approved by Congress	Supplemental Approved by Congress	Approved Reprogramming and Transfers	Total Obligational Authority
Military Personnel, Army	8,775.3	8,682.2	8,564.0	301.7	—24.6	8,841.1
Reserve Personnel, Army	498.8	447.7	469.9	9.9	—	479.8
National Guard Personnel, Army	738.7	699.6	714.7	8.8	—1.5	722.0
Operation & Maintenance, Army	8,406.1	8,060.4	7,898.3	192.6	24.8	8,115.7
Operation & Maintenance, Army Reserve	394.2	375.1	356.1	8.6	—	364.7
Operation & Maintenance, Army National Guard	753.3	719.2	706.2	17.9	—	724.1
Army Stock Fund	100.0	100.0	100.0	—	—	100.0
National Board for the Promotion of Rifle Practice	.3	.3	.3	—	—	.3
Aircraft Procurement, Army	594.3	555.5	541.9	—	—	541.9
Missile Procurement, Army	675.3	552.4	497.4	—	—16.4	481.0
Procurement of Wpns & Tracked Combat Vehicles, Army	1,190.9	1,147.9	1,117.6	—	—	1,117.6
Procurement of Ammunition, Army	1,053.8	910.8	902.9	—	—	902.9
Other Procurement, Army	1,688.2	1,417.9	1,366.6	—	16.4	1,383.0
Research, Development, Test & Evaluation, Army	2,566.7	2,386.2	2,290.7	—	—	2,290.7
Subtotal, Excluding Construction	27,436.0	26,055.1	25,526.6	539.5	—1.3	26,064.8
Military Construction, Army	1,085.7	653.5	612.9	16.8	—	629.7
Military Construction, Army Reserve	66.0	47.0	53.8	—	—	53.8
Military Construction, Army National Guard	66.3	47.2	61.1	—	—	61.1
Subtotal, Construction Accounts	1,218.0	747.7	727.8	16.8	—	744.6
Total Direct Budget Plan (TOA)	28,654.0	26,802.8	26,254.4	556.3	—2.6	26,809.4

tices at the end of each fiscal year. In February 1977 the General Counsel for the Department of Defense issued a directive that led to more disciplined appropriations accounting in the agencies served by the Corps of Engineers.

A number of minor violations of the Anti-Deficiency Act involved obligating or spending more funds than allowed within various appropriations categories. As reported last year, alleged violations in 1976 were double those in 1975, and those reported during this year exceeded those reported in 1976. However, many in 1977 related to violations reported earlier. The program undertaken last year to correct those conditions through greater publicity and emphasis at all levels of command was continued.

Progress payments are made as work on a project moves forward on the basis of 80 percent (85 percent for small businesses) of the costs incurred. Payments may be 100 percent of costs for contractors in financial difficulty who are working on long-term projects. In fiscal year 1977 progress payments were being paid on six contracts with an unpaid balance of $71.1 million. Approval was pending on a contract costing $155.8 million.

Advance payments to defense contractors are authorized to finance prime contractors only from contract funds at prevailing interest rates. Most research and development contracts with nonprofit educational and research organizations, however, are financed in advance of delivery, without interest, through advance payment pool agreements. Since that program began, $986.8 million in advance payments have been made. This year $8.4 million was advanced to fourteen contractors.

Early in fiscal year 1978 the Army Productivity Improvement Program will be revised to increase productivity qualitatively as well as quantitatively through improved management. This year, as in 1976, the Department of Defense set a 2 percent productivity increase as the Army's goal. Total Army productivity increased 2.2 percent during this year in those areas where it was possible to measure.

The Value Engineering Program contributes substantial dollar savings. A formal program in six major Army commands, it is concerned with eliminating or changing anything that increases the cost of an item or process but which is not necessary to its basic function. During this year seventy value engineers in five major commands saved $173 million. Civilian contractors contributed $31 million of that amount through incentive awards programs incorporated in their contracts. The success of the Value Engineering Program led other Army commands to consider its adoption.

The Quick Return on Investment Program, begun in 1974, produces substantial savings in operating costs and personnel. Through streamlining capital investment procedures, new equipment can be bought that

will pay for itself within two years after installation. From 1974 through September 1976 equipment valued at $12 million had saved $19 million. As of 30 September 1977 those figures had increased to $17.5 million worth of equipment with cumulative savings of $54.7 million. Reduced operations costs also contributed to the President's energy conservation program. Savings were used to reduce the backlog of unfinanced operation and maintenance projects at the installation level.

During the year the Army also began grouping the life-cycle cost estimates of weapons systems to support long-range management objectives. In 1977 operating and support cost estimates for twenty-two materiel systems were included in the extended planning annex to the Program Objective Memorandum. That procedure involved grouping individual materiel systems into several classes and displaying cost trends for the next fifteen years.

A major Department of Defense objective is to reduce the operating and support costs of weapons systems. One of the first steps taken by the Army in 1977 toward meeting this objective was to survey Army managers and get their requirements for these costs. The results of that survey will be used to develop an automated management information system to identify, collect, and disseminate operating and support costs of selected major weapons systems.

Records Management

While the Army has tried to reduce the amount of paper work generated each year, staggering quantities continue to accumulate. The control, storage, disposition, and, in many cases, declassification of records demand constant attention from overworked records managers at all levels. During fiscal year 1977, The Adjutant General completed a survey, begun last year, of Army records held in Federal Records Centers. The main objectives were to help prepare declassification time schedules required by regulation; to determine the origin, content, and arrangement of those records in order to develop a system for transferring them regularly to the National Archives and to retrieve promptly documents requested under the Freedom of Information and Privacy Acts.

The survey was divided into four phases. In the first, 82,000 linear feet of permanent Army records were retired to the Washington National Records Center at Suitland, Maryland, in 1967 and earlier were offered to the National Archives. In the second phase, 53,000 feet of Army organizational records in the St. Louis National Personnel Records Center were offered to the National Archives. In the third phase, some 278,000 feet of Army records in the thirteen GSA Regional Federal Records Centers were discovered, some going back to 1792. Approximately 200,000 feet are General Accounting Office-Army finance records. But about 20,000 feet from Corps of Engineer District and Division offices are of

considerable regional interest and will be offered to the regional branches of the National Archives. In the final phase, approximately 110,000 feet of classified and unclassified post-1967 materials retired by Headquarters, Department of the Army, and field commands to the Suitland Records Center were surveyed and placed under the control of The Adjutant General Center. In all, the center established control over some 550,000 linear feet of retired Army records in fifteen records centers of the General Services Administration.

Additionally the center offered the National Archives 4,100 feet of inactive but valuable Army records, primarily at Suitland, in fifty-seven separate actions. Some 10,500 feet of records from Cambodia, Laos, and Thailand were also transferred to the Suitland Records Center. Of that amount, nearly 2,000 feet were secret or confidential.

One effect of President Carter's decision to withdraw U.S. ground forces from Korea was an intense survey in September of Eighth Army's records to determine volume and condition and how they could be retrieved. After the discontinuance of the Southeast Asia Treaty Organization in June 1977, 23 linear feet of records were received and transferred to the Suitland Records Center. Approximately 3 feet, classified top secret, required downgrading before transfer.

The Army's word processing program began several years ago as part of a total program called Administrative Support. The manpower and dollars saved in both programs promised to be considerable. Personnel savings were estimated at twenty percent. During the year the Adjutant General Center evaluated 280 systems, costing about $8 million, and expected savings of over $20 million in the next five years, including a saving of 431 personnel spaces and $7.3 million through improved office management. The number of sophisticated minicomputer systems has jumped from 7 in 1975 to 30 in 1977, at which time the Army had 7,300 pieces of word processing equipment throughout the world. Savings from those new systems tripled in each of the past two years and quadrupled this year.

Micrographics, one of the most interesting recent developments in information technology, can reduce thousands of pages to a few small reels or microfiche easily retrieved and available for research on mechanical viewers and viewer-printers or cathode ray tube devices. Using micrographics, the Army can save thousands of square feet of critical storage space and thousands of hours in answering requests for information and eliminate many routine clerical and warehouse positions.

During this year the Army processed 722 micrographics systems of which 102 were Class IV and required review and approval by The Adjutant General Center. Over five years the Army will save $4.5 million by employing those systems which have been approved for computer output microfilm and source document microfilming.

Among the major computer output microfilm systems approved by The Adjutant General this year was a second system in Korea at Taegu to supplement the existing one in Seoul. Also approved was the plan of U.S. Army, Europe, to install five computer output microfilm systems, for VII Corps, V Corps, and the 21st Support Command, and to improve existing systems at Heidelberg and the U.S. Army Materiel Management Agency, Europe, by adding minicomputers. Within the United States, twelve temporary base operations computer output microfilm systems were approved, bringing the total to twenty-four. The Adjutant General also approved for conversion to minifiche the records of the Military Police Management Information System and the Training and Doctrine Command's records of the authorized strength and equipment of Army units and organizations.

The major collections of documents approved for conversion to microfiche as a test included official personnel records of 500,000 reserve officers at the Reserve Components Personnel and Administration Center and 10,200 Reserve Officer Career Management files at Fifth and Sixth Armies. In addition, the U.S. Army Military Personnel Center was directed to prepare a study on conversion of 15,000 career management information files to microfiche.

Other approved projects include filming the continuity-of-operations files at Radford, Virginia, and the Artillery School Library's collection of studies, annual programs of instruction, and similar training documents. Faculty members, students, and historians use those sources. Requests to convert Engineer permit files from five Engineer districts were also approved.

In a major drive to improve microform technology, a Technology Branch was added to The Adjutant General Center this year. It is concerned with all aspects of conversion, use, storage, retrieval, and dissemination of information. A major project was to develop a durable hand-held battlefield microfiche viewer since no commercial viewers were adequate. Prototypes of the viewer were expected to be ready next year, and in late 1979 production models are scheduled to be available.

In another project The Adjutant General was assisting the Navy in developing a personalized portable micromedia display system which falls halfway between the Army's hand-held battlefield viewer and a commercial desk top and portable microfiche viewer. Testing of prototypes was scheduled for next year.

Copier management was given additional impetus through a new regulation, AR 340–20, which is devoted entirely to the acquisition, control, and management of this $26 million-a-year program. Stricter controls were established for acquisition of all copiers, and in particular color copiers. During fiscal year 1977, six color copiers were approved which will save about $186,000 a year over conventional photographic proc-

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esses/graphic arts means of producing color transparencies, color prints, and 35-mm. slides. In addition, reporting requirements in AR 340–20 will allow the first Army-wide inventory of copying machines.

A revised AR 340–4 was devoted entirely to files equipment acquisition, use, control, and management. A yearly saving of over $112,000 will be realized from twenty new automated/electrical files-units. The largest dollar savings resulted from actual personnel reductions, and several thousand dollars were saved by redistributing excess files equipment within the Army.

Under Executive Order 11652 of 8 March 1972, requiring declassification of Army historical records, the Secretary of the Army in December approved continued classification of 6,600 thirty-year-old records until some future date. Most of these records involved sensitive intelligence methods, sources, and equipment. A total of 81,650 feet have been examined since 1972 including more than 5,000 additional linear feet of records from the 1946–54 period. Some 35,650 of the 51,000 feet of records in that period have now been checked. When work on 1946–54 is finished, 34,750 feet of classified Army records for the years from 1955 through 1967 will be reviewed.

In fiscal year 1977 nearly 150,000 military and civilian employees of the Army were instructed in the provisions of the Privacy Act. Congress in August 1977 abruptly killed a Defense-wide training program on the Privacy Act and Freedom of Information Act. The Adjutant General immediately requested the U.S. Army Institute of Administration at Fort Benjamin Harrison to strengthen the Army's own training programs.

During this year the Army received 82,120 individual requests for access to or amendment of personnel records. All but sixty requests were granted in full or in part. The sixty requests denied led to thirty-one appeals, and five persons filed lawsuits under the Privacy Act. The Department of the Army Privacy Review Board considered the thirty-one appeals. Of those, twelve were denied, ten were partially denied, one was granted, another was sent back for further review, one was withdrawn, and six were pending.

The Army, in summary, continued to make progress in controlling the proliferation of paper work and in reducing the costs of storing and reviewing valuable records. A major problem, however, remained—making records available within a reasonable time to the public, despite the lack of appropriated monies for the purpose.

8. Logistics

The annual process of fixing military force goals and of allocating funds to attain them is an exercise in statecraft. The Department of the Army joins the Secretary of Defense, the President, and the Congress in yearly deliberations that affect the strength and security of the nation. Negotiations are conducted within the framework of change that is habitual in a world of shifting military, economic, and political conditions. Synchronizing competing demands and reaching reasonable divisions of resources calls for a high order of statesmanship at all levels. In service terms, the Army's continuity is fixed in that annual procedure; it is the process that takes the Army from where it has been to where it is going.

In developing the 1977 fiscal year budget, the Army recognized that the long-term strength of the United States depended upon the vigor of the economy as well as the strength of the defense establishment. Army planning and expectations were adjusted to budget constraints, and four considerations were influential in the preparation of the 1977 package: readiness, balance, stability, and quality.

As these terms were applied, *readiness* was interpreted as sufficient quantities of select equipment in the hands of trained soldiers led by experienced leaders and backed by a production base capable of providing additional supplies and equipment required for training, mobilization, and combat; *balance,* as the proper mix of men and equipment in the force structure and the resources to support them both today and tomorrow; *stability,* as a uniform growth in appropriations for manpower and resources that would make it possible to shape the force, set meaningful goals, and measure progress while compensating for inflation and obsolescence; and *quality,* as a standard that would allow mission performance and help compensate for a potential enemy's quantitative superiority.

Logistical considerations, by definition, ran through all four areas, for logistics continued to be, in the broad sense, those aspects of military operation that deal with the design, development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of materiel; the movement, evacuation, and hospitalization of personnel; the acquisition or construction, maintenance, operation, and disposition of facilities; and the acquisition or provision of services.

The way in which the Army carries out the overall logistical function has changed in recent years. Modifications in staff and major command organization have shifted functional responsibilities; the Office of

the Deputy Chief of Staff for Logistics has moved from an operating to a management role, while operating functions have been taken over by the Materiel Development and Readiness Command. The Deputy Chief of Staff for Logistics has responsibility that includes policies, plans, programs, doctrine, and standards. The Deputy Chief of Staff for Research, Development, and Acquisition has responsibility for research, development, test, and evaluation, and for the planning, programming, and budgeting for the acquisition of materiel of the five Army procurement appropriations. The U.S. Army Materiel Development and Readiness Command is responsible for the research and development of Army materiel, its procurement, and its logistics support after it is in the hands of troops—a mission it carries out through subordinate functional commands.

The logistical function in fiscal year 1977 proceeded within the framework of a total Army budget of $26.8 billion, a personnel strength just under 782,000, and a major unit structure of twenty-four divisions. Once again the Army's appropriation represented about six percent of the federal budget and about twenty-four percent of the Department of Defense budget. In presenting the Army's 1977 funding request to Congress, Secretary of the Army Martin R. Hoffmann noted that "the costs of national security, and the Army's share of those costs, cannot be appropriately measured as any static proportion of, or in any set ratio against, the costs of other domestic programs. The only real yardstick must be the security of our nation itself. There are no quick and ready answers to the question of how much is enough."

Outlays for logistics centered in the Operation and Maintenance, Procurement, Military Construction, and Army Stock Fund categories of the budget. The largest increase in the 1977 request was in procurement and was intended to narrow the gap between the Army and Soviet forces in almost every category of major land forces equipment. A central objective was to secure and maintain materiel for the 24-division force, including full combat equipment and replacement and support stocks. To obtain real program growth in an inflationary period, the Army emphasized improvements in existing models as well as the acquisition of new materiel. During the year that combination of procurement and modernization was applied in all categories: close combat, fire support, air defense, other combat support, command systems, combat service support, and intelligence-surveillance-target systems.

Logistics Readiness, Planning, and Management

The Army annually assesses logistical as well as operational readiness. In 1977 total force requirements developed under Army analytical procedures were used to assess the readiness of the logistical community to support combat operations under a North Atlantic Treaty Organization

scenario. The Army examined requirements versus assets and addressed all classes of supply, logistical personnel, the industrial base, and logistical planning factors. In the latter area, the Army continued to develop and validate resupply, personnel, and supply origin data, and it provided material for the 1978 Joint Strategic Capabilities Plan. A joint logistical posture assessment was conducted to appraise the total U.S. support capability, and initial moves were taken to synchronize the Logistics System Master Plan with a new publication on total Army goals.

In personnel and training, a committee was established at the departmental level to review logistic officer specialties, and division support commands were brought under the Logistics Board in the Centralized Command Selection System. Training with industry was expanded with the addition of the Atlantic and Pacific Tea Company, Boeing Vertol, McDonnell Douglas, Pacific Intermountain Express, and the Association of American Railroads as participating organizations. An active advertising campaign sought to interest enlisted members in the Noncommissioned Officer Logistics Program, and the Army distributed new training materials. In civilian career management, attention centered upon efforts to delineate responsibilities of functional chiefs and the Civilian Career Management Agency in light of departmental staff reductions.

Standard data elements are used in new systems and reports in most military functional areas, and standardization is a major concern of all functional agencies. The Materiel Development and Readiness Command, the executive agent for the Office of the Deputy Chief of Staff for Logistics in the Logistic Data Element Standardization Management Program, participated with the Army Logistics Center in reviewing 1,137 data elements between March 1976 and September 1977. In that period 33 items or elements were approved for standardization. Actions to improve the data elements in the Army Master Data File continued concurrently; each major installation was furnished a magnetic tape copy of the file each month, and a microfiche edition was distributed to users not equipped with automated data processing facilities.

For many years the Army has supported other military services and federal agencies, often without reimbursement and often when the Army was not the main user of the support. In the western Pacific, for example, the Army, with only twenty-six percent of the military population, provided ninety-three percent of the support. To correct that imbalance the Army in October 1976 began to transfer twenty-four functions to the other services in Japan and Okinawa, along with 1,200 foreign civilians and 500 military personnel.

In addition to correcting those imbalances, the Army moved to rectify supply deficiencies, especially in prepositioned stocks that had been drawn upon during the Vietnam and Arab-Israeli Wars. To make up overseas shortages in unit sets of prepositioned stocks, the Army withdrew or

diverted supplies and equipment from continental-based units and from the reserve components as well.

