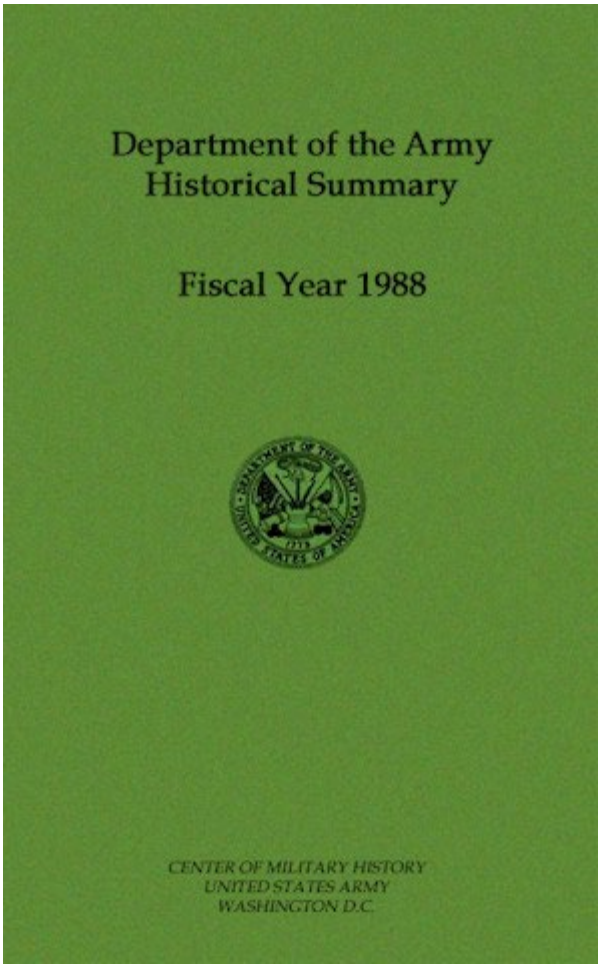

Department of the Army Historical Summary

Fiscal Year 1988

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Contents

Return to CMH Online

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1

Introduction

American national security interests derive from broadly shared values-political freedom, human rights, economic prosperity, and other considerations. The national leadership has articulated the following points as America's major national security objectives.

1. To safeguard the interests of the United States and its allies by deterring aggression and coercion. If deterrence fails, to defeat armed aggression at the lowest possible level of hostilities and establish postwar terms favorable to the U.S. and its allies.
2. To encourage and assist U.S. allies and friends in defending themselves against aggression, coercion, subversion, insurgencies, and terrorism.
3. To ensure U.S. access to critical natural resources, worldwide markets, the oceans, and space.
4. To reduce Soviet military presence throughout the world, to increase the cost of Moscow's use of subversive force, and to encourage change within the Soviet bloc for a more peaceful world.
5. To prevent the transfer of critical military technology and knowledge to the Soviet bloc and other potential adversaries.
6. To pursue equitable and verifiable arms reduction agreements and to emphasize compliance.
7. To defend and advance the cause of freedom, democracy, and human rights throughout the world.

Despite recently proclaimed initiatives by Soviet General Secretary Mikhail Gorbachev for *perestroyka* (restructuring of the Soviet economy), *glasnost* (openness), and signing of the Intermediate-Range Nuclear Forces (INF) Treaty, Soviet military power still poses the major threat in the world to the United States and its allies. The Soviet Union has publicly acknowledged that in recent years it has committed 15-17 percent of its gross national product (GNP) to defense programs, while America has spent about 6 percent. The

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investment in war-fighting capability by the Warsaw Pact in the last twenty years has created a significant quantitative force advantage over the North Atlantic Treaty Organization (NATO) in both strategic nuclear and conventional weapons that cannot be undone overnight. The Soviets are pursuing programs to upgrade their ability to project military power to distant areas-expansion of air and sealift for ground forces, increased access to facilities outside the Soviet homeland, and development of their first conventional aircraft carrier. The Soviet Union also sponsors an impressive military assistance program, which provides military equipment, technical services, and some direct operational support to forty-two Third World countries.

The Defense Department defines the spectrum of potential armed conflict as spanning a range from low (low-intensity conflict, unconventional warfare, and terrorism), mid (minor conventional warfare, major conventional warfare), to high (nuclear warfare). An assessment of the strategic balance indicates that the U.S. should retain, for the near future, the capability to deter a Triad (land, air, and sea-launched) direct nuclear missile attack. The burden of deterrence and America's defense continues to shift to conventional forces in general and to the Army in particular. America's national defense posture, however, depends upon joint service planning and unified action. The major combat forces of the U.S. serve under unified and specified commands. Their respective commanders in chief (CINCs) control combat operations based on guidance received directly from the President and the Secretary of Defense through the Chairman of the Joint Chiefs of Staff (JCS). The CINCs rely upon their subordinate component commanders from the military services for personnel, equipment, and administrative support.

To fulfill its responsibility to the CINCs, the Army must design and field an optimal combination of forces (heavy, light, and special operations) strategically positioned in either the U.S. or overseas. It must also effectively employ the reserve

component the Army Reserve and the Army National Guard. In recognition of the inherent joint nature of modern warfare, the Army adopted the Air-Land Battle as its fundamental combat operations doctrine in 1982. While honoring the timeless principles of war, it also emphasizes operational art, low-intensity conflict, and light division operations. Espousing the tenets of initiative, agility, depth, and synchronization, Air-Land Battle envisions the battlefield in close, deep, and rear areas to ensure unity of action and success in combat. The close operations bear the ultimate burden of victory

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or defeat; the deep operations shape conditions for future close operations; while rear operations ensure freedom of maneuver, operational continuity, and uninterrupted service support.

America's worldwide concerns for peace and economic opportunity must adapt to resource constraints. The wide variety of international threats, the need to distribute national resources among a broad range of needs, and the limitations of both modern technology and time to execute national objectives constrain both the civilian and military sectors. The Department of the Army (DA) employs the Planning, Programming, Budgeting, and Execution System (PPBES), linked to the Department of Defense Planning, Programming, and Budgeting System (PPBS), and the joint Chiefs of Staff Joint Strategy Planning System to allocate its resources effectively. Thus, the Army translates the missions assigned by the national leadership and war fighting requirements identified by the unified and specified commanders into programs within budget constraints. Continuation of the budget reductions of the mid1980s caused the Army in fiscal year (FY) 1988 again to set strict priorities for its programs. The Army's real growth figure of 12.6 percent for FY 81 dropped to 3.4 by 1984. This downward trend continued to a minus 1.9 percent level by FY 88. The FY 88 budget emphasized essential force combat readiness exemplified by able and well-trained personnel assigned to forward-deployed or quickly deployable units led by thoroughly prepared leaders. Further, the Army concentrated on CINCs' priority requirements, terminated marginal programs, slowed the pace of modernization, and thus minimized the impact of tight money upon force structure.

At the outset of FY 88, the Secretary of the Army and the Chief of Staff underscored the importance of maintaining the productivity level of quality personnel, military and civilian, which the Army has attained in the last several years. Non-prior service recruits with high school diplomas exceeded 90 percent of enlistments. They also scored consistently in the top three test score categories (TC) I-IIIA of the Armed Forces Qualification Test (AFQT) at a 60 plus percent range, while the number scoring in TC IV has remained well under 10 percent. The Army leadership, however, voiced strong concern about a declining pool of quality manpower, a widening disparity in Army pay compared to private industry, and reductions in recruiting resources. Recent successes both to recruit and to retain personnel have resulted directly from funding for such incentives as educational benefits and cash enlistment bonuses. Active public affairs efforts also positively affected recruiting and retention. In its reenlistment program for FY 88 the

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Army planned to target bonuses by grade/military occupational specialty (MOS) and to require retraining/ reclassification for those reenlistment-eligible soldiers in overstrength specialties.

An aggressive Enlisted Force Alignment Plan, which coordinates promotion, reenlistment, and reclassification by grade and job specialty, has reduced a shortage of active component noncommissioned officers (NCOs) in the most important unbalanced combat arms specialties from about 29,000 to 10,000 since FY 84. While the Army hoped for continued improvement with the NCO shortage in FY 88, it faced another officer strength reduction mandated by the FY 87 Defense Authorization Act-2 percent for FY 88. The reserve component, which now comprises about half of combat and more than 60 percent of combat support/combat service support forces in the Total Army, sought to upgrade its equipment readiness and mobilization responsiveness. Women in the Army looked to better opportunities for promotion and advancement following a centralized review of the Army's Direct Combat Probability Coding (DCPC) System. The Army leadership intended to continue full utilization of its civilian work force as a productive sustaining base and to avoid any reduction that would borrow military manpower and thus reduce tactical unit readiness.

The Chief of Staff sees a direct relationship between Army quality of life programs and combat readiness and fully supports their development and improvement. The programs encompass services and facilities that personally affect soldiers and their families and strongly influence job efficiency and retention. Facilities revitalization pertains to family housing, modernized barracks, child and health care facilities, commissaries, and recreation facilities such as youth and bowling centers. A tight budget for FY 88 portended modest growth in most of these areas. The Army expected to improve existing family housing and to add only about 700 new units. Congress froze the Variable Housing Allowance (VHA), a benefit designed to supplement soldiers' quarters allowances and make' off-post housing more affordable, at the FY 86 rate for FY 88. The Army expected to continue construction of child care centers at a reduced level and to improve the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) by extended use of private sector medical personnel and facilities. Surcharge funds paid by commissary patrons offered a means to upgrade perhaps 12-15 commissaries in FY 88. Emphasis by the White House that business activities in the armed services operate with minimal appropriated funds forecast modest improvement of family recreational facilities.

[6]

At the inception of his tenure as head of the Department of the Army, Secretary John O. Marsh, Jr., inaugurated a practice of declaring a particular Army theme for each calendar year that became the focus of special attention. For the years 1981-87 the Army themes included winning spirit, physical fitness, excellence, families, leadership, values, and the U.S. Constitution. Secretary Marsh and Army Chief of Staff, General Carl E. Vuono, chose training as the theme for 1988. Describing it as the Army's top priority and cornerstone of combat readiness, General Vuono further emphasized that the Army must execute high quality training to deter war, and, should deterrence fail, to reestablish peace through victory on the battlefield. Army training programs concentrate upon three areas-leaders, units, and individuals. The Army's trained leaders serve as its wellspring and set the standards for the Army of today and the future. The Officer Education System strives to produce active and reserve component officers who possess a combination of tactical and technical proficiency, a growing knowledge of the dynamics of strategy and joint combat operations, and the ability to lead men effectively under the stress of combat. General Vuono pledged to continue development in FY 88 of the joint ,service officer program, an area of Army training emphasized by the Defense Department Reorganization Act of 1986. Army public affairs sought to emphasize the importance of training both to soldiers and the public through speeches, extensive soldiers' radio and television coverage, and production of print news stories.

Concerned about more budget cuts than those already indicated in early FY 88, the Chief of Staff affirmed that the Noncommissioned Officer Education System (NCOES) would retain high priority. He stressed its value in producing uniformly high standards in job proficiency, military occupational specialty competency, military bearing, and commitment to professional values and attributes throughout the NCO Corps. The Army's combat training centers, two of them initially operative in FY88, provide demanding training for units and their commanders against realistic opposing forces. Since 1982 the National Training Center (NTC) at Fort Irwin, California, has trained armor and mechanized infantry units and now extensively uses Air Force close air support in its exercises. The Joint Readiness Training Center (JRTC), located primarily at Fort Chaffee, Arkansas, began training nonmechanized infantry forces for low- to mid-intensity conflict in October 1987. Begun in early 1988 at Fort Leavenworth, Kansas, and capable of operating at any installation with a corps/division battle simulation system, the

[7]

Battle Command Training Program (BCTP) provides division and corps commanders and their staffs with intensive training in their wartime duties in a simulation environment.

OPTEMPO, or operating tempo, refers to the Army method that measures the assignment of operating and sustaining resources to a particular training strategy in order to predict levels of combat readiness. For ground OPTEMPO, expressed as an annual operating rate in miles/hours for major items of equipment, the Army hoped to allocate 850 miles for active component armored vehicles in FY 88. For air OPTEMPO, expressed as the number of hours flown per month by a rotary wing (helicopter) aircraft crew, the Army sought 15.8 hours for the active and 9.8 for the reserve component. Army planners intended to expand the use of training devices and simulators in FY 88, which provide

effective instruction and cost less than live training. Examples of these training devices and simulators include the precision laser gunnery system for tanks and Bradley Fighting Vehicles (BFVs) and the computer-based instruction system, which teaches such complex topics as satellite equipment repair. At the same time, Army leaders sought continued progress in creation of the multipurpose range complex and standardized military operations on urbanized terrain (MOUT) facilities for necessary live fire and maneuver exercises. To improve the combat readiness of the reserve component in FY 88, the Army leadership sought accelerated overseas deployment training and higher levels of military occupational specialty qualification. Anticipated new regional training sites for maintenance and medical skills would provide improved performance in those specialties.

Successful implementation of Air-Land Battle doctrine demands modern equipment and systems for the interrelated close, deep, and rear combat operations. Because of equipment shortages and obsolescence in the early 1980s, the Army decided in 1983 to establish a ceiling indefinitely for its active component strength and to concentrate available resources on equipment modernization. Since that time, major systems fielded in sizable numbers include the M1 Abrams tank, Bradley Fighting Vehicle, AH-64 Apache attack helicopter, UH-60 Black Hawk helicopter, multiple launch rocket system (MLRS), and the Patriot and Pershing II (PII) missile systems. This modernization process has utilized the Manpower and Personnel Integration (MANPRINT) Program. MANPRINT incorporates assessments of human strengths and limitations, coupled with health hazards assessment and systems safety in the development of new equipment, so that the soldier and the equipment function together more effectively

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and safely. The Army's modernization process also is pursuing materiel improvements for battlefield command, control, and communications; deep operations; and air defense.

Successful deep combat operations disrupt the enemy's command and control systems and retard its offensive initiatives. To prepare in this area, the Army is developing a series of sensor, information, and command and control systems that it will fuse with weapons systems for a coordinated deep operations capability. Weaponry for deep operations includes the multiple launch rocket system, designed for counter battery missions and suppression of enemy air defenses, and the Army Tactical Missile System (AT-ACMS), a long-range, all-weather, conventional ballistic missile system. For improved intelligence gathering, the Army and Air Force together are producing the joint Surveillance and Target Attack Radar System (JSTARS) that can observe the enemy in excess of 100 kilometers from the front line. Another intelligence-producing device in development, the All Source Analysis System (ASAS) will integrate information from a variety of sources. The Army also is seeking upgrades in its special operations aviation to enhance human intelligence gathering carried out behind enemy lines.

Rear operations in Air-Land Battle focus on sustaining the tempo of combat and preparing for the next phase of a campaign. Protection of command and control, facilities, and sustainment, along with forward area and theater air defense, represent primary concerns in this sector. The Army Tactical Command and Control System (ATCCS) integrates the five battlefield functional areas maneuver control, fire support, intelligence-electronic warfare, air defense, and combat service support by a common computer network. Its five integral parts include the Maneuver Control System (MCS); Advanced Field Artillery Tactical Data System (AFATDS); All Source Analysis System (ASAS); Forward Army Air Defense Command, Control, and Intelligence (FAADC21); and Combat Service Support Control System (CSSCS). The Army is acquiring several communications packages that will facilitate efficient command and control procedures. Mobile Subscriber Equipment (MSE) provides divisions and corps with secure voice, data, and facsimile transmission. Single Channel Ground and Airborne Radio Systems (SINCGARS) serve as combat net radios that operate in voice and data modes in an electronic warfare environment. Joint Service Communications Systems (TRITAC), an Army/Air Force project, will produce high speed digital transmission, switching, terminal, and system control equipment for theater tactical forces.

Regarding air defense, the Forward Area Air Defense (FAADS) System will employ sensors and guided missiles in a

five-part configuration to provide protection from enemy aircraft to division areas. The Army anticipates that the Patriot missile, possessed with the ability to operate in an electronic countermeasure environment, will remain as its primary theater air defense weapon for the foreseeable future. Growing biochemical stockpiles by potential aggressor nations have caused serious concern to the United States. In 1986 Congress approved destruction of the American unitary chemical stockpile and its replacement by binary modernization. In early FY 88 the Army began preparing a proposal for safe destruction of its unitary chemicals and planned continued procurement of chemical agent monitors, decontamination systems, and improved protective face masks. It also sought funding for nuclear, biological, and chemical (NBC) reconnaissance vehicles and standoff detectors for tactical units.

The Army Aviation Modernization Plan, which attempts to anticipate Army aviation needs thirty years into the future, is seeking in the nearer term to provide the unified and specified commands with modernized attack helicopters, day/night reconnaissance aircraft, and improved air assault and lift capability. During the next fifteen years the Army intends to provide some 200 aircraft per year by production and/or modification programs for the Apache, Black Hawk, the OH-58D Army Helicopter Improvement Program (AHIP), and the Chinook helicopters. By the mid-1990s, the Army expects to create a new fleet of helicopters designed for light attack/armed reconnaissance missions and, at the same time, to retire large numbers of outdated utility and observation aircraft.

The Army leadership anticipated continuance in FY 88 of the Dedicated Procurement Program. The program has been improving short-term readiness of the reserve component by providing reserve units with major combat and support equipment such as M113A3 armored personnel carriers and a wide variety of trucks. Anticipating the loss of Pershing missiles following the Intermediate-Range Nuclear Forces Treaty signed in late 1987, the Army looked to reinforce its nonstrategic nuclear forces posture in FY 88 by modernizing artillery-fired atomic projectiles and fielding a follow-on to the Lance missile system.

Contingency preparations by Army planners entail pretraining and preassignment of individual replacements for the mobilization process. The Individual Ready Reserve (IRR) and retirees represent the primary sources for these personnel. The former, who number about 287,000, retain a military service obligation following either

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active or reserve component duty. Some 500,000 retirees, classified by age and physical status, also remain subject to active duty. In recent years, the Reserve Component Mobilization Exercise Program has facilitated resolution of potential problems in preparing for mobilizations. Army leaders, however, feared cutbacks in this program in FY 88 because of budget constraints.

Prompt and effective deployment of personnel and materiel for contingencies demands adequate strategic air and sealift. The Defense Department airlift goal of 66 million ton miles per day remains far short of realization, but the Air Force's C-17 Airlifter, still in the developmental stage, would sharply reduce the anticipated shortfall. Strategic sealift, the responsibility of the Navy's Military Sealift Command, remains insufficient for the deployment and sustainment of major forces. The conversion of commercial container ships and the Surface Effect Fast Sealift Program represent promising, but only partially developed, additions to existing Defense Department sealift resources.

Sustained combat operations require pre-positioned war reserves of equipment and supplies supplemented by existing Continental United States (CONUS) based assets and the industrial base or the combined resources of the government and private industry to create and maintain military materiel. The Army has placed war reserve stocks in strategic locations worldwide in order to provide the unified and specified commands with an initial supply of ammunition, major end items, fuel, and secondary materials pending the opening of a regular line of communications from the U.S. during wartime. Although America's war reserve status has improved in recent years, the mixture of old and new equipment complicates the effort to maintain war reserve stocks. The pre-positioning of materiel configured to unit sets (POMCUS) refers to prestorage of organizational equipment in company and battalion packages for the rapid reinforcement of NATO by units based in CONUS. The Army hoped to increase the stockage level of POMCUS sets and to begin issuance of its new deployable medical systems in FY 88.

The host-nation support (HNS) agreement reached in 1982 by the U.S. and the Federal Republic of Germany (FRG) for

sharing the costs for a selected number of German reservists and civilian logistics support during a war in Europe necessitated continued congressional funding in FY 88. The Army Depot Maintenance Program, which maintains materiel so that it will function efficiently in combat, in recent years has received only 70-80 percent of the funding necessary to meet sustainment requirements. Responsible

[11]

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for overland distribution of bulk petroleum to all the armed services in wartime, the Army has lacked adequate funding for complete fielding of its modernized Inland Petroleum Distribution System (IPDS) introduced in 1987. Increased monies for both depot maintenance and bulk petroleum distribution did not appear forthcoming at the outset of FY 88.

The Army strives to shape its force structure-the number and configuration of combat, combat support, and combat service support units-to accommodate the force requirements of the warfighting CINCs. This process must adjust, however, to the national defense priorities established by Congress, the President, the Secretary of Defense, and the Joint Chiefs of Staff. In early FY 88, the Army faced a total force strength reduction of about 10,000 personnel and. formulation, as dictated by the 1986 Defense Department Reorganization Act, of more definitive joint operations doctrine. Blessed with liberalized budgets in the early 1980s and cognizant of the increasing need for rapidly deployable combat units, the Army has been rebuilding heavy divisions-armored and mechanized infantry-and is expanding light forces. It reintroduced the light infantry division and lightened the design of specialized airborne and air assault divisions. Spending for special operations forces has increased in the 1980s; for FY 88 the Army targeted money for continued modernization of its aviation, communications, psychological operations material, and equipment research and development. Public support of the Army remains critical to sustaining advances in force structure.

[12]

Go to:

Next Chapter

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

2

Staffing

The ability of the Army to conduct assigned roles in national defense depends directly upon the caliber of its personnel. The Secretary of the Army and the Chief of Staff gave high priority in FY 88 to adequate manning of the Total Army-active and reserve components and the civilian work force. They emphasized the importance of sufficient numbers of able and skilled people fully qualified to perform their duties in both peace and war. Ethical and professional leadership of stable and cohesive military units rated highly on their priority list. The Secretary of the Army and the Chief of Staff promised to provide equal opportunity and quality of life support to soldiers, their families, and civilians. Unfortunately, "belt tightening" in FY 88 mandated reductions to the strength of the Total Army and slowed the growth of personnel support programs.