A study of operations in Europe found voids in current concepts, policy, doctrine, and planning as they concerned supply, maintenance, and transportation, particularly in logistical organizations between the corps rear boundary and the ports and beaches—the area identified as the communications zone. The study, conducted in the current year, developed the doctrinal relationship between combat service support units in the communications zone and corps areas and wholesale and allied forces logistic systems. Working from the premise that wartime procedures should not be constrained by peacetime posture, the study addressed the size and composition of both the corps and communications zone general support base, theater war reserves, the role of the wholesale logistic system in the wartime theater, the theater commander's role in a multinational environment, and host nation support. Study results have been consolidated into twenty-two concepts which form the basis for detailed logistic policy and doctrine development.

The Inspector General of the Army and the Army Audit Agency conducted a special inquiry into property accountability during a four-month period in mid-1977 in response to high level concern over losses in Army units. The Inspector General's survey covered selected installations in the United States, Europe, and Korea, and included a 100 percent inventory of clothing, equipment, and tools in 118 representative company-size units. The Army Audit Agency audited records at fifteen installations in the United States and four division-size units overseas; the installations and units were representative of 93 percent of the active Army, and the audits were conducted at locations at which 50 percent of the personnel of the commands were stationed. The approximate value of the equipment in the inspected commands was $12.5 billion, and the shortages discovered when extrapolated for troop units of the entire Army, amounted to $118.5 million.

The inspection and audit disclosed both excesses and shortages of government property and indicated a need for increased involvement and training at all levels; improved security of property; simplification of supply accountability, policies, methods, and publications; and improved management. The subject was placed on the agenda of the Army Commanders' Conference schedule for the first week of October 1977, and the Army Chief of Staff directed that a property accountability task force be formed to review policies and procedures and recommend changes to correct deficiencies revealed by the inspection.

Logistic Systems

The size, complexity, and dispersion of modern military forces require maximum use of new technology if the forces are to be managed

effectively. The Army has a variety of logistical management systems in various stages of operation and development. Although progress in any one system in any one year may appear to be less than dramatic, a gradual evolution occurs, and military efficiency and effectiveness improve steadily. Examples of systems in which technical advances continued during 1977 are the Standard Army Ammunition System, which provides integrated supply and maintenance management for conventional ammunition, guided missiles, and large rockets; the Standard Army Maintenance System, which deals with the life-cycle management of materiel; the Direct Support Unit Standard Supply System that is replacing two other systems for nondivisional and division-brigade support; the Standard Property Book System, which centralizes property book accounting; the Standard Army Intermediate Level Supply Subsystem, which aims at a single intermediate system Army-wide; and the Wartime Standard Support System for Foreign Armed Forces, which is being developed to provide more responsive materiel support to friendly foreign nations during wartime.

Materiel Development and Readiness Command's (DARCOM) Five-Year Automated Data Processing Program covers logistical operations of the subordinate DARCOM readiness commands, research and development commands, depots, and the International Logistics Command. With the adoption of the Commodity Command Standard System by the Tank Automotive Command in January 1977, all readiness commands were operating on a standard automated system. The System-wide Project for Electronic Equipment at Depots implemented the Department of Defense Maintenance and Cost Accounting System and fully automated Army industrial fund functions. At the International Logistics Command, the Centralized Integrated System for International Logistics became fully operational for automated logistics and financial management. Automated coordination was also achieved with the Security Assistance Accounting Center, which bills international logistic customers.

The Total Army Equipment Distribution Program seeks to relate projections of equipment distribution to current budgets and programs. The Department of Defense asked that the projections be related to time periods included in regular submissions of Army Program Objective Memoranda. The initial version was keyed to objectives for 1978 through 1982. Subsequent submissions are being used to establish a comprehensive equipment authorization and priority system that will introduce discipline into force planning, acquisition, distribution, and support.

Materiel Maintenance

Operation and maintenance take about a third of the total Army budget, including funds for such categories as individual and unit training, civilian pay and benefits, operating stocks, medical care, and facilities

maintenance. One of the largest elements of the appropriation is materiel maintenance.

A total of $852 million was allocated for depot maintenance and support in fiscal year 1977, including $608 million for overhaul of unserviceable equipment, $11 million for technical, administrative, and new equipment training, and $233 million for maintenance support. Depot maintenance installations in Germany were assigned to the Materiel Development and Readiness Command, making that organization responsible for depot maintenance worldwide. Stabilized rates were introduced during the period, and customers are charged fixed prices for depot maintenance over a given period of operation, freeing the user from fluctuations in costs.

During 1977 the backlog of unfinanced maintenance and repair work shrank somewhat. The 1976 dollar value of the backlog, $1.19 billion, was reduced by 30 September 1977 to $1.14 billion, largely as a result of closer management of the program rather than increased funding.

To improve the readiness and capacity for sustained operations of combat forces, alternative concepts of logistic support at the direct and general support levels were developed and evaluated during the year. Those concepts included a forward orientation for weapon system support, integration of battlefield cannibalization with maintenance and supply, development of well-defined technical channels, and ways to mass and shift critical resources with the tide of battle. Testing took place in the last half of the fiscal year, with adoption expected to follow.

The Army has capitalized on experience gained in Vietnam by reducing the echelons of aviation maintenance from five to three: unit maintenance which gives company and troop commanders a direct support capability; intermediate maintenance which consolidates direct and general support for the division and army areas; and depot maintenance which continues generally along traditional lines, but includes some additional component repair and airframe overhauling. By the close of the fiscal year, the three-level concept had been instituted in Europe and South Korea. Full transition is to be completed by October 1979.

As phased maintenance was being improved and three-level maintenance was being introduced, a so-called on-condition maintenance program was under development. Under its procedures, aircraft were to be inspected and evaluated annually by technical teams that establish condition profiles, fleet condition, and maintenance schedules for depot overhaul on a "worst-first" basis. Army aircraft overhaul cycles have been progressively extended from five to eight years.

Supply Management and Depot Operations

Much of the materiel that flows through the Army depot system is financed by the Army Stock Fund, a revolving fund that finances in-

ventories of supplies and other stores and provides working capital for industrial-type activities. The fund is replenished through annual appropriations in the Army budget. The fiscal year 1977 allocation was $100 million. Stock Fund obligation for the year totaled $3.9 billion in support of $3.9 billion in net sales. The Army was authorized to obligate $314.5 million of the procurement appropriation for secondary items ($234.9 million in direct Army expenditures and $79.6 million in reimbursable funds), as opposed to a $304 million obligation in 1976. Parts and assemblies returned by users for fiscal year 1977 were valued at $624 million, fifteen percent above the forecast.

The moratorium on the turn-in to property disposal officers of excess items owned by the Army but managed by the General Services Administration or the Defense Logistics Agency, initiated in December 1975, was continued through fiscal year 1977. Procedures were developed under which some of that property was returned to Army depots to satisfy requisitions. At the same time, the shipment of certain stocks from Defense Logistics Agency sources to the New Cumberland Army Depot in Pennsylvania to improve supply to Army and Air Force elements in Europe was completed on schedule in February 1977. The New Cumberland Depot also served as the base installation in a test of air delivery of repair parts from the United States directly to support units in an overseas theater. Repair parts were palletized at New Cumberland, moved by commercial truck to Dover Air Force Base in Delaware, flown to Rhein-Main and Ramstein air bases in Germany by the Military Airlift Command, and delivered by military truck to eighty-eight support units of U.S. Army, Europe. Over 1,700 short tons were shipped monthly with a fifty percent reduction in order-ship time and a general improvement in equipment serviceability.

Transportation

Army transportation involves all modes of travel, all types of conveyances, and all categories of cargo under all kinds of circumstances. In the year just concluded, the Army participated in economic analyses for developing a Defense Intransit Item Visibility System and a Transportation Operational Personal Property Standard System. Various subsystems of the Terminal Operations and Movements Management System were improved, and the Army participated in the Military Traffic Management Command's test of the Carrier Evaluation and Reporting System.

In air transportation the success of the six-month test which allowed the military services to deal directly with the Military Airlift Command Passenger Reservation Center led to the extension of that procedure to all continental U.S. installations during the fiscal year. Responsibility for validating special assignment airlift missions was transferred from Headquarters, Department of the Army, to the Military Traffic Management Command (MTMC) on 1 April 1977, and the administrative airlift

validation function was transferred from the Office of the Deputy Chief of Staff for Logistics to the U.S. Army Service Center for the Armed Forces on 30 September.

In coordination with the military services, MTMC began to evaluate a competitive rate filing system for the movement of household goods between the United States and overseas to replace a noncompetitive rate equalization procedure. Its success in shipments to Okinawa led to its expansion to shipments for Germany starting on 1 November 1976. Cost avoidance for the 1977 fiscal year was projected to be $20 million for the Department of Defense and $7.7 million for the Army. The year also saw full implementation of the Do-It-Yourself moving program under which personnel are furnished a monetary incentive in lieu of transportation by a conventional household goods mover, if they move themselves by rental vehicle. Over 5,000 individuals participated, incentive payments totaled $1.2 million, and the government saved an estimated $700,000.

A stevedore strike delayed MTMC assumption of Army water terminal operations on Okinawa from November 1976 to the end of fiscal year 1977; a survey of those operations was conducted at Yokohama, Japan, where transfer to MTMC was scheduled for January 1978. Meanwhile, plans to relocate watercraft within the Pacific region were dropped, while repair of two De Long piers earmarked for Europe proceeded on schedule; both will be moved during the coming year. Watercraft and terminal unit requirements were reviewed in 1977, and a structure to support a corps with a worldwide contingency mission was developed to ensure an over-the-beach logistic capability. The Army also sponsored an analysis by the Concepts Analysis Agency to assist in verifying the levels of prepositioned war reserves of ammunition.

The Army revised its regulations relating to the maintenance of military-owned containers. A General Accounting Office report had emphasized the need to publish a comprehensive container system development plan. A bill proposed in the House of Representatives would establish uniform requirements for intermodal cargo containers moving in international trade. It would require periodic inspections, coding, marking, and registering of DOD-owned containers.

Facilities and Construction

In fiscal year 1977 the Army requested $1.2 billion for the fiscal year 1978 military construction program and received $1.1 billion in total obligational authority, including $500 million for the production base, and a supplemental appropriation. The soldier-oriented request included improvements in bachelor housing and dining and medical facilities; construction of medical stations for new divisions; improvement in pollution abatement, energy conservation, nuclear weapons security, and the industrial base; and real estate acquisition.

The following chart shows the Army's military construction projections for the five-year Defense program as reflected in the fiscal year 1978–83 program objective memorandum submission (in millions of dollars).

	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83
Major construction	441	802	883	929	972	1,020
General authorization	92	87	82	85	88	90
NATO infrastructure	85	90	90	90	90	90
Total	• 618	979	1,055	1,104	1,150	1,200

• New TOA approved by Congress.

The government-commercial production base must be maintained during peacetime if it is to meet wartime requirements. Although current requirements and foreign military sales keep production lines active to a degree, construction and modernization of facilities are long-range needs. During fiscal year 1977 almost $84 million in modernization projects was placed under contract while construction was completed on projects of equal value. Design work continued on projects with a value of about $425 million.

Design guides were begun for maintenance facilities, dependent youth activities centers, and music and drama centers, augmenting a dozen already completed for various other facilities. These guides provide criteria to aid planning, design, and modernization of facilities. Also during the year, a computer-aided architectural design review system was tested in the Norfolk Engineer District, one that promises to provide more timely and complete reviews of architectural concepts than had been possible with existing manual methods.

In other design developments, a commercial contract was let to revise the manual used for the design of health care facilities, a report on design data for construction in Alaska was adopted, and new criteria for making facilities accessible to and usable by the physically handicapped were evaluated.

Peacetime and wartime fluctuations have affected the number, size, location, and population of installations, and in recent times the cost of maintaining and operating them has led to substantial realignments, consolidations, and reductions. The Department of Defense base structure consists of some 440 major bases and over 3,700 other properties in the United States supporting 2.3 million Defense personnel. These installations and properties consist of 25.6 million acres of land and improvements acquired at a cost of over $36.1 billion. Since 1969 over 2,700 base realignments in the United States have reduced annual costs by over $4.3 billion, and 336 installations and properties, including 80 major bases, have been closed. A long-range study begun in July 1976 identified major bases that will probably be required in 1996 and beyond and set the general standards for base development over the long term.

The Federal Property Council was revamped by executive order on 7 January 1977. As reconstituted, it consists of the Director of the Office

of Management and Budget (chairman), the Chairman of the Council of Economic Advisors, the Chairman of the Council of Environmental Quality, and such other members as the President may specify from time to time. The order provides for the General Services Administration to issue standards and procedures and to continue to survey and identify excess federal property and to report to the council on the utilization of federal properties. That agency surveyed twenty-six Army-controlled properties from July 1976 through June 1977 and recommended that 1,289 acres of land be declared excess at Camp Bullis, Texas (425 acres); Kansas Army Ammunition Plant (557 acres); Camp Sherman Rifle Range, Ohio (260 acres); and other sites (47 acres). The Army agreed to declare as excess only 12 acres at the Defense Mapping site, Herndon, Virginia.

The Corps of Engineers continued to acquire land for the Army and for civil works. Approximately 1,050 acres with improvements were acquired for about $6.7 million to expand clear zones at twenty-one Air Force bases. Land was also purchased for the Energy Research and Development Administration, the Federal Energy Administration, and the National Park Service. Three of six sites to be used eventually for underground oil storage were acquired. The Corps of Engineers expended $4.1 million in relocation assistance to 958 applicants displaced by corps projects during the fiscal year.

The Department of the Army controls approximately 12.6 million acres of land which, with improvements, cost over $13.2 billion. In the twelve-month period from July 1976 through June 1977, the General Services Administration disposed of 3,894 acres of Army land and improvements in the United States, with an acquisition cost of over $33 million. Another 99,077 acres with improvements and with an acquisition cost of $218.3 million were reported excess. On 30 June 1977 the government was receiving $11.9 million in annual rental on 36,500 parcels comprising over 7 million acres of land.

The Department of Defense directed the services to study the feasibility of consolidated interservice maintenance of real property at military installations within thirty-five miles of designated locations. They Army is directing studies for Northern Oahu, Hawaii; Fayetteville, North Carolina; Tacoma, Washington; Fort Dix, New Jersey; and the Panama Canal Zone. During the period of this report the Army developed a plan to consolidate Wheeler Air Force Base and all Army installations on Oahu under the U.S. Army Support Command, Hawaii. Meanwhile the Army Construction Engineering Research Laboratory completed a cost analysis and feasibility study of consolidating Pope Air Force Base and Fort Bragg in North Carolina. Planning by the Air Force also began for a major consolidation in the San Antonio, Texas, area, which will include Fort Sam Houston.

Although funds allow a reasonable level of real property maintenance and may permit a minor reduction in the large maintenance and repair backlog, the personnel picture does not appear bright. New sophisticated facilities are being completed each year with a consequent heavy call upon maintenance and management staff. Thus a study was launched of operation and maintenance under the Army's Real Property Management System, with one phase to be done within the Army to define ways of improving production and efficiency, and a second phase to be done by outside consultants looking at new organizational and management alignments.

The integrated Facilities System, a management information subsystem encompassing the life-cycle management of real property, was extended to twenty-five installations in 1977. It has proved of considerable value in improving productivity and highlighting deficiencies in management that are being corrected as the system is extended and expanded.

The Corps of Engineers in coordination with the General Services Administration continued the recruiting facilities program, establishing new offices and relocating, expanding, or upgrading existing ones. At the close of the year approximately 6,000 recruiting offices were supporting the four military services.

Health facilities projects in progress at the end of the fiscal year included four new hospitals, five hospital additions and alterations, three hospital electrical and mechanical upgrades, ten dental clinics and a regional dental facility, and two health clinics, with total costs of $357.9 million. Authorized and pending construction were a new hospital, two hospital alterations, two hospital electrical and mechanical upgrades, four dental clinics, and three health clinics with a total value of $98.1 million. Eight medical construction projects were included in the 1978 program submitted in fiscal year 1977. Among major medical construction projects, the 760-bed Eisenhower Army Medical Center at Fort Gordon, Georgia,was completed in May 1977, and the 1,280-bed Walter Reed Army Medical Center in Washington, D.C., was almost completed at year's end.

The sharp increase in construction costs, highlighted in Army presentations to Congress, led Army officials to invite several proprietary hospital corporations and other knowledgeable parties to testify on procedures, costs, and methods for new hospital construction. The Department of Defense was directed to study hospital design and construction in the light of information derived from the hearings.

In medical logistics, procedures for designating significant items for unit readiness reporting were being revised during the year, and a revised table of equipment for the medical supply, optical, and maintenance unit was issued. Storage techniques and facilities were also being studied

to permit decentralized prepositioning of nondeteriorating components of medical packages. Modernization funds were distributed to major medical commands to support their capital investment programs, and additional components of the Medical Unit, Self-Contained, Transportable (MUST) category were issued to sixteen combat support hospitals and one evacuation hospital in the United States and Europe. MUST equipment for training was issued to six REFORGER combat support hospitals in the continental United States, six combat support hospitals and five evacuation hospitals in the Army Reserve, and six combat support hospitals and two evacuation hospitals in the Army National Guard.

As the construction agent for other Defense Department elements, the Army awarded $657 million in 1977 for U.S. Air Force designs and construction, including an Aeropropulsion Systems Test Facility at the Arnold Engineering and Development Center in Tullahoma, Tennessee. Three contracts were awarded for U.S. Coast Guard long-range navigation stations, and design and construction projects for the U.S. Navy totaled $23 million. A number of projects were also handled for the Defense Nuclear Agency, the Defense Logistics Agency, and the Defense Mapping Agency.

Other government agencies also received Army construction assistance through the Corps of Engineers. In the energy field the Corps supported the Energy Research and Development Administration's Fossil Energy Demonstration Plant Program for experimentation with the chemical conversion of high sulfur coal into clean liquid or gaseous fuels. Contracts were issued for the development of two pipeline-gas demonstration plants; the government will fund the design and join an industrial partner in construction and demonstration. The Army also completed construction for the U.S. Postal Service during the year, closing ten projects and holding fifteen contracts open for the settlement of claims.

Construction for foreign governments continued in 1977. Saudi Arabia received a wide range of support services. Under bilateral arrangements the Army provided engineering, construction, and training support for Saudi Ministry of Defense and aviation projects, the Saudi naval expansion program, the Saudi Arabian National Guard modernization program, and the Saudi ordnance corps program. These programs included housing, facilities for storage and port operation, medical care maintenance and training, water supply systems, and road construction.

The Corps of Engineers completed designs for a Central Supply and Maintenance Complex to support the improved Hawk Missile System program in Kuwait, and the Army continued negotiations with Jordan for the construction of an armor rebuilding facility. The Engineers also completed design and continued construction contract work on a number of facilities for Iran.

In the area of facilities security, military police began training dog teams in explosives detection in July 1976. Units were allowed to convert patrol dog teams to patrol explosive detection teams. Over thirty of these teams had been formed throughout the Army by the end of fiscal year 1977.

Security Assistance

Security assistance seeks to reinforce national security and foreign policy objectives by selectively providing allied and friendly foreign nations with military materiel and services. It also creates employment in the United States, helps maintain the production base for military equipment, reduces unit costs through volume production, and reduces the American balance of payments deficit. Specific restrictions on use and transfer by recipient nations helps ensure that equipment is used as Congress intended.

The Army-administered portion of the Security Assistance Program since its inception in 1950 has been $26.3 billion. In the early years much of the assistance was in outright grants; in recent years most of it has been in the form of foreign military sales. Grant aid declined from a 1973 level of $2.8 billion (including service-funded support to Vietnam) to about $150 million in 1977, and foreign military sales dropped from a 1974 peak of $4.2 billion to approximately $2.61 billion in fiscal year 1977. Arms control policies announced by President Carter in May 1977 and embodied in the International Security Assistance and Arms Export Control Act of 1977 limit the spread of advanced weapons and restrict the export of sophisticated technology, except to NATO countries, Japan, Australia, and New Zealand. The act listed countries entitled to receive grant aid, prohibited grant aid and military sales to nations that engage in activities inimical to U.S. interests, and placed certain controls upon U.S. military personnel overseas who manage security assistance.

Under the 1977 act, eight countries were authorized continuing grant aid in fiscal year 1978: Greece, Indonesia, Jordan, the Philippines, Portugal, Spain, Thailand, and Turkey; however, the Turkish program remained suspended. Instructions were issued to terminate grant aid to all other countries by 30 September 1977.

In Europe the Federal Republic of Germany has been a major purchaser of American military equipment, and grant aid has given Portugal the weapons and equipment for a NATO committed infantry brigade. In the Mediterranean, despite interruptions resulting from differences over Cyprus, Turkey and Greece have been major recipients. The Middle East continues to be heavily involved with large programs for Iran, Israel, and Saudi Arabia. Assistance to African nations included active programs for Morocco, Tunisia, and Zaire. A long-standing rela-

tionship with Ethiopia ended with the U.S. withdrawal from that country, however.

Assistance was reduced in several parts of Latin America because a number of countries would not accept U.S. human rights initiatives. In the Far East agreement was reached for Thailand to purchase ammunition stored there last year by departing American military forces.

In foreign military sales the Army in fiscal year 1977 handled 7,108 orders, each requiring logistic or fiscal action. Highlights of foreign sales during the period appear in the following tabulation (in millions of dollars):

Saudi Arabia	580
Iran	659
Israel	300
Jordan	471
Greece	103
Korea	240

Foreign customers require spare parts, tools, technical publications, and training concurrently with their equipment. In meeting such needs, the United States must guard against adverse effects on Army readiness. Customer countries therefore furnish funds in advance to prime the U.S. supply pipeline for spare parts needed later; afterwards they receive timely supply support without a detrimental effect upon U.S. operating levels.

The Army also participates in coproduction programs, approved by the State and Defense Departments, for foreign manufacture or assembly of U.S. defense materiel. In fiscal year 1977 the cumulative value of pending, active, and completed coproduction programs amounted to $3.5 billion, of which about $1.8 billion would be spent in the American economy. Nineteen active projects were under way with a value of $2.1 billion. Countries engaged with the United States in these projects were Italy, Japan, the Netherlands, the Republic of China, the Philippines, South Korea, Turkey, and the NATO Maintenance and Supply Agency. Germany, Iran, Japan, Norway, Switzerland, and the United Kingdom were actively considering coproduction agreements with an estimated value of $2.5 billion.

Materiel produced in such coproduction included small arms, howitzers, armored personnel carriers, antitank rockets, air defense missiles, Nike and Hawk air defense systems, UH–1H helicopters and associated 2.75-inch rockets, radars, tactical radios, ammunition, and production facilities. The programs have bolstered national pride and self-reliance and strengthened the industrial and defense capabilities of America's allies and friends.

Self-financed visits to the United States by officials of countries concerned with security assistance increased nearly threefold in 1977, while security assistance visits by American representatives to participating nations continued essentially unchanged. Foreign visitors came from

Argentina, Canada, Ecuador, Germany, Iran, Israel, Italy, Japan, Jordan, South Korea, Kuwait, Lebanon, Pakistan, Peru, Portugal, Saudi Arabia, Senegal, Spain, Sudan, Switzerland, Taiwan, and Tunisia. U.S. representatives, meanwhile, visited Belgium, Germany, Iran, Italy, Japan, Jordan, Kuwait, Luxembourg, Panama, the Philippines, Portugal, Saudi Arabia, Singapore, South Korea, Spain, Thailand, Turkey, and the United Kingdom. The visits improve communications between the United States and its allies and friendly nations, and tend to develop foreign interest in American culture and foster pro-American attitudes.

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9. Support Services

Support services include a variety of activities serving the physical and spiritual needs of the people who comprise the U.S. Army. Food, clothing, shelter, and medical care are of course the primary physical needs, and religion fills the main spiritual needs.

Religion

The primary duty of an Army chaplain is to provide for the religious and moral needs of the military community. To help meet that duty, a chaplain will normally provide such religious services as marriages, baptisms, funerals, prayer breakfasts, retreats, and worship services. He will also offer religious instruction for individuals, couples contemplating marriage, and groups displaying an interest in spiritual matters. At the same time, an Army chaplain will normally meet his duty of pastoral care in much the same fashion as his civilian counterpart—by developing relationships with those who require his religious guidance and by offering spiritual support to those who have been bruised on their way through this life.

The Chief of Chaplains adopted a new professional development plan that includes important changes in the training program for chaplains. In particular, it calls for a reduction in length of the basic and advanced courses, elimination of the senior officer refresher course, and a general pattern of exporting training to the field. The basic chaplain course will consist of three phases: the first, a precommissioning phase to prepare candidates for active duty; the second, a six-week resident course in basic military subjects at the Army Chaplain Center and School; and the last, a one-year training program that will concentrate on subjects essential to the chaplain's first assignment. The advanced officer course will be offered twice annually and will provide opportunities for self-assessment, instruction in military and professional subjects in preparation for greater responsibility, and a period of self-directed learning in which chaplains may select courses based on their own needs and the requirements of their next assignments.

The new plan also ends training for specialized assignments for all chaplains. Instead, only those who receive such assignments will be trained. Clinical Pastoral Education (CPE) will be provided through medical center CPE programs as well as community and parish CPE centers. Continuing education and training, apart from the more structured programs, will still be available through monthly training confer-

ences, correspondence courses, degree completion programs, and short-term CPE training.

During fiscal year 1977 the Government Printing Office published two volumes of what will be a five-volume history of the Army Chaplaincy. The works now in print are Volume II, *Struggling for Recognition, 1791–1865,* and Volume V, *Confidence in Battle, Inspiration in Peace, 1945–1975.*

Housing and Homeowners Assistance

The bachelor housing program for fiscal year 1977 was allotted $123.7 million for 9,317 spaces. Most of the money—$111.7 million—will go for 5,208 new spaces and 1,492 modernized spaces in the United States. Soldiers in Korea will benefit from the construction or rehabilitation of 2,559 spaces costing $11.3 million, and the forces in Germany will get 58 new spaces at a cost of $0.7 million. The program for fiscal year 1978 will be much smaller, involving only $25.3 million. All of the work planned for the next year will be in the United States and Germany.

With the exception of MCA (Military Construction, Army) projects for fiscal years 1977 and 1978, construction costs for troop housing in Germany were covered by an offset agreement. Modernization of barracks and dining facilities under the terms of the 1974–75 offset agreement continued. The Army was allocated 503 million deutsche marks for rehabilitation of troop housing at eighty-four kasernes and some border and remote sites. At the end of fiscal year 1977, work at eighteen kasernes and fourteen remote sites was completed, and construction was under way at thirty other kasernes.

As executive agent for all the military services, the Army paid nearly $800,000 under the Homeowners Assistance Program to 200 applicants during the twelve months prior to 1 July 1977. The payments were a result of base closures or realignment actions. Additionally, mortgage assumptions on forty-five properties acquired under the program amounted to $892,000.

Food Services

Food service facilities supporting the Army food service program worldwide, as of 30 September 1977, were as follows:

	CONUS	Overseas	Total
Dining facilities	687	392	1,079
Garrison bread bakeries	0	1	1
Central pastry kitchens	3	0	3

A total of 1,079 Army dining facilities served 244,602,065 meals valued at $240,422,445 during fiscal year 1977; garrison bakeries produced 1,087,100 pounds of bread; and central pastry kitchens made 2,498,000 pastry servings.

The U.S. Army Natick Research and Development Command constructed prototypes of improved field feeding equipment. Along with the new standard field-kitchen trailer, these prototypes were sent to Fort Hood, Texas, where they will be evaluated next year in an experimental battalion. Previously the Natick Research and Development Command had proposed a new tent-type (XM–75) mode for feeding, which the Department of the Army disapproved. As a result, the trailer field-kitchen will remain standard for the foreseeable future.

As part of the Dining Facility Modernization Program, 445 dining facilities were selected for modernization, an increase of 4 from the previous year. An additional 208 were programmed for modernization through fiscal year 1979, with the remainder scheduled for 1980 and beyond. During fiscal year 1977, construction contracts estimated at $7.5 million were awarded for the modernization of seventeen facilities.

The appropriation for fiscal year 1977 also allowed the construction of ten new dining facilities at six installations. Expected cost was $7.7 million. As of 30 September 1977, contracts had been awarded for the construction of eight of these facilities.

At Fort Lee, Virginia, in June 1977, the Director of Food Management began to use a pilot kitchen to evaluate operational guides and production procedures and to learn how the equipment can be used in preparing various menu items. A study of two dining facilities supported by the pilot kitchen was made from mid-July to mid-September, and the results will be available next year.

During fiscal year 1977 the U.S. Army Troop Support Agency maintained four Food Management Assistance Teams to assist commands, installations, and food service personnel worldwide. The teams visited 946 dining facilities of active forces at seventy installations and 283 dining facilities of the reserve components at twenty-three installations.

The Philip A. Connelly Award for excellence in Army food service was expanded to include a category for field food-service. The 1977 competition therefore covered three categories: large facilities feeding more than 200 soldiers, small facilities feeding 200 or less, and units in the field. The winning unit in the large category was the Fort Huachuca, Arizona, Ranch House Dining Facility. In the small category, the 552d Military Police Company, 728th Military Police Battalion, Pusan, Korea, was first. Considered best in the field-kitchen category was the 1st Battalion, 37th Armor, 1st Armored Division, Katterbach, Germany.

Commissaries and Subsistence Supplies

The final phase in centralizing the management of Army commissaries, begun during fiscal year 1976, was completed when the European Field Office became responsible for the Resale Stock Fund previously controlled by U.S. Army, Europe. Under centralization, each field office

manages the Army commissaries within its geographical region and is accountable for their resale subsistence stocks. The field offices also provide direction for procurement, stock control, administration, merchandising operations, financial management, and store security.

To reduce the subsidization of commissary stores, as Congress had ordered, the Army created more part-time jobs. Previously, the employee mix had been ninety-two percent full-time and eight percent part-time. On 30 September 1977, a goal of eighty percent full-time and twenty percent part-time was met. The long-range goal, a seventy-thirty ratio, is considered optimum.

The Office of the Chief of Engineers and the United States Army Troop Support Agency in conjunction with a civilian architectural-engineering firm, completed standard designs and equipment lists for eight types of commissary stores. Each design shows the functional arrangement of equipment. The standard plans were then distributed to engineer divisions and districts for use in developing particular designs for new commissaries.

In the Middle East the Army has commissaries at Dhahran and Riyadh in Saudi Arabia and at Teheran in Iran. A new store in Jidda, Saudi Arabia, will open in fiscal year 1978. The commissaries are under the command and control of the Troop Support Agency's European Field Office, and U.S. Army, Europe (USAREUR), airlifts most of the stocks. Fresh fruits and vegetables for Saudi Arabia, however, come directly from the United States, while the commissary in Teheran gets its produce from Europe and the local economy.

In 1976, as a part of streamlining logistical support within the European theater, USAREUR proposed that responsibility for supplying Middle East commissaries be shifted to the United States. Apart from removing a burden unrelated to USAREUR's wartime mission, the change, to take place next fiscal year, will help centralize commissary support and alleviate the strain on depot facilities in Europe. Additional benefits include fresher products at the commissaries and a cost saving of $900,000.

The status of a number of Army commissaries changed during fiscal year 1977. The store at Addis Ababa, Ethiopia, was closed, and the facilities at Fort Buckner and Makiminato, Okinawa, and Kaiserslautern, Germany, were transferred to the Air Force. The Air Force Wiesbaden store, in turn, was transferred to the Army. The facility at Fort Gillem, Georgia, was designated a main store, and the outlets at Fort McPherson, Georgia, and Dahlonega, Georgia, became branches of the Fort Gillem commissary.

During 1974 and 1975 representatives of the cash register industry told the Army that the electromechanical register would be phased out and replaced by electronic cash registers. To prepare for the change, Army

personnel visited manufacturing plants to observe demonstrations of the new equipment, and afterward the Army installed electronic registers at Fort Richardson, Alaska, and Fort Monmouth, New Jersey, for testing. During fiscal year 1977 the use of electronic registers was extended to twenty-three additional commissaries, and thirty-eight more will receive new equipment during fiscal year 1978. Buying and installing new registers during the upcoming year will cost about $1.6 million. When those are in place, Army commissaries will have 608 new registers, more than half of the estimated 1,208 registers needed. The replacement program is scheduled for completion in fiscal year 1980.

The Department of Defense program for Worldwide Integrated Management of Subsistence received a substantial boost last year when the Defense Logistics Agency issued a revised plan for the Navy on Honshu and the Air Force on Okinawa to replace the Army early next year as the area's centralized wholesale subsistence managers. Meanwhile, the Army agreed to transfer subsistence war reserve stocks in the United States to the Defense Logistics Agency, effective 1 January 1978.

At the request of the Office of Management and Budget, an interagency committee developed a plan for a government-wide quality assurance program for food procured by federal agencies. The committee made the Department of Agriculture responsible for inspection and quality control. In the meantime, Congress directed the Army to reduce its involvement in food procurement by relieving 120 enlisted persons and 20 Veterinary Corps officers, and transferring their work to the Department of Agriculture during fiscal year 1978. As a result, that department will control procurement activities earlier than envisioned by the interagency committee.

Laundry and Dry Cleaning

In January 1977, the Army converted seven laundries in Germany to government-owned, contractor-operated facilities. The first contract, for nine months, was awarded to an American company, and a successor contract will cover a one-year period. The experience of these units under private management should be useful in making decisions to convert other laundry and dry cleaning facilities. In August 1977, however, Congress declared a one-year moratorium on such changeovers in the United States. As a result, contract negotiations for many conversions were suspended.

Transferring some support activities to the private sector has inevitably slowed the modernization of laundry and dry cleaning equipment. That problem, as well as funding limitations, also restricted the Quick Return on Investment Program in the United States, but procurement of machinery and equipment for use overseas under that program was not affected.

Laundry management representatives from the military services helped officers of the International Fabricare Institute revise their yearly military-governmental laundry manager's course. The revised course offers greater appeal and utility to the military personnel involved in laundry and dry cleaning management.

Clothing and Personal Equipment

The most significant changes in women's uniforms since World War II recently took place. Fatigues and their accessories were made a part of the women's initial issue, replacing the training duty uniform and two white blouses, and combat boots took the place of gym shoes, overshoes, and one pair of black oxfords. For military policewomen, a green pantsuit became standard issue, and all enlisted women now receive a black beret in place of the garrison cap.

In men's clothing the long-awaited durable press fatigues and tan uniforms entered the supply system, replacing similar all-cotton items. Although durable press fatigues had been adopted by the Army in 1970, they were not issued until December 1976, following approval by the Department of Defense. Durable press tan uniforms did not enter the inventory until 1977, when the stocks of cotton khaki uniforms were depleted.

A study on Army dress uniforms for 1980 was completed in December 1976 by the Army Natick Research and Development Command following a 1974 directive from the Department of the Army. Troop surveys, suggestions from civilian designers and manufacturers, and a historical review of uniforms formed the basis of the inquiry. Guidance also came from an advisory group composed of the Director of Human Resources Development and Director of the Women's Army Corps in the Office of the Deputy Chief of Staff for Personnel, the Director of Development and Engineering of the Materiel Development and Readiness Command, the deputy chief of staff for personnel of the Training and Doctrine Command, and the Sergeant Major of the Army. Major suggestions were to have one year-round uniform in the service, dress, and mess categories; to make men and women look like soldiers of one Army, without sacrificing the feminity of the women; and to use whenever possible versatile components, such as shirts, slacks, and skirts. The report was reviewed by major commands and Army staff agencies, and Army approval for specific proposals is now pending.

Heraldic Activities

The work of the U.S. Army Institute of Heraldry during fiscal year 1977 included the design of 477 heraldic emblems, the creation of 3,788 drawings and paintings, and the completion of 260 sculptured models and casts. Additionally, 252,000 items were inspected under the quality

control system for heraldic items, and 3,871 support actions related to research, development, and engineering were completed. The institute supported the needs of the Army as well as those of other government agencies, including the Department of Defense, other military services, the Agency for International Development, the U.S. Intelligence Board, the Supreme Court, the Department of the Interior, and the Veterans Administration.

To improve quality, reduce cost, and broaden procurement sources of heraldic items, the Institute continued to search for alternate materials and to devise better manufacturing methods. This year the Institute introduced a manufacturing change that resulted in cheaper guidons of improved appearance with the design readily identifiable from both sides.