Recruitment and Retention

During FY 88 officials from both the Office of the Secretary of Defense (OSD) and the Department of the Army reaffirmed their preference for the volunteer force to conscription and national service as methods to acquire military manpower. They claimed that the latter approaches would cost more money, procure less talented personnel, require disproportionate use of the training base, and would not permit development of full individual and unit proficiency. Defense officials recognized that the initial financial output made by the Reagan administration in the early 1980s for recruitment represented a considerable increase over spending levels of the late 1970s. Nevertheless, they asserted that such changes as increased pay and modernized equipment vastly improved the combat readiness of the armed services and promoted retention of proficient personnel. Influenced by the Army's 1983 decision to forego strength increases in favor of accelerated modernization, Army active component strength approximated 781,000 at the outset of FY 88. The Selected Reserve strength for

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the National Guard and the Army Reserve numbered 452,000 and 310,000, respectively. Budget reductions, however, prompted Congress and Pentagon officials to cut Army active component authorized strength to 772,300 by the end of FY 88.

Congress and the Department of the Army define a high quality recruit as a high school graduate who scores in the top half of the Armed Forces Qualification Test, or in the categories I-IIIA. In most instances, these persons have demonstrated their ability to learn quickly, perform efficiently, maintain strict individual discipline, and faithfully complete their enlistments. The Army has the following active component non-prior service recruiting goals90 percent or higher, high school diploma level; 63 percent or higher test scores in categories I-IIIA, or the upper 50th percentile; and 10 percent or lower of test scores in category IV. Reducing an original recruiting goal of 131,000 for active component enlisted personnel in FY 88 because of budget constraints and mandated strength cuts, the Army accessed 115,386 soldiers as shown in *Table 1.*

TABLE 1 - FY 88 ENLISTED PERSONNEL STRENGTH

Service Category	Numbers Achieved	Education	Test Results
Non-prior service		High School Diploma	
Male	91,344	Graduate	93 percent
Female	14,296	Test Category I-IIIA	66 percent
Prior service	9,746	Test Category IV	4 percent

Total	115,386	

The reserve component fell short of its recruiting goals for enlisted personnel in FY 88. The National Guard accessed 75,600 inductees or 92.6 percent of its 81,600 goal. Of the guard's 37,400 non-prior service accessions, 87.4 percent had high school diplomas. Test scores totaled 51 percent in categories I-IIIA and 9 percent in category IV. The Army Reserve recruited 74,800 personnel or 96 percent of its 77,600 goal. Of its 28,700 non-prior service accessions, 94 percent held high school diplomas, 71 percent scored in test categories I-IIIA, and only 5 percent scored in category IV.

Recent cuts in Army advertising appropriations have caused the Army Recruiting Command to anticipate problems in continuing to enlist the proficient caliber of soldier it has obtained in recent years. The Army still maintains, however, several productive recruiting incentives. The Montgomery GI bill, which became permanent in June 1987, provides educational benefits to both the active and

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the reserve component. Soldiers who came on active duty after 30 June 1985 automatically enrolled in the Montgomery GI bill. Those who complete three years' active service may receive $10,800 for college or other civilian training schools approved by the Veterans Administration. The Army College Fund represents an additional educational benefit aimed at college-bound youth who take time first to serve in the Army. It provides benefits above the basic GI bill of $8,000, $12,000, and $14,400 for 2-, 3-, and 4-year or more enlistments, respectively. Enlistment bonuses attract job/skill-oriented recruits into critical military occupational specialties. This program pays bonuses that range from $1,500 to $8,000 for 4-, 5-, or 6-year enlistments. Retention incentives also provide nonmonetary choices. For example, enlisted personnel in grades E6 and below may choose from three reenlistment options: extended assignment at the present duty station, retraining into a shortage military occupational specialty, or relocation to a duty station of individual preference where a valid vacancy exists.

Fiscal year 1988 budget cuts forced the Army to reduce in-service education benefits. It limited college tuition aid for officers, warrant officers, and enlisted soldiers to 75 percent of tuition costs with a cap of $80 per semester hour for undergraduate and $165 for graduate studies. The Army eliminated in-service tuition aid for officers in the grade of lieutenant colonel and above; however, lieutenants, captains, and majors may receive aid for both undergraduate and graduate schooling. Enlisted soldiers will continue to draw tuition aid to complete high school, for undergraduate courses, and to improve their basic education skills. The Basic Skills program serves high school graduates who need additional math, reading, and communications instruction either to improve their military job performance or to qualify for college. The changes in financial aid for schooling will also bar in-service education benefits to all military personnel who entered the Army before 1 January 1977 and retain eligibility for Vietnam-era GI bill education benefits.

The Army tightened the rules in two other areas affecting retention of enlisted personnel. Army regulations have specified career limits, called retention ineligibility points, for each enlisted grade beyond which no enlisted person may either reenlist or extend military service: Specialist, 8 years; Sergeant, 13 years; Staff Sergeant, 20 years; Sergeant First Class, 24 years; Master Sergeant, 27 years; and Sergeant Major, 30 years. Centralized boards select command sergeants major and sergeants major for retention beyond thirty years. Heretofore, senior Army commanders

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have granted exceptions to these cutoff points for soldiers who demonstrate exceptional potential for future service. These cases have numbered approximately 2,000-2,500 per year. Effective 1 May 1988 all enlisted personnel must abide by the retention ineligibility points system. Another rule change for enlisted personnel requires that non-U.S. citizens, who serve more than eight years, now must obtain their U.S. citizenship before they can reenlist or extend their service. Officers, in most instances, must obtain citizenship before commissioning.

Congress questioned the need for an 11.3 percent increase in Army officers while enlisted personnel grew by only 3.9 percent and also perceived disproportionate increases in the officer strength of the other armed services during the

period of 1980-85. With the FY 87 Defense Authorization Act, Congress mandated a 6 percent reduction in the commissioned officer (grades of CW2 through O10) strengths of the armed services within three years. The Army obligingly reduced its commissioned officer strength by 1.51 percent or 1,635 in FY 87 and established a three-part package of voluntary and involuntary separation programs to reduce commissioned officer strength early in FY 88. Selective early retirement boards screened a group of about 1,200 lieutenant colonels and colonels, who had more than twenty years' service but seemed unlikely for promotion, and involuntarily separated 363 of them. The Army created a voluntary early out program for all commissioned officers and an accelerated involuntary release program for reserve first lieutenants passed over twice for promotion.

The Army Chief of Staff testified before Congress in March 1988 that the 6 percent reduction of officer strength would cause severe readiness and morale problems in the Army. He stated that over 80 percent of the Army commissioned officer growth had occurred in the grades of lieutenant and captain. The introduction of new crew-served weapons and equipment in armor, mechanized infantry, field artillery, military intelligence, and aviation units required these additional junior officer positions. The Chief of Staff pointed out that much of the remaining growth occurred in the medical branches in response to a 1979 congressional directive to increase the number of active duty doctors and nurses. Concerted efforts by the Army leadership, Defense Department manpower officials, and other influential groups persuaded Congress to incorporate a compromise on commissioned officer reductions in the FY 89 Defense Authorization Act. Congress reduced the Army's original 6 percent cut to the following: FY 87,

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1,635 or 1.51 percent; FY 88, 1,514 or 1.40 percent; FY 89, 500 or 0.46 percent; FY90, 500 or 0.46 percent. These cuts totaled 4,149 or 3.83 percent.

Current and projected shortages of medical personnel, a continuing problem to Army readiness, persuaded Congress to exclude all Army medical personnel from commissioned officer reductions in FY 88. As of 30 September 1988, medical personnel strengths for all components totaled the following: Medical Corps 11,634, Army Nurse Corps 15,656, and enlisted personnel 110,658. Five-Year Defense Plan projections for the Army anticipate a shortfall of 1,856 Medical Corps officers, 11,019 Army Nurse Corps officers, and 28,487 qualified enlisted soldiers. The Army has adopted several strategies to improve the recruiting and retention of Medical and Army Nurse Corps officers in the active component. Despite additional recruiters, educational guarantees, and accelerated accession processing, however, projected recruiting and retention rates are declining. The Army has implemented several programs to alleviate the shortage of medical personnel in the reserve components: the New Specialized Training Assistance Program, the Health Professions Loan Repayment Program, the National Army Medical Department Augmentation Detachment, and an FY 88 increase of eighty-seven active guard/reserve personnel in the Army Medical Department Recruiting Force.

Several new Army policies provide stricter physical health standards for initial entry and promotion of military personnel. The FY 88 Defense Authorization Act required, effective 1 June 1988, that the armed services test military service applicants for both alcohol and drug use before they take the oath of appointment, induction, or enlistment. The Secretary of Defense directed that the armed services conduct the testing during the individual's preenlistment, precontracting, or preappointment physical examination. Defense Department policy specifies that individuals who test positive for marijuana may reapply in six months, while those who test positive for cocaine cannot reapply for a year. Alcohol tests use National Highway Traffic Safety Administration-approved breath analyzers or blood alcohol tests. Individuals who register.05 or higher cannot enter the service but may reapply in six months. Applicants who test positive for either drugs or alcohol on their second attempt cannot reapply for two years. All command sergeants major and lieutenant colonel and colonel command selectees, regardless of age, must now pass cardiovascular tests before assuming their new duties.

Army Human Immunodeficiency Virus (HIV) testing of blood donations began in October 1985 ,for selected units and locations.

The process expanded to include all active duty personnel in February 1986. Initially, reserve component personnel underwent testing only when they reported for active duty training, but the Army provided specially targeted testing programs for them in 1986 and 1987. Since that time, the Army has identified 1,795 soldiers as HIV infected; 696 of them served on active duty during FY 88. All HIV infected active duty soldiers are medically evaluated and periodically reevaluated to monitor disease progression and to determine their fitness for continued active duty. Restricted to CONUS assignments, these HIV-infected soldiers can continue on active duty until they are no longer physically qualified for retention. At that point, the Army medically retires, discharges, or separates them through the physical disability system. Both active duty and reserve component soldiers must submit to testing for HIV infection at least every two years. In addition to mandatory testing, soldiers must have undergone testing with negative results, within six months of the effective date of certain personnel actions. Examples include outside the Continental United States (OCONUS) permanent change of station and assignments to special operations and COHORT (cohesion, operational readiness, and training) units.

In a related FY 88 initiative, The Surgeon General (TSG) directed implementation of a voluntary routine adjunct patient HIV screening program for persons admitted to Army hospitals, sexually transmitted disease clinics, and those receiving prenatal care. Other categories of patients The Surgeon General listed were those enrolled in drug and alcohol treatment programs, receiving adult physicals, and certain other unnamed categories when deemed clinically appropriate by medical treatment facility commanders. A revised Army policy permits HIV infected reserve component soldiers to obtain medical proof of their fitness for continued duty at their own expense. An HIV infected reserve component soldier, who demonstrates fitness, may serve in an existing nondeployable billet in the Selected Reserve if qualified and residing within commuting distance of the unit. Also, HIV infected soldiers may request transfer to the Standby Reserve, retire if eligible, or request discharge under the plenary authority of the Secretary of the Army. The Army may require HIV testing of civilian employees only when they are assigned overseas to a host nation that requires a negative HIV test as a condition of entry or residence.

Personnel Management

In order to identify existing problems and to develop solutions regarding personnel security in the Department of the Army, the Secretary of the Army established the Personnel Security Program Task Force in March 1987. The task force instigated completion of several actions. The Director of the Army Staff has approved a functional definition of a Total Army Personnel Security Program. Effective 1 January 1988, officer accession regulations require a secret clearance to appoint or commission an officer. More stringent reclassification procedures now apply to personnel who request a military occupational specialty that requires a security clearance. Other major ongoing actions include: expansion of the new Personnel Security Program to the reserve components and civilian employees; by-name review of all Army components to comply with Defense Department policy, which precludes aliens from holding security clearances; a review of enlisted entrance standards; and a revision of Army Regulation (AR) 604-10, *Military Personnel Security Program.*

The Army instituted the Noncommissioned Officer Evaluation Report, NCO-ER, in FY 88 to replace the Enlisted Evaluation Report. The first formal written evaluations of noncommissioned officers, begun in 1948, did little more than assist a rater in a general evaluation of leadership skills. By the late 1950s the Army used the evaluation report primarily to award enlisted proficiency pay. In 1975 the Army modified the report to include recommendations on schooling and assignments and encouraged, but did not require, individual counseling. Numerical scores employed by the Enlisted Evaluation Report had become highly inflated in the 1980s and proved of limited value to promotion boards. Thus, the Army developed the NCO-ER that consists of an evaluation report that employs box checks and concise written comments, which evaluate a soldier's performance and potential for advancement with three rating levels-excellence, success, and needs improvement. A "success" rating represents the performance standard. An "excellence" or "needs improvement" rating requires additional short or bullet narrative justification.

The roles of rating chain members for noncommissioned officers have also changed. The rater focuses on performance, while the senior rater, formerly called the indorser, concentrates on the soldier's potential for growth in the Army. The

reviewer ensures that the short narratives support the box check narratives and also must comment when the rater and senior rater disagree. The most

significant change effected by the NCO-ER concerns the requirement for individual counseling by the rater for corporals through command sergeants major. Raters must perform counseling within the first thirty days of each rating period and at least every quarter throughout the year. A phased implementation began 1 March 1988 for noncommissioned officers of both the active component and active guard/reserve personnel as indicated in *Table 2.* Corporals undergo individual counseling but not the written evaluation report. A phased implementation of the NCO-ER for the reserve components began I September 1988.

TABLE 2 - NCO-ER TRANSITION

NCO Grade	Final EER	1st Counseling	1st NCO-ER
SGM and MSG	29 Feb 88	Mar/Apr 88	1 Jun 88
SFC and SSG	31 May 88	Jun/Jul 88	1 Sep 88
SGT	31 Aug 88	Sep/ Oct 88	1 Dec 88
Corporal	N/A	Dec 88	N/A

In 1987 Congress ordered the Army to reduce the strength of its top five NCO grades from 284,000 to 277,000 by 1 October 1988. Under the Qualitative Management Program the Army denies reenlistment to soldiers who either fail to meet minimum performance standards or exhibit improper moral or ethical behavior. In the spring of 1988 the Army created a special Qualitative Management Program, and the Total Army Personnel Agency (TAPA) identified about 2,000 noncommissioned officers for separation from service. These soldiers had ninety days to file appeals based on either a material error in their personnel files or improved performance. Of 524 appeals, the Army sustained 190. It denied those of 64 soldiers with 18 years of service but allowed them to remain on active duty until they qualify for retirement benefits at 20 years. In July 1988 the TAPA sent final separation notices with a 90-day deadline to some 1,600 noncommissioned officers.

Army procedures for determining the official promotion dates of military personnel received attention in FY 88. The Office of the Deputy Chief of Staff for Personnel (ODCSPER) approved a change for establishing dates of rank for enlisted personnel, sergeant and above, that makes the date of rank the same as the effective date of promotion, a procedure already followed for officers. The existing procedure spread dates of rank for enlisted soldiers, promoted the first day of the month, over the preceding

month. Frocking, or permitting officers to wear the insignia of higher rank before their official promotion, has received close scrutiny from the Senate Armed Services Committee in recent years. Army spokesmen defend frocking; they assert that it makes officers more effective in some jobs and costs the government nothing since frocked officers receive no pay increase until their official promotion date. Defense Department manpower officials reported to Congress in March 1988 that the Army had reduced frocking of field grade officers-majors, lieutenant colonels, and colonels-82. percent and general officers 48 percent since 1985. The Defense Department has set a 3 percent limit for frocking field grade officers and currently frocks less than 1 percent of them.

Title IV of the 1986 Defense Department Reorganization Act mandated the creation of joint officer personnel policy within each armed service. It would consist of designated joint duty assignments, joint professional military education, and joint officer management and promotion policies for joint specialty officers. It required the majority of field grade officers to serve at least 3.5 years in a joint duty assignment as a prerequisite for promotion to general officer. General officers had to serve at least three years of joint duty before promotion to the next higher grade. The law stipulated that

joint specialty officers fill at least half of all joint duty assignments, including those designated as critical, by 1 October 1989. A qualified joint specialty officer must complete a joint professional military education and then a full joint duty tour. Those exempted from the tour length and education requirements included certain field grade and general officers in the combat arms who can receive full credit for joint tours as brief as two years if reassigned to operational positions. The Secretary of Defense can waive the full tour requirement for officers in professional branches or those with scientific or technical skills. Officers who have completed two full joint duty tours and wish to become joint specialty officers may forego the joint professional education requirement.

In January 1988 an Army centralized selection board reviewed about 6,000 personnel files of officers who possessed high performance ratings and experience in joint assignments for selection as joint specialty officers. The board recommended about 4,500 names from which the Secretary of Defense chose 4,315 Army field grade and 133 general officers to receive the designation Additional Skill Identifier 3L, Joint Specialty Officer. The Army designated 3,025 field grade and 94 general officer joint duty assignments, which included 381 critical positions. Unable to meet its total joint professional military education requirements solely with

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slots available at the National Defense University (NDU), the Army obtained permission from Congress to establish temporary programs in joint education at the Army War College and the Army Command and General Staff College (CGSC). The FY89 Defense Authorization Act liberalized certain Title IV requirements. It reduced joint duty tour lengths to three years for field grade and two years for general officers, allowed use of the grandfather clause for joint tours served before enactment of Title IV, and extended the transition period for the joint duty program from October 1988 to October 1989.

Begun in December 1988, the Jumpstart program assigns highly qualified active component captains and majors to Army Readiness Groups in CONUS. A team effort by U.S. Army Forces Command (FORSCOM) and the Total Army Personnel Agency to improve Active Army support to the reserve components, it utilizes captains graduated from the officer advanced course and majors graduated from a command and staff college. Following 24-30 months' service in a FORSCOM active duty assignment, these officers transfer to a nearby readiness group for the remainder of their stateside tours. Thus, they bring knowledge and skills gained from both advanced Army schooling and experience with Tables of Organization and Equipment (TOE) units to their jobs with the reserve components. Of 770 authorized slots for active component officers assigned to CONUS Army Readiness Groups, Jumpstart personnel will fill about 120.

The Army created a new career program for active component officers in psychological operations and civil affairs in February 1988. Heretofore, reserve component personnel have filled most of these positions and carried the career field designation BR (branch) 38. Active component officers who worked in psychological operations and civil affairs have used the designation FA (functional area) 18, Special Operations. Army officials assigned that designation to the new Special Forces branch in 1987. A functional area represents a career field, unrelated to branch, normally assigned to officers during their seventh year of service. Most officers alternate between branch and functional area duties after fully qualifying in their career branch. The Army, in effect, has established a new functional area so that active component officers, captain through colonel, may train in a formal career program that includes professional development, promotion potential, and command opportunities. The new career field carries the designation FA 39. Reserve component civil affairs specialists have retained

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the designation BR 38, while psychological operations specialists have assumed FA 39C.

The Army Vice Chief of Staff approved deletion of Area of Concentration (AOC) 25F, Communications-Electronics Materiel Integration, in June 1988. His decision placed primary responsibility for materiel management of electronics and electronic devices in the logistics branches. Army classification personnel recoded about 479 active component officers; some 360 officers remained Signal, AOC 25C; and the remainder transferred to Ordnance and Quartermaster. Officials expected to reclassify approximately 116 officers in the National Guard and 129 in the Army Reserve by early

FY 89. All affected officers could submit preference statements for rebranching and individual training plans.

In an attempt to improve warrant officer personnel management and retention, the Army has implemented the Total Warrant Officer System (TWOS). Not covered by the Defense Officer Personnel Management Act, warrant officer management has operated under fixed promotion points,. without a selective retirement plan for periods of forced strength reductions, and with the burden of outdated laws. The 99th Congress changed Title 10 of the *United States Code* to provide for the commissioning of warrant officers with the intent of standardizing warrant officer appointment procedures. While not mandatory, the commissioning process did increase the authority of warrant officers. The prerogatives of those commissioned include ordering enlisted soldiers into arrest or confinement, administering oaths of enlistment or reenlistment, and serving on courts-martial in certain situations.

TWOS contains a combination of Army policy changes and proposed legislation. In FY 88 the Army created the position of master warrant officer, MW4. This position kept the chief warrant officer (CW4) pay level but became senior to CW4. MW4s attain full qualification by successful completion of a three-stage training program-a 100-hour correspondence course; an 8-week resident course at the Warrant Officer Career College, Fort Rucker, Alabama; and a proposed advanced instruction phase geared to a warrant officer's job specialty. Other implemented warrant officer management policy changes include the requirement of Warrant Officer Candidate School before appointment; position coding by skill and experience and a restructured training system to meet position coding requirements-warrant officer (W1/2), senior warrant (W3/4), and master warrant (MW4/W5); and Regular Army integration at W3 level. The Army has proposed several legislative changes to facilitate the effectiveness of TWOS: creation of the pay

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grade of W5, W4 level plus approximately 12 percent; establishment of the rank CW5 with a 5 percent strength limit; a single active duty list and promotion system; selective retirement under conditions of forced warrant officer strength reductions; and mandatory retirement for CW4s at 24 years of warrant officer service and CW5s at 30 years of warrant officer service.

The Full Time Support (FTS) force for the reserve component consists of active component, active guard/reserve personnel, military technicians, and Department of the Army civilians. They augment the administrative, recruiting, maintenance, and training needs demanded of the reserve component by the CAPSTONE, a procedure that aligns reserve component units scheduled for assignment to Europe with their wartime chain of command, and roundout programs. Granting less than the Army requested, Congress increased active guard/reserve strength by 1,587 and military technicians by 1,388 in FY 88. About 38,000 soldiers serve in the active guard/reserve, 25,000 with the National Guard, and 13,000 with the Army Reserve. Management of the active guard/reserve, which began in the early 1980s, started with a decentralized system in which commands and agencies controlled assignments and tour renewals. In recent years the Army has standardized many management procedures for the active guard/reserve. It now uses selection boards that convene periodically at the Army Reserve Personnel Center in St. Louis, Missouri, to review the qualifications of soldiers in the program. In FY 88 the Army further standardized management procedures by establishing each first tour at three years and requiring continuation boards to approve all active guard/reserve personnel for subsequent tours.