Morale, Recreation, and Welfare

Competing demands for scarce dollars forced a halt to operations of the Army Aviation Precision Demonstration Team. Organized in 1972 and nicknamed the Silver Eagles, the team exhibited the capabilities of military helicopters and the skills of the aviators who fly them. Over the last half decade it participated in such events as airport dedications, aviation demonstrations, and expositions and fairs, putting on more than two hundred shows before an audience of millions.

During the last fiscal year the Army competed in twelve interservice sporting events, winning six, finishing second in five, and third in only one. Soldiers also took part in sixteen national competitions, either as members of armed forces teams or as part of all-Army squads. The best showing was in basketball, when an armed forces team, mainly Army personnel, won the 1977 National AAU Championship. In Conseil International du Sport Militaire competition, soldiers participated on American teams in four events, winning two and placing second in one.

Army bands also suffered from budget cuts, and at the end of fiscal year 1977 had to absorb a cutback of 190 manpower spaces. An early suggestion to eliminate three bands as a means of meeting the reduction was rejected. Instead, the Army decided to reduce each division band by 2 spaces and each separate band by 4 spaces. All of these units would then contain 41 spaces each. Additionally, headquarters bands at the Training and Doctrine Command and the Forces Command would be reduced by 7 spaces each (from 72 to 65), and the Old Guard Fife and Drum Corps would be reduced by 17 spaces (from 87 to 70). The remainder of the reduction would be achieved by eliminating 14 spaces at the U.S. Army Element, School of Music, and withdrawing the 5 Army spaces in the North American Air Defense Command band in Colorado.

In Army club management, a study to determine the best structure for the management of clubs and package beverage stores was conducted,

and the results should be available in fiscal year 1978. The Army club fund, which lends interest-free money for construction and renovation of facilities, had twenty-two loans outstanding at the end of fiscal year 1977 with a face value of $15.6 million. Additional loans totaling $4.5 million had been approved, pending determination of the contract cost and prices.

The number of formally trained military Army club managers increased from 635 in September 1976 to 829 in October 1977. The Club Management Course was moved from Fort Lee, Virginia, to Fort Benjamin Harrison, Indiana. There were 242 graduates from the course during fiscal year 1977; 90 club managers graduated from the Executive Club Management Course during the year, and 19 individuals from Army clubs went through a triservice culinary course to upgrade the performance of club cooks, chefs, and food service managers.

Army clubs had sales of $219.6 million and a total revenue of $260.3 million during fiscal year 1977. Net income totaled $10.4 million, 4.7 percent of sales. There were 263 clubs in operation at the close of the fiscal year, of which 204, or 77.6 percent, were profitable.

The Army Community Service currently provides a variety of aid to military personnel and their families, including financial and personal counseling, help in relocating, and referral to other agencies. The program, however, has not been fully understood by its potentially greatest beneficiaries. More standardization and better publicity were needed. An Army study, completed and published during the past year, helped to meet those needs by identifying essential services. Available resources will be channeled to those activities first. Prominent among the services that will receive priority are financial management assistance, relocation assistance, information and referral assistance to persons with handicapped dependents, child care services, assistance in child maltreatment prevention, and help to off-post enlisted families.

One feature of the Army Community Service program that came in for particular attention during fiscal year 1977 was child care. Centers for child care have existed on military posts for years, organized on an ad hoc basis and supported from a variety of nonappropriated and private funds. Those operations worked well enough in the past, but as the demand for child care increased and costs escalated the system had to be overhauled. The immediate financial strain was eased by an Army decision to provide free utilities. More important, in fiscal year 1979 the centers will become appropriated fund activities, supplemented by user fees, and will receive allocations for personnel spaces, which should permit expansion of the program. Until then, installation commanders may use other appropriated funds for maintenance, repair, supplies, and equipment.

During the last fiscal year the Army took a number of steps to

strengthen the Retirement Services Program. They included installation of a toll-free telephone line in the Retired Activities Division of the Department of the Army, which retirees have used heavily to inquire about the full range of retirement benefits and entitlements. Additionally the content of the Retired Army Bulletin was made more interesting to its readers. The military services also established a joint retired affairs working group that will, among other things, help keep track of legislation important to retirees, who now number 440,000 men and women.

Based in part on the success of an eighteen-month Air Force experiment, the Army decided to use a "Mini-TV" system to make American television programs available to soldiers stationed at remote locations overseas who do not have access to American Forces Radio and Television Service (AFRTS) TV. Programs will be recorded on videotape cassettes at the AFRTS facility in Los Angeles and shipped weekly to isolated sites. At each location soldiers will use videotape playback units and television sets to watch the programs.

Sites fully operational in fiscal year 1977 included Kwajalein Atoll and others in Taiwan, Korea, Japan, Saudi Arabia, Iran, the Netherlands, Belgium, Turkey, and Helmstedt, Germany. Presently 144 locations in four overseas countries qualify for Mini-TV service. Necessary videotape equipment will begin to reach most of these sites in fiscal year 1978, and all installations should be fully served by fiscal year 1979.

Education

During November and December 1976, the maior commands conducted a comprehensive evaluation of the General Education Development (GED) program, the Army's voluntary education effort since 1956. This review led to the development of the Army Continuing Education System, an integrated management system that incorporates time-tested GED programs and other educational programs and services—some new and some reoriented to reflect current Army missions and the needs of today's soldier. An Army-wide system, decentralized to installation and community level and operated according to policies established at Headquarters, Department of the Army, now offers relatively uniform educational opportunities. The Continuing Education System will provide opportunities for individual growth and help the Army attract and retain highly qualified and well-motivated soldiers. The program covers the following areas:

Academic Education: basic education; high school completion; college preparatory; associate degree; bachelor's degree; graduate studies; professional; academic correspondence courses.

Skill Development: languages; occupational training; MOS-oriented training; advanced individual training; diagnostic testing; Army correspondence courses.

Skill Documentation: Army apprenticeship credit; technical certification; credit for experience; proficiency testing.

Services: counseling; academic testing.

An associate degree is offered through what is called the Servicemen's Opportunity College in cooperation with forty-five civilian colleges and universities. The program includes counseling, consistent course offerings, a clear statement of course requirements, and—most important—assurance that credit from other institutions and from nontraditional sources will be accepted. Participating schools agree to accept the credit recommendations of the American Council on Education, limit residence to not more than one fourth of the degree requirements, and grant up to one half of the credits for such nontraditional experience as military training. Originally designed for soldiers in the combat arms, the associate degree program was later made available to all members of the Army. It was offered in the fall of 1977 at major installations in the United States and will expand to overseas areas during 1978.

At the end of fiscal year 1977, the military services had nine months' experience with the new Veterans' Educational Assistance Act. As described in the annual report for 1976, the act took the place of the old GI bill for soldiers entering active duty after 31 December 1976 and requires a contribution by individual soldiers. In the first nine months of calendar year 1977, 15,108 service members enrolled. Refunds of contributions were made to 239 soldiers who claimed hardship and withdrew from the program or were discharged.

Participation in academic and vocational and technical programs remained strong throughout fiscal year 1977.

High School

Course enrollments	214,670
Course completions	152,499
Graduations	26,766

Vocational Technical

Course enrollments	44,824
Course completions	29,677
Graduations	14,434

College (Undergraduate)

Course enrollments	199,622
Course completions	154,525
Associate degrees	2,087
Undergraduate degrees	1,279

College (Graduate)

Course enrollments	32,541
Course completions	25,641
Graduate degrees	1,622

Language Program

Course enrollments	109,312
Course completions	89,545

Health and Medical Affairs

The trend toward outpatient service continued in fiscal year 1977 with a 7.3 percent decrease in bed occupancy for all categories of patients. The strength of the Army, by contrast, increased .6 percent. The primary cause of the lower rate of bed occupancy was a reduction in the average length of stay for all patients from 7.4 to 7.2 days. The average length of stay of active duty Army personnel remained at 9.2 days, while the number of admissions per 1,000 decreased from 178 to 165.

Army expenditures for medical services totaled $1.3 billion in fiscal year 1977, an increase of $78 million over fiscal year 1976. That increase was due to salary increases authorized by Congress, the continued rise in the cost of health services to Army beneficiaries in both Army and civilian facilities, costs associated with the construction of new medical facilities, and the higher cost of research and development. A distribution by appropriation is as follows (fiscal year 1977, in millions of dollars):

Military personnel, Army	506.4
Operations and maintenance, Army	623.4
Research and development, Army	65.1
Military construction, Army	75.2
Other procurement, Army	40.1
Reserve personnel, Army	10.7
Total	1,320.9

During fiscal year 1977 the Army Medical Department converted three hospitals in the United States to health clinics and eliminated their inpatient service as a result of medical officer reductions. The hospitals affected were: Kirk Army Hospital, Aberdeen Proving Ground, Maryland; Hawley Army Hospital, Fort Benjamin Harrison, Indiana; and the U.S. Army Hospital, Fort McPherson, Georgia. Because of force reductions in Japan, the U.S. Army Hospital, Honshu, was also converted to a health clinic.

For many years the Army Medical Department has furnished materiel and training to foreign nations under foreign military sales and military assistance programs. During the past year requests for such help increased, and medical teams assisted Colombia, Jordan, and Nicaragua. Planning is presently under way for medical participation in an advisory team scheduled to go to Portugal during fiscal year 1978.

During fiscal year 1977, the Medical Department provided assistance in the wake of two airplane crashes. After a crash in Bolivia in October 1976, the Army sent a medical team from the U.S. Army Institute for Surgical Research, Fort Sam Houston, Texas, to treat badly burned patients.

Fearing an epidemic, the Army integrated its annual influenza immunization program with the national program for swine flu immunization. Vaccination began on 1 October 1976. On 16 December, however, the national program and its military component were suspended pending an investigation of an apparent relationship between influenza immunization and a paralysis known as Guillain-Barre Syndrome. Conducted by the Center for Disease Control of the Department of Health, Education and Welfare, the investigation showed that the risk of paralysis in vaccinated persons was greater than in the unvaccinated. But because the risk of an influenza epidemic exceeded that of the syndrome, the Army resumed immunization of recruits on 16 February 1977. The program ended late in March, when the danger of an epidemic had passed.

In the course of the program the Army administered vaccine to approximately one million people, including over 800,000 active duty, reserve, and National Guard personnel, the largest total ever achieved.

The Medical Department was active in several other programs relating to health and the environment, including an investigation of troop presence in atmospheric weapons testing to determine if participants should be medically examined; participation in the Nationwide Evaluation of X-Ray Trends, intended to lower radiation exposure; and supervision of radiation control in the cleanup of Eniwetok Atoll. Additionally, the Army started a surveillance program in the western United States to assess the plague threat associated with large rodent populations. At Fort Ord, California, where a significant threat already existed, the Army prepared an evironmental impact statement and used small scale chemical control measures to reduce the risk to the military community.

A new Department of Defense regulation on the Civilian Health and Medical Program, Uniformed Services (CHAMPUS), became effective in the United States on 1 June 1977. The regulation will strengthen CHAMPUS and help beneficiaries understand coverage, eligibility, cost-sharing, and procedures for submitting claims. It also contains an appeal procedure for disputed claims. The regulation prohibits payment for unnecessary medical services and for treatment of service-connected conditions for which the Veterans Administration provides care. Congress again directed in the Defense Appropriations Act for fiscal year 1977 that no CHAMPUS funds could be used to pay for nonemergency civilian inpatient care if the service was available in a uniformed services hospital within forty miles of the patient's residence.

At the beginning of fiscal year 1977 the actual and authorized strengths of the Army Nurse Corps were 3,510 and 3,608, respectively. The authorized strength remained unchanged at year-end, but the actual strength on 30 September 1977 was 3,559, excluding 2,328 civilian registered nurses. Seventy-nine percent of the officers were in company grades, with the remainder in field grades. The number of Regular Army nurses rose to 1,023. As of 30 September 1977, twenty-five percent of the Nurse Corps was male, a ratio unchanged from the previous year.

Direct recruiting of Army Nurse Corps officers for active and reserve components will continue to be a matter of priority during 1978. The increase in authorized active duty strength to 3,660 in fiscal year 1978 will permit greater use of professional nurses as nurse practitioners and clinical nurse specialists, two new titles adopted in August 1977. The importance of active duty recruiting was heightened by the end of the subsidized educational programs that were once major sources of new nurses, the Army Student Nurse Program and the Walter Reed Army Institute of Nursing. The ROTC program offered on some college campuses a relatively new opportunity to recruit nurses.

In early 1976 the authorized strength of nurses in troop program units of the Army Reserve was increased from approximately 1,900 to over 5,100. By September 1977, authorized strength rose again to 5,519. Over 2,000 officers were procured to fill these vacancies. To help fill the other positions, the Army adopted a more liberal interpretation of appointment criteria, permitting the selection of qualified registered nurses who graduate from various types of nursing programs (baccalaureate, diploma school, associate in arts) and meet experience requirements.

To help the services recruit and retain health care professionals, Congress enacted legislation that will provide supplemental pay to Dental Corps officers for another year. The legislation also moved Dental Corps officers toward parity in income with civilian counterparts.

The number of women in the Army's dental care system continued to increase. More women this year were employed as dental auxiliaries, and the number of commissioned women in the Dental Corps rose to thirty-four, as of 31 July 1977. That number will no doubt increase as more and more women graduate from dental school.

Because the destructive capability of modern weaponry must be met by improvements in oral surgery, the U.S. Army Institute of Dental Research made plans to study the effects of ultrahigh velocity weapons in the head and neck region. The institute is also training a number of dental specialists.

Recent surveys using Department of Defense guidelines have indicated that ten Army installations should continue to provide dependent dental care on a space-available basis, and that six other installations should be given authority to do so. If all recommendations are approved, forty Department of the Army installations within the continental United States will provide dependent dental care on a space-available basis.

Members of the Information Systems Office of the Office of The Surgeon General recently completed a study of the Medical Department's automation. Data from The Surgeon General, the U.S. Army Medical Research and Development Command, U.S. Army Health Services Command, U.S. Army Tri-Service Medical Information Systems Agency, and U.S. Army Medical Command, Europe, revealed that three problems impede the efficient use of resources: crossed lines of authority, duplicate assignment of missions and functions, and limited automation support at medical centers and Medical Department activities. Four possible solutions were developed and submitted to The Surgeon General, and a decision should be made early in fiscal year 1978.

Memorial Affairs

Throughout the fiscal year, specialists from the Memorial Affairs Division of The Adjutant General's Office visited survivors of deceased

Army and State Department personnel whose remains were recovered and identified. The visits were to explain recovery and identification procedures fully and to answer questions raised by the next of kin.

This year, the remains of five soldiers from the European Theater of World War II were discovered and identified. Additionally, the Central Identification Laboratory, Hawaii, identified sixteen remains recovered from Southeast Asia. They included men from the Army, Air Force, and Navy. Disposition was in accordance with instructions provided by the next of kin.

Representatives of the Memorial Affairs Division also visited major overseas commands, ports of entry for Army mortuaries, and some installations in the United States to improve operations in the mortuary program. The division gave technical assistance to U.S. Army, Japan, and the Air Force to help smooth the transfer of mortuaries in Japan and Okinawa from the Army to the Air Force. The transfer was effective on 1 April 1977. Eighth U.S. Army, in turn, established a mortuary in Korea in support of all services.

In casualty reporting, The Adjutant General Center handled 1,102 active duty cases, 5,327 retiree cases, and 1,161 seriously ill and very seriously ill cases in overseas commands. The center also processed 699,756 records of emergency data.

As part of its support for Bicentennial events in the Washington area, the Army made available forty acres of South Post, Fort Myer, for a parking lot. Now back under Army control, the land will be used to expand the capacity of Arlington National Cemetery. In the meantime, the cemetery's southeast boundary wall and landscaping of a forty-acre tract were finished, and ninety-five percent of the first phase of repairing cemetery roads was completed. A modification to the eligibility criteria for interment in Arlington National Cemetery was approved by the Secretary of Defense and became effective 15 April 1977. Interment, which had been limited primarily to active duty and retired members of the armed forces and Medal of Honor recipients, was expanded to include veterans with a thirty percent or greater disability who were discharged from the armed forces prior to 1 October 1949, and veterans who were awarded either the Distinguished Service Cross, Distinguished Service Medal, Silver Star, or Purple Heart.

During the last fiscal year the status of personnel reported as prisoners of war or missing in Southeast Asia changed as follows:

	30 Sep 76	30 Sep 77
Prisoners of War	12	10
Missing in Action	161	141
Missing	56	55
Totals	229	206

The House of Representatives Select Committee on Prisoners of War and Missing in Action rendered its final report on 15 December 1976,

concluding that no Americans involved in the Indochina conflict were being held as prisoners. The committee's conclusion was supported by the findings of a five-member presidential commission that visited Southeast Asia in March 1977 to help account for missing Americans. In its investigation, the commission found no evidence of remaining prisoners.

As a result of these findings, the Department of Defense lifted the moritorium it had imposed on unsolicited service reviews of the status of missing persons. On 24 August 1977, the services resumed their consideration of individual cases, which may lead to a presumptive finding of death.

10. Research, Development, and Acquisition

For the fiscal year 1977 budget request for research, development, testing, and evaluation (RDTE), the Army cited the buildup in the conventional forces of the Warsaw Pact countries and their improved weapons. The Army's equipment urgently needed modernization to meet the threat posed by the Soviet bloc. The need to reevaluate wartime replacement factors, to fill existing requirements, and to improve sustaining ability was also recognized. The budget therefore represented the first step in a series of moves designed to make U.S. conventional ground forces second to none in equipment.

Budget and Management

The initially approved RDTE program for fiscal year 1977 was based on the President's budget, and the Director of Defense Research and Engineering stated that funding for a number of key activities would not be reduced without prior approval of his office. These were the total amount budgeted for the technology base, and programs involving an advanced VTOL (vertical take off and landing) aircraft, the Pershing II missile, high energy lasers, target missiles, the NAVSTAR global positioning system, communications, and studies on the vulnerability/survivability of Army forces. Major deferrals were in the Chaparral/Vulcan surface-to-surface rocket, BMD (ballistic missile defense) advanced technology, VRFWS-Bushmaster (vertical rapid fire weapon system), Tank System XM-1, and the Standoff Target Acquisition System.

In September 1976 Congress reduced the Army's request for $2,386.2 million in RDTE funds to $2,290.7 million—an appropriation of $2,280.8 million and $9.9 million to be collected from RDTE surcharges on foreign military sales. Major items affected by the congressional action were an aerial scout, BMD technology, high energy laser, the advanced VTOL, an advanced multipurpose missile, a mechanized utility vehicle, command and control, and the Kwajalein Missile Range.

The RDTE request for fiscal year 1978 of $2,740 million was submitted to the Army's Budget Review Committee in September 1976. The committee's decisions were incorporated in the RDTE budget submission of $2.902 million to the Department of Defense, and the budget presented to Congress in January 1977 incorporated the decisions made during a review by the Office of Management and Budget and the Department of Defense. The total requested for RDTE was

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$2,616 million. An amended budget was submitted in February 1977 to accommodate changes directed by President Carter, a decrease of $100 million for the Advanced Attack Helicopter and an increase of $6.4 million for the Mechanized Combat Vehicle were directed. The fiscal year 1978 appropriation, passed in September 1977, provided $2,418 million for Army RDTE programs.

The RDTE request for $2,677 million for fiscal year 1979 was submitted to the Army's Budget Review Committee in August 1977. The committee's decisions were incorporated into the Army's budget submission of $2,776 million to Defense in September 1977. The final RDTE appropriation request for fiscal year 1979 was $2,721 million.

The total RDTE budget for a given fiscal year is reduced by the estimated RDTE surcharges on foreign military sales. Projected collections for fiscal year 1977 were $9.9 million (congressional offset). Foreign surcharges collected above the congressional estimate ($13.5 million) were distributed to various research and development projects. A major policy change, pertaining to recoupment of nonrecurring RDTE and production costs, occurred in January 1977. The thresholds for recoupment were reduced to $5 million RDTE costs and/or $5 million nonrecurring production costs.

The Army continued to use Total Risk Assessing Cost Estimates (TRACE) techniques in estimating cost for all major materiel developments, new and current. During the review of the 1979 budget, fourteen systems were identified as having TRACE deferrals in fiscal years 1978 and 1979.

Congress appropriated $14.7 million for construction of RDTE facilities in fiscal year 1977. Major projects included were an electromagnetic pulse simulator for the Harry Diamond Laboratories ($2.1 million), a camouflage laboratory at Fort Belvoir ($3.3 million), and a range operations center for the Yuma Proving Ground ($6.9 million).

The Standard Army Research, Development and Acquisition System was started in April 1976 to support the planning, programming and budget cycle and to improve reports for external distribution. Of twenty-five RDTE milestone tasks, six had been completed in 1976 and two more were finished in the first half of 1977. Those two were Phase I, RDTE Tailored Management Information System package, and Phase II, Crosswalks, Procurement Data on RDTE Worksheet. Additional effort was also directed to RDTE Worksheet Enhancements.

Science and Technology

The Army Science and Technology Objective Guide, first published in May 1976, was distributed to appropriate agencies in April 1977. The guide established a user-determined priority list of requirements for Army materiel, equipment, and systems. Most of the requests for

items came from Training and Doctrine Command in coordination with the Requirements Directorate, Office of the Deputy Chief of Staff for Operations and Plans. The guide is used as the primary requirements document for research and exploratory development by the Materiel Development and Readiness Command. In addition, copies were furnished to industry to encourage Army-oriented research by private corporations and advertise specific Army needs. Over ninety percent of the science and technology efforts reported during 1977 were concerned with identified requirements.

The Research, Development, and Acquisition Committee conducted a fiscal year 1979 budget review in August 1977 to settle issues in research and exploratory development programs. Funds were allocated in accordance with user needs as stated in the Science and Technology Objective Guide, and the solution of major Army problems was emphasized.

The Army Scientific Advisory Panel held three general meetings during fiscal year 1977, and the panel's ad hoc groups worked on command and control systems, electronic warfare and intelligence, training technology, remotely piloted vehicles, military operations in built-up areas, optical countermeasures, systems engineering, and nuclear protection for the soldier. Plans were made to transfer the panel from the Office of the Deputy Chief of Staff for Research, Development and Acquisition to the Office of the Assistant Secretary of the Army (Research, Development and Acquisition).

The Army's Advanced Concepts Team, established in May 1975, is a group of scientists and engineers from Army research and development organizations who evaluate new technological concepts or new uses of current technology. Eleven projects totaling $4.54 million were completed during. the fiscal year. These projects included optical fiber communication links, countermeasures for target-seeking projectiles and missiles, band width compression for voice channels, direct electronic Fourier transforming of images, and laser-beam-rider antitank missiles.

All Army research and development programs are governed by what is known as life-cycle management. In the conceptual phase, combat development agencies examine projections and plans to determine potential materiel systems of value to the Army. These agencies also identify technical, operational, and logistical support problems to be resolved in subsequent phases. The second or validation phase consists of verifying preliminary design and engineering, planning, analyzing trade-offs, resolving logistical problems identified during the conceptual phase, preparing a formal requirement document, and validating the concept for full-scale development. Actions taken in the validation phase are known as development testing I and operational testing I. In the third or full-scale development phase, the system, including support items, is fully

developed, engineered, and fabricated, and a production decision is made. Actions taken in the full-scale development phase are known as development testing II and operational testing II. Concurrently, procedures for fielding an integrated system are developed. In the fourth phase, production and deployment, units are trained, equipment is procured and distributed, and logistical support is provided. Actions taken in the production and deployment phase are known as development or operational testing III, production testing, and follow-on evaluation.

Two joint Army/NASA research aircraft projects continued during the year. Under the first project, Bell Helicopter was developing two XV–15 tilt rotor aircraft. The first XV–15 was extensively ground tested on a tie-down test facility, and its first test flight took place on 3 May 1977. Afterward it was flown for three hours at hover and low speeds and is completing tests in preparation for full-scale wind tunnel testing. The second XV–15 is being prepared for limited ground testing prior to flight tests to establish the basic flight characteristics for both helicopter and airplane operations.

The second project provided for the design and construction of two rotor systems research aircraft to serve as "flying wind tunnels" for helicopter research. The research aircraft, with its first set of rotor blades, first flew on 12 October 1976 and has completed its first flight testing phase as a pure helicopter. It is presently being fitted with wings and thrusting engines for testing in high-speed maneuvering flights.

The Advancing Blade Concept Aircraft (XH–59), a coaxial, counterrotating, hingeless rotor aircraft, completed its flight tests in the pure helicopter mode in the spring of 1977, attaining speeds up to 170 knots. In a program just begun, the Army, the Navy, and the National Aeronautics and Space Administration have joined to fund high-speed tests. The test aircraft has been fitted with thrusting engines, lent by the Air Force, and is being prepared for more tests.

Ice engineering research covered a wide range. The Cold Regions Research and Engineering Laboratory used both basic and applied research to study one of the most critical problems faced by helicopters, rotor blade icing. The laboratory developed a device for studying ice formation on rotating blades and for testing anti-icing materials, and a first-generating computer program to predict icing rates on rotor blades. In the applied area, the laboratory was developing a standardized ice adhesive strength test, conducting large-scale field tests under natural icing conditions, and developing a numerical model for predicting icing rates.

During the winter of 1977–78, one of the major links in the Great Lakes waterway, the Poe Locks, will be usable all winter without inefficient and sometimes hazardous hand and mechanical ice removal. Credited to the joint efforts of Army, private university, and private

industry research, and considered a breakthrough in technology, a coating material was developed based on a block copolymer that either lets ice fall off naturally or makes it easy to remove.

The U.S. Air Force Distant Early Warning Line Station DYE–3 was built on the Greenland ice cap in 1959–60 on extendable columns to keep it above the ever-rising snow surface. The supporting substructure of the 3,300-ton building had become distorted and highly stressed because of ice cap strains, differential footing settlement, and footing tilt. The Cold Regions Research and Engineering Laboratory conceived the idea of moving the building sideways onto a new undistorted foundation. After years of study by the laboratory the Air Force approved the move, and in September 1977 DYE–3 was shifted sideways 210 feet onto a new foundation without incident. The move took four days.

In bulk explosives research, two cratering tests to determine the relative effect of blasting agent DBA–105P and TNT were completed. DBA–105P performed one and a half times as well as the same amount of TNT at the optional burial depth for TNT. Somewhat deeper burial produced the best cratering performance for DBA–105P. Major field tests continued using explosives to excavate hull-down positions for tanks. Data from those tests was also used in the antitank ditching phase of the Military Engineering Applications of Commercial Explosives program. Three technological reports were published between December 1976 and July 1977. They were: Antitank Ditching with Explosives; An Experiment in the Field Mixing of Bulk Explosives; and Explosive Ditching with TNT.

A procedure for repairing airfield runways using truck-mounted concrete mixers and regulated-set cement was perfected in late 1976. The technique was demonstrated in April 1977 on a fifty-foot crater in two hours and fifteen minutes. To analyze the load-bearing capacity of the repairs, the Waterways Experiment Station at Vicksburg, Mississippi, constructed a test pad and subjected four different repairs to traffic testing. The analysis has not been completed.

Work continued on development of the Remote Ceiling and Visibility Sensor, a low-cost, portable device to support low-flying aircraft and artillery operations. During the year equipment to measure cloud height and short-range visibility was developed by adapting the AN/CVS–5 laser rangefinder. The modified AN/GVS–5 has been named the AN/GMQXX Visioceilometer. A mobile ceiling and visibility evaluation system has been built for use in testing the AN/GMQXX in the field.

The first model of the Cathode Ray Tube Plotting Head was completed in September 1977 for the Defense Mapping Agency. The plotting head will allow much more rapid plotting of cartographic color separations from digital data. Development of software to permit production centers of the Defense Mapping Agency to use their existing data and

extension of the hardware to meet specific center needs has begun. An experimental Electron Beam Recorder, the first of its type designed specifically for rapid, efficient plotting of digital map data, was delivered to the Army Engineering Topographic Laboratories.

Ballistic Missile Defense

In ballistic missile defense (BMD), the Safeguard System was discontinued, and to meet the desires of Congress the Perimeter Acquisition Radar mission was changed to provide attack data to the North American Air Defense Command. Research and development was broadened to hedge against future uncertainties and avoid technological surprise. The Anti-Ballistic Missile Treaty was thoroughly reviewed in preparation for the bilateral review of the treaty with the Soviet Union in fiscal year 1978.

The Ballistic Missile Defense Systems Command in Huntsville, Alabama, and the Ballistic Missile Defense Program Office in Washington, D.C., were reorganized. Management of the program was shifted to Huntsville, and the strength of the Washington office was substantially reduced. Funding for fiscal year 1977 was as follows: advanced technology—$102.7 million; systems technology—$100.0 million; Kwajalein Missile Range—$82.9 million; and the Safeguard Perimeter Acquisition Radar—$28.0 million.

Advanced automatic techniques for design, verification, and validation of large, complex BMD software processes were developed. These techniques may significantly reduce costs and manpower. The first tests of a BMD optical sensor in a nuclear radiation environment indicated that newly developed hardening techniques can overcome the adverse effects of nuclear radiation on sensitive optical detectors. A high quality beam source suitable for injection into a linear accelerator was designed, built, and tested. A small (fifteen-pound class) hit-to-kill interceptor underwent a ground captive test.

On 2 December 1976, two weeks ahead of schedule, a small advanced phased array radar installed at the Kwajalein Missile Range emitted its first signal. Capable of generating a variety of wave forms, it is used with a commercial (CDC 7700) data processor and target tracking software to test BMD concepts and to evaluate technology for integrating subsystems and components into a missile defense system.

Throughout the year the Kwajalein Missile Range pioneered improvements in optical tracking of incoming vehicles with a digital-video camera system and a large optical telescope. The data is processed electronically and recorded on video tape, a method that permits instant replay and analysis by computer instead of the frame-by-frame analysis of the previously used film system. This Super RADOT (Recording Automatic Digital Optic Tracker) has increased the range at which

reentry vehicles can be tracked and data recorded from the 50 nautical mile slant range of the old system to 500 nautical miles.

Development

In spite of some budget cutbacks during the past fiscal year, RDTE of systems generally made steady progress. The Army Systems Acquisition Review Council approved a proposed accelerated production plan for the Patriot air defense missile on 17 February 1977. The plan would advance operational capability by two years, provide for earlier deployment, and avoid $125 million of inflationary growth in cost. The Army Vice Chief of Staff then instructed the Patriot project manager to assess the options of Patriot/Improved Hawk interoperability during the planned concurrent deployment. Conclusions in late April were that no changes be made in Patriot accelerated procurement, a Patriot/Improved Hawk technical interface be developed, a study be made of the cost effectiveness of the Patriot/Improved Hawk codeployment concept, and the high-to-medium-altitude air defense structure be reviewed annually. During the fall of 1976 activities at the White Sands Missile Range centered around the integration testing of Patriot Firing Platoon No. 1 in preparation for the next phase of flight testing. By May 1977 Phase II flight tests, including a combined Patriot/Improved Hawk flight test, were succesfully completed in a countermeasure environment. The integration and checkout of tactical prototype Firing Platoon No. 2 were completed at Bedford, Massachusetts, in June 1977, and the platoon then made a five-day cross country road trip to White Sands Missile Range for preparation of Phase III of the live fire tests.

In December 1976 the Department of Defense approved the continuation of the Roland missile system technology transfer, fabrication, and test period with a ceiling of $265 million. Progress in making four prototypes was satisfactory; all schedules were met. Four fire-unit modules were in various stages of completion in the fall of 1977 and one module had been mated to and integrated with the M109 tracked vehicle chassis. The first U.S. built Roland missiles were completed, and four were shipped to Europe to be test fired by the European Roland II fire unit.

Engineering development of the 155-mm. guided projectile, known as Copperhead, continued. The projectile is guided by laser and is fired from M109A1 and M198 howitzers. In February 1977 the Department of Defense directed the Army to assume responsibility for the development of all Army and Navy semiactive laser guided nonrocket projectiles. The Army was to prepare a plan for the 5-inch and 8-inch Navy projectiles that would make maximum use of the 155-mm. projectile parts and achieve the earliest possible initial operational capability.

The thermal night sight for the TOW antitank missile system was

developed and the initial procurement contract let. Increased protection for TOW gunners in mechanized units was provided by a protective blanket of nylon fabric which will stop shell fragments.

Full-scale engineering of the Viper began in 1976, and it is expected to be in production in 1980. The Viper is a man-portable antitank weapon weighing between six and seven pounds. It promises significant improvement over its predecessor, the light antitank weapon (LAW), in accuracy, range, and penetration.

The Improved TOW Vehicle (ITV) program, formerly known as the M113 Light Armored Antitank System, modifies M113 vehicles to carry the TOW missile. Armor protection from bullets and fragments is provided for the missile, launcher, optics, guidance components, and crew. During October and November 1976 the development and operational test Phase I was completed. The ITV was classified for limited production in December, and the Emerson Electric Company was awarded an initial production contract. During March and April 1977 a design review team from the Tank-Automotive Research and Development Command assessed the engineering adequacy of Emerson's approach. Based on the command's recommendations, long lead-time tooling was allowed. From mid-March through May 1977, the contractor ran extended durability testing on the terrain simulator in the command's laboratories. The tests provided data in half the time and at less expense than cross-country testing. The first production vehicles were delivered in July 1977 to Yakima, Washington, for operational testing III and to the White Sands Missile Range, New Mexico, for development testing. During the same month the ITV project manager was assigned the added mission of developing the fire-integration-support-team vehicle.

Development of the thermal night sight for the Dragon antitank guided missile continued and ended in a decision for limited procurement. The final engineering design of the launch simulator, an improved training device, was approved. The viscous damped mount, which provides a stable firing platform from the M113 personnel carrier, was completing engineering development.

Adaptation of the Stinger IFF device (identification, friend or foe) to the Chaparral was completed, and after successful testing production was recommended. The smokeless motor program continued on schedule and within cost estimates. The prime contract was awarded for a demonstration of an adverse weather version of Chaparral as directed by Congress, and the fabrication of demonstration hardware started. The first deliveries of improved Chaparral missiles began in the summer of 1977.

The Improved Hawk missile system made progress in all phases of the program's life cycle last year. An active product improvement program continued, production of ground support equipment and missiles was maintained, and additional Improved Hawk batteries deployed. Sev-

eral improvements successfully completed all development tests, and the engineering change proposals were approved. Another improvement is scheduled for extensive testing in a tactical environment to confirm its military utility, and three others were under development with procurement funds authorized.

Work on an improved conventional submunition (detonator) continued. Design, development tests, and analysis of tungsten fragmentation material, incendiary devices, and pattern modification features capable of being incorporated into the current submunition were carried on.

Pershing II successfully completed captive test flights. Advanced software for Pershing II scene simulation/correlation operations on the Digital Image Analysis System was developed and delivered. The software is critical in accomplishing scene variation-correlation tasks which, during an actual mission, would allow the missile to be guided to its target along various routes. Efforts are currently under way to develop and demonstrate digital correlation and image processing modules.

Operational and development tests for the basic Stinger missile system were successfully completed in October 1976 and April 1977, respectively. A development contract for the Passive Optical Seeker was signed in June 1977. It is intended to phase the seeker into the Stinger production upon completion of its development program.

During the period progress continued in the development of high energy laser technology. The mobile test unit program was completed, and the fabrication and testing of a number of experimental devices continued. The Training and Doctrine Command and the Materiel Development and Readiness Command worked on an agreement emphasizing investigation of many possible Army uses for high energy lasers. A significant Army-Navy test program in repetitively pulsed laser damage effects was conducted, and another joint program was started to find ways of keeping a laser beam on target.

After the suspension of the initial field test of the Tactical Operations System because of software problems, the software was corrected, and the integration of software and hardware was completed in July–September 1976. A second field test was conducted successfully at Fort Hood, Texas, from April to July 1977.

Low-rate production of the Tactical Fire Direction System continued during the year. The first systems were delivered in October 1976, and various tests were completed from November 1976 to July 1977.

Four highly successful field tests of the Stand-off Target Acquisition System have been concluded over the past two years. Based upon these successes the system was returned to U.S. Army, Europe, to participate in Reforger 77, the annual field test.