The Defense Department has modified its overseas military personnel assignment policy by redefining low-cost moves. Formerly capped at $100, low-cost moves now may total $500. Low-cost moves possess the advantage of eliminating many administrative requirements of a normal permanent change of station by shifting authority over transfers from personnel commands to overseas commanders. The recent change simplifies reassignment for short distances of personnel already overseas without extending the length of their tours. Additionally, soldiers are now entitled to a paid trip to the U.S. if they serve a consecutive tour of duty at the same station or are reassigned to another OCONUS duty station. This procedure allows OCONUS commanders the flexibility to retain soldiers for mission requirement and lets soldiers volunteer for reassignment for a consecutive overseas tour at another location.

The Army has introduced its Transition Management Program designed to foster Total Army manning and to reduce costs. It concentrates upon retention of first term active duty soldiers but also seeks to recruit departing active military personnel into the reserve component, to enhance the Army's image by the successful reentry of soldiers into the civilian job market and educational institutions, and to reduce the Army's annual unemployment costs, which presently run about $65 million. The Unemployment Compensation Ex-servicemen's Program provides up to thirteen weeks of unemployment compensation to Army personnel who leave service either voluntarily or involuntarily. Composed of four modules-Total Army career counseling, career planning and retirement services, education, and job assistance-the Transition Management Program has undergone testing at Fort Bragg, North Carolina. Army officials expect not only to retain the program but also to expand it throughout CONUS by 1990. Continuation of the program, however, depends upon funding from a skeptical Congress.

Various segments of the executive branch and Congress have expressed growing concern about improving the use of federal civilian employees in the 1980s. In FY 85 Congress eliminated the civilian strength ceiling for the armed services and emphasized managing the civilian work force based on funded work load. In the mid-1980s the Army Chief of Staff instituted the Civilian Personnel Modernization Project (CPMP) to evaluate the feasibility of making fundamental changes in Army management of its civilian employees. Areas of special concern included simplifying job classifications, making local managers more accountable, recruiting employees directly, and basing pay levels upon performance. An outgrowth of CPMP, the Army's Managing the Civilian Work Force to Budget (MCB) experiment began in October 1987. It consists of a two-year test that delegates responsibility for position classification and execution of the approved Army budget for civilian personnel resources to the lowest level of management, the line supervisor. A gain-sharing plan rewards supervisors and employees with dollars saved by their increased efficiency. The following installations are participating in the test: Fort Jackson, Fort Irwin, North Pacific Engineer District, Red River Army Depot, Natick Laboratory, U.S. Military Academy, and the Army Personnel Center.

Stability and Cohesion

In 1981 the Army initiated the Unit Manning System, first called the New Manning System, to enhance the combat readiness

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of tactical units of the active component by reducing personnel turbulence and fostering unit cohesion, esprit, and a sense of belonging. Originally, the initiative consisted of two major subsystems: the Cohesion, Operational Readiness, and Training (COHORT) Unit Replacement and the U.S. Army Regimental System. In 1985, the Army decided to separate the COHORT and. Regimental systems. On 24 February 1988, the Chief of Staff approved the continuation and expansion of the Unit Manning System, which builds on the success achieved with the COHORT Unit Replacement program.

In general terms, the Unit Manning System operates as a tiered replacement system that has three interdependent processes. Traditional COHORT company-size units support the requirements in short tour areas OCONUS. These combat arms units are recruited and trained as companies that remain together for a definite life cycle, usually three years. Sustained COHORT units, commonly referred to as the Package Replacement System, form at the battalion level. Sustained COHORT units have perpetual life cycles and receive sustainment packages of officer and enlisted personnel periodically in lieu of a complete rebuilding of the unit. The Sustained COHORT System supports all COHORT units except those deploying to Korea. The Sustained COHORT System functions as a cyclical personnel replacement system that assigns packages of soldiers which form from the, training base and the Army at large directly to the TOE battalion. Packages composed of officer, NCO, and initial term soldiers arrive every four months. Selected units of light infantry divisions receive reload packages every twelve months. The Individual Replacement System primarily supports Table of Distribution and Allowances (TDA) units, TOE units above battalion, and other TOE units until they are manned through either Traditional or Sustained methodologies.

Through implementation of Chief of Staff guidance approved in FY 88, 33 percent of divisional and selected corps company-level units of infantry, armor, and field artillery will be manned under Unit Manning System methods by FY

92. Korea will be supported by 76 companies of Traditional COHORT. These companies will , form and spend their first 24 months in either Forces Command or Western Command (WESTCOM) and then deploy to Korea for the final 12 months of their life cycle. Replacement units formed by the same procedure will take their place at the end of the units' Korean tour. Two hundred eighty-eight company-level units in Forces Command, Western Command, and U.S. Army, Europe (USAREUR), will be manned with Sustained COHORT. The majority of these 288 units will receive replacements on a 4-month periodic basis. The

[26]

7th and 10th Infantry Divisions (Light) will test a 12-month replacement cycle. By the end of FY 88 the Army had formed a total of 281 COHORT companies.

The U.S. Army Regimental System affiliates a unit or group of similar units with a particular regiment. Each regiment has its own colors and provides soldiers in its affiliated units the opportunity to identify with the regiment's history, customs, and traditions. The system had 160 combat arms regiments by the end of FY 887 Air Defense, 16 Armor, 27 Aviation, 7 Cavalry, 48 Field Artillery, 54 Infantry, and 1 Special Forces. The Regimental System also allows affiliation by Active Army soldiers in combat support and combat service support units and special branches. All branches have retained their corps titles and exist as whole branches-Adjutant General's Corps, Army Medical Department Regiment, Chaplain Corps, Chemical Corps, Corps of Engineers (COE combat arms branch, which adopted the whole branch corps concept), Finance Corps, Judge Advocate General's Corps, Military Intelligence Corps, Military Police Corps, Ordnance Corps, Quartermaster Corps, Signal Corps, and the Transportation Corps.

Disciplinary actions resulting from violations of the Uniform Code of Military Justice (UCMJ) by Army personnel have decreased dramatically since the 1980s began. The number of disciplinary actions fell most sharply from FY 81 to FY 85 and have either continued to drop, although at a slower pace, or stabilized by FY 88. Courts-martial reached a peak of almost 14 per 1,000 in FY 81 but fell to about 5 per 1,000 by FY 88. Nonjudicial punishment cases numbered 197 per 1,000 in FY 81 but dropped to about 120 per 1,000 in FY 88. Absence without leave (AWOL) and disciplinary actions for desertion decreased sharply between 1981 and 1985 and have stabilized since that date. Attempts to assess the scope of drug use by Army military personnel in the 1980s have produced inconclusive findings, largely as a result of an absence of uniform testing and reporting practices during much of the period. Studies indicate that Army personnel have used several addictive drugs in this decade with marijuana ranked number one to recent date. A study of marijuana and cocaine use in the Army from 1979 through 1987 revealed totals of 302,984 and 12,042 users respectively reported to the Army Crime Records Center. Cocaine use appears to be increasing among Army military personnel, although on a scale no different from society at large. Army officials are vigorously seeking improvement of their detection and treatment procedures for drug offenders.

[27]

Quality of Life

The term quality of life refers to Army services and facilities that impact directly upon the living and working conditions of soldiers and their dependents. These include family support programs, child care, spouse employment, health care, and housing. The Army leadership recognizes the importance of adequate quality of life programs because they directly influence job efficiency, retention, and ultimately the readiness of the Total Army. Budget constraints held progress in Army quality of life programs to modest gains during FY 88 and caused Army planners serious concern about the adverse effects of continued tight money upon future development of these programs.

The Secretary of Defense issued a policy statement in FY 88 that charged the armed services to develop family support programs which meet installation-specific needs. He emphasized that dramatic reductions in the Defense Department budget demand innovative solutions that must include sharing resources between the armed services and with other federal agencies. Areas of family support highlighted included premobilization indoctrination, relocation assistance, child care, youth recreation/development, private and public sector employment assistance, substance abuse prevention, family health and fitness, exceptional family member program, and community development. The Army responded with

a renewed commitment to improve its family support programs. The Army Research Institute (ARI) completed the first year of a five-year study, the Army Family Research Program, in FY 88. It is investigating the effect of the families of Army personnel on readiness and retention. The study estimates that 20-30 percent of soldiers who leave active duty do so because of family reasons. Based on interviews with Army personnel, the institute has identified five major family issues that exercise great influence over decisions to continue or leave Active Army service: permanent change of station moves, spouse employment, child care, health care, and housing.

In 1987 the House Armed Services Committee directed the Defense Department to establish relocation assistance centers in the armed services on a trial basis. The centers would offer information to newly assigned personnel and their families on the local cost of living, housing, spouse job opportunities, day care facilities, schools, and public transportation. The Army opened relocation assistance centers at Fort Benning, Georgia, and Fort Lewis, Washington, in FY 88 to assist both its military and civilian personnel. The Secretary of Defense issued a formal policy directive in FY 88

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that affirmed the right of service member spouses to have jobs and prohibited commanders from considering this factor in rating, assigning, or promoting service members. The Army Family Research Program, cited above, determined that employed spouses of Army personnel contribute about 28 percent of family income. It also concluded that the presence of a spouse employment program on post increased the number of employed spouses by 10 percent.

During FY 88, 304 Army child development centers and some 8,000 on-post quarters of Army families offered regular day care to about 149,000 children. The budget allowed $33 million for construction of 13 new child development facilities at 11 locations. Some of the new facilities will accommodate not only day care but also youth, education, and religious activities. In March 1988 the Deputy Chief of Staff for Personnel (DCSPER) approved a policy regarding children infected with HIV who use Army day care centers. Those under age six, and those of any age who lack control of their body secretions, must obtain care in a special-purpose family child care home. Fort Hood, Texas, and Fort Rucker (Alabama) have the existing homes in 1988. Parents of school age children infected with HIV must coordinate with physicians, public health officials, and child development services staff to determine appropriate placement options.

Implemented in FY 86, the Army Health Promotion Program seeks to improve and protect the physical, emotional, and spiritual health of soldiers, civilians, retirees, and family members. It aims to provide health risk assessments for all participants and to offer health education classes on such topics as abstention from smoking, weight control, stress management, alcohol/drug abuse prevention and control, and suicide prevention. The Army's alcohol and drug abuse prevention and control program served more than one million active duty and retired soldiers, civilians, and family members during FY 88. It operates at 192 installations worldwide and, in the past three years, conducted prevention education classes for 600,000 people and returned some 26,000 troubled active duty personnel to regular duty. Army representatives attended the White House Conference for a Drug Free America in March 1988. The conference revealed that the development of drug prevention and control programs by the armed services exceeded those of the private sector. The soldier suicide rate of 10.25 per 100,000 averages less than the 11-12 per 100,000 rate for the general population. Recent reductions in Army suicides-120 in 1985,

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115 in 1986, and 85 in 1987-promoted optimism, but the 1988 number of 90 caused some concern.

The Army health care system, which consists of direct care in Army facilities, the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), and the Dependents' Dental Plan faced continuing problems with staffing and costs in FY 88. Established in 1966, CHAMPUS provides non-active-duty beneficiaries with health care from civilian providers when not available at military facilities. Beneficiaries over age 65 must use Medicare. CHAMPUS pays 75-80 percent of a patient's medical costs, and the patient pays the remaining 20-25 percent. The Army's health care work load,

like the other armed services, has been gradually shifting from Army facilities to CHAMPUS during recent years. Costs have escalated both because the number of CHAMPUS users has increased and CHAMPUS expenses exceed direct care by about 40 percent. The Defense Department has undertaken several cost-cutting initiatives for the armed services. One of them, Project Restore, has three elements. Each service medical department chief maintains direct financial responsibility for CHAMPUS and his medical health care facilities. Military hospital commanders may hire civilian medical personnel to increase health care services at their facilities as the need warrants. Each service also will closely monitor the issuance of nonavailability statements of on-post health care facilities which authorize patients to use CHAMPUS.

The Defense Department has initiated other cost reduction measures for CHAMPUS. It adopted a fixed rate plan for certain medical conditions treated in civilian hospitals, the diagnostic-related groups-based hospital payment system. In another measure, the Defense Department awarded a fixed price contract to a consortium headed by Foundation Health Corporation of Sacramento, California, to provide health care services to military dependents and retirees in California and Hawaii. Defense medical officials expect this plan to improve the quality of health care and to reduce both costs and paperwork. Additional changes in FY 88 help CHAMPUS users. As of October 1987 a cap on expenses incurred during a catastrophic illness applied to all patients. Active duty families pay a maximum of $1,000 for covered CHAMPUS medical expenses each year, while retiree families have a $10,000 liability. CHAMPUS now shares in the cost of psychological counseling when provided by authorized counselors. To qualify, beneficiaries must have a medically diagnosed mental disorder, and the diagnosing doctor must refer the patient to an approved counselor and monitor the treatment.

[30]

The Army pursued continued improvement in the housing needs of military personnel in FY 88. It sought construction of 1,532 new homes in CONUS and 446 in Europe. Congress and Defense Department officials authorized the numbers of 1,414 and 446, respectively. The Army requested funding to upgrade 703 substandard dwellings into 536 adequate ones, to convert temporary attic apartments and unused attic space into dwelling units, and to lease 32,741 units in the private sector. It received sufficient money to upgrade 536 substandard dwellings, to convert attic apartments and attic space into 150 dwelling units, and to lease a grand total of 36,715 privately owned units. Build to Lease, Section 801, and Rental Guarantee, Section 802, programs authorize the military services to sign contracts with private developers for housing on or near military installations in CONUS. In FY 88 Congress approved extension of the 801 program to October 1989 with 3,500 additional units and the use of rehabilitated units for both the 801 and 802 programs. In another development in Army housing, Congress authorized a three-year pilot program to transform abandoned urban housing into low-rent enlisted family dwellings. In a temporary setback for Army personnel that subsequent funding may relieve, Congress froze Variable Housing Allowance (VHA) funding for FY 88 at FY 86 levels and also tightened the rate tables. This resulted in an average cut of 2.5 percent in the total annual VHA allowance for eligible soldiers.

Heightened public concern, warnings by the Environmental Protection Agency (EPA), and a Secretary of Defense policy memorandum prompted the Army to develop a comprehensive indoor radon measurement and mitigation program in FY 88. A colorless and odorless gas formed by the radioactive decay of uranium in natural soils, radon can accumulate in poorly ventilated buildings to levels that may cause lung cancer. Scientists estimate that 5,000 to 20,000 Americans die each year from radon exposure. Expected to cost $20-$30 million and to continue through FY 90, active radon testing by the Army began in late 1988. Using about one million radiation-sensitive plastic strips called alpha track detectors, the Army announced it would test its buildings with first priority to housing, child development centers, hospitals, and schools; second priority to facilities with 24-hour operations; and then all other buildings. After identifying all structures with radon levels above the EPA's recommended action level of four picoCuries per liter of air, the Army will take appropriate remedial action.

Army Morale, Welfare, and Recreation (MWR) refers to programs and activities provided to soldiers and their families that

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create a community environment similar to that found in the private sector. The level of appropriated funding depends upon the degree of each program's impact upon combat readiness. On one extreme, mission-sustaining activities have received support primarily from appropriated funds (APF). Examples of mission-sustaining activities include recreation centers, physical fitness centers, and libraries. On the other extreme, nonappropriated funds (NAF), generated by fees charged for services and goods to soldiers and their families, have largely, but not exclusively, financed Army MWR facilities regarded as revenue-generating activities. Bowling centers, clubs, and golf courses illustrate revenue-generating activities.

In an area between the two extremes, Congress authorized support with APF and NAF for basic community support activities such as art, crafts, and child development services. Congress has directed the armed services to reduce their levels of appropriated funding to MWR activities that can generate revenue and to manage all MWR operations in a more uniform, efficient, and businesslike manner. The Army leadership exemplified its intent to comply with the wishes of Congress by planning a series of measures. They include expanding the Army partnership with the Army and Air Force Exchange Service, exploring private sector initiatives that could enhance MWR management, building on the one-fund concept, adopting principles of management centered upon customer-oriented marketing, pursuing management information systems for MWR worldwide, and instituting high quality MWR training programs.

Commissaries provide a basic quality of life benefit to Army families and save their patrons about 25 percent over similar purchases from private businesses. Begun in March 1987, the Reserve Component Modified Shopping Agreement permitted reserve personnel to accrue one day of commissary privilege for each day of active duty for a maximum of fourteen days a year. Influenced by private sector interest in the commissary business, the Office of Management and Budget (OMB) proposed a limited test during FY 88/89 to determine if private management can operate commissaries more efficiently than the armed services. The consensus of Congress opposed private operation of commissaries. The 1989 Defense Authorization Act prohibited contracting, procurement, or management of any commissary by outside contractors and also testing of private operation of commissaries. Congress did approve, however, removing responsibility for designing and building commissaries from the Corps of Engineers to private parties. The Army

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contracted with a commercial food store construction firm in late 1987 to replace the commissary at Fort Sheridan (Illinois).

The Army Safety Program attained its best results ever in FY 88. Reductions occurred in every major category of military personnel accidents. The total number dropped 8 percent from FY87 with tactical training accidents down 16 percent and accident fatalities down 10 percent. Privately owned vehicle accidents caused 243 of the 391 soldier fatalities in FY 88. The aviation accident rate dropped to an all time low-1.84 per 100,000 flying hours for Class A and 4.82 for Class A through C. Accident costs fell 21 percent to the lowest figure in seven years. A less favorable development, civilian injury compensation costs rose to $120 million in FY 88 despite a 10 percent drop: in the number of claims during the past five years.

Women in the Army

The presence of women in the Army has risen dramatically in the last 25-30 years. Active component strength in FY 60, 4,263 officers and 8,279 enlisted personnel, rose to about 11,750 officers and 71,500 enlisted by FY 88. Army Reserve strength demonstrates even greater expansion with women now comprising 19 percent of the force-9,125 officers and 46,250 enlisted. Females make up about 6 percent of the National Guard-3,100 officers and 23,700 enlisted soldiers. Despite advances in numbers and opportunities for women in the Army during this period, problem areas remain. In order to assist him in planning for the expanding role of women in the armed services, the Secretary of Defense established the Defense Advisory Committee on Women in the Services (DACOW-ITS) in 1951. Composed of thirty-two civilian men and women appointed to three-year terms, the committee meets twice a year with the respective armed services hosting them on a rotating basis.

As a direct result of continuing concerns expressed by DACOW-ITS about the status of women in the armed, services, the Secretary of Defense established the Defense Department Task Force on Women in the Military in the fall of 1987. The task force's report, published in January 1988, focused attention upon three primary areas: general treatment of women in the services, the application and impact of combat exclusion statutes and policies upon women, and the effect of force management policies upon women's career opportunities in the military. The task force emphasized the continuing presence of sexual harassment of female soldiers and called for a standardized definition of the term by the Defense Department, periodic review of its prevalence, and an improved training

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program about sexual harassment by each service. The task force also recommended that the Assistant Secretary of Defense for Health Affairs (ASD [HA]) reevaluate the present policy that restricts the number of assignments open to medical personnel who specialize in the treatment of servicewomen.

Although legislation exists that excludes servicewomen of the Navy, Marine Corps, and the Air Force from combat duty, no statutory provision applies explicitly to the Army. *United States Code,* Title 10, Section 3013, grants the Secretary of the Army authority to determine assignment policy for all Army personnel. The Secretary has used that authority to forbid assignment of women to military specialties that incur the highest probability of direct combat. In 1983 the Secretary of the Army created the Direct Combat Probability Coding System (DCPC) that codes every position in the Army from the highest to lowest probability of direct combat, P1 through P7. Women cannot serve in PI positions. Furthermore, the DCPC system closes many noncombat positions and units primarily because of their continued proximity to the enemy on the battlefield. Women ordinarily cannot serve in units routinely operating forward of the brigade rear boundary. The task force recommended that the Secretary of the Army consider opening brigade positions which, like forward support battalions, experience less risk than combat battalions. As regards servicewomen's career development, the task force suggested that each service secretary give priority consideration to female officer leadership development and key billet/command assignment and to devise a plan to open nontraditional skill areas to enlisted women.

In conformance with the recommendations of the Defense Department Task Force on Women in the Military and instructions from the Secretary of Defense, the Army reaffirmed its sexual harassment prevention program in FY 88. Following a reevaluation of the DCPC system, the Army opened 11,138 positions for female military personnel-3,128 active component, 6,274 National Guard, and 1,736 Army Reserve. The DACOW-ITS raised additional questions on women in the armed services in 1988, which required ongoing consideration by Army officials of such topics as career opportunities for women in field artillery, selection criteria for lieutenant colonel commands in the reserve components, and the effects of pregnancy on morale and combat readiness.

[34]

Civilian Personnel

Comprising most of its sustaining base, the Army's civilian force serves as an essential component of the Total Army team. Its members perform critical functions in varied and complex fields that include acquisition, communications, logistics, maintenance, medical support, and research and development. In 1988, the Army developed its Civilian Employment Level Plan (CELP) as a means of managing civilian strength.

Deficit reduction agreements reached in late 1987 forced the Army to cut its civilian strength. The Total Army Personnel Agency oversaw a reduction-in-force program, which the Offices of the Deputy Chief of Staff for Personnel, the Assistant Secretary of the Army (Manpower and Reserve Affairs) (ASA [M&RA]), and the Chief, Legislative Liaison, coordinated with Congress. Hiring freezes, cancellation of job vacancies, reprogramming of funds, and voluntary early retirements reduced initial estimates of 2,141 separations to fewer than 300. Army agencies that resorted to early retirement authority included the Army Materiel Command (AMC), Forces Command, Information Systems Command (ISC), TAPA, and the Training and Doctrine Command (TRADOC). Of 26,898 civilians eligible to retire early, 5,179 did so. The Army's CELP for FY 88 authorized approximately 400,000 personnel. The Defense

Department's one-for-two hiring freeze, implemented during late May through September, however, left Army civilian strength at 392,947 by the end of FY 88-336,630 direct hires and 56,317 indirect hires.

Work efforts of the Civilian Personnel Modernization Project continued in 1988. Beginning 1 October 1987, fifteen Army activities began participating in the Managing the Civilian Work Force to Budget (MCB) test. MCB holds managers responsible and accountable for their civilian personnel resources. Within this context, MCB provides participating supervisors maximum flexibility to manage their civilian personnel costs (including base salary, benefits, overtime, awards, and premium pay) within a Civilian Pay Ceiling (CPC). Conventional controls over civilian personnel costs-average grade controls, high grade controls, and supervisory ratios-were rescinded or modified. Because of initial favorable reports on MCB, the Army projected its expansion by FY90 to an additional forty-five activities and all TRADOC activities.

Training represents another issue essential to the civilian community. In 1988, the Chief of Staff fully endorsed the implementation of the Army Civilian Training, Education, and Development

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System (ACTEDS) in an attempt to improve civilian training. Designed to ensure planned development of the civilian work force through an approved career management system, ACTEDS blends progressive and sequential work assignments with formal training from the entry to the senior executive service level. This program provides a structured approach to technical, professional, and leadership training and development similar to that used by the military. In August 1988, the Chief of Staff indicated that the Army would not have adequate funding for ACTEDS, but he directed commanders to "make ACTEDS happen."

A 1986 Army Inspector General Report noted a deficiency of leadership training for Army civilians and a lack of understanding of civilian personnel management by the Army's military managers. As a consequence, in 1988 the Army instituted a Civilian Leadership Training Program (CLTP) as part of ACTEDS. The CUP provides three levels of leadership training-Level I, Intern Leadership Course; Level II, Leadership Instruction and Supervisor Training Course for new supervisors; and Level III, Organizational Leadership for Executives Course intended for managers in the grades of GS/GM 13-15. The Center for Army Leadership (CAL) at Fort Leavenworth, Kansas, conducted Levels I and III courses as regular training programs in FY 87 and tested Level II courses in FY 88. By the end of FY 88, CAL had trained 2,179 students in CUP. CAL will train two-person teams, from various Army commands and activities, at Fort Leavenworth to enable local delivery of CUP throughout the Army.

The Equal Employment Opportunity Commission (EEOC) issued two directives to federal agencies regarding their affirmative action/equal employment opportunity programs in FY 88, which required responses by the Army. Directive MD 713 instructed federal agencies with more than 1,000 employees to submit annual affirmative action progress reports to the commission on the hiring, placement, and advancement of handicapped persons. Directive MD 714 required all federal agencies to improve their hiring and promotion practices for women and minorities. Since 1980, Army representation of minorities has risen from 18.8 to 25.7 percent, while representation of women has risen from 36 to 42.1 percent of the total work force. Both figures exceed the national civilian labor force representation of minorities and women. In higher general schedule grades through senior executive service (SES) positions, their representations remain minimal. This situation led the former Secretary of the Army and the Chief of Staff to sign a memorandum which directed the personal commitment of commanders

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in improving representation of minorities and women in GS/GM 15 and SES positions. A selection review procedure has been instituted that requires approval of selections by secretariat level functional officials.

Important decisions regarding drug testing and HIV screening of Army civilian personnel occurred in FY 88. On 1 March, a federal district judge enjoined the Army from performing random drug testing of its civilian employees assigned to critical positions. The injunction, however, permitted continued testing of job applicants, persons in

consensual rehabilitation, and in cases both of accident and reasonable suspicion of drug use. On 30 March, the Court of Appeals stayed the preliminary injunction pending appeal. On 6 July, the same judge made permanent the preliminary injunction against drug testing issued on 1 March; however, random testing continued under a stay pending appeal. Also in July the Assistant Secretary of Defense for Force Management and Personnel stated that Defense Department policy on HIV testing of its civilian workers required only those employees who perform official duties OCONUS to undergo testing when formally requested by host nations. For example, Egyptian officials requested HIV screening of Army Corps of Engineers civilians assigned in their country. Defense Department policy on HIV screening of civilians does not apply to their family members or contractor personnel.

Congress passed legislation in 1983, Public Law (PL) 98-21, which brought federal workers hired after 1 January 1984 into the Social Security System. This change required a new federal retirement program that Congress established in June 1986, PL 99-335, called the Federal Employees' Retirement System (FERS). FERS consists of three primary parts-social security, a basic plan that supplements social security, and an optional tax-deferred savings plan. Effective in January 1987, FERS required its members to pay social security taxes and contributions into the basic plan of 1.3 percent for 1987, 0.94 for 1988 to 1990, and 0.8 percent in 1990. The optional tax-deferred savings plan, Thrift Savings Plan (TSP), became effective in April 1987. Employees of both the FERS and the Civil Service Retirement System (CSRS), the retirement program for federal workers hired before January 1984, could participate in FERS. FERS members can contribute up to 10 percent of their salaries into the TSP, which the government will match up to 5 percent. CSRS employees can contribute up to 5 percent into the TSP, but they receive no government matching. The federal government held an open season during 1 July 1987-31 December 1987 at which time CSRS employees could elect to transfer to

[37]

FERS or remain in CSRS. About 2 percent of Army CSRS workers, eligible for conversion, chose FERS coverage.

[38]

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

3

Training

"Training is our top priority," Army Chief of Staff Carl E. Vuono stressed as he and Secretary of the Army John O. Marsh, Jr., jointly announced training as the Army theme of 1988. High quality training produces a combat-ready Total Army-active, National Guard, reserve, and civilians-that can win on the battlefield. It must focus on individuals, leaders, and units, General Vuono further remarked. Individual training should develop disciplined, physically tough, and technically skilled soldiers. Effective leader training produces commanders/supervisors who possess a combination of technical proficiency, flexible and analytical minds, and the ability to set the example and motivate their subordinates. Unit training, when properly conducted, creates a group proficiency and synergism that promise high unit performance under the rigors of combat.

General Vuono established several training initiatives in 1988. He directed that the General Officer Steering Committee (GOSC) meet once or twice a year with principals of the secretariat, Army staff, and major Army commands to discuss training issues. The committee created a training teleconferencing net, which uses the Army FORUM network to enable all Army commands to exchange training information. General Vuono also established senior leader training conferences to evaluate unit training at the combat training centers. The budget ax cut 17 percent of the TRADOC budget in FY 88. According to General Maxwell R. Thurman, TRADOC commander, this reduction forced TRADOC to accelerate its fielding of new training techniques. Examples included expanding the use of training simulators to save time and money and reducing the costs of major training exercises by transporting fewer people and equipment by relying more on pre-positioned assets. Budget constraints required reductions in Army ground and air OPTEMPO, or operating tempo, in FY 88. Army officials had sought active component OPTEMPO of 850 miles and 15.8 hours, respectively, but cut these figures to 725 and 14.5.

Individual Training

The Chief of Staff insisted that FY 88 budget cuts not adversely affect the Army's NCO Education System (NCOES). The system consists of the Primary Leadership Development Course, the Basic NCO Course, the Advanced NCO Course, functional courses for selected NCOs with specific duties, and the Sergeants Major Course. "Our Army cannot function without the expertise of its sergeants of every grade and specialty," General Vuono stated. "NCOs must possess tactical and technical competence which means they must know doctrine, or how the Army plans to fight: Then, NCOs can translate doctrine into tactics and procedures; they can integrate weapons systems, arms, and services to generate combat power," the Chief of Staff continued. "NCOs must serve as role models and ensure that their subordinates fully learn the tasks critical to their unit's warfighting mission." The Secretary and the Chief of Staff confirmed two requirements, in effect but not consistently enforced in FY 88, which link promotion to the NCOES. Effective October 1989 all promotions to E-5 will require successful completion of the. Primary Leadership Development Course. Effective October 1990, all promotions to E-'7 will require successful completion of the Basic NCO Course.

Title IV of the 1986 Defense Department Reorganization Act, which mandated joint officer personnel policy in each armed service, stipulated that, after 1 October 1989, officers must successfully complete an approved joint Professional Military Education (JPME) program and then a joint duty assignment for eligibility for joint specialty designation. Although Congress did not clearly define JPME, it indicated that joint service schools such as the National Defense University, not separate service schools, must sponsor JPME. Because the Army could not meet its JPME requirements through available slots at the National Defense University in FY 88, it obtained permission to establish programs at its senior colleges. In August 1988 the Office of the Joint Chiefs of Staff (OJCS) authorized a JPME program with two phases. The core curricula of ail intermediate and senior service colleges will incorporate Phase 1. The Armed Forces Staff College (AFSC) will conduct Phase 2, a two- to three-month course designed for officers slated for joint duty

assignments. The Chief of Staff directed the Army War College not only to conduct Phase 1 instruction but also to revise its curricula to instill a working knowledge of military strategy in its graduates. General Vuono believed that the Army's senior military officers must understand the concepts of strategy both to

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advise the national leadership on the use of military power and to apply it skillfully.

Training needs for individual marksmanship and physical fitness of Army personnel received attention during FY 88. Recent reviews of marksmanship throughout the Army revealed a need for improvement. Some soldiers lacked such rudimentary skills as the ability to zero their individual weapons. The General Officer Steering Committee discussed this topic at its September 1988 training theme meeting. Chief of Staff guidance at the meeting focused on three salient points. First, all commanders/leaders must emphasize good marksmanship. Second, trainers should fully use training devices to develop shooting skills and to conserve scarce resources. Third, soldiers must recognize that marksmanship represents a fundamental skill critical to military job performance. The physical demands faced by light infantrymen who travel long distances on foot with combat equipment over rough terrain has rekindled concern about physical endurance. The Army Physical Fitness School and other Army agencies have been restudying soldier load-bearing performance that publication of a new field manual (FM) 21-20, *Physical Fitness Training, will* address. It advocates a minimum of four physical training sessions per week for light infantrymen. These include two sessions of muscular strength/endurance development, a cardio-respiratory workout, and a road march/load-bearing session, which makes increased demands for distance, load, speed, and terrain difficulty

The Army initiated other training plans and programs in FY 88. The Deputy Chief of Staff for Logistics (DCSLOG) hosted development of a Long-Range Logistics Training Master Plan to enhance combat service support warfighting for active and reserve components and civilians through the year 2008. The plan will emphasize such areas as technical skill proficiency, the combat service support Army Training and Evaluation Program (ARTEP), and civilian training. Because of shortages in qualified Apache helicopter pilots, TRADOC redesigned the fourteen-week Apache Aviator Qualification Course into a more concentrated ten weeks, effective February 1988. TRADOC expected yearly Apache pilot production to increase from about 450 to 650. Another initiative seeks to improve reserve component military occupational specialty qualification by retraining active component soldiers for specific reserve component unit vacancies before they leave active duty. Even though the concept would detract from the functioning of the active force, the soldiers would remain available for active force needs while in training for their new reserve jobs.

The Combined Arms Training Activity, the Combined Arms Center (CAC), the Army Training Board (ATB), the Logistics Center (LOGC), and the Soldier Support Center (SSC) have redesigned the ARTEP and made it more usable by small unit leaders. Begun in 1975 and now in its fourth stage, ARTEP permits commanders to evaluate unit training as a complement to individual training. The first generation consisted of one book for battalions through squads, three levels of training (Ll-L3), and a system of different tasks and standards for each unit echelon. In 1978 the second generation ARTEP introduced a single standard for all echelons of a unit. The third generation, introduced in 1982, provided lists of minimum essential tasks and more detailed training and evaluation guidelines. Fourth generation ARTEPs now provide separate manuals for mission training plans and battle drills. In effect, the battalion ARTEP, which had covered the unit from commander to the squad, now contains separate books to simplify the training evaluation responsibilities for leaders of each echelon of the battalion. The new ARTEP introduced the term tactical techniques. Unlike rigidly standardized battle drills, tactical techniques allow commanders to modify procedures to accomplish various training tasks successfully.

Training Facilities and Devices

Implemented in January 1987, the Combat Training Centers (CTC) program provides a broad training strategy that incorporates four programs-the National Training Center (NTC), the Joint Readiness Training Center (JRTC), the Battle Command Training Program (BCTP), and the Combat Maneuver Training Center (CMTC). As a comprehensive

mechanism, it trains soldiers from privates through corps commanders in scenarios that realistically simulate low- to high-intensity combat. Operational at Fort Irwin, California, since 1982, the NTC serves as the Army's primary CONUS training facility for armor and mechanized infantry units. It trained twenty-eight heavy battalions, which included National Guard units, in FY 88. Brigade commanders and staffs have participated with the battalion undergoing rotation at the NTC since 1987; 1988 saw the employment of a heavy/light brigade. During 27 February-11 March 1988 two battalions (5th Battalion, 16th Mechanized, and 2d Battalion, 34th Armor) of the 1st Infantry Division (Mechanized) trained with 3d Battalion, 27th Infantry, of the 7th Infantry Division (Light) at Fort Irwin. Sizable Air Force Military Airlift Command (MAC) and Tactical Air Command (TAC) contingents support

[42]

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training operations at the NTC and facilitate the testing of multiservice Army-Air Force operational tactics and procedures.

The success of the NTC prompted development of a major light unit training facility. Planning initiated in 1983 resulted in creation of the JRTC in 1987 with an operational headquarters temporarily located at Little Rock Air Force Base and a temporary primary maneuver area at Fort Chaffee (Arkansas). On 5 October 1987, elements of a task force from the 3d Battalion, 504th Infantry, 82d Airborne Division, parachuted into Fort Chaffee as the first light unit rotation at the new facility. It consisted of an airborne infantry battalion, an aviation task force, and a full range of combined arms assets. Light forces require considerable air support, so the TAC assigns a squadron to provide that support when requested by the rotating light unit commander. Air National Guard units in Arkansas and Oklahoma supplied close air support for the opposing force. A task force from the 2d Battalion, 22d Infantry, 10th Mountain Division, experienced logistical problems in its December 1987 rotation at the JRTC because it relied on a task force from another division, the 82d Airborne Division, to provide combat support shortfalls. Establishment of a brigade headquarters relieved this problem for subsequent unit rotations. Seven units trained at the JRTC in FY 88, six active component and one reserve. The Army continued to pursue a permanent site for the JRTC.

Headquartered at the Combined Arms Center, Fort Leavenworth, Kansas, the Battle Command Training Program provides advanced combat training to division and corps command staffs through battle simulation. The concept incorporates an observer/ controller staff, a standardized threat, and a comprehensive after-action review package supported by the corps/division battle simulation system. Mobile trainer teams can direct the process at any installation with the requisite battle simulation system. The program consists of two phases. Phase 1 allows the commander and his staff to participate in Air-Land Battle discussions, threat updates, decision exercises, and simulation familiarization during a 3-5 day period. Phase 2, the WARFIGHTER Command Post Exercise, lasts 9 days and trains the commander and his staff in an environment that replicates combat. During 25-29 January 1988 the BCTP conducted the first WARFIGHTER exercise with the 9th Infantry Division (Motorized) and I Corps at Fort Lewis, Washington. Missions performed included passage of lines, river crossings, exploitation, hasty attack and defense, and deliberate attack. Division and corps participants agreed that the exercise significantly enhanced their

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warfighting capabilities. In FY 88, the 7th, 9th, 24th, and 47th Infantry Divisions underwent the BCTP.

The fourth member of the CTC Program, the Combat Maneuver Training Center, is developing at the Hohenfels Training Area in West Germany. When completed, it will provide training similar to that available at the National and Joint Readiness Training Centers. Authorized in 1984, this center had formed an operations group cadre by FY 88 that consisted of observer/controller teams, training management and lessons learned sections, and an opposing force detachment. The operations group cadre has begun standardized observer/controller training for USAREUR units. Headquarters, USAREUR, expects the Combat Maneuver Training Center to reach full capacity by FY 91. It will have three combined arms observer/controller teams plus other assets needed by an adequately resourced combat training center for live maneuver task forces such as a feedback instrumentation system along with artillery and aviation participation.

In 1984 the Army initiated a range modernization program to support the live fire and maneuver training requirements of AirLand Battle doctrine and the accompanying introduction of modern weapons systems. It consists of standardized ranges for individual and group training and a family of computerized targetry, Remote Engaged Target Systems (BETS), which portray a realistic opposing force. Congress funded eleven range projects for the National Guard in FY 88. They included a multipurpose range complex for heavy weapons at Gowen Field, Idaho, a multipurpose training range at Eglin, Florida, and nine small arms record fire ranges. The Army plans to build sixteen military operations on urbanized terrain (MOUT) facilities, which teach soldiers how to fight in cities and towns. Classes began in October 1987 at a new MOUT facility located at Fort Hood, Texas. Engineers started construction of a MOUT facility at the Hohenfels Training Area, and Congress approved funding for a MOUT complex at Fort McClellan, Alabama. Construction also began in FY 88 on the Army's first aerial gunnery range located at Fort Rucker, Alabama, designed to combine RETS and hard targets and to score, control, arid evaluate the gunnery of Apache and TOW/Cobra helicopters.

The III Corps, the Program Manager for Training Devices, the Infantry and Armor Schools, and the Armaments, Munitions, and Chemicals Command began development of two range projects in FY 88. Designed for tank/Bradley fighting vehicle proficiency training in local training areas, Phantom Run Instrumented MILES Enhancement (PRIME) can monitor and reconstruct platoon free

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play MILES (multiple integrated laser engagement system) engagements against a computerized MILES-compatible target array. PRIME combines existing training devices-basic M1 and M2/3 MILES, laser targets interface device, instrumented MILES and automatic tank target systems-with future nonsystem training devices such as Thru Sight Video and enhanced telemetry for real position location and new range control computers to provide event driven MILES tactical training. Installed at Fort Hood, Texas, in May 1988, a prototype PRIME began seven to eight months of user testing. Enhanced RETS Range Control Station (ERETS), a software program upgrade that operates on standard Army personal computers and a proposed replacement of the RETS Range Control Station, promises the additional capabilities of event driven scenarios, programs that allow trainers to modify target engagements during firing exercises, and color zoom representations of the range and exercise scenario for after-action reviews. During FY 88 armor and infantry ERETS testing occurred at Fort Hood, Texas, and Fort Benning, Georgia, respectively.

The Engineer School began a permanent move in June 1988 scheduled for completion in 1990. The change will consolidate engineer officer training, previously conducted at Fort Belvoir, Virginia, with engineer enlisted personnel training already in place at Fort Leonard Wood, Missouri. Except for military intelligence, all of the other Army branches had already consolidated officer and enlisted personnel training at the same location. Among other advantages, the move will facilitate more intensive field training opportunities, which include battle drills, full-scale breaching operations, and mining training that the crowded conditions at Fort Belvoir had restricted. In another Army school development, a sniper school opened at Fort Benning, Georgia, in FY 88. In addition to extensive marksmanship training, the three-week course instructs trainees in various field craft skills-observation, range estimation, camouflage, stalking techniques, and concealed movement. Company D, 2d Battalion, 29th Infantry, and instructors from the Army Marksmanship Unit conduct the course and fire the M21 rifle system, which consists of an M14 (matchgrade) with the ART-1 scope.

Field Exercises

The Army Exercise Program encompasses joint and combined exercises sponsored by the JCS and the CINCs of the unified and specified commands as well as those which involve only Army

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units. The reserve component participates in all major JCS exercises, and planners attempt to arrange force lists that assign active and reserve component units according to CAPSTONE alignments. In FY 88 the Total Army participated in fifty-three JCS exercises. Field exercises permit Army units to experience total force training in their combat

missions, joint operations with their sister services, and interoperability familiarization with allied forces. Although more restricted because of reduced training funding, overseas deployment of CONUS units to many countries of the world remained an inherent part of the Army Exercise Program. In FY 88 Army units conducted exercises in Central America, Europe, North Africa, Southwest Asia, Korea, and other Pacific nations.

Some Army units participated in exercises overseas during FY 88 that entailed actual confrontations with hostile forces. During this period both combat aviation and support forces contributed significantly to U.S. Central Command (USCENTCOM) operations in the Persian Gulf. Stationed aboard U.S. Navy ships, Army helicopter crews conducted both reconnaissance and attack missions. First to document that the Iranians were laying mines at night in international waters, they successfully attacked the Iranian ship Ajar and repelled numerous attacks upon allied shipping by Iranian gunboats. In March 1988 Jose Azcona Hoyo, President of Honduras, asked the Reagan administration for help in stopping some 2,000 Nicaraguan Sandinista troops reportedly intent upon seizing a large Contra supply depot in Honduras. President Reagan agreed to provide a U.S. show of force and instructed the Defense Department on 16 March to form a joint emergency deployment readiness exercise. The JCS created a joint task force for deployment to Honduras named Operation GOLDEN PHEASANT.

Primary ground troops assigned to GOLDEN PHEASANT consisted of the 1st and 2d Battalions, 504th Infantry, 82d Airborne Division, stationed at Fort Bragg, North Carolina, and the 2d and 3d Battalions, 27th Infantry, 7th Infantry Division (Light), stationed at Fort Ord, California. Lead elements of these units departed their home stations on 17 March within 18 hours of the alert. Within 30 hours, 52 Air Force sorties transported 2,950 soldiers and airmen and hauled more than 890 short tons of equipment to Honduras. The four battalions assumed defensive positions with Honduran units near the towns of Juticalpa, Tamara, San Lorenzo, and Jamastran. Faced with U.S. and Honduran determination, the Sandinistas canceled their intended incursion into Honduras. While U.S. ground personnel engaged in no substantive armed contact with the Sandinistas, an aviation accident resulted in minor injuries to

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ten servicemen. A UH-1 Huey helicopter of the 18th Aviation Brigade from Fort Bragg crashed on 21 March six miles from Juticalpa while en route from Palmerola Air Base in central Honduras. By 28 March the four U.S. Army battalions sent to Honduras for Operation GOLDEN PHEASANT began redeployment to their home stations. Army officials concluded that the exercise went well. It affirmed that doctrine, building units by Army of Excellence standards, fielding high quality equipment, and realistic training produce mobile, combat-ready soldiers capable of short notice deployments.