The Army's Firefinder system consists of the AN/TPQ–36 Mortar Locating Radar and the AN/TPQ–37 Artillery Locating Radar. The

AN/TPQ–36 successfully completed tests in July 1977. In a subsequent demonstration with the Tactical Fire Direction System, the time from firing an 81-mm. mortar until counterfire by a 155-mm. howitzer was less than one minute, a significant improvement in response time. Limited procurement was approved for the AN/TPQ–37 in October 1976, and an initial production contract was awarded in December of that year.

The TOW night sight (AN/TAS–4) and the long range night sight (AN/TAS–6) were classified standard in July, and the Dragon (AN/TAS–5) night tracker was classified for limited procurement in August 1977. These are the first of a number of man-portable systems that will use the same infrared modules to reduce development and production costs. The Tank Infrared Elbow was successfully demonstrated at various installations, but funds for its development were cut, primarily because of lack of user interest. Third generation image intensification tubes with high sensitivity were produced. The tubes may be used either with a microchannel plate in goggles for helicopter pilots or without a microchannel plate on low cost night vision aides. A letter of agreement was approved for the Air Defense Night Vision System. A closed cycle cooler was developed for night sights of man-portable weapons, and prototypes of an instrument reading night vision system for the Cobra-TOW was obtained. Both items will have common infrared modules. The requirements for the Hand Held Thermal Viewer were questioned and are being examined by the Training and Doctrine Command.

The Army Remotely Piloted Vehicle (RPV), a small aircraft of less than two hundred pounds, will be used for target identification, laser designation, artillery adjustment, and battlefield reconnaissance. The RPV has been conceived as having a twelve-foot wing span, a six-foot fuselage, a gross weight of 144 pounds, a twelve-horsepower engine, speeds between 45 and 100 knots, and flight time of at least one and a half hours. The major activity has been the Aquila demonstrator, and extensive tests were carried out during the year. Other services are interested, and quarterly meetings of a Joint Technical Coordinating Group prevent unwarranted duplication and encourages interservice cooperation.

As reported last year, a special task force on the Mechanized Infantry Combat Vehicle (MICV) recommended a two-man command and control turret. The task force also recommended that the MICV be developed for both infantry and scout roles. In order not to delay delivery, production with a one-man turret was approved for two years. But the one-man turret MICV was eliminated from 1978 fiscal year production by a budget decision in January 1977, and only twenty-seven of the vehicles were authorized for fiscal year 1979. Since such a small production run would not be cost effective, the MICV program was ended in March 1977. The resources of the program were applied to the develop-

ment of new infantry and cavalry fighting vehicles, and the MICV Systems Office was redesignated the Fighting Vehicles Systems Office on 30 July 1977. The MICV was renamed the Infantry Fighting Vehicle or XM2 and the MICV/Scout renamed the Cavalry Fighting Vehicle or XM3.

A full-scale engineering development contract for Phase II of the Advanced Attack Helicopter was awarded to Hughes Helicopter in December 1976. The contract includes construction of three additional flying protoypes, modification of the existing aircraft, and development and integration of the fire control and other subsystems. Competitive contracts for the development of the Target Acquisition Designation System and the Pilot Night Vision system were awarded in March 1977. In addition to the Hellfire missile being developed by the Army, the Advanced Attack Helicopter includes an XM230 30-mm. chain-gun, also developed by Hughes, as the secondary armament.

Following four years of development, contractor flight testing, and government flight evaluation, the Sikorsky Aircraft Division of United Technologies was awarded an $83.4 million contract in December 1976 to start production of the UH–60A. In addition, a $38.3 million contract was awarded to General Electric for the helicopter's T–700 engine. Sikorsky was also awarded a $61.2 million contract for maturity phase research and development for fiscal years 1977 through 1979. The helicopter was officially renamed Black Hawk on 6 September 1977.

The program to change 290 AH–1G Cobras to Cobra/TOW's was completed. The procurement program for 297 new AH–1S Cobra/TOW aircraft is on schedule; first deliveries started in March 1977. Twenty-six new airframes were delivered by the end of September 1977. Production validation testing was completed in August 1977. Development of the improved main rotor blade was completed, and a production contract for 215 blades was awarded in May 1977 with deliveries to begin in February 1978. The development and integration of the "universal" turret, capable of housing a 20-mm. or 30-mm. gun, and of the wing stores management system are continuing. A production contract for those items was awarded in July 1977 for incorporation into the new AH/1S production line beginning in September 1978. The development contract for a gun and rocket fire control system was awarded in July 1977 with production scheduled for November 1979.

A contract for the full-scale engineering development of the Hellfire Modular Missile System was awarded to the Rockwell International Corporation on 8 October 1976. The design of that weapon system for the Advanced Attack Helicopter was in full swing at the end of September 1977. During the year project production cost risks began to emerge in the triservice laser seeker program. In response the Army sought and received approval from the Department of Defense to develop a low-cost

alternate laser seeker to reduce the risk through competition and a contract was awarded to Martin Marietta in September 1977.

The Army's medium-caliber divisional air defense gun will be able to move with and provide close-in air defense for armor and mechanized forces. A cost and operational effectiveness analysis started in May and was completed in September. Proposed gun systems from five contractors were compared, and two will be selected for competitive prototype development in late 1977. The program is directed by the Project Manager, Army Gun Air Defense System, under the Army Armament Research and Development Command.

The General Support Rocket System is a multiple rocket launcher that carries twelve rockets on a fully tracked vehicle. The system will use the "wooden round" concept; the rocket will remain sealed in the factory container until it is fired. It will require a very small crew and is capable of extremely rapid reaction. The system is in the early stages of development. Prime development contracts with a total value of approximately $64.5 million were signed in September 1977.

The lightweight company mortar was classified as standard equipment in July 1977 as the M224 60-mm. mortar. The new multioption fuze was classified as the M734 fuze. The Army approved the formal developmental in-process review, and production of the M224 mortar was expected to begin in fiscal year 1977.

In late summer and early fall of 1977 the testing of full-scale engineering development model tank thermal sights went forward at a rapid pace. The first sights were delivered by Texas Instruments in March 1977. After laboratory performance and qualification tests, the sights were installed in tanks at Fort Knox, Kentucky, and at the Yuma Proving Grounds, Arizona, and field tests were carried out.

The Army announced in November 1976 that Chrysler had won the competition to produce the XM1 tank and that a 36-month full-scale engineering development contract for $196.4 million was being awarded. During that period, eleven pilot XM1 tanks with associated hardware will be produced and tested. Subsequent to this decision the Federal Republic of Germany's Leopard II tank was evaluated at Aberdeen, Maryland. It was determined that the XM1 best satisfied the Army's requirement for a new tank.

The developmental eight-inch self-propelled howitzer M110A1 with recoil brake was named the M110A1E1. Development of the brake, zone 9 of the M188 propelling charge, and the XM650 rocket assisted projectile continued on schedule. The objective is to extend the range as much as possible. When classified, this arrangement of parts will be the M110A2. All M110A1 cannon are threaded to accept the recoil brake, which is needed with the more powerful charge. A concept study was provided in March 1977 by Pacific Car and Foundry Company

on the possibility of adding more crew armor to the eight-inch self-propelled howitzers. A product improvement program was established and placed in the budget for that purpose.

Operational Test IIa of the XM204 light towed 105-mm. howitzer was conducted at Ft. Campbell, Kentucky, starting in February 1977 and ending with a desert phase at Yuma, Arizona, in September 1977. The XM204 appeared to measure up to expectations. After a review of the budget in February 1977 due to curtailment of new starts, higher priority programs, and doubts within the Army about the need to keep the 105-mm. caliber round, the XM204 procurement program was withdrawn from the President's budget. A development acceptance in-process review is scheduled for February 1978.

In September 1976 the Office of the Deputy Chief of Staff for Operations and Plans began to study a light direct support weapon for nonmechanized divisions. The first study advisory group met in December 1976 and decided that the Army Materiel Systems Analysis Agency would conduct an eighteen-month study of its effectiveness. A general officer conference in May 1977, however, decided that Fort Sill would take over the study and draft a broad letter of agreement to begin concept design work.

The M198 medium towed 155-mm. howitzer was classified as standard in December 1976. Construction of the initial nineteen weapons started at Watervliet and Rock Island Arsenals. Hardware problems encountered during development and operational testing II were solved, and the vulnerability of the M198 has been reduced through the use of shields and redesign of the equilibrators. The cold-weather and tropic test portions of development testing II were completed.

A number of programs continued to reduce the acquisition and operating costs for power plants and drive trains. The Army entered into contracts with Allison Division, General Motors, and AVCO Lycoming Division for a four-year program to develop 800 shaft horsepower, advanced technology demonstrator engines. That program uses previous Army component research to provide a much more fuel-efficient and durable engine at a reasonable cost. And three active programs were under way to build and evaluate critical transmission components.

In airdrop equipment, the anti-inversion net modification program for the main personnel parachutes (TIO and MC1–1) was completed. All field stocks of the main personnel parachutes made in 1965 and later were modified. Subsequent jump statistics show that only one malfunction of any type has occurred with net-equipped main parachutes in more than 90,000 jumps. All new parachutes are made with this net. Limited quantities of the Dragon missile jump pack prototype have been delivered to the field, and a program started to develop jump packs for the Redeye and Stinger. Certification was completed of an additional twenty equip-

ment loads and thirty-nine ammunition loads for delivery by low-altitude parachute drops in situations that preclude airlanding or other airdrop techniques.

Development, improvement, and procurement of equipment to increase an aircraft's chance of surviving a hostile air defense continued. During the year production contracts were awarded for the following: the hot metal plus plume suppressor for the OH–58C helicopter, the M–130 General Purpose Dispenser (Chaff/Flare) for CH–47 and OH–58, and additional AN/APR–39(V)1 radar warning receivers. The AN/APR–44 Continuous Wave Radar Warning Receiver completed advance development; the AN/ALQ–144 Infrared Jammer for helicopters completed development test/operational test II; its counterpart for fixed-wing aircraft, the AN/ALQ–147 "Hot Brick," was field-tested, and the AN/ALR–46 Radar Warning Receiver for fixed-wing aircraft continued to be field tested. A major effort was made throughout the year to coordinate triservice aircraft survivability efforts to avoid duplication and to ensure the greatest standardization of systems.

After a successful competitive development program, the AN/ASN–128 Doppler navigation subsystem entered production. The AN/ASN–128 will provide Army helicopters with a self-contained tactical navigation ability and will first be installed in the Black Hawk and the AH–1S. Competitive, design-to-cost engineering development contracts were awarded for the Integrated Avionics Control System, which will provide integrated control of up to ten avionics devices, with a saving of cockpit space and reduction in crew work load.

Flight simulation made a major advance last year when the testing of the CH–47 Flight Simulator was completed. The first Army visual simulator uses a closed-circuit television camera that moves across a three-dimensional terrain model in response to the pilot's direction, enabling him to perform various flight maneuvers, emergency procedures, and instrument flight at less cost and in complete safety.

International Research and Development

The United States, Great Britain, Germany, and Italy were close to ratifying a memorandum of understanding to ensure interchangeability of 155-mm. ammunition developed in the future. The United States continued to participate in the NATO test and evaluation program to select a second standard rifle cartridge and possibly a rifle for post-1980. The United States provided two Army officers as permanent members of the international test control commission and entered the M16A1 rifle and two improved 5.56-mm. cartridges as standardization candidates.

In accordance with 1976 agreements with Germany and Great Britain, the United States in December set up limited firing trials of the

German and British 120-mm. tank guns and the U.S. 105-mm. gun using improved ammunition. As a result of these trials, the United States, Great Britain, and Germany agreed to conduct additional tests and evaluations before a decision would be made.

Both the Australians and the Canadians are interested in the XM204 light towed 105-mm. howitzer. Both received prototypes for testing, Australia for a tropic test and Canada for cold-weather tests. The tests were completed, and reports were pending. Both countries liked the weapon and could produce it, if needed. The Italian armament company, Oto Melara, was interested in producing the weapon for third country sales and was referred to the State Department.

The United States and Germany studied the role of Patriot in NATO. With Belgium, Denmark, France, the Netherlands, and the United Kingdom, they also took part in a NATO study on future surface-to-air missiles. In addition, two NATO project groups were set up in early 1977 to consider Patriot as a replacement for Nike Hercules and Improved Hawk.

Technological information was exchanged between the United States, Germany, and France in order to establish a U.S. production base for the Roland short-range air defense system. Joint testing was scheduled to begin in January 1978.

Requests for bids on advanced development of the single-channel ground and airborne radio system were released to industry in January 1977. American, British, and Canadian firms are bidding for three development contracts. The Federal Republic of Germany and the Netherlands were considering submitting their own candidates for comparative tests.

A cost and technical evaluation board met in January 1977 and conducted a comprehensive evaluation of subsystems for the XM1 and the German Leopard tanks. A formal subsystem standardization plan was prepared and sent to the Germans.

In March 1977 the Secretary of Defense directed the Army to study acquisition of European equipment. The Army was to consider and assess the short- and long-term effects of such acquisition and the risks and benefits of standardization and interoperability. Completed in May, the study examined 112 foreign systems and a selected few U.S. high technology systems of interest to NATO allies, and provided specific recommendations for changes in organization and management to further standardization and interoperability within NATO.

The Vice Chief of Staff was designated as responsible for international rationalization and formation of the Department of the Army International Rationalization Office. An analysis was made on ways to improve Army participation in the American, Canadian, British, and Australian program.

Materiel Acquisition

A general-officer steering committee, with representatives from DCSRDA, DCSOPS, DARCOM, and TRADOC, adopted a management system that grouped materiel acquisition into eleven categories corresponding to needed capabilities. The system permits aggregation of research and development and procurement. It was used to develop budget recommendations of the Research, Development, and Acquisition Committee.

The system can be matched with the Mission Area Summary management system of the Department of Defense, and briefings were held in the Department of Defense during the fall of 1977. If adopted, the match would provide a common acquisition system which could be expanded to capture the remaining life-cycle costs associated with systems and ultimately all expenditures.

President Ford requested $555.5 million for Army aircraft procurement in his fiscal year 1977 budget message to Congress. Of that amount, $253.7 million was for new aircraft, $178 million for modifications, $64 million for spares and repair parts, and $59.8 million for support equipment and facilities. The Army aircraft procurement request was cut $13.6 million by Congress ($8 million in intelligence-related activities, $1.4 million in EH–1H Helicopter modifications, and a general reduction of $4.2 million).

The President's fiscal year 1977 budget proposed $552.4 million for Army missile procurement. Congress reduced the amount by $55 million, the greatest cut being the deletion of $48 million for the initial production of the Stinger missile.

For weapons and tracked combat vehicles, the President requested $1,147.9 million. That request included $1,084.3 million for tracked combat vehicles and $63.6 million for weapons and other combat vehicles. Congress cut weapons and tracked combat vehicle procurement by $30.3 million.

The fiscal year 1977 ammunition procurement budget was $910.8 million: $655.1 million for ammunition, and $255.7 million for the ammunition production base. Congress reduced the program by $7.9 million of which $1.1 was in the capital investment opportunities program and the remaining an unspecified general reduction.

The Other Procurement, Army, appropriation financed procurement of tactical and support vehicles, communications and electronics equipment, and other support equipment. The budget for fiscal year 1977 was as follows:

Activity	President's Budget	Congressional Approval
	(million dollars)	
Tactical and support vehicles	347.9	333.4
Communications and electronics equipment	642.7	631.0
Other support equipment	427.3	412.8
General reduction	—	−10.6
Total—Other procurement, Army	1,417.9	1,366.6

An analysis of the procurement accounts indicates that $4.431 billion of $5.628 billion in available funds, or 78.7 percent was obligated. This compares with a planned obligation of $4.908 billion, or 87.2 percent. Obligations against prior years totaled $1.062 billion or 45.5 percent against a planned 53.2 percent obligation.

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11. Special Functions

Many Army functions affect the American public, since they involve the Army as a part of the nation rather than purely as a military organization. From the construction and administration of civil works to the conservation of energy, and from environmental protection to the sponsorship of rifle matches, the Army maintains close ties with civilian society. Even disputes that have to be settled by litigation emphasize that the Army is a member of the larger society, subject to the same laws and regulations.

Civil Works

Civil works have been administered by the Corps of Engineers since the early nineteenth century and today encompass the full range of water resources development and maintenance. The scope includes investigations and surveys, planning, construction, flood control, beach erosion control, hydroelectric power generation, water storage, wetlands acquisition and preservation, and recreational development. The corps also has a congressional mandate to assist local agencies in flood plain management studies connected with the development of urban master plans. Environmental considerations have become an integral part of corps plans and ecological impact a crucial factor in decision making.

Civil works appropriations for fiscal year 1977, including supplemental allocations and transfers, totaled over $2.4 billion. The following chart shows the breakdown by type of category:

Civil Works Appropriations For Fiscal Year 1977

(In thousands of dollars)

General investigations	71,920
Construction, general	1,436,745
Operation and maintenance, general	667,600
Flood control, Mississippi River and tributaries	231,497
Flood control and coastal emergencies	22,140
Permanent appropriations	6,026
Special recreation use fees	2,000
General expenses	49,050
Revolving fund	6,600
Total	2,493,578

The predominant category, general construction, included funds for planning and construction projects as follows:

General Construction Project Breakout

Preconstruction planning projects	138
New starts	19
Continuing	85
Completions	34
Construction projects	295
New starts	25
Continuing	229
Special	0
Completions	41

Of nineteen new planning projects started during fiscal year 1977, the largest in federal investment was Cottonwood Creek, California, with an estimated cost of $262 million. That project will provide flood protection along the Sacramento River and add to the municipal and industrial water supply for northern California. The next largest appropriation of $114.1 million was for improvements to the harbor and channels of Baltimore, Maryland. The improvements will enable Baltimore harbor, one of five major seaports on the East Coast, to accommodate larger vessels and thus reduce transportation costs for cargo shipped through the port.

Of twenty-five new construction starts during the year, one of the most unusual was the Charles River Natural Valley Storage Area, Massachusetts, with an estimated cost of $11.1 million. That project provides for federal acquisition and perpetual protection of 8,422 acres of upstream wetlands as natural reservoirs to serve as buffers in periods of high flow and mitigate the consequences of low flows and extended droughts. The largest investment in new construction was the Libby Additional Units and Reregulating Dam in Montana at $193 million. The project provides for installation of four additional hydroelectric generating units and a reregulating dam downstream to control power plant releases and help meet Pacific Northwest electric power needs by the winter of 1983–84.