TEAM SPIRIT, a joint/combined strategic deployment and field training exercise sponsored by the CINC, Pacific Command (PACOM), strives to improve the combat readiness and interoperability of U.S. And Republic of Korea (ROK) forces. Thirteenth in a series which began in 1976, TEAM SPIRIT 88 assembled some 200,000 ROK and U.S. troops for 10 rigorous days of training in late March and early April 1988. The ground combat phase took place at Yoju, 50 miles south of Seoul. The scenario commonly used for TEAM SPIRIT exercises allows both sides to practice offense and defense. The orange forces took the offense until D plus 4 when both sides regrouped, and then the blue forces counterattacked. United States Army presence with the orange force included about 11,500 2d Infantry Division soldiers and a mixture of other Eighth U.S. Army personnel. WESTCOM and I Corps supplied some 11,300 soldiers for the blue force. Major elements included 4,000 25th Infantry Division (Light) personnel, 1,000 from the 9th Infantry Division (Motorized), and 1,500 from I Corps' 331st Corps Support Command. Many of them Roundout units, Army Reserve and National Guard units participated in significant numbers.

Several major innovations by the U.S. armed services occurred at TEAM SPIRIT 88. Opposing force strength increased to multidivision size; unit leaders had more freedom in decision making; combat units dispersed over a wider area; and tactical air support for ground elements increased over previous exercises. The USS *Mid*way's carrier task force conducted exercises with the ROK navy and supported a combined Marine landing on the southeast coast of Korea. TEAM SPIRIT 88 witnessed the first ROK/U.S. combined naval gunfire support exercises, initial use of the U.S. Navy's air-cushioned landing craft to transport materiel ashore, and the first use of combined tactical command structure at sea. A combined landing force conducted a simultaneous surface and helicopter-borne assault similar to previous exercises.

In a new development, after the assault forces secured the beachhead, the Commander of Marine

Forces Korea assumed command of the Republic of Korea and U.S. Marines for sustained operations under the Republic of Korea-U.S. Combined Forces Command.

REFORGER (return of forces to Germany)-a training exercise that involves strategic deployment of American forces from the U.S. to Europe, field training with U.S. forces stationed in Europe and also our NATO allies, and redeployment to the U.S.-affirms the resolve of the U.S. To honor its NATO commitment. American officials felt that REFORGER 88 assumed special significance since the eventual elimination of intermediate-range nuclear weapons focuses renewed interest upon conventional forces. Twentieth in the series, REFORGER 88 conducted its primary activities during the period of August-November 1988. About 125,000 soldiers participated: 103,000 Americans, of whom 17,000 came from CONUS bases, joined 16,000 West Germans; 5,100 Canadians; and 250 Frenchmen and Danes. Flown by the U.S. Air Force Military Airlift Command to destinations in Belgium and West Germany, primary units consisted of the following: 6,500 from the 1st Infantry Division; most of the 197th Infantry Brigade or 3,000 troops; the 3d Armored Cavalry of 3,800; the 1st Battalion, 87th Infantry, 10th Mountain Division; and about 2,500 reserve component soldiers from 34 reserve and 48 National Guard units.

REFORGER 88's main field exercise, CERTAIN CHALLENGE, executed during 12-22 September, encompassed a maneuver area of 16,000 square miles in the West German states of Bavaria, Baden Wuerttemberg, and Hesse along a 100-mile front, which ran from Heilbronn east to Bamberg. Pitting two corps against each other, the CERTAIN CHALLENGE scenario posed a conflict between two fictional countries, Northland and Southland. Southland forces moved into a disputed part of the maneuver area, and the Northland forces sought to drive them back. Rather than a NATO versus Warsaw Pact exercise, both corps commanders tested NATO doctrine and enjoyed independent control over their units. As with most training exercises, neither side won. Both of them, however, improved their skills in adapting to the demands of independent fast paced ground combat.

Commanded by CENTCOM from a temporary headquarters at March Air Force Base, California, GALLANT EAGLE 88 assembled 30,000 soldiers, airmen, marines, and sailors and fought a simulated Middle Eastern war in the western U.S. during July-August 1988. U.S. Army light units participated with Air Force, Navy, and Marine Corps units and aircraft from twenty western U.S. bases in the exercise. Brigades from the 7th Infantry Division (Light) and

the 82d Airborne Division joined the 1st Marine Division and airborne companies from Great Britain and Egypt at the Marine Corps' Desert Training Center at 29 Palms, California. Supply operations constituted a major part of the training since any military contingency in the Middle East would depend heavily upon resupply support. Elements of the 377th Theater Army Command and support units tested supply operations by transferring food, fuel, and spare parts from the beaches at Camp Pendleton, California, to units fighting 200 miles away in the Californian desert at 29 Palms. Other training activities included special operations, mass casualty exercises, medical evacuation, air base defense training, and live range firing. After-action reviews indicated that GALLANT EAGLE 88 contributed to the efficient joint functioning needed by CENTCOM for success in potential combat operations in Southwest Asia.

LOGEX 88, an Army theater logistics command post exercise conducted in CONUS in August 1988, resulted in a number of lessons learned. Several of them follow. Doctrinal and operational concepts about Army combat service support of class I, bulk III, common user V, and line haul transportation to Air Force elements need improvement. In joint combat operations, the Theater Army must prepare to provide supply support early and also to assume enemy prisoner of war and graves registration responsibilities for Marine Corps units. Combat service support must keep pace with maneuver forces to ensure that decisive combat power exists at the right time and place. Another lesson from LOGEX 88, Army units still do not consistently train according to CAPSTONE alignments. A joint logistics over-the-shore (JLOTS) exercise conducted at Fort Story, Virginia, accompanied LOGEX 88. It permitted Army and Navy watercraft and cargo-handling units an opportunity to test new systems and techniques. These included use of the

Army's roll on/roll off discharge platform to remove wheeled vehicles from a fast sealift ship, cargo transfer operations using the Army's logistics support vessel, testing of the Army's new floating causeway and causeway ferries, and demonstration of a modified Navy Seabee ship to deploy the Army's outsize watercraft equipment.

The Combined Arms in a Nuclear/ Chemical Environment (CANE) Program of Force Development Test and Experimentation (FDTE) has been accumulating data and evaluations of a simulated nuclear/chemical environment on an integrated battlefield. Phase IIB of the CANE FDTE took place at Fort Hood during 1-23 March 1988. Members of the 1st Brigade, 2d Armored Division, participated in four realistic Air-Land Battle maneuvers for sustained periods up

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to ten hours, which involved force on force maneuver, live fire, and air support in a nuclear/chemical environment. Some 1,950 soldiers, 148 vehicles instrumented for measuring data, and 187 trained observers participated in the exercise. The TEXCOM Field Instrumentation System collected sophisticated weapons engagement data and added essential battlefield realism. The Chemical School, Fort McClellan, Alabama, will validate CANE FDTE IIB test results, which the Army will then assess to determine their implications upon doctrine, force structure, training, and materiel development.

Reserve Component Training

Concerned about the adequacy of reserve component training, the Chief of Staff tasked TRADOC and FORSCOM in November 1987 to develop a comprehensive reserve training strategy for the future. The Reserve Component Training Strategy Task Force deliberated until August 1988 and investigated four primary training areas-individual, collective, post mobilization, and Individual Ready. Reserve (IRR). They identified a number of problems: training time limited to thirty-nine days a year; excessive administrative distractions and unit reorganizations; a heavy load of annual military occupational specialty reclassifications; and nonstandardized training evaluations. The task force submitted fifty-two training initiatives to the Chief of Staff on 31 August 1988. He approved the strategy in principle and implementation of all initiatives which required no additional funding. The Chief of Staff directed that the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) assume proponency for the Training Development Action Plan, development of a resourcing plan, and staffing of draft DA Circular 350-88-XX, Reserve Component Training Strategy. In a related development, in response to an Inspector General Forces Training Assessment released in July 1988, FORSCOM and the National Guard Bureau (NGB) began a combined effort to publish a joint reserve component training regulation 350-2, Reserve Component Training, scheduled for publication in FY 89.

The Army National Guard consists of 3,457 battalions or separate units situated in 4,600 facilities at 2,858 locations throughout the U.S. and its territories. They represent most skills found in the active component and constantly challenge their commanders with their multiple training needs. Units must travel an average of 40 miles to a local training area, 128 miles to their major equipment storage sites, and 154 miles to a major training area. The New Jersey

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National Guard High Technology Training Center opened at Fort Dix, New Jersey, in October 1987 as a partial answer to the problem and also as a test bed for maximizing technology as a training tool. A multipurpose training site geared to the National Guard (five of its ten divisions reside in the Northeast) and the reserve, it also trains active component personnel. Totaling more than 70,000 square feet, the center can accommodate 250 full-time students and 200 more on weekends and train them in armor, artillery, and maintenance techniques with a large number of simulation devices, panel trainers, computer graphics systems, the Multiple Integrated Laser Engagement System, and the largest assortment of small arms training devices in the Army inventory.

FIREX 88 assembled 17,000 soldiers, predominantly National Guard personnel, distributed among 14 artillery battalions, various combat support/combat service support elements, 35 high performance aircraft, 163 helicopters, and a remote piloted vehicle for a training exercise in the Utah desert during 5-26 June 1988. Several years in planning, FIREX 88 required arduous preparation. For example, engineers-spent a year preparing roads and storage sites, while an

environmental impact study took thirty months. A live fire exercise centered upon I Corps Artillery, FIREX 88 used Tooele Army Depot as the marshaling area, while Camp W. G. Williams and Dugway Proving Ground provided the firing areas. Adhering to the expected fast-moving pace of Air-Land Battle, most units changed location at least three times. Several battles occurred simultaneously, the farthest one about 60 miles from the corps tactical operations center. I Corps fought the main battle on a three-division front with artillery firing provided by the Pennsylvania 28th Infantry Division Artillery, the Wyoming 115th Field Artillery Brigade, and the Missouri 135th Field Artillery Brigade. Brig. Gen. James M. Miller, I Corps Artillery commander, believed that the exercise resulted in highly productive training for his widely scattered units that must respond effectively to potential hostilities in countries located throughout the expansive Pacific Ocean area.

CALUMET CARGO 88, a nationwide cargo transportation exercise, which involved some 1,900 soldiers from 10 National Guard and 22 reserve units and 455 trucks, took place during 9-25 July. Designed to improve staff planning and teach wartime command and control, it also provided technical and tactical training for transportation personnel. The 319th Transportation Brigade located at Oakland, California, a subordinate unit of the 124th Army Reserve Command, served as exercise command headquarters. Four organizations acted as command and control centers across

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the country-369th Transportation Battalion, Fort Indiantown Gap, Pennsylvania; 353d Transportation Battalion, Fort Campbell, Kentucky; 484th Transportation Battalion, Fort Carson, Colorado; and the 818th Transportation Battalion, Sharpe Army Depot, California. In a unique aspect of the exercise, participating units transported cargo, which varied from clothing to heavy equipment, for various Defense Department agencies normally moved by commercial carriers. Examples included 40 modular homes for the Air Force from Tonapah, Nevada, to Cold Lake, Alberta, Canada, and 64 M113A3 armored personnel carriers from Fort Pickett, Virginia, to Fort Indiantown Gap. Units reduced commercial shipping costs by 75 percent for the 12,1'79 tons they transported over 962,397 mission miles which, in turn, considerably lessened the training exercise cost.

Overseas deployment training (ODT), a highly visible demonstration of the Army's determination to fulfill its role in meeting America's overseas defense commitments, provides realistic training to its reserve components through participation in single service, joint, and combined exercises. Begun in 1976 with 26 units/cells (small groups of personnel), ODT trained more than 55,000 personnel in 3,364 units/cells in FY 87. Budget constraints, however, dropped the number to about 45,000 soldiers in 2,536 units/cells in FY 88. The Deputy Chief of Staff for Operations and Plans exercises broad responsibility for ODT, while FORSCOM, in coordination with the reserve components chiefs, manages the ODT program. Army officials try to arrange ODT for reserve component units according to the following schedule-every 3 years for early deploying units with a latest arrival date at an actual or potential combat operations site between D and D+30 and every 5 years for those units arriving on D+31 or later. In recent years, some reserve component units have controlled their ODT by participating in the Deployment for Training (DFT) program in Central America. A DFT normally provides a company or smaller unit a short period of training in basic skills in a jungle environment.

Litigation filed separately during 1987-1988 by two state governors, Rudy Perpich of Minnesota and Michael Dukakis of Massachusetts, directly affected ODT They asserted that the Militia Clause to the Constitution reserved to governors the authority to train the National Guard; therefore, they could cancel ODT in Central America for their National Guard units, which the Defense Department had planned. The Montgomery Amendment to the FY 86 Defense Authorization Act prohibits a governor from withholding approval for OCONUS deployments for any of his or her guard

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units because the governor objects to the location, purpose, type, or schedule of such training. A federal court in St. Paul, Minnesota, ruled against Governor Perpich, but the appeals court had reached no decision by the end of 1988. In a 25 October 1988 decision, the First U.S. Circuit Court of Appeals in Boston upheld the constitutionality of the Montgomery Amendment. The 65th Public Affairs Detachment of the Massachusetts National Guard, a unit Governor

Dukakis specifically declined to send to Honduras, accordingly trained there during May and June. Federal authorities anticipated that one or both governors would appeal the decision to the U.S. Supreme Court.

United States armed forces began periodic combined training exercises with Honduran forces in the mid-1960s and, at the request of the Honduran authorities, have maintained a visible presence in that nation since 1983 with exercises of increased number and size. The U.S. government established joint Task Force Bravo at Palmerola Air Base in August 1984 to serve as headquarters for U.S. Forces and exercises in Honduras. Among the 1986 exercises, reserve component engineers conducted a road-building project in north central Honduras called BLAZING TRAILS. A continuation of BLAZING TRAILS, FUERTES CAMINOS (Strong Roads) built a 14-kilometer road which linked the towns of Jocon and Yoro in the Yoro region about 150 miles north of the Nicaraguan border. From October 1987 through June 1988 12,000 U.S. Army soldiers, largely reserve component, worked for Task Force 111 on FUERTES CAMINOS in concert with Honduran forces. U.S. Army medical and dental teams, veterinarians, civil affairs soldiers, and entomology detachments worked hard, not only to support Task Force 111, but also to improve living conditions for villagers of the region.

The reserve component has performed ODT in many foreign countries in recent years, and favorably impressed federal government spokesmen advocate its expansion. In OPENING ROADS 87, 8,000 reserve component personnel of Task Force 1169 traveled to the Andes in Ecuador and, under very difficult terrain conditions, improved 10 kilometers of existing road, built a 300-foot bridge across the Rio Hollin, and constructed 5 kilometers of new road on the other side of the river. Another example, during February June 1988 the Army Reserve 411th Engineer Battalion conducted ODT in the Philippines, Exercise VALENTINE MABUHAY. The unit constructed a 30,000-square-foot classroom and barracks facility for a Philippine training school that provided valuable experience in deployment and redeployment skills and sustained operations in a remote area. Recently, the Senate Appropriations

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Committee has encouraged the Defense Department to explore other ODT missions, which the reserve component could assume. In response to the request, the Army submitted a proposal to test and implement a concept for reserve component heavy equipment maintenance companies designed to reduce the theater general support level maintenance backlog for USAREUR while conducting ODT. Congress appropriated funds in FY 88 to test the proposal during FY 89-90.

The Chief of Staff requested an assessment of the ODT program in FY 88 by the CINCs and Army component commanders of the unified and specified commands. Two-thirds of those questioned had commented by November 1988, and all of them responded favorably. The CINCs stated unanimously that ODT effectively supports their missions. Army component commanders remarked that ODT strengthens CAPSTONE relations and enhances reserve component readiness for mobilization, deployment, reception, and employment.

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003


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4

Modernizing and Equipping the Army

In 1983 the Army decided to keep active component strength constant in order to stress modernization priority over personnel increases. Unfortunately, slower than expected growth of the Defense Department budget in recent years has reduced Army expectations in both areas. In FY 88 funding for modernization fell below levels targeted by the Army, so Congress and Pentagon officials cut Army active component strength from about 781,000 to 772,300. Nevertheless, production and delivery continued during the year for equipment and systems that support close combat; fire support; air defense; command, control, and communications; and the other mission areas. The Army leadership continues to seek modernization of equipment and systems for the interrelated close, deep, and rear operations of Air-Land Battle. Investment in research and development to exploit advanced technologies and acquire a qualitative advantage over potential adversaries remains a high priority.

Because of the problems presented by reduced funding and Army modernization needs, the Army leadership decided to stabilize its technology base program in FY 88. In further response to requirements of the 1986 Defense Department Reorganization Act, the Army established the Office of the Deputy for Technology and Assessment within the Office of the Assistant Secretary of the Army (Research, Development, and Acquisition) (OASA [RDA]). This new office designed an initiative in FY 88 for the Army's Technology Base Master Plan. The plan would promote assessment of key emerging technologies through advanced technology transition demonstrations (ATTDs). Army Research, Development, and Acquisition officials selected eleven of these technologies in FY 88, which included advanced materials/material processing, artificial intelligence, biotechnology, directed energy weapons, and robotics. Coincident with these developments, the Office of the Secretary of Defense also established an ATTD program in response to a recommendation of the 1987 Defense Science Board (DSB). By coordinating both ATTD programs, RDA leaders anticipate more efficient

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assessment of new technologies before the Army commits itself to purchasing them.

Close Operations

Close operations involve major committed combat elements and usually comprise maneuver, close combat and close air support, indirect fire support and counterfire, combat support and combat service support, and command and control. Infantry and armored units apply direct combat power with short-range weapons assisted by attack helicopters and conventional artillery. The Abrams tank represents the foundation of the Army's modernization efforts and the key to its close operations. Combat units have received a total of 5,137 Abrams tanks since fielding began in 1981. Its firepower, special armor, compartmentalization of fuel and ammunition stowage, automatic fire detection and suppression system, and mobility provide its crew with high levels of shock action and protection on the battlefield. Introduced in 1985, the M1A1 Abrams replaced the M1's 105-mm. with a 120-mm. smoothbore cannon and added an NBC (nuclear, biological, and chemical) microclimatic cooling system to an existing thermal sight, laser rangefinder, and full stabilization. The M1A1 Abrams tank can operate effectively in all climate and light conditions and in an active chemical environment. Field experience has revealed flaws in the Abrams fire detection system. Abrams tanks experienced fifty-six fires in FY 88, one of them fatal. Most of the fires originated in the engine compartment. The Army Safety Center initiated a lengthy investigation into the problem.

Endowed with the mobility of the Abrams tank, the Bradley Fighting Vehicles (BFVs) provide the mechanized infantry with a full-track, armored fighting vehicle, and scout and armored cavalry units a vehicle for reconnaissance missions. Both the infantry and the cavalry fighting vehicles have a two-man turret, which mounts the 25-mm. automatic stabilized cannon, the TOW antitank guided missile system, and the 7.62-mm. coaxial machine gun. The infantry

vehicle also has six 5.56-mm. firing port weapons positioned along its sides and rear. Modified with the TOW 2 missile system, the M2/M3Al Bradleys appeared in 1987. First produced in May 1988, the M2/M3A2 Bradleys possess enhanced survivability features-improved armor, span liners in the troop compartments, revised internal restowage of fuel and ammunition, and provisions for chemical energy-defeating armor. Deliveries of Bradleys through November 1988 totaled 4,041-2,300 basic,

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1,371 M2/M3A1s, and 370 M2/M3A2s. These vehicles represent 51 percent of the Army's procurement objective of 7,934 Bradleys.

The 1988 edition of the Army Aviation Modernization Plan reflects current views on present and anticipated changes in the threat, force design, technologies, and resources. It provides for continuing the light helicopter (LHX) program to develop a reconnaissance and attack aircraft capable of functioning in the projected threat environment of the mid-1990s and beyond. The Army wanted 4,500-5,000 LHXs, to include a utility version, but Defense Department officials reduced the number to about 2,100 reconnaissance/attack aircraft. Congress also emphasized continued procurement and technical improvement of the Army's most efficient existing aircraft-AH-64 Apache, UH-60 Black Hawk, OH-58D AHIP, CH-47D Chinook-and other special mission aircraft to sustain an adequate Army aircraft fleet until LHX production begins in the mid-1990s. The plan also calls for retirement of older helicopter models no longer useful on the modern battlefield-UH-1 Huey, OH-58 Kiowa series, OH-6A Cayuse, CH-54 Tarhe, and AH-1 Cobra among others. Congress capped funding at $3.5 billion a year for the aircraft modernization plan, which forecasts a fleet of 6,600 aircraft, 2,000 less than in the current inventory.

The Army plans to field 48 attack helicopter battalions equipped with the AH-64 Apache-29 active, 15 National Guard, and 4 reserve. The 1st Battalion, 130th Aviation, a Roundout unit for the XVIII Airborne Corps stationed in Raleigh-Durham, North Carolina, became the first National Guard unit to receive the Apache with receipt of the first of six helicopters in November 1987. The Army planned to discontinue the OH-58D AHIP in 1988, but Congress approved $138 million for its expansion. A redesigned OH-58 Kiowa helicopter, the AHIP boasts a weight increase to 5,400 pounds over the OH-58's 4,500; sophisticated electronics and a mast-mounted sight; and armament systems with the Hellfire, Stinger, .50-caliber machine gun, and 2.75-inch rockets. Despite its own impressive firepower, current planning calls for the AHIP to operate with the Apache as a hunter/killer team; the AHIP locates targets, and the Apache destroys them. By mid-FY 88 six Army divisions had AHIP platoons-1st, 2d, and 3d Armored; 3d and 8th Mechanized; arid the 2d Infantry. The XVIII Airborne Corps had one AHIP company.

Of highest concern to the Army leadership, its LHX program received approval by Defense Department officials in FY88 to begin its demonstration/validation phase in early FY 89. Intended to replace the tactically inferior AH-1 Cobra, OH-6 Cayuse, and the

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OH-58 Kiowa, the LHX will perform armed reconnaissance and light attack missions and complement the larger and more powerfully armed AH-64 Apache. Developers will strive to obtain a maximum empty weight of 7,500 pounds and a cost limit of $7.5 million per aircraft in FY 88 dollars. Powered by two 1,200 shaft horsepower T800 engines, the LHX will have two crewmen but the capability of one-person operation. It will have an automated cockpit, helmet mounted wide view optics, and worldwide navigation capability. With a minimum dash speed of 170 knots and a minimum vertical climb of 500 feet per minute, its armament will include the Hellfire antitank missile system, air-to-air Stinger missiles, and a turreted automatic gun. Along with crashworthy design features, the LHX will possess wheeled landing gear and self-deployability to Europe.

Recent concern about developments in reactive armor and electro-optical countermeasures prompted the Army's Armor Anti-Armor (A3) Modernization Plan, a combined arms approach. To help meet the challenge, the Army indicated to Congress it would procure 3,000 MlA2-configured Abrams tanks during a five-year period and also field a Block III tank by 1997. A changing budget environment, however, caused the Army to retrench on its plans for the M1A2. An

existing weapon, the Army's Hellfire modular missile system has proven itself an effective airborne antiarmor device. The AH-64 Apache can carry sixteen Hellfires, and the LHX will also mount them. Active development of a digital auto pilot will improve Hellfire lethality. The TOW (tube-launched, optically tracked, wire command link-guided) missile has undergone improvements to keep pace with armor changes, and the Army has begun receiving the superior TOW 2A. Its tandem warhead armament system achieves increased lethality against the latest reactive armor by adding a small warhead to the missile probe. The initial charge explodes on a tank's reactive armor to clear a path for the primary warhead that will penetrate the tank's skin. A TOW 2B development program has begun, which relies upon the capability of the missile to fly over and fire down upon armored vehicles. The Advanced Antitank Weapon System Medium (AAWS-M), the replacement for the Dragon missile but still in the testing stage, will allow individual infantry personnel to destroy tanks regardless of visibility conditions and electro-optical countermeasures.

Cannon and rocket systems supply conventional artillery indirect fire support for close operations. Several initiatives will remedy current limits in range and lethality of some artillery systems. The XM762 electronic time artillery fuze will allow greater accuracy, easier manual setting, and compatibility with inductive

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howitzer autosetters. The M864 base-burn dual-purpose improved conventional munition, now in production, will increase the range of the munitions it replaces by 60 percent. Modifications continue on the M109A2/A3 155-mm. howitzer fleet-an improved recoil system and cannon with a maximum range of 30 kilometers, micro-cooling for an NBC environment, and improved ballistic protection. The Army completed initial fielding of the 155-mm. variant of the Field Artillery Ammunition Support Vehicle to forward-deployed artillery forces in Korea and Europe in FY88. A tracked, self-propelled, armored ammunition carrier, it exceeds the survivability rate of the existing unarmored M548 ammunition resupply vehicle. Towable by the High Mobility Multipurpose Wheeled Vehicle (HMMWV) and air transportable by the Black Hawk helicopter, the British Light Gun M119 fulfills fine light infantry division need for an extended range, lightweight 105-mm. howitzer. It can fire U.S. standard 105-mm. projectiles 14.3 kilometers and rocket-assisted projectiles 19.5 kilometers. The United Kingdom (UK) will produce those scheduled for initial fielding in November 1989, but the U.S. will eventually assume M119 production.

Deep Operations

Deep operations constitute those activities directed against enemy forces not in contact with the forces conducting close operations at the forward line of troops (FLOT). Corps headquarters and higher command echelons normally conduct deep operations that include surveillance and acquisition of enemy targets, interdiction of these targets, deception of the enemy about current operations, countering of enemy command and control systems, and effective maintenance of U.S. Army command and control. To observe enemy deployments 100 kilometers and beyond, the Army and the Air Force are developing the joint Surveillance and Target Attack Radar System (JSTARS),. It can detect, track, classify, and assist in attacking both moving and stationary targets. The Army is developing the Ground Station Module (GSM) for JSTARS, while the Air Force is creating the Prime Mission Equipment (PME)-platform, radar, and data link. The schedule calls for an operational orbit to support Europe in 1997, followed by additional orbits to support worldwide requirements.

Concerned about the competing and costly unmanned aerial vehicle (UAV) and remotely piloted vehicle (RPV) programs of the armed services, Congress consolidated them within the Office of the Secretary of Defense in the FY 88 Defense Appropriations Act.

The UAV Joint Project Office, which operates under Naval Air Systems Command, has responsibility for managing the acquisition of UAV systems for the Defense, Department. In September 1988 the UAV Joint Project Office designated the Army's Missile Command (MICOM), Redstone Arsenal, Alabama, as the site for a UAV joint development center, while the Army Intelligence School (AIS), Fort Huachuca, Arizona, provides a joint training center. The UAV program

will jointly develop four categories of UAV systems of which the Army has responsibility for three. The close-range system will have an operational radius sufficient to support divisional cannon and rocket artillery and will be fielded to divisions, armored cavalry regiments, and separate brigades. The short-range system will have an operational radius of 150-300 kilometers and will be fielded to corps and echelons above corps military intelligence brigades. The endurance system will provide a minimum of 24 hours of mission performance at extended ranges and will also be fielded to corps and echelons above corps military intelligence brigades. The Air Force, Navy, and Marine Corps will use the medium-range system for fixed and mobile target reconnaissance.

The multiple launch rocket system (MLRS), a free-flight, all-weather, indirect-fire rocket system operational since 1983 and being fielded throughout the world, can fire twelve 13-foot rockets to ranges over 30 kilometers in less than a minute. Mounted on a tracked, self-propelled launcher, it can deliver overwhelming firepower against enemy artillery, air defense, and other light materiel and personnel targets. Now jointly produced by the U.S. with the United Kingdom, France, and West Germany, the MLRS includes a preplanned improvement for a terminal guidance warhead with the capability of destroying enemy armor from above, a sense-and-destroy armor warhead to improve counter-battery fires, and a binary chemical warhead. The MLRS launcher can also carry two Army Tactical Missile System (ATACMS) missiles, a conventional ballistic system with missiles capable of propelling 1,000 antipersonnel/antimateriel bomblets beyond the range of cannons, rockets, arid the Lance missile system. ATACMS is in full-scale development and scheduled for fielding in FY 90. An Oklahoma National' Guard battalion, the 1st Battalion, 45th Field Artillery Brigade, headquartered in Lawton, Oklahoma, became the first reserve component unit to receive the MLRS, in FY 88.

The Special Electronic Mission Aircraft (SEMA) represent an integral part of the intelligence and electronic warfare tactical mission capability of the Army. The existing fleet includes the Quick Look RV-1D (side looking airborne radar), Guardrail RC-12D

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and RC-12H/K (signals intelligence), Grisly Hunter (forward-looking infrared and infrared line scanner), and the Quick Fix EH-60 (heliborne-direction-finding and jamming system). The Army essentially has fielded SEMA, but product improvements continue. Joint Army/Air Force Initiative 17, 22 May 1984, transferred responsibility for Special Operations Forces (SOF) rotary wing airlift support from the Air Force to the Army. The Deputy Secretary of Defense supports a program for fifty-one MH-47E (modified CH-47D Chinook) and twenty-three MH-60K (modified UH-60A Black Hawk) helicopters. Significant features of the aircraft include a fully integrated cockpit, more powerful engines, forward-looking infrared, terrain following/avoidance radar, air-to-air refueling, and Stinger air-to-air missiles. Their expected missions include troop insertions and extractions behind enemy lines, rapid deployment, and strategic intelligence strikes. The Army Program Objective Memorandum for 1990-94 allots funding for most of the desired aircraft.

The U.S. government has concluded that, until a worldwide verifiable ban on chemical weapons occurs, America needs binary munitions as a deterrent to war, as a bargaining agent in arms control negotiations, and as a weapon should deterrence fail. Congress has mandated that the Defense Department destroy its aging and hazardous unitary chemical weapons by 1997 and create a binary chemical stockpile. As the Defense Department lead, the Army will coordinate production of 155-mm. GB-2 binary chemical projectiles, develop the Binary Chemical Warhead (BCW) for MLRS, produce the BIGEYE bomb for the Air Force and Navy, and store both the binary and remaining unitary devices until the tatter's destruction. Major accomplishments of binary chemical modernization during FY 88 included presidential approval to produce the 155-mm. binary projectile and the BIGEYE bomb, initial production of the 155-mm. projectile in December 198'7, and transition of the BCW for the MLRS to full-scale development in July 1988. To satisfy an operational need for a mobile NBC-reconnaissance vehicle, the Under Secretary of the Army and the Vice Chief of Staff of the Army (VCSA) had tentatively decided in 1988 to adopt the German Spuerpanzer Fuchs for worldwide fielding and to terminate the XM87 RDTE (research, development, test, and evaluation) program. Congress, however, directed the Army to conduct ongoing full competition evaluation of similar systems.

Rear Operations

Effective rear area operations assure freedom of maneuver and continuity of combat operations for troops on the FLOT. Rear area operations focus on sustaining the tempo of combat and preparing for the next phase of a campaign. Primary activities include command and control, air defense, assembly and movement of reserves, redeployment of fire support, and sustainment.

The tactical command, control, and communications (C3) mission area permits commanders to control combat operations successfully through timely receipt of battlefield data and access to communications systems which function even during enemy electronic countermeasures. The Army Tactical Command and Control System (ATCCS) integrates five battlefield functional area command and control automated systems-Maneuver Control System (MCS); Advanced Field Artillery Tactical Data System (AFATDS); All Source Analysis System (ASAS); Forward Area Air Defense Command, Control, and Intelligence (FAADC2I) System; and the Combat Service Support Control System (CSSCS). The MCS allows commanders at corps through battalion to evaluate large amounts of data on their forces, the enemy, and the characteristics of the battlefield. A hybrid computer system, MCS militarized hardware production began in 1983, while nondevelopmental item equipment deliveries began in FY 88. AFATDS provides fully automated support for planning, coordinating, and executing close support, counterfire, and suppression of enemy fires. It corrects the fire control and distribution deficiencies of TACFIRE (tactical fire direction system). Army officials anticipate initial fielding of AFATDS hardware in FY 94.

The ASAS connects to ATCCS and the Air Force Enemy Situation Correlation Element (ENSCE) for coordinated joint combat operations. Testing of ASAS continues with fielding anticipated in the late 1990s. The FAADC21 system provides the air defense artillery control system for ATCCS at corps echelons and below. FAADC21 consists of four interrelated programs-command and control hardware and software to integrate all subsystems and components and display the force and engagement operations information, a ground-based sensor to provide aircraft tracking over the division area of influence, a Masked Target Sensor to track at and forward of the FLOT, and identification devices (cooperative and noncooperative, active and passive) to sort friends from hostiles. These combined programs produce a system that permits situation

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awareness, force alerting, and engagement of hostile aircraft at the maximum range of FAADS weapons.

The Army fielded the two-person portable Tactical Army Combat Service Support Computer System (TACCS) as a device designed to feed data to the Combat Service Support Control System (CSSCS). It improves the accuracy and transmission of administrative and logistical data. Production began in 1987, and deliveries totaled about 8,000 by December 1988. Plans call for fielding CSSCS in FY 93. Three primary communication/data systems support ATCCS-Mobile Subscriber Equipment (MSE), Single Channel Ground and Airborne Radio Systems (SINCGARS), and the Army Data Distribution System (ADDS). MSE, a common user, automatically switched, survivable, secure voice, data, and facsimile communications system for corps and divisions of both the active and reserve components, allows the Army to implement Air-Land Battle command and control. MSE has a modular signal organization structure, mobility, and fast erection capability that interoperates with TRITAC, combat net radio, commercial telephone systems, and NATO communications networks. Fielding of MSE began in February 1988 at Fort Hood, Texas, with follow on operational test and evaluation during August-October. MSE performance proved effective and superior to the current system. The manufacturer is incorporating several improvements to include a higher call completion rate by way of a block improvement plan being implemented in conjunction with additional fielding.

The SINCGARS, the Army's new lightweight, securable VHF-FM combat net radio, can operate in voice and data modes despite enemy jamming by frequency hopping on 2,320 channels in a frequency range of 30-88 megaherz. Available in manpack, vehicular, and airborne models, SINCGARS will function as the primary communication system for tactical units. In FY88 the Army fielded 155 systems to Korea and about 300 to TRADOC. Early reports indicated that SINCGARS was performing well. The ADDS, an automatic tactical data distribution system, gives commanders the capability of meeting near-real-time data communications and position location reporting requirements. It represents

two systems-the Enhanced Position Location Reporting System (EPLRS), a joint Army/Marine program, and the Joint Tactical Information Distribution System (JTIDS), a tri-service program. Low rate initial production of ADDS will begin in 1989.

The Army's satellite communications program consists of the ground environment of the Defense Satellite Communications System (DSCS) and the Ground Mobile Forces Tactical Satellite

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Communication Program. The Army contributes to DSCS by developing, procuring, and fielding ground satellite communications earth terminals and control systems for the armed services. These terminals and control systems support rapid and reliable worldwide command, control, communications, and intelligence operations for military commanders and the National Command Authority. Developments in progress include efforts to maximize traffic rates and to minimize vulnerability to enemy countermeasures. The Ground Mobile Forces Tactical Satellite Communications Program (GMFS) provides single and multichannel and special purpose tactical satellite ground terminals and control systems to meet critical long-range, jam-resistant, and nuclear-survivable communications needs. The Army is procuring the single channel AN/PSC-3 and AN/VSC-7 ultra high frequency terminals for its Rangers and Special Forces. Work continues on developing the survivable, antijam, and mobile ground terminal, the Single Channel Objective Tactical Terminal (SCOTT), for the Military Strategic and Tactical Relay Satellite Communications System (MILSTAR).

Continuing advances in Soviet helicopters and long-range weapons mandate ongoing modernization of Army air defense systems. Several existing missiles defend against short-, medium-, and long-range air threats. Initially fielded in 1969, the Chaparral supplies short-range, low-altitude protection against enemy aircraft. In service since 1960, the Hawk medium-range guided missile system affords air defense against low- to medium-altitude air attack. The Patriot missile, first deployed to Europe in 1985, serves as the centerpiece of Army theater air defense. Several product changes are improving Chaparral missile system performance. Now being fielded, a forward-looking infrared night sight aids night and adverse weather target acquisition. Programmed improvements to Chaparral include the Rosette Scan Seeker for countermeasure protection and a collective NBC protective system. The Army had deployed the Roland Air Defense Missile System, which originated in Europe, to only one unit, the 5th Battalion, 200th Air Defense Artillery, New Mexico National Guard. Since Chaparral units require fewer full-time staff and less money to operate than Roland units, the Army leadership decided to eliminate the Roland system. It reorganized the 5th Battalion, now designated the 6th, into a Chaparral unit in FY 88.

The current improvement program, Phase III, updates the Hawk missile system. It has redesigned the Hawk acquisition, tracking, and fire control equipment to simplify operator use and to improve electronic countermeasures and data supply to the

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AN/TSQ-73 missile minder command and control system. The Stinger, first fielded in 1981 as a manportable air defense missile system and now both modified to the Pedestal Mounted Stinger and intended as a helicopter weapon, continues to acquire product improvements for individual soldier use. The Stinger Post, first fielded in 1987, improved Stinger performance against infrared countermeasures. Stinger reprogrammable microprocessor (RMP), initially deployed to Europe in FY 88, facilitates future changes to Stinger seeker software to counter anticipated improvements of infrared countermeasures.

The Patriot Tactical Air Defense Missile System serves as the high-altitude air defense for the field Army and vital military bases. In its ninth year of production, the Patriot is undergoing product improvements to increase its antitactical missile capability. During test firings in 1986 and 1987, the Patriot demonstrated its known potential by successfully intercepting and destroying a Lance missile and other tactical missile targets. Patriot antitactical missile capability, PAC-1, consists of system radar software modifications that enable the detection, tracking, and interception of high-angle approach short-range ballistic missiles. PAC-2 has additional software improvements and a more lethal warhead.

Cancellation of the Sergeant York air defense gun system in 1985 meant that the Army leadership realized that neither one nor multiple weapons acting independently can defeat the forward area air threat. The Forward Area Air Defense System (FAADS), designed for total air defense coverage to the division area, integrates weapons, sensors, and command, control, and intelligence systems to counter the anticipated forward area air threat into the 21st century. FAADS consists of five major elements-a command, control, and intelligence (C2I) component; a line of sight-forward-heavy (LOS-F-H) weapon; a non-line of sight (NLOS) weapon; a line of sight-rear (LOS-R) weapon; and combined arms initiatives. The FAADS C2I component incorporates ground/ aerial sensors with a data processing/distribution system. Full-scale development for air defense software, ground sensor nondevelopmental evaluation, and aerial sensor and noncooperative target recognition proceeded in FY 88. In November 1987 the Army announces selection of the air defense antitank system (ADATS) as the LOS-F-H weapon for FAADS. Mounted on the M3A2 Bradley cavalry fighting vehicle chassis, ADATS has electro-optic sensors, a search radar, and eight laser beam-riding missiles. It will undergo technical and operational testing in late 1989.

[65]

The non-line of sight (NLOS) component for FAADS employs the fiber optic-guided missile (FOG-M) mounted on both the HMMWV and the MLRS chassis. With full-scale development planned for FY 89, FOG-M has a seeker mounted in its nose that transmits pictures by a bidirectional fiber optic data link while in flight so the gunner can locate hidden targets. The Army selected the Pedestal Mounted Stinger (PMS) as its LOS-R weapon. Erected on the HMMWV with eight Stinger missiles and devices to provide day/night and adverse weather capability, the two-man PMS, renamed Avenger, crew provides air defense against fixed-wing aircraft and helicopters at low altitudes in the division rear area. Having procured about sixty Avenger systems by the end of FY 88, the Army expected to expand Avenger production in FY 89. Combined arms initiatives underway that supplement FAADS include installing air-to-air Stingers on the OH-58C/D helicopter, improved air defense sights for the Bradley fighting vehicle, and antihelicopter ammunition for tanks.

Rear area operations also entail combat service support missions that include assembly and movement of reserves, supply, redeployment of fire support, and medical functions. These depend, in turn, upon a variety of Army transportation facilities adapted to air, ground, and water service. The UH-60 Black Hawk helicopter is replacing the UH-1 Huey in Army air assault, air cavalry, and aeromedical evacuation missions. It can transport a fully equipped eleven-man squad in most weather conditions. The Army has already fielded Black Hawks to many CONUS and OCONUS units. It fielded additional Apaches in FY 88 and procured Hellfire missile system kits, crashworthy external fuel tanks, and auxiliary heaters for retrofitting to Black Hawks. The CH-47 Chinook serves as the Army's medium lift helicopter with a payload capacity of about 16,000 pounds or thirty-three troops. First fielded in 1962, the Chinook transports ammunition, petroleum, large weapons, and personnel on the battlefield. A modernization program begun in 1975 upgraded the Chinook A, B, and C models to a D configuration for anticipated use into the early 2000s. Structural improvements include fiberglass rotor blades, modularized hydraulics, and a triple hook cargo system for an anticipated fleet of 472 CH-47Ds.

The Army's tactical wheeled vehicle fleet remains short of requirements. The medium vehicle fleet, composed of many 2.5-ton trucks of 1950s design, needs replacement according to Army wheeled transportation assessments. A five-year contract awarded in FY 86 called for delivery of 15,000 upgraded 5-ton trucks, and the Family of Medium Tactical Vehicles program sought further

[66]

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modernization of the medium fleet in FY 88. A Milestone I/II Army Systems Acquisition Review Council and Defense Acquisition Board decision approved a full-scale development validation phase in May 1988 for a modernized 5-ton fleet. The FY 88/89 authorization bills directed the Army to establish a multiyear contract for 4,737 Heavy Expanded Mobility Tactical Trucks (HEMTT) starting in FY 88 and Palletized Loading System (PLS) competitive hardware testing and source selection within two years. PLS offers self load/unload capability, potential to decrease other dedicated vehicle and material handling requirements, an improved ammunition supply distribution system, and NATO

interoperability. A Milestone I/II Army Systems Acquisition Review Council and Defense Acquisition Board decision also approved a full-scale proveout phase for a 16.5-ton PLS in FY 88.

Four logistics support vessels (LSVs) joined the Army's watercraft fleet in FY 88 which increased the Army's capability in intratheater lift operations to transport cargo from ship to shore, from beach to beach, and through inland waterways. The vessels consisted of the following- *General Frank S. Besson, Jr.,* delivered to the 335th Transportation Detachment at Fort Eustis, Virginia, in November 1987; CW3 *Harold C. Clinger,* delivered to the 605th Transportation Company, Fords Island, Hawaii, in February 1988; *General Brehon B. Somervell,* delivered to the 604th Transportation Company, Washington National Guard, Tacoma, Washington, in April; and *Lieutenant General William B. Bunker,* delivered to the 1099th Transportation Company, Fort Eustis, Virginia, in May. With a delivery range of 6,500 nautical miles fully loaded at 10.8 knots cruising speed, these 273-foot vessels, with bow and stern ramps, can carry 2,000 short tons including trucks and outsized tracked vehicles, containers, and general cargo on 10,500 square feet of deck area. Commanded by warrant officers, the crews of these vessels consist of 6 warrant officers and 23 enlisted personnel. In another Army watercraft matter, the Naval Sea Systems Command awarded a contract in January 1988 for construction of 2, of a projected 10, 120-foot oceangoing tugboats to augment the Army's offloading assets.