The Corps of Engineers currently operates sixty-six hydroelectric projects with 301 generating units and an aggregate capacity of 16.4 million kilowatts, about eleven percent of the Federal Power Commission's estimate of the total conventional hydroelectric potential of the forty-eight contiguous states and about three percent of all U.S. generating capacity. Corps hydroelectric plants generate over four percent of the electric utility energy produced in the United States. During 1977, the Corps placed into service 6 new units with a total capacity of 489,000 kilowatts. Seven new projects with 22 units were under construction.

The significant event in the regulatory permit program in 1977 was the move into Phase III of the implementation of Section 404 of the Federal Water Pollution Act. Under the act the Corps of Engineers regulates the discharge of dredged and fill material into "waters of the United States," broadly defined to include navigable waters and their tributaries, interstate streams and lakes, and other waters that could be used for interstate commerce. By the close of the year, 123 general permits were in effect around the country.

The Corps of Engineers is responsible for developing and maintaining the navigation system of the United States, about 25,000 miles of inland and intracoastal waterways, 219 lock and dam complexes, and over 500 commercial and recreational harbors. Commercial vessels using the system include ocean and Great Lakes ships, and towboats and barges on other waterways. In 1976 waterborne commerce reached an estimated 1.8 billion tons. About one-fourth of the nation's ton-miles of intercity

cargo is transported by water. Some sixty percent of U.S. domestic waterborne traffic and forty-five percent of the waterway traffic is petroleum and coal. Under the Water Resources Development Act of 1976 the Corps of Engineers received substantial authorizations for navigation planning, including $5 million for a three-year comprehensive survey of the nation's entire waterway navigation system.

The corps continued its traditional activities in flood control and flood plain management in 1977, responding to over 30,000 requests for flood information and its interpretation. Surveys continued in various parts of the country, some of which would lead to federal participation in flood-plain management plans. Previous corps studies led to modifications in flood behavior estimated to have prevented losses of approximately $1 billion in 1977.

Recreation continued to receive attention as the Corps of Engineers managed over eleven million acres of land and water at various water resource projects. Visitor-day attendance reached an all-time high of 391 million at 436 corps projects operated in cooperation with other federal agencies, state and local governments, and private enterprises; 3,048 developed recreation areas provided nearly 60,000 picnic sites, about 64,000 campsites, over 600 group-use areas, more than 2,800 boat-launching facilities, and over 1,000 miles of hiking trails. The special needs of the young, the aged, and the handicapped were taken into account in the design and rehabilitation of recreation facilities.

The Corps of Engineers continued to develop and conduct training programs in water and related resources development for engineers and researchers from foreign nations. Twenty-seven trainees from Brazil, Egypt, India, Iran, the Philippines, Taiwan, and Yugoslavia participated in corps studies of coastal geography, river regulation for flood control, river canalization, hydraulic problems and hydrological data telemetering systems, and harbor engineering and construction.

Every year the Army provides assistance in connection with storms and floods, and 1977 produced its share of problems. Hurricane Kathleen struck Riverside and Imperial counties in California September 1977, causing extensive damage and flooding. The Salton Sea rose ten inches above normal, and the corps constructed temporary levees near Bombay Beach, California, and prepared damage survey reports.

In early December 1976 the area around Hardwicke, Vermont, experienced unusually cold weather and ice was three to twelve feet thick on the Lamoille River and its tributaries. To prevent flooding the Corps of Engineers removed ice and took other measures to maintain a normal flow of water.

From December 1976 through March 1977, a severe winter caused snow and ice emergencies in New York, Pennsylvania, Ohio, Indiana, and Michigan. Buffalo, New York, was particularly hard hit. The Presi-

dent on 5 February 1977 declared it a major disaster area, and the corps assisted state authorities, using six Engineer Districts to award 800 contracts for removal of ice and snow at a cost of $13.5 million. The 20th Engineer Brigade from Fort Bragg, North Carolina, moved into the stricken area with 320 troops and forty pieces of equipment, and by mid-February the emergency work had been completed.

Severe storms throughout Appalachia in early April 1977 brought extensive flooding; this major disaster area included thirty-eight counties in Kentucky, Virginia, and West Virginia. The corps cleared debris and designed and developed 2,500 mobile home sites in the affected region at a cost of $17 million.

Again in July 1977, heavy rains in western Pennsylvania brought serious flooding, centered upon Johnstown, that caused $400 million in damages. Even further damage was prevented by existing corps reservoirs and channel improvements. The corps removed debris, demolished unsafe structures, and developed sites for mobile homes under the Federal Disaster Assistance Act, at an estimated cost of $10 million.

Environmental Protection and Preservation

The Army spent $142.4 million for its environmental programs during the fiscal year and received congressional approval of a substantial boost, from $6 million to $11 million, in the proposed 1978 operations and maintenance program. But the sums set aside for that purpose were not adequate to cover all the expected requirements of the major commands.

At the functional level, the Army comptroller recognized the Army Environmental Office as the manager for environmental program development. And to foster closer coordination between staff environmentalists and to clarify overall policies, the Environmental Office sponsored a second worldwide conference of program managers at Williamsburg, Virginia, in February 1977. A third meeting was scheduled to convene at Colorado Springs, Colorado, in late February 1978.

One of the more promising programs was the Environmental Quality Technology Program, aimed at avoiding adverse environmental activities and meeting the standards of the National Environmental Protection Act (NEPA). With a budget of $12 million, the program paid for studies on the toxic effects of munitions waste; methods and instruments for measuring, monitoring, and assessing the impact of waste generated by military activities; and systems for controlling or treating pollutants. Pollution control of munitions wastes continued to receive high priority. Of 115 waste compounds, 44 were eliminated as not requiring standards or guidelines. Temporary guidelines were established for 7, and studies on the toxic effects of the remaining 64 continued. Moreover, the Army completed mammalian and aquatic studies on several munitions priming

compounds, evaluated a new method of purifying TNT that would produce fewer pollutants and yield more explosive, and evaluated a foaming agent to remove TNT from wastewaters at Army ammunition plants. It also made progress in developing a cost-effective computer method that would assist in assessing environmental impacts in nine functional Army activities by defining abatement and mitigation procedures. Eventually manuals would be issued to put that method into operation.

Under the provisions of the NEPA, all agencies proposing any major action with a significant effect upon the environment must file a draft environmental impact statement with the Council on Environmental Quality. After public review of the draft statement, submission of a final statement, and a thirty-day wait, the agency could then act. The Army followed this procedure in expanding ammunition and explosive facilities, transporting chemical materiel, changing the missions of installations, and attempting to control ground squirrels at Fort Ord, California.

The ground squirrel population in that area has increased to a point where the rodents pose threats on several counts. They are potential carriers of bubonic plague, cause damage to buildings and facilities, reduce crop production, and compete with other wild life for available food. Since 1971 the Army has not applied effective pest control measures at Fort Ord. Resumption of these measures has been precluded since 1975 by Executive Order 11870, which forbade the use on federal lands of "secondary poisons" which make the tissue poisonous to other creatures. In the meantime, most private landowners adjacent to Fort Ord continued to use pesticide 1080, a secondary poison. Although the Army submitted its environmental impact statements in the winter and spring of 1977, it selected zinc phosphide, a less controversial rodenticide, as the prime agent to fight the squirrel menace in the spring of 1978 when the rodents would be most active and susceptible to control measures.

Since passage of the Clean Air Act in 1970, some progress has been made in reducing air pollution. In accordance with the Environmental Protection Agency's (EPA) guidance in 1975, the Army submitted an inventory of its fixed air pollutant sources in 1976, and 1,058 major (over 100 tons a year of a single pollutant) and 119,094 minor sources were identified. Compliance schedules were worked out between the Army, EPA officials, and state representatives covering eleven installations, and consent agreements were negotiated. Forty-two installations have not yet complied with the regulations, and twenty-nine of these have listed major emission sources as the reason for their failure to comply.

Although the Army has many mobile air pollutant sources, ranging from chain saws to generators, the majority were vehicles of all types. Commercially purchased vehicles presented little problem, since those entering the Army inventory were certified by the manufacturers to be in compliance with EPA vehicle emission standards; some combat vehi-

cles were exempted from those requirements. Some difficulties arose, however, from a multiyear purchase of 37,800 jeeps, and the Army received an exemption through the end of 1978 to accept these trucks built to 1974 standards. The Army was studying various alternatives, such as diesel and stratified charge engines, for future quarter-ton trucks and also planned to secure from commercial sources medium- and heavy-duty engines and trucks that would satisfy EPA emission standards for their year of manufacture.

In the field of water pollution, the National Pollutant Discharge Elimination System was the primary vehicle for controlling point discharges. Under the laws and the permit program governing discharges into the "waters of the United States," by 1 July 1977 all domestic waste water had to have the equivalent of secondary treatment and all industrial waste water had to be treated using the most practicable control technology available. As of that date, the Army required 351 permits and had received 252 final and 14 draft permits, 83 permits had been applied for but not yet issued, and in 2 cases the permit status was unknown. Some 335 Army installations required corrective action, with 199 still in violation of water pollution abatement standards. Of the 199, 49 major installations and 25 reserve centers and recreation areas have no funded corrective actions under way.

The problem of disposing of domestic sewage effluents after treatment has plagued both military and civilian agencies for some years. The rising volume and costs of treatment led the Army to move ahead with studies and projects designed to use and improve land disposal methods. During fiscal year 1977 the Army evaluated the feasibility of land treatment at Fort Hood, Texas; Fort Meade, Maryland; Fort Ord, California; and Fort Polk, Louisiana. Four land treatment systems have been in use for a number of years, using spray irrigation as a means either to dispose of the waste or to conserve water. Those at Fitzsimons Army Hospital in Denver; Fort Huachuca, Arizona; and Fort Hunter Liggett, California, were in use, while the fourth at Fort Carson, Colorado, was not in operation because of the low flow of effluents. A rapid infiltration system of disposal had been used at Fort Devens, Massachusetts, since 1940. All of the treatment systems in operation were monitored for health hazards by the Army Environmental Hygiene Agency.

Insofar as testing treatment of sewage waste waters was concerned, the Army also prepared to test a technique that would allow existing small trickling-filter facilities to reduce nitrogen and phosphorus in the effluent.

The Army worked closely with other federal and state agencies to protect the environment of coastal areas. Although government-owned lands are excluded from state control, the Army must follow state policies to the greatest extent possible. During the fiscal year staff officers visited coastal installations to study existing practices and their relation-

ship with state programs. At the same time, they participated in discussions with federal, state, and local officials on such mutual concerns as shore erosion, dredging and filling, and public access to recreational areas.

Much of the difficulty in securing the whole-hearted cooperation of Army personnel in supporting environmental programs stemmed from lack of education and training. Although environmental education courses had been offered at the Army Logistics Management Center at Fort Lee, Virginia, attendance during the previous fiscal year had been sparse and some scheduled courses were canceled. With greater emphasis from the Secretary of the Army and the Chief of Staff, the record improved in fiscal year 1977. The one-week executive course was revised to cover the total environmental concept, from ecology to the responsibilities of commanders and civilian managers. The course was given ten times, and 360 students graduated. Significantly, three of the sessions were offered on site at different installations.

The two-week environmental management course, dealing with the requirements of the National Environmental Policy Act of 1969, also covered ecology, pollution, recycling of resources, and the preparation of environmental impact documents. The course was designed to give managers a broader vision in managing resources and improving the environment. Ten classes were held and 212 students graduated.

For the first time, a separate course on recovery and recycling was offered for all Defense agencies. Ninety-two military and civilian members of the services graduated.

The Secretary of the Army's Environmental Quality Award is given each year to the post or facility that makes the greatest contribution toward protecting and preserving its environment. Fort Sill, Oklahoma, won the award for calendar year 1976 for recycling solid waste, completing environmental impact statements, pursuing air and water pollution abatement programs, and managing conservation, land management, and natural resources. In addition, Fort Sill became the Army's nominee for the Secretary of Defense's Environmental Quality Award.

The prospects for overall improvement in the Army's environmental activities increased as the report year ended. Citing the importance that the President, the Secretary of the Army, and the Chief of Staff attached to environmental affairs, the Vice Chief of Staff called for greater compliance with existing laws and requirements and adherence to published standards on air and water quality improvements and solid waste management.

The Army Energy Program

The Army's energy conservation goal for fiscal year 1977 was identical with that of the previous year—to use no more energy than was used in fiscal year 1975. The accounting yardstick, however, changed

this year. When the federal government revised its fiscal year, so that it now starts on 1 October rather than 1 July, the Federal Energy Administration had to adjust the standard. As a result, the base against which the Army's conservation efforts are measured increased from 270.9 trillion British thermal units (BTU's) to 273 trillion.

The Army's record compared favorably even with the old standard. In a year that included one of the worst winters on record in the United States, the Army consumed only 258.5 trillion BTU's, achieving savings in all energy sources except purchased electricity and steam. Installations used eighty-four percent of the energy the Army consumed, and the remainder was used by vehicles. Savings are shown in the following table:

Army Energy Consumption

(In trillion BTU's)

Installation Operations	FY 75 (Rev)	FY 77	Percent Saved
Purchased electricity	86.2	87.3	−1.3
Natural gas	44.1	37.7	14.5
Liquefied petroleum gas	2.3	1.9	17.4
Coal	33.9	27.8	18.0
Purchased steam	.7	.7	0
Petroleum heating fuels	62.0	61.0	1.6
Subtotal	229.2	216.4	5.6
Aviation fuels	12.9	12.9	0
Motor gasoline	16.0	15.6	2.5
Diesel fuel	14.9	13.6	8.7
Subtotal	43.8	42.1	3.9
Army total	273.0	258.5	5.3

A study undertaken during the year disclosed that the role of the Army Energy Office should be strengthened and more personnel assigned to that agency, that some regulations need revising, and that the Army Advisory Group on Energy should be composed of general officers. Efforts to act on these findings were under way at the end of the fiscal year. In particular, the advisory group now consists of general officers and the original group will serve as a working subgroup.

In June the Army Energy Office began work on a comprehensive plan to define Army energy goals and objectives to the year 2000. Scheduled for completion in February 1978, the plan is being developed with the help of a private contractor. When it is completed, it should have a major impact on programming, budgeting, operations, and research and development within the Army.

Also in June, the Army completed a two-year analysis of bulk petroleum fuel distribution. The Army staff is presently examining the conclusions reached in that investigation, and if the recommendations are approved they will be phased into Army operations over the next three to five years.

In energy research and development, Army efforts concentrated on conservation, management and control systems, and exploitation of alternate sources of energy. As a first step the Army explored the measurement of energy consumption in buildings. Instrumentation installed at Fort Belvoir, Virginia; Fort Carson, Colorado; and Fort Hood, Texas,

will help generate an energy consumption data base. Additionally, a guidance document was published that will help facility engineers understand various methods of evaluating both automated energy control systems and heat storage systems. New equipment that can use solid waste as fuel and modification of existing boilers and incinerators allows use of alternate energy sources. For motor fuel, the program to replace the transmission of the M113A1 series of vehicles should provide a thirty-eight percent improvement in operations while saving twenty to thirty percent in fuel.

The Army has been actively involved in demonstrating the use of solar energy to heat and cool buildings, generate electrical power, and produce hot water. Some projects have been undertaken unilaterally, while others were funded by the Department of Energy as part of the National Solar Energy Program. Solar demonstration projects that will produce hot water for domestic needs are under way at Fort Bragg, North Carolina; Fort Hood, Texas; Fort Polk, Louisiana; Fort Riley, Kansas; and Fort Stewart, Georgia. Systems that will heat and cool buildings have been designed or are under construction for Army reserve centers in Mississippi, New Mexico, and Texas; a battalion headquarters and a classroom building at Fort Hood; a classroom and a dental clinic at Fort Huachuca, Arizona; a range operation building at Yuma, Arizona; Army-Air Force exchanges in Colorado and New Mexico; and a laboratory at Picatinny Arsenal in New Jersey. The Army will also help the Department of Energy design, build, operate, and evaluate a solar total energy system at Fort Hood. The plant will provide electrical power, space heating and cooling, and hot water for a complex of buildings that includes barracks, mess halls, and headquarters buildings.

Army Litigation

Legal repercussion from the allegations of cheating at the U.S. Military Academy continued to be felt during the last year. Several cases where administrative remedies had been exhausted were heard on the merits in various federal courts. In *Williamson* v. *U.S.*, the U.S. District Court for the District of Rhode Island granted summary judgment for the government, upholding the use of internal review panels to investigate charges of honor violations. In *D'Arcangelo* v. *Berry,* the U.S. District Court for the Southern District of New York held that cadets had no standing to challenge the authority of the Secretary of the Army to promulgate a Military Academy regulation providing for the readmission of separated cadets and waiver of service commitments. In April 1977, the U.S. Court of Appeals for the Second Circuit affirmed the decision in *Ringgold* v. *U.S.*, holding that separation of cadets for violation of the honor code was within the statutory authority of the Secretary of the Army. In *Hall* v. *U.S.*, the U.S. Court of Military Appeals denied

plaintiffs' applications for extraordinary relief on the grounds that their resignations from the Military Academy made their claims moot.

Another continuing source of controversy was the Army of the United States promotion boards for the ranks of CW–3, CW–4, major, and lieutenant colonel. The Army convened new boards with reserve officer members to reconsider the records of reserve officers. After a final decision on all applicants was made, several officers brought suit. In *Dilley* v. *Alexander,* the U.S. District Court for the District of Columbia held that the Army had demonstrated that the defect in the original selection boards was harmless and granted summary judgment for the government. The U.S. District Court for the Middle District of Georgia followed the *Dilley* case and upheld the Army's position in *Gober* v. *Alexander.* Both cases are presently on appeal. Meanwhile, twenty-six cases brought by officers not selected in 1974 and 1975 and ten cases brought by officers not selected prior to 1974 have been filed in the U.S. Court of Claims. Those cases will probably be heard during the fall and winter of 1977–78.