In FY 88 the Army began fielding a new generation of equipment called deployable medical systems (DEPMEDS). Training exercise MOBEX 83 had identified a serious deficiency of medical equipment for the Army's field hospitals, and the Defense Resource Board directed the Army to provide necessary funding to equip the hospital structure. A congressional moratorium on the existing hospital equipment system, medical unit self-contained

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transportable (MUST), precluded further procurement of that generation of hospital equipment. A congressional mandate for the services to maximize standardization in hospital equipment resulted in the quad service family of standardized functional modules for use in equipping the hospitals of the various services. DEPMEDS consist of seven types of modular combat hospitals ranging from forward-deployed mobile Army surgical hospitals to general hospitals located in the communications zone, easily locatable and air transportable. Each hospital has different combinations of standard modules such as operating rooms, X-ray units, and wards. DEPMEDS-equipped hospitals employ the latest medical technology and can function in all climates. Procurement and fielding projections call for 156 DEPMEDS-equipped hospitals by FY 96. The Army distributed 14 DEPMEDS-equipped hospitals to field units and 1 to the training base at the Academy of Health Sciences by the end of FY88.

Assisted by computer design technology, the Army's Research, Development, and Engineering Center of Fort Belvoir, Virginia, completed a project in 1988 which produced a new three-color camouflage pattern for all tactical equipment. Considered more effective than the four-color pattern used since the early 1970s, the new pattern comes in 413 design packages for 834 types of equipment. Distribution of the new camouflage drawings has begun. When applying the designs to equipment, technicians also will use a substance resistant to chemical agents so soldiers can decontaminate equipment in the field. Incorporating a practice employed by armies long ago and also by the Soviets today, the U.S. Army is acquiring decoys and fake targets to deceive enemy forces. Canvas Abrams tanks, lined with plastic sheets that create thermal images of the vehicle's armor, engines, and wheels, have fooled U.S. Army soldiers during training exercises. The Army plans to purchase a fake tank for each Abrams tank and is investigating more elaborate decoys, which include electronically generated fake targets.

Soldier Support

The term "soldier support" refers to items that the individual soldier directly wears, uses, or consumes. These items include organizational clothing and equipment, individual weapons, and food. In late FY 88 the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) initiated a study on the garrison dress, service, and utility uniform design trends for the 21st century. The Office of the Deputy Chief of Staff for Personnel began a survey in

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September 1988 regarding soldiers' views on the subject. Army officials expected completion of a private contractor study on Army uniforms for the 21st century by the end of 1989. To enhance the soldier's battlefield survivability and also to lighten the individual load, the Army has sought the individual tactical load-bearing vest, the large field pack with internal frame, and the extended cold weather clothing system. Budget cutbacks resulted in only minimal fielding of these items to selected units in FY 88. The Army announced that, effective January 1988, the new combat boot adopted in 1986 would serve as the only boot issued to both active and reserve component personnel.

For prevention of eye injuries during both training and combat, the Army began fielding ballistic laser protective spectacles to forward elements of selected units in June 1988. The interim product has three parts-clear polycarbonate spectacles, tinted polycarbonate spectacles, and a laser protective detachable frontsert. Soldiers who wear corrective lenses can obtain adaptable backserts. The clear lenses provide general eye protection, the tinted spectacles shield the sun, and the frontsert affords protection against low energy laser systems.

The Army is distributing a new bayonet, the M9, which doubles as a field knife and wire cutter. It weighs less than two pounds and replaces the M7 bayonet. The M9 can saw through 2-by-2-inch pine boards, aircraft fuselages, or two-strand barbed wire. Special Forces and Ranger units are receiving a new parachute, the MCl-1C, which has nonporous nylon material in its canopy that reduces the descent rate of the MCl-1B parachute from 21 feet per second to 14.6. The MC1-1C also has an increased forward drive of 8 to 10 knots or 2 to 4 knots more than the MCl-1B, which enables parachutists to maneuver more easily around ground obstacles. The new parachute uses the standard MC1-1B harness, pack tray, deployment bag, and packing procedures.

The Army plans to begin issuing the M40 chemical and biological protective mask to all ground personnel in FY 91. It replaces the M17 general purpose and the M9 special purpose masks. The M42 replaces the M24 used by the combat vehicle crew member. The M40 and the M42 provide better protection against foreign agents than their predecessors and, made of silicon rather than rubber, allow a softer yet tighter fit. The M40 has a removable filter compatible with NATO masks, and by being attachable to either side compatible the mask, can accommodate right or left-handed shooters. The M42 has a crew communications cable and a replaceable microphone.

The M9 and M24 have no voice transmitters or provision for the wearer to drink water, but the M40 has both.

Operational rations include T -rations, B-rations, and the Meal, Ready to Eat (MRE). The T -ration, with fully cooked heat and serve components, serves as the Army's primary hot field meal. Its anticipated full implementation in the near future lessened the need for cooks, so the Army recently cut 3,500 of them and converted the positions into other military job specialties. MIZE VIII, developed as the fourth version of MIZE, deleted 9 unpopular entrees and added 10 new entrees, brand name candy, and hot sauce. The Army has 12 MREs, 2 for breakfast and 10 for dinner/supper. In FY 88 it increased the 10 dinner/supper entrees from 5 to 8 ounces. Selected division and corps combat units, the National Training Center, and the Joint Readiness Training Center received partial distribution of MRE VIII in FY 88. Testing continued in FY 88 on rations for Special Operations Forces. One program completed initial development of 42 new ration components for a 6 day menu cycle for missions as long as 30 days. It also reduced the currently fielded per-day ration volume by 72 percent and weight by 3.8 pounds. Army Special Operations Forces and Marine Corps personnel conducted arctic cold weather tests of the Ration, Cold Weather (RCW) in FY 88. Smaller and lighter than the MRE, RCW features high calorie components that do not freeze at very low temperatures and also encourage water consumption by soldiers to prevent dehydration.

Strategic Defense

The U.S. Army Strategic Defense Command' (USASDC) conducts the Army's strategic weapons research and development program, which contributes to the Defense Department Strategic Defense Initiative Organization. The command has the specific mission of developing technologies for ballistic missile defense and management of Kwajalein Atoll as a national missile range. During FY88 the Strategic Defense Command managed a research program of $1.2 billion in the five functional areas of ballistic missile defense-surveillance, acquisition, tracking, and kill assessment; kinetic energy weapons; directed energy weapons; systems analysis/battle management; and survivability,

lethality, and key technologies. In September 1987 the Defense Acquisition Board directed that Phase I of the Defense Department's strategic defense system proceed from concept validation to demonstration and validation. Army components include the exoatmospheric

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reentry vehicle interceptor system; the ground based surveillance and tracking system; and the battle management, command, control, and communications support for these systems. The Air Force has developmental responsibility for the other Phase I devices the boost surveillance and tracking system, the space based interceptor, and the space based surveillance and tracking system. Active development of the Army's strategic defense system elements continued throughout FY 88.

Manpower and Personnel Integration Program

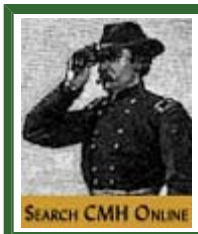
The Manpower and Personnel Integration (MANPRINT) program, which stresses the soldier as a user in all phases of the materiel development and acquisition process, received increased emphasis in the Army's modernization effort in FY 88. MANPRINT evaluates manpower, training, system safety, health hazards, and human factors engineering in the development of new materiel systems. This process helps the Army to equip the soldier rather than merely to man the equipment. The Army has placed MANPRINT on the same level with technical, management, and cost factors in materiel acquisition. Membership by the DCSPER on the Army Systems Acquisition Review Council further reinforces the role of MANPRINT in evaluating materiel acquisition. These developments have alerted private industry producers of Army materiel to the Army's firm commitment to MANPRINT.

MANPRINT Joint Working Groups continued to function in an effective manner during FY 88. Army officials utilized the System MANPRINT Management Plans, generated by these groups, in the formulation of Requests for Proposal (RFP). As a result, RFPs were based on the most current MANPRINT data and reflected more accurately what the soldier required of an equipment or weapon system. During the year the Army conducted MANPRINT assessments on a variety of systems. They included the Light Helicopter, Forward Area Air Defense System-Non Line of Sight, Army Digital Data System-Enhanced Position Location Reporting System, and the Joint Surveillance Target Attack Radar System. A sample result, the MANPRINT assessment of the Light Helicopter helped to determine the optimum crew size for the aircraft. Army and private industry personnel jointly participated in several seminars on MANPRINT issues in FY 88, while a series of Army-sponsored MANPRINT training courses improved the job skills of personnel who work with the program.

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents



Return to CMH Online

Last updated 17 November 2003

5

Mobilizing, Deploying, and Sustaining the Army

The functional areas of mobilizing, deploying, and sustaining the Army represent important elements both in deterring and successfully conducting war. With the 1985 Mobilization Functional Area Analysis the Army developed a program to improve its mobilization and deployment capability. Major initiatives included models to project total force ammunition requirements upon mobilization. and a strategy for expanding the peacetime training base. Recent development of the Army Mobilization and Operations Planning System has greatly improved the Army's ability to mobilize its approved force structure. Strategic mobility assets, the responsibility of the Air Force and Navy, have improved but shortfalls remain. Sustainment means the ability to maintain a level of personnel and materiel necessary to conduct successful combat operations. Adequate CONUS-based assets and pre-positioned war reserves along with a ready industrial base and host-nation support agreements facilitate sustainment, but deficiencies exist in all of these areas.

Mobilization

Provisionally established on 1 October 1987, the Total Army Personnel Agency (TAPA) acquired two new directorates, one for mobilization and operations and another for civilian personnel. The director of the Mobilization and Operations Directorate, a general officer who also serves as a director on the Deputy Chief of Staff for Personnel staff, oversees Army manpower mobilization procedures. The presence of Army National Guard and reserve officers in this directorate, plus the Civilian Personnel Directorate within TAPA, now permit one Army agency to develop and execute policies for mobilization of all four components of the Total Army-active, guard, reserve, and civilian. In FY 88 TAPA acquired a new computer software system to facilitate its mobilization

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planning, the Mobilization Manpower Planning System (MOB-MAN), which operates as a module of the Headquarters, Department of the Army, Decision Support System. It shows projected figures for manpower surpluses and shortfalls by military occupational specialty/area of concentration for the early months 5 of mobilization. The sources of manpower that MOB-MAN evaluates include all categories of the active and reserve components and retirees.

Large numbers of individual replacements already trained and, if possible, preassigned, comprise a significant personnel pool for. the mobilization process. Soldiers in the Individual Ready Reserve (IRR), who are still completing their military service obligation after either active or reserve component duty, and the retired ranks represent the primary sources for trained individual replacements. In FY 88 the IRR pool totaled about 287,500. Since retirees remain subject to recall. to active duty, the Army has classified 503,000 of them by age and physical status and given preassignment orders to 126,000. The IRR screening program, which began in 1986, seeks to determine the readiness and availability of the IRR population by requiring one day of involuntary active duty training per year from its members. In FY 88 97,694 soldiers attended their screening day, while 7,156 others performed training with active and reserve component units. Another 12,002 updated their records by mail. Thus, 116,852 IRR personnel received credit for screening in FY 88 from a target population of 187,231. The program exempted several categories of personnel, which included field grade officers, soldiers within one year of expiration of service, and those in the quality improvement program. Army officials regarded the FY88 IRR screening program as a success.

In October 1987 the Defense Resource Board directed the Assistant Secretary of Defense for Force Management and Personnel to lead a review of military retiree mobilization requirements. He, in turn, reconvened a Pretrained Individual Manpower Working Group under the Office of the Secretary of Defense Mobilization Steering Group to conduct the review. The TAPA performed a detailed comparison of needed mobilization manpower skills with retiree skills. Its analysis indicated that some 150,000 Army retirees qualified to meet military needs. Of 210,000 matched for civilian

manpower requirements, 72,000 possessed skills likely to meet unfilled Army civilian manpower requirements which left 138,000 for possible assignment to other federal agencies with defense-related missions. The Air Force advised that it had 70,000 surplus military retirees which the Army could utilize. In September 1988

[74]

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the Pretrained Individual Manpower Working Group recommended revision of Defense Department Directive 1352.1, *Management and Mobilization of Military Retirees,* to implement several suggested changes with which the Army concurred. These changes included development of service-specific plans to assign military retirees not needed for military jobs to civilian ones, to assign retirees excess to service needs elsewhere within the Defense Department or to other, federal agencies, and selective use of retirees to backfill active duty billets.

Several mobilization exercises tested the readiness of the reserve component in FY 88. Federal law grants the president authority to mobilize as many as 200,000 Selected Reservists without declaring a national emergency. During 23-25 October 1987 the Secretary of Defense directed the first nationwide call-up of Selected Reservists to evaluate their ability to respond quickly in times of crisis. The test took a statistically valid sample of personnel from all of the armed services, which involved 119 units located in 34 states, Puerto Rico, and the District of Columbia. About 6,100 soldiers participated in the exercise with favorable results. In November Army National Guard and reserve units assigned to the First U.S. Army area took part in another large mobilization exercise, Operation GOLDEN THRUST 88. Some 13,500 soldiers from 115 units moved with their equipment to 12 mobilization stations scattered from New England to Virginia. Assisted by 34,000 other soldiers and civilians, they underwent in-processing and preparation for overseas replacement. Mobilization stations used available facilities-gymnasiums, recreation centers, armories-to house and process troops. Following in-processing, units spent the remaining time performing their annual two-week training at their mobilization stations. Despite an early snowstorm which covered parts of the Northeast with a foot of snow, GOLDEN THRUST 88 proceeded on schedule and provided useful experience to participating units on the workability of. various systems and procedures.

PROUD SCOUT 88, a joint Chiefs of Staff command post mobilization exercise conducted in November 1987, assessed the current readiness and recent progress of the armed services in planning for mobilization and deployment. Unlike 1978 exercise NIFTY NUGGET, which considered a European operation plan only, PROUD SCOUT looked at multiple theater deployment. Coincident with Army participation in this exercise, a comparison of its present versus 1978 mobilization status by functional area revealed a mixed but essentially positive scorecard. Substantial progress had occurred in guidance documents and personnel management. The

[75]

Army Mobilization and Operations Planning System and the mobilization and deployment planning systems of FORSCOM and TRADOC outline policy guidance and procedures. Army personnel mobilization has profited by preassignment of individual reservists and retirees to specific jobs, fielding of the mobilization cross-leveling system, and creation of the Deputy Chief of Staff for Personnel Emergency Action Procedures Guide.

The comparison of the Army's current mobilization status with that of 1978 also showed that Army mobilization station operations, deployment, logistics, and the industrial base have made moderate progress. Mobilization station operations have gained from the addition of mobilization assistance teams. The Mobilization Troop Basis Stationing Plan, which provides scheduled flow and closure of units on mobilization stations, and the Post Mobilization Training Support Requirement System, which determines training support requirements for mobilizing forces, further assist mobilization station operations. Creation of the Joint Deployment Agency and the U.S. Transportation Command (USTRANSCOM) facilitate centralized management of deployment. In the area of logistics improvements, the Headquarters, Department of the Army/Major Army Command Logistics Data Network and the ODCSLOG mobilization plan outline crisis decision planning and action. Establishment of the Joint Industrial Mobilization Planning Process links the needs of the CINCs with the capabilities of the industrial base. Army training base expansion has made limited progress since 1978. Despite improved training base expansion planning and development of the CONUS Replacement Center concept,

major shortfalls still exist in equipment and facilities for training base expansion that must follow mobilization.

Deployment

Deployment means transporting personnel and materiel to military operations sites usually located overseas. The Army depends upon the Air Force and the Navy to deploy ground forces. In 1981 Congress mandated a mobility study that established a strategic airlift goal of 66 million ton miles per day (MTM/D). The Air Force has relied upon an assortment of aircraft to meet this goal including the C-5B Galaxy, the C-141B Starlifter, the KC-10 tanker-transport, and the Civil Reserve Air Fleet program, which can utilize civilian aircraft for military purposes. Estimates place the MTM/D current resource figure at 46, while the Revised Intertheater Mobility Study suggests that the actual requirement exceeds 115

[76]

MTM/D. Under joint consideration by the Air Force and the Army throughout the 1980s, the C-17 Airlifter represents the next generation transport expected eventually to provide about 27 MTM/D for Army airlift needs. With about the same wing span as the C-141, the C-17 carries twice the payload, or 172,200 pounds, and has the outsize equipment capability of the C-5. Further, with its ability to land on a 3,000-foot runway, it can transport cargo intercontinental distances yet fly directly to forward area airfields. The Air Force plans to build 210 C-1 7s by the year 2001 at a cost of $37 billion. FY 88 monies provided for construction of the first two C-17s with their delivery anticipated in 1990.

Major force deployment and resupply depend directly upon strategic sealift, which delivers 95 percent of the dry cargo and virtually all of the petroleum products needed by the Army in wartime. The Navy's Military Sealift Command performs this function and relies upon its ships and the combined assets of the Ready Reserve Fleet, U.S. flag and U.S.-controlled vessels, and available allied ships. Evaluations vary on the number of U.S. ships the Army needs in wartime because of such variables as the potential number of active theaters and the availability of allied shipping support. Furthermore, the civil fleet concentrates upon container ships, whereas the Army requires large numbers of roll on/roll off and breakbulk vessels. The Transportation Command estimates that for a three-theater war, the U.S. would need a civil fleet of 650 vessels. It now numbers about 370 and, at the current rate of decline, may drop to as few as 220 by the year 2000. With more than 100 ships, the Ready Reserve Fleet will revert from control by the Navy to the Maritime Administration in FY 89 but retain its strategic sealift role. In a positive development in recent years, the Navy has acquired eight fast sealift ships (SL7s) which, with their shallow draft and 55 knot speed, can move 5,000 tons of cargo rapidly to almost any port. The Army supports a revival of the U.S. merchant marine and expanded production of specialized fast surface ships.

Logistics over the shore (LOTS), means the off-loading of Army cargo in either friendly or hostile territory where operational ports do not exist. Public law and Defense Department regulations assign this mission to the Army, and an Army/Navy memorandum of agreement on strategic mobility established a joint effort for the modernization of LOTS equipment. The Army is procuring several new watercraft models and is investigating the usefulness of others. It has fielded 24 ILACV-30 air cushion vehicles, each capable of delivering 25-30 tons ashore, and 4 logistics support vessels each with a 2,000-ton capacity as discussed in

[77]

Chapter 4. Anticipating delivery of the new 2,000 class Landing Craft, Utility (LCU), in FY 89, the Army is also considering development of a 15-knot, 100-ton air cushion vehicle able to off-load Abrams tanks and other heavy equipment. Army and Navy watercraft and cargo-handling units tested roll on/roll off discharge platforms, floating causeways, and causeway ferries at a joint LOTS exercise associated with LOGEX 88 in August. The Army intends to procure these LOTS systems.

Sustainment

The Army Chief of Staff has placed special emphasis upon sustainment because of the anticipated speed and lethality of

modern battlefield operations. Sustainment goes beyond logistics and plays a major role in concepts of operational art. It involves assembling the correct numbers and types of personnel and materiel in the proper place and at the right time to generate decisive combat power. The warfighting CINCs demonstrated their concern with sustainment doctrine at the August 1987 Senior Army Commanders Conference by requesting a better way to measure materiel sustainment than the current method, days of supply (DOS). Asked by the Deputy Chief of Staff for Logistics to investigate alternatives, the National Defense University sponsored a symposium of retired general officers from all of. the armed services. Their findings, released in FY 88, advocated retaining the DOS measurement but augmenting it with other means to manage selected items. One model they developed evaluates the crews, munitions, end items, and maintenance required by specific weapons systems. The model also groups the weapons systems into threat categories and estimates their capability to perform effectively for stated time periods. Plans called for testing the model in FY 89.

The Army maintains war reserve stocks of ammunition, weapons, fuel, and secondary items strategically located worldwide for the immediate wartime consumption by the CINCs prior to establishment of a supply pipeline from CONUS. Stockpiles have grown 50 percent during the last eight years, but funding constraints, coupled with increases in wartime requirements caused by force structure changes and modernization, have kept the Army from fully realizing its war reserve goals. The Army received about half of its war reserve stock funding request in FY 88, and stocks remained at about half of anticipated wartime needs. Several existing arrangements with European allies reinforce Army materiel and personnel needs for NATO contingencies. Begun in 1961, pre-positioning of

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materiel configured to unit sets (POMCUS) permits the Army to store equipment in Europe in company- and battalion-size packages. Modernized equipment is augmenting POMCUS inventories-Abrams tanks, Bradley fighting vehicles, warm basing or storing general hospital equipment, deployable medical systems, and other items. Army units have withdrawn vehicles from POMCUS for REFORGER exercises many times and, in recent years, have experienced less than a 1 percent operation failure rate with such vehicles. For the REFORGER 88 exercises, the Army withdrew 3,024 vehicles from POMCUS, 2,115 wheeled and 909 tracked.