The case of *Urban Law Institute of Antioch College et al.* v. *Secretary of Defense et al.* was settled in January 1877. The parties agreed that after 1 April 1977 boards convened to correct records and review discharges will publish final decisions, give reasons for the decisions, and enumerate the facts on which the decisions were based. Minority or dissenting opinions will also be announced, and the Army will maintain current indexes of decisions and provide a public reading room where the decisions can be read. The related case of *Heiler* v. *Williams* was also settled. In return for a dismissal of the plaintiffs' challenge to the procedure of allowing staff personnel of the Army Board for the Correction of Military Records to rule on applications for reconsideration without referring the applications to the board, the Army revised its procedure. In the future, there will be a first screening by staff personnel, and the application for reconsideration will be forwarded to the board if evidence or other matter is presented which was not in the record at the time of the previous board consideration. The Army will also review all applications for reconsideration of discharge categories since July 1971.

In February 1977, the widow and daughter of CWO Ralph J. Sigler sued a number of Army, FBI, and CIA officials in their individual and official capacities (*Sigler* v. *LeVan,* U.S. District Court, Western District, Texas). After failing a polygraph examination, CWO Sigler was invited to Fort Meade, Maryland, for further questioning. During the questioning, CWO Sigler allowed Army personnel to pick up certain papers and effects which he had secreted in his home. Shortly thereafter he committed suicide. Plaintiffs allege that CWO Sigler was acting as a "double agent" for the U.S. Army, that the defendant obtained the papers and effects through duress, and that defendants either murdered CWO Sigler or

drove him to suicide. They demanded $22 million in damages. The Department of Justice retained private counsel at government expense to present the various named defendants. Dispositive motions were pending before the court.

An issue related to the unionization of military personnel arose in *Doran* v. *Alexander,* filed in the U.S. District Court for the Eastern District of North Carolina in March 1977. The plaintiff alleged that the cause of his discharge from the Army was his military union activities at Fort Bragg, North Carolina. The Army, however, claimed that the discharge was a response to an erroneous reenlistment of the plaintiff at a time when he was not eligible to reenlist. The court granted a government motion to dismiss because plaintiff had failed to exhaust his administrative remedies. Subsequently, two other enlisted men stationed at Fort Bragg and associated with the same organization as Doran, brought suit against the post commander and their battalion commander. The basis of their complaint was an allegation that the defendants infringed on their right to petition Congress by prohibiting the solicitation of signatures on post. The petition was addressed to the House Armed Services Committee, urging the committee to oppose antiunion legislation. The case, *Olson* v. *Warner,* was filed in the U.S. District Court for the Eastern District of North Carolina in September 1977. Government attorneys are presently preparing a response.

The most important development in civilian personnel law has been the steadily increasing number of equal employment opportunity class actions. The class action has been used as a basis for massive discovery actions that sometimes involve hundreds of interrogations as well as requests for the production of documents. In many cases attorneys have filed imprecise allegations of discrimination, pleaded a lack of further specific knowledge, and then used the process of discovery as a means of proving the validity of the class action complaint. An enormous number of problems, both legal and administrative, can flow from this process. In one case, which has not yet been certified as a class action, responses and supporting documents answering only a small fraction of the plaintiffs' questions totaled fifteen cubic feet and weighed 250 pounds. In one certified class action, the Army expended 15,000 man-hours responding to two sets of questions and requests for documents.

In recent years Army civilian employees have used the provisions of the National Environmental Policy Act to resist base closings and realignments. No new actions, however, were filed in fiscal year 1977. In *Nage* v. *Schlesinger,* a suit attacking the realignment at Pueblo Army Depot, Colorado, the Court of Appeals for the District of Columbia denied the plaintiffs' appeal. The plaintiffs in *Fuller* v. *Rumsfeld,* involving realignment of Sharpe and Sacramento Depots in California, will withdraw their action voluntarily.

In *Local 2855* v. *Rumsfeld,* the plaintiffs challenged the government's decision to contract out various stevedoring functions at Bayonne, New Jersey, which had been performed by federal employees. The plaintiffs contended that the contract between the Army and the private contractor was an illegal personal services contract. The government has prepared a motion for summary judgment and will file it after the plaintiffs' process of discovery has been completed.

Foreign litigation arose principally in Italy. Most of the claims were by employees for additional severance pay and other damages because of fictitious separation-rehire actions. In another series of suits, Italian employees claimed *contingenza* (cost of living allowance) for periods of employment prior to 1 June 1962. The U.S. acknowledged liability in the severance pay cases, settled about 150 such claims made administratively, and was attempting to settle twelve other lawsuits. The United States did not acknowledge liability in the *contingenza* cases. The first suit was filed in 1969 by Fillipo Cali, who received a favorable judgment in the lower court. The Court of Appeals of Florence reversed, and in August 1974 Cali appealed to the Supreme Court of Cassation, which set 17 October 1977 as the hearing date. Three similar suits in Pisa involving sixty-five plaintiffs were pending. A decision favorable to the plaintiffs in the latter suits has been rendered by the lower court, but the United States will appeal.

Medical malpractice litigation continued to increase. Seventy-five such lawsuits were pending at the close of fiscal year 1977, an increase of twenty-five over the number pending at the beginning of the year. The dollar amount of the cases has also been rising steadily. In *Penetrante* v. *United States,* for example, the plaintiffs sought more than $4 million and were ultimately awarded more than $3.2 million, a record judgment against the United States in a medical malpractice case.

These cases continue to be a matter of some concern, for the question of official immunity for Army physicians for acts of malpractice has only been partly resolved. The Supreme Court declined review of *Martinez* v. *Schrock,* in which the U.S. Court of Appeals for the Third Circuit had ruled that Army physicians sued in their individual capacities were entitled to official immunity. The holding conflicts with the decision of the Court of Appeals for the District of Columbia Circuit in *Henderson* v. *Bluemink,* where the court held that military physicians are not entitled to official immunity. The Court of Appeals for the Tenth Circuit followed *Henderson* when the same issue arose in *Jackson* v. *Kelly.* The impact of *Henderson* and *Jackson* was greatly reduced when Congress enacted Public Law 94–464 (10 United States Code 1089), which provides an exclusive remedy against the United States in suits based upon malpractice by armed forces medical personnel. The law became effective immediately and affords such personnel full immunity from personal liability. However, since the act has prospective effect only, the case

decisions are significant where malpractice is alleged to have occurred prior to enactment of the law.

The Army increased its efforts to recover the cost of medical care provided in some personal injury cases, basing its claim on such factors as third party beneficiary clauses in insurance policies owned by the injured party. As a result of a joint recovery effort by the armed forces in Hawaii, the Department of Justice filed suit against three insurance companies for medical care claims totaling $160,000. The case, *United States* v. *State Farm Mutual Insurance Company et al.*, will determine whether the government is entitled to recover medical care costs under Hawaii's no-fault insurance law. The question has also been raised in several cases involving New Jersey's no-fault insurance law, and courts in that state have rendered conflicting decisions. The New Jersey Supreme Court has agreed to consider the question in *Sanner* v. *GEICO*.

Industrial accidents in government-owned, contractor-operated (GOCO) and privately owned, privately operated (POPO) plants working on government contracts were also a source of litigation. In *Alexander* v. *United States,* involving a GOCO ammunition plant explosion, a federal district court ruled that the government was liable for the conduct of an independent government contractor. The Department of Justice filed an appeal. In *Massey et al.* v. *United States,* a district court held that the government was liable for an explosion that killed twenty-nine and injured fifty persons. The disaster occurred at a POPO plant which had a government contract to produce explosives. This is the first POPO plant case decided against the government.

The Supreme Court decision in *Stencel Aero Engineering Corp.* v. *United States* will reduce the number of Army aviation cases. The Court reaffirmed the *Feres* doctrine barring suits against the government by soldiers injured as a result of their military service. Further, the decision extended that doctrine to permit the government to avoid liability in cases where soldiers are suing private individuals and corporations for such injuries, and the defendants seek indemnification from the United States by naming it in a third party complaint. In *Stencel* a National Guard officer injured in a helicopter crash brought a products liability suit and did not attempt to sue the United States. Stencel then named the United States as a defendant in a third party complaint. The Court ruled that the *Feres* bar precluded such a suit against the United States.

Renegotiation cases continued to be of interest, in part because they commonly involve large amounts of money. *Cooper-MacDonald, Inc.* v. *United States* was fairly typical. The Renegotiation Board found excess profits for the years 1969, 1970, and 1971 to total more than $2.5 million, less applicable tax credits. Tax credits are important because normally the federal government has already taxed nearly fifty percent of the excess corporate profits, and state income taxes have also taken a portion.

Equipment, Inc. v. *United States* demonstrated that renegotiation cases can be a gamble for a plaintiff who encounters an aggressive attorney in the Department of Justice. The plaintiff had disputed the Renegotiation Board's finding that it made excess profits of $6 million during the period from 1966 to 1968. Now that the case is being litigated in the Court of Claims, however, the government will try to prove that the company made even more excess profits than the board found. A ruling for the government could cause some potential plaintiffs to reconsider contesting renegotiation debt claims.

As in renegotiation cases, large amounts of money are often at stake in bankruptcy proceedings. In *Electrospace Corporation,* the Army filed a claim for over $3 million, and in *Florida Communications & Electronics, Inc.,* the Army's claim is nearly $4 million. Generally, the Army's bankruptcy claims are entitled to fifth priority, behind the Internal Revenue Service but ahead of unsecured creditors.

Cases under the Freedom of Information Act and the Privacy Act slowly increased. Compared to the large number of requests made under those acts, however, litigation was still frequent.

Promotion of Rifle Practice

The National Board for the Promotion of Rifle Practice (NBPRP) was established by Congress in 1903. Marksmanship training programs, as well as certain competitive marksmanship programs, are carried out for the board by the Office of the Director of Civilian Marksmanship. Appropriated funds for NBPRP programs amounted to $300,000 in fiscal year 1977.

With equipment and materials provided by the Secretary of the Army, the Director of Civilian Marksmanship furnished caliber .22 ammunition and targets and lent caliber .22 rifles to 2,068 civilian rifle clubs and their 128,752 members, of whom about 55,722 were twelve to nineteen years of age. Over 22,000 medals were awarded to junior members firing qualifying scores over approved courses of fire. Additionally, some 5,972 undergraduate members of ninety college clubs took part in rifle marksmanship training during fiscal year 1977.

The NBPRP again authorized the National Rifle Association to include five National Trophy Matches in its National Rifle and Pistol Championship Matches fired at Camp Perry, Ohio, during August 1977. A total of eighty-five teams, including thirty-nine civilian teams and 1,891 individuals participated in the National Trophy Service Rifle and Service Pistol events. The President's Match, with 825 competitors, was fired in 1977 for the first time as a National Board sponsored match. In addition, the Small Arms Firing School for Service Rifles was conducted for two days with 938 individuals, the majority of whom were civilians, attending.

12. Summary

In many respects, the role of the Army during the past year of peace was similar to that of the large city fire department. It had to be ready to cope with anything from a one- to a five-alarm call for forces to meet an emergency. While waiting, personnel had to be kept highly trained and motivated, so that they could shift rapidly at a moment's notice from the boredom of fire-drill training to battling everything from brush fires to raging conflagrations. They had to have strong and capable leaders from top to bottom who knew how to take effective measures quickly and to direct their units with confidence. If the blaze got out of control, the Army, like the fire department, had to have reserves that could be tapped and arrangements with neighboring communities for mutual assistance. And the equipment had to be the best available to handle the wide assortment of fires or conflicts that might break out, whether it be a simple grass fire requiring a single truck and plain water or an inferno at a fuel storage depot demanding general mobilization and sophisticated means of extinguishing a threat to the whole community. In addition, the Army needed a support system to keep its apparatus in working order and maintain adequate stocks of fire-fighting materials.

In periods with few fires, the fight for funds to sustain readiness, retain top-notch personnel, and acquire more advanced equipment and materials is always more difficult. The Army had to manage its resources carefully and demonstrate that costs were reasonable and waste and duplication were kept to a minimum. With peace and inflation, maintaining an effective, well-trained, and well-equipped force became more complicated. The slow erosion in strength and the mounting costs of readiness demanded increased ingenuity, flexibility, and an extra measure of dedication in using dwindling resources in the best way possible. Despite the prevailing circumstances, the Army has done its utmost to fulfill its responsibilities and maintain a two-century tradition of service and reliability.

Department of the Army
Principal Officials
1 October 1976–30 September 1977

Secretariat

Secretary of the Army	
Martin R. Hoffmann	5 August 1975–19 January 1977
Clifford L. Alexander, Jr.	14 February 1977
Under Secretary of the Army	
Norman R. Augustine	27 May 1975–4 January 1977
Walter B. LaBerge	27 July 1977
Assistant Secretary of the Army (Financial Management)	
Hadlai A. Hull	30 March 1973–9 April 1977
Assistant Secretary of the Army (Installations and Logistics)	
Harold L. Brownman	10 October 1974–31 December 1976
Alan J. Gibbs	26 April 1977–27 June 1977
Assistant Secretary of the Army (Installations, Logistics, and Financial Management)	
Alan J. Gibbs	28 June 1977
Assistant Secretary of the Army (Research and Development)	
Dr. Edward A. Miller	17 November 1955–15 May 1977
Dr. Percy A. Pierre	19 May 1977–27 June 1977
Assistant Secretary of the Army (Research, Development, & Acquisition)	
Dr. Percy A. Pierre	28 June 1977
Assistant Secretary of the Army (Manpower and Reserve Affairs)	
Donald D. Brotzman	20 March 1975–31 January 1977
Robert L. Nelson	3 June 1977
Assistant Secretary of the Army (Civil Works)	
Victor V. Veysey	20 March 1975–31 January 1977
General Counsel	
Charles D. Ablard	25 February 1975–19 January 1977
Jill Wine-Volner	29 March 1977
Chief of Legislative Liaison	
Maj. Gen. James M. Lee	25 September 1974
Chief of Public Affairs	
Maj. Gen. L. Gordon Hill, Jr.	23 July 1973–27 June 1977
Brig. Gen. Robert B. Solomon	28 June 1977

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Vice Chief of Staff	
General Walter T. Kerwin, Jr.	21 October 1974
Director of the Army Staff	
Lt. Gen. William B. Fulton	1 September 1975–31 March 1977
Lt. Gen. John R. McGiffert II	1 April 1977
Ballistic Missile Defense Program Manager	
Brig. Gen. John G. Jones	15 September 1975
Coordinator for Army Security Assistance	
Maj. Gen. Louis Rachmeler	2 August 1976–26 September 1977
Chairman, Army Reserve Forces Policy Committee	
Maj. Gen. Herbert M. Martin, Jr.	1 June 1975
Director, Program Analysis and Evaluation	
Maj. Gen. John R. McGiffert II	23 April 1975–31 March 1977
Maj. Gen. Maxwell R. Thurman	1 April 1977
Director of Army Automation	
Maj. Gen. Clay T. Buckingham	26 July 1976
Director of Management	
Maj. Gen. Marvin D. Fuller	14 June 1976–31 October 1976
Maj. Gen. Richard G. Trefry	1 November 1976

Army Staff

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Lt. Gen. Harold G. Moore	13 December 1974–31 July 1977
Lt. Gen. DeWitt C. Smith	1 August 1977
Deputy Chief of Staff for Operations and Plans	
Lt. Gen. John W. Vessey, Jr.	1 September 1975–31 October 1976
Lt. Gen. Edward C. Meyer	1 November 1976
Deputy Chief of Staff for Research, Development, and Acquisition	
Lt. Gen. Howard H. Cooksey	7 March 1975
Deputy Chief of Staff for Logistics	
Lt. Gen. Jack C. Fuson	1 September 1975–31 July 1977
Lt. Gen. Eivind H. Johansen	1 August 1977
Comptroller of the Army	
Lt. Gen. John A. Kjellstrom	1 August 1974–31 May 1977
Assistant Chief of Staff for Intelligence	
Maj. Gen. Harold R. Aaron	5 November 1973–28 August 1977
Maj. Gen. Edmund R. Thompson	29 August 1977
Chief of Engineers	
Lt. Gen. John W. Morris	1 July 1976
The Surgeon General	
Lt. Gen. Richard R. Taylor	10 October 1973–30 September 1977

The Adjutant General
Maj. Gen. Paul T. Smith — 1 September 1975–31 August 1977
Brig. Gen. James C. Pennington — 1 September 1977

Chief, Army Reserve
Maj. Gen. Henry Mohr — 1 June 1975

Chief, National Guard Bureau
Maj. Gen. LaVern E. Weber — 16 August 1974

Director, Army National Guard
Maj. Gen. Charles A. Ott, Jr. — 16 August 1974

The Inspector General
Lt. Gen. Herron N. Maples — 4 March 1974–31 October 1976
Lt. Gen. Marvin D. Fuller — 1 November 1976

The Judge Advocate General
Maj. Gen. Wilton B. Persons, Jr. — 1 July 1975

Director, Women's Army Corps
Brig. Gen. Mary E. Clarke — 1 August 1975

Major Commands

Commanding General, Training and Doctrine Command
General William E. Depuy — 1 July 1973–30 June 1977
General Donn A. Starry — 1 July 1977

Commanding General, Forces Command
General Frederick J. Kroesen, Jr. — 1 October 1976

Commanding General, Materiel Development and Readiness Command
General John R. Deane, Jr. — 12 February 1975–31 January 1977
General John R. Guthrie — 1 May 1977

Commanding General, Communications Command
Maj. Gen. Gerd S. Grombacher — 1 May 1976

Commanding General, Army Security Agency
Maj. Gen. William I. Rolya — 1 September 1975–31 December 1976

Commanding General, Intelligence and Security Command
Maj. Gen. William I. Rolya — 1 January 1977

Commanding General, Criminal Investigation Command
Maj. Gen. Paul M. Timmerberg — 8 September 1975

Commanding General, Military Traffic Management Command
Maj. Gen. Henry R. Del Mar — 31 July 1973

Commanding General, Military District of Washington
Maj. Gen. Robert G. Yerks — 1 August 1975–15 July 1977
Maj. Gen. Kenneth E. Dohleman — 1 August 1977

Commanding General, U.S. Army, Europe
General George S. Blanchard — 1 July 1975

Commanding General, Eighth Army
General Richard G. Stilwell — 1 August 1973–31 October 1956
General John W. Vessey, Jr. — 31 October 1976

Commanding General, U.S. Army, Japan
Lt. Gen. John R. Guthrie — 1 March 1975–30 April 1977
Lt. Gen. John Q. Henion — 9 May 1977

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