Analysis of the Warsaw Pact threat to NATO in the late 1970s indicated that the Northern Army Group (NORTHAG) would more likely defend against a main attack than the Central Army Group (CENTAG). The U.S. agreed to reinforce the NORTHAG area and, in the FY 85 budget, Congress authorized purchase of the U.S.-controlled Reichel Logistics Facility located there. The facility contributes to the logistical support of NATO and also serves as a community support base for several thousand Army personnel and their families. The Reichel facility needs further funding to function effectively both as a logistical center and as a community support base. The U.S. and the Federal Republic of Germany concluded a wartime host-nation support agreement in the early 1980s whereby, in exchange for U.S. force commitments, during contingencies the West Germans will provide about 50,000 reservists and civilians for logistic support to USAREUR. Organized into 100 security and combat support/combat service support units at 83 installations, this West German support equates to 35,000 spaces that the U.S. Army otherwise would have to provide. The U.S. finances some German unit materiel and all costs for civilian pay, operations, and maintenance of the 83 installations.

In wartime, the U. S. Navy's Offshore Petroleum Discharge System delivers bulk petroleum to combat theaters, while the Army distributes fuel overland to all U.S. forces. Successfully tested in 1987, the Army's Inland Petroleum Distribution System (IPDS) consists of tactical pipeline as well as associated storage and pumping equipment. Despite ongoing funding problems, Army logisticians expect to have more than 40 percent of the CINCs' IPDS requirements either constructed or under contract by the end of FY 89. The Army and the Air Force are attempting to reduce the number of battlefield fuels from three to one, as specified in Defense Department Directive 4140.43, *Fuel Standardization,* March 1988. Phase I of the single fuel on the battlefield initiative (SFOB) calls for conversion from JP-4 (naptha and kerosene) and DF-2

(diesel) to JP-8 (kerosene). The Central Europe Pipeline System began distributing JP-8 in December 1986 and

converted from JP-4 to JP-8 for aircraft fuel during FY 88. The Office of the Joint Chiefs of Staff has approved conversion from JP-4/DF-2 to JP-8 for the Pacific Command. Phase II of the SFOB initiative will seek to eliminate the use of automotive gasoline from the Air-Land battlefield force by the year 2010.

In 1980 the Defense Department designated the Army as executive agent for land-based water resources. The Army's Tactical Water Program has focused on water support for the Central Command and development of assets for water detection, production, treatment, storage, distribution, and cooling. Since its inception, the program has spent almost $400 million for assorted equipment such as 600-gallon-per-hour reverse osmosis water purification units (capable of removing salt and NBC contaminants), storage and distribution systems, semitrailer-mounted fabric tanks, and water chillers for the 400-gallon water trailer. Future equipment plans include 3,000-gallon-per-hour reverse osmosis water purification units. By incorporating the latest technology, logistics unit productivity systems (LUPS) both reduce the need for combat service support personnel and increase productivity. For example, in echelons above corps transportation units, 7,500-gallon petroleum tankers are replacing the 5,000-gallon ones, which increases delivery by 50 percent. By adding pumps, filter separators, and 20,000and 50,000-gallon collapsible fuel containers, petroleum supply companies have improved their receipt and issue capability from 685,000 to 1,244,000 gallons per day.

Program 7 consists of central supply and transportation (7S) and depot maintenance (7M). Central supply and transportation provide for the routine operation of major Army supply depots and materiel readiness commands. These depots and commands distribute items that range from spare parts for major weapons systems to writing pads. This program also finances operation of Army worldwide transportation, industrial preparedness, and ammunition plants. Depot maintenance includes materiel maintenance-modification and repair of unserviceable end items (aircraft, vehicles) and secondary items (engines, transmissions)-as well as maintenance support activities that pertain to maintenance engineering and training and publications about proper maintenance procedures. Buying power for central supply and transportation declined 7 percent in FY 88. Near-term readiness requires high priority for satisfying secondary item needs, so end items took second place in depot maintenance funding and

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maintenance support activities, third. Materiel maintenance obtained funding for about 79 percent of its requirements in FY 88. Secondary items received money for more than 90 percent of requirements but end items only 60. Maintenance support activities received about 50 percent of requested funding.

The Army uses Research Department Explosive (RDX) and High Melt Explosive (HMX) as basic explosives for munitions and tactical missiles as well as propellants for strategic missiles rather than TNT because of their superior energy. Holston Army Ammunition Plant, Kingsport, Tennessee, produces all of the RDX/HMX consumed in the U.S. and 90 percent of that used by all of the nations friendly to the U.S. Currently, Holston can produce 20 million pounds of RDX and 700,000 pounds of HMX a month, whereas U.S. mobilization projections would require twice these amounts. Construction of two new plants at existing Army ammunition facilities will increase production of RDX/HMX. Congress approved funding in FY 88 for a three-year construction project to build a plant at Louisiana Army Ammunition Plant, Shreveport, Louisiana, capable of producing 2.5 million pounds of RDX a month. The Army programmed money in FY88 for a pilot plant to produce HMX at the Longhorn Army Ammunition Plant, Marshall, Texas. Plans called for implementation of a new classified process for creating HMX called MUSALL (Monsanta, Under Secretary of the Army, Lawrence Livermore) at the Longhorn facility, but further development of the MUSALL plant must await congressional funding.

The general state of U.S. industrial preparedness for contingencies causes ongoing apprehension to the Army leadership. America's industrial base constitutes total government and private industry assets for the manufacture, maintenance, and repair of military materiel for wartime needs. Underfunding of the industrial base in recent years has seriously affected its ability to mobilize during a national emergency. The present industrial base could meet only 60 percent of wartime needs after three years of operation because of major deficiencies in spare parts, rolling inventory, and plant capacity in particular.

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

6

Structuring the Force

The term "force structure" refers to the fighting and support units as well as the sustaining base, which ,comprise the Total Army. Establishing the Army's force structure begins with submission by the warfighting. CINCs of their preferred combat force requirements to support their war plans. Budget realities, an acceptable level of risk in view of the international threat, along with the combined priorities set by the President, the Secretary of Defense, and the Joint Chiefs of Staff, directly influence the force structure design process. The Army leadership then evaluates and integrates other factors-the appropriate mixture of active and reserve component personnel with the civilian work force; a proper ratio of combat, combat support, and combat service support units; the proper balance of heavy, light, and Special Operations Forces organizations; and an effective combination of stateside and overseas basing of forces. Budget cuts necessitated a reduction of about 20,300 active component personnel and civilians in FY88. The loss of 2,330 commissioned officer, 170 warrant officer, 6,170 enlisted soldier, and 11-,690 civilian spaces posed additional problems for force structure planners.

By the end of FY 88 the Total Army consisted of 772,000 active component personnel, a reserve component Selected Reserve strength of 458,000 National Guardsmen and 305,000 Army reservists, and 393,000 civilians. The reserve component has assumed a major role in the Army's force structure. The National Guard provides 10 of the Army's 28 combat divisions, while reserve component Roundout brigades augment 6 of the 18 active component divisions. Reserve component personnel also supply about 60 percent of the Army's support units. In response to congressional requests for measuring how expanded resourcing of the armed services in the 1980s has improved their combat capability, the Army developed the Measuring Improved Capability of Army Forces (MICAF), now called Force Evaluation (FORCE). With a computer simulation, FORCE matches U.S. Army divisions, separate brigades, and armored cavalry regiments with appropriately

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sized constant 1993 Soviet counterparts. FORCE indicates significant increases in combat capability vis-a-vis the Soviets during the 1985-88 period-37 percent for the active component, 45 percent for the reserve component, and 39 percent for all Army major combat units.

Divisions

The Army has organized its combat divisions into three basic categories-heavy, light, and standard infantry. It has designed its heavy, primarily armored and mechanized infantry, divisions to fight against a mechanized enemy on a mid- to high-intensity battlefield. Armored divisions have about 16,800 soldiers with 6 tank and 4 mechanized infantry battalions. Mechanized infantry divisions have about 17,100 personnel with 5 tank and 5 mechanized infantry battalions. Heavy divisions have benefited from several improvements in the 1980s. Fielding of the Abrams tank, the Bradley fighting vehicle, and the Apache attack helicopter is providing increased firepower and mobility. Placement of a forward support battalion in each brigade and a main support battalion in the division rear area enables the division support command to provide faster repair and resupply to the combat arms unit. Heavy division artillery elements have three 155-mm. self-propelled howitzer battalions, a multiple launch rocket system battery, and a target acquisition battery. During FY 88 heavy divisions in both Europe and CONUS continued to convert to the new unit designs as new equipment and facilities became available. Reserve component Roundout units for heavy divisions are converting to new unit designs at about the same pace as their parent divisions.

The 2d Infantry Division, assigned to Korea, and the 9th Infantry Division (Motorized) located at Fort Lewis, Washington, have modified designs that qualify them as heavy units. With its unique needs, the 2d has three brigade headquarters, two standard heavy division tank battalions, two standard heavy division mechanized battalions, and two

air assault infantry battalions. Its division support command is re-forming to the heavy division design with a main and three forward support battalions. In 1985 the Army leadership approved a new motorized division design for the 9th Infantry Division that included three infantry brigade headquarters, five heavy combined arms battalions, two light combined arms battalions, and two light attack battalions. Additionally, the division has a combat aviation brigade and divisional artillery which consists of three M198 155-mm. towed artillery battalions

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and a composite 105-mm./multiple launch rocket system battalion. Tactics and equipment of the 9th emphasize high tactical mobility and firepower while maintaining strategic mobility similar to the light division. Because of the reduction of 8,600 active component soldiers in FY 88, the Army inactivated the 9th's 2d Brigade. An interim design placed the 81st Separate Infantry Brigade (Heavy) of the state of Washington National Guard as a Roundout unit for the 9th.

As a result of the continuing need for combat divisions that could deploy more rapidly and function with less attached support than the standard infantry division, the Army created its light infantry division in the early 1980s. The light infantry division has about 10,800 soldiers with nine light infantry battalions, three 105mm. towed howitzer battalions, and one 155-mm. towed howitzer battery. Although primarily intended as a contingency force for low-intensity conflicts, the light infantry division can fight in mid-and high-intensity scenarios as part of a corps. With increased foxhole strength and a higher combat-to-support ratio than the standard infantry division, the light division follows a training program that emphasizes fighting at night and in restricted and urban terrain. The division can deploy in about 500 C-141 sorties. It requires one-third the strategic airlift of a standard infantry division, demands less intratheater mobility support, and has sufficient organic tactical mobility assets to lift one infantry battalion by helicopter and transport another on the ground.

The Army has five light infantry divisions, four in the active component and one in the reserve component. Stationed at Fort Ord, California, the 7th Infantry Division converted to the light design in FY85 and now maintains a rapid deployment posture for specified contingency missions. The 25th Infantry Division completed conversion to the light design at Schofield Barracks, Hawaii, in October 1987 and also maintains a rapid deployment posture. Using the 172d Infantry Brigade as a nucleus, the 6th Infantry Division began conversion to the light design in March 1986 at Forts Wainwright and Richardson, Alaska. Rounded out by the 205th Infantry Brigade, a Minnesota Army Reserve unit, the 6th Infantry Division will continue to form as a light unit through FY 89. FY 88 budget reductions canceled activation of two infantry battalions intended for the 6th. An Alaskan National Guard infantry battalion will replace an active component battalion of the 6th in FY89. The 10th Mountain Division, activated at Fort Drum, New York, in February 1985, will continue to form as a light division into FY89. The National Guard's 29th Infantry Division formed in October

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1985 from the assets of the 116th Separate Infantry Brigade of Virginia and the 58th Separate Infantry Brigade of Maryland. Located at Fort Belvoir, Virginia, the 29th serves as the reserve component light division. It has completed formation except for an air defense artillery battalion programmed for FY 91.

The 101st Airborne Division (Air Assault) and the 82d Airborne Division recently completed force structure changes based upon the light infantry division design but modified to accommodate their unique mission requirements and specialized training. These force design changes increased their tactical mobility, improved reconnaissance capabilities, increased the range of communications assets, and enhanced organic NBC decontamination capabilities with smoke support. The National Guard has all of the Army's standard infantry divisions. The current force design for a standard infantry division calls for seven infantry, two armor, and one mechanized battalions. Army force structure planners continue to study organizational alternatives for the standard infantry division in an effort to design heavier, units based on both the CINCs' wartime needs and the training needs and capabilities of the reserve component.

Special Operations Forces

The Army continues to revitalize its Special Operations Forces (SOF)-Special Forces, Rangers, Special Operations Aviation, Civil Affairs, and Psychological Operations-which serve as part of the combined arms team with heavy and light forces. Training and Doctrine Command Pamphlet 525-34, *Special Operations Forces,* specifies that SOF missions support national objectives with foreign internal defensive operations in remote, urban, or rural environments during peace and war to promote national and regional stability. SOF have about 25,000 personnel, 14,500 in the reserve component and the balance in the active component. Special Forces both teach foreign military and paramilitary forces and also perform the skills associated with unconventional warfare, counterterrorism, and humanitarian assistance missions. Currently, the Army has four Special Forces Groups, two in the Army Reserve and two in the National Guard. Army Rangers, highly skilled light infantrymen employed in unique support of conventional operations or deep in enemy areas for special missions, number about 1,800 officers and men. All of them serve in the 75th Ranger Regiment, an active component unit.

[86]

Army Special Operations Aviation units support SOF with their attack and lift helicopters. Equipped with modified aircraft, these crews can perform high priority missions at night and in poor weather. Present Special Operations Aviation assets include one group and one detachment in the active component and one reserve component battalion. Civil affairs forces assist with host-nation support, train foreign internal defense forces in peacetime, and provide technical civil assistance to local governments. More than 4,800 soldiers serve in 36 reserve component civil affairs units in 22 states, while the active component has only one civil affairs battalion. Psychological operations forces influence both friendly and enemy forces as directed by the American force commander. They consist of three reserve component groups stationed in 19 states and one active component group.

Although the Army continued to formulate plans for changes in the command and status of units and acquisition of converted helicopters for SOF during FY 88, few of these plans materialized. The 1st Special Operations Command, subordinate to Forces Command and located at Fort Bragg, North Carolina, commands active component SOF. Reserve component SOF answer directly to Forces Command. In FY 88 the Chief of Staff approved converting the 1st Special Operations Command to a major Army command that will directly control both active and reserve component SOF. A concept still in development, it will create a closer relationship between Army SOF and the U.S. Special Operations Command, a unified command located at MacDill Air Force Base, Florida, which maintains operational control of all Defense Department SOF based in CONUS. A provisional Theater Army Special Operations Command organized to exercise command, less operational control of Army SOF in theater, began testing in Europe during FY 88. Army SOF units had 140 special operations helicopters in FY 88-2 UH-60A Black Hawks and 45 modified ones, 34 MH-6s, 23 UH-1s, 20 AH-6s, and 16 modified CH-47 Chinooks. Army plans call for conversion of 51 Chinooks to MH-47Es and 23 Black Hawks to MH-60Ks. These sophisticated aircraft will have more powerful engines, aerial refueling capability, precision navigation systems, and worldwide communications equipment.

Other Reserve Component Actions

Besides the coverage already given in this- chapter to reserve component force structure developments during FY 88, several other items deserve mention. Prompted by recent population shifts

[87]

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from the Northeast to the South and Southwest, which influence recruiting, the National Guard conducted a reorganization which affected several units. The 26th Infantry Division, with subordinate elements in Massachusetts, Connecticut, and Vermont, relinquished its 1st Brigade headquartered in Lexington, Massachusetts, to Texas which has excess armor and infantry personnel in its 49th Armored Division. In Texas the 36th Brigade assumed the lineage of the inactive 36th Infantry Division and became the third brigade of the 50th Armored Division of New Jersey and Vermont. The Vermont 86th Brigade, previously affiliated with the 50th Armored Division, replaced the 1st Brigade as a part of the 26th Infantry Division. These changes permit the 26th and the 50th, both priority National Guard divisions, to

replace existing personnel shortages and to meet readiness goals within one to two years.

Because of high operating costs and full-time personnel requirements, the Army inactivated its only Roland air defense battalion in FY 88, the 5th Battalion, 200th Air Defense Artillery, New Mexico National Guard. Mounted atop a wide variety of vehicles that include the French AMX-30 battle tank chassis and the U.S. Army 5-ton truck, the Roland serves as an air defense missile system against low-flying aircraft in all weather conditions. American manufacturers produced a modified version of the Roland, originally developed by the West Germans and the French, which became the first major European-designed system selected for production in the U.S. The Army's Roland air defense battalion cost $50 million annually to operate and required 312 active guard/reserve personnel. The 5th Battalion, now designated the 6th Battalion, 200th Air Defense Artillery, will become a Chaparral unit and join the other four New Mexico Chaparral battalions.

The reserve component has 60 percent of the Army's corps aviation force. During FY 88 the Army Reserve continued restructuring its aviation force and introducing new units. It fielded two assault helicopter battalions, each with two companies equipped with the UH-60A Black Hawk helicopter. One company from each battalion serves with the active component in Europe. The Army Reserve activated an attack helicopter battalion equipped with the AH-1S Cobra, assigned to Fifth U.S. Army, and a combat aviation battalion equipped with the UH-1 Iroquois, assigned to Fourth U.S. Army. Additional aviation units activated in FY 88 included two attack helicopter group headquarters, three combat aviation group headquarters, one theater aviation brigade headquarters, one theater aviation battalion headquarters, one theater aviation company, one air ambulance detachment, and one aviation

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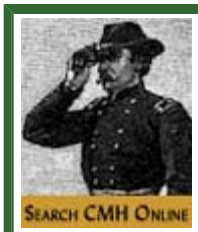
maintenance battalion headquarters. The Army leadership expected to continue modernization and restructuring of the Army Reserve aviation force to include combat and combat support aviation groups, battalions, and companies fielded with specific missions of Roundout divisions, corps, and echelons above corps.

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents



Return to CMH Online

Last updated 17 November 2003

7

Organization, Management, and Budget

The Army Long-Range Planning System is supplanting the Army Staff Long-Range Planning System. It allows the warfighting CINCs through the Army component commands, the major Army commands, and the major subordinate commands to participate in the Army Staff's long-range planning process. Spokesmen for the nine Army Staff functional areas (manning, sustaining, equipping, managing information, facilities, structuring, training, mobilizing/deploying, and managing), planners in the three Army Staff special interest areas (space, intelligence, and health services), the Army component commands, the major Army commands, and the major subordinate commands now will develop their individual long-range plans that will combine to create the next biennial iteration of the Army Long-Range Planning Guidance. A draft AR 11-32 on the new Army Long-Range Planning System circulated among the participants during FY 88 with publication expected in early 1989.

Organization

The 1986 Defense Department Reorganization Act imposed reductions in Army headquarters personnel. Title V prescribed a maximum combined strength of military and civilian personnel permanently assigned to Headquarters, Department of the Army, during peacetime at 3,105, or a 15 percent cut that also applied to general officers, effective 1 October 1988. Title VI called for other personnel strength changes. Section 601 (a) levied a 10 percent cut by 1 October 1988 on the Army's permanent military and civilian employees who performed management headquarters and management headquarters support duties, and also those assigned to combatant commands, based on their September 1986 strength. Section 601 (a) excluded the Secretariat, Army Staff, and the immediate headquarters staff of combatant commands. Section 601 (b) specified a 15 percent cut by 1 October 1989 for Army personnel of the same description as 601 (a) and 10 percent for those in

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nonmanagement headquarters who worked for Defense Department agencies and field activities. The law prohibited compliance with these headquarters personnel strength limits by redefining duties, functions, or agency organization. Congress expected the Army to relocate functions and jobs from headquarters to field activities rather than abolish them. Army compliance with these required changes proceeded on schedule during FY 88.

The TAPA became a reality as a provisional organization on 1 October 1987. The leadership of the Army's personnel systems had studied the need for TAPA for several years prior to passage of the 1986 Defense Department Reorganization Act. The Secretary of the Army and the Chief of Staff authorized creation of TAPA as a part of the Army's implementation of that legislation. Intended by its creators to integrate the execution of personnel management policy for military and civilian personnel from enlistment through separation, TAPA failed to attain fully centralized personnel management operations. The Army leadership decided that the Recruiting Command, the Community and Family Support Center, and the Safety Center, which some personnel managers hoped to integrate within TAPA, would remain separate entities. TAPA acquired five directorates-enlisted, officer, civilian, personnel service support, and mobilization and contingency operations-and four field operating agencies-Military Police Operations Agency, Military Academy Prep School, Physical Disability Agency, and the Drug and Alcohol Operations Agency. Commanded by a major general, TAPA maintains advisory relationships with the Army Reserve and National Guard personnel centers.

The Army redesignated the Army Space Agency as the Army Space Command on 7 April 1988. Located in Colorado Springs, Colorado, the Army Space Command has attained equal status with the Air Force and Navy Space Commands as components of the Space Command. The U.S. Space Command has three missions-space operations, surveillance and warning, and ballistic missile defense planning. The Army Space Command, with about 100 people including those previously assigned to the Army Space Agency and the Defense Satellite Communications System Ground Mobile

Force managers from the Army Information Systems Command, remains a field operating agency of ODCSOPS. Activation of the Army Space Command marks the first step of a plan to consolidate all Defense Satellite Communications System command and control ground functions under the Army during the next several years. The Army Space Command also has responsibility for oversight of deep space surveillance conducted at Kwajalein Atoll

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in support of the Space Command's worldwide space surveillance net and a detachment at Johnson Space Center.

ODCSOPS made organizational and functional changes during FY 88. In June 1984 the Chiefs of Staff of the Army and the Air Force established joint Assessment and Initiatives Offices (JAIO) to facilitate the joint Force Development Process. It increased the number of joint warfighting initiatives from 31 to 38, resolved 44 candidate initiatives, and prompted 21 interservice agreements. In September 1988 the Army disbanded its JAIO as a functioning element within the Office of the Assistant Deputy Chief of Staff for Operations and Plans for Joint Affairs. In another area, the Strategy, Plans, and Policy Directorate created a new division, the Conventional Arms Negotiations Division. Effective 1 July 1988, it became the Army action office for all conventional arms control matters. These include acting as the Army Staff point of contact for all conventional arms control negotiations such as Mutual and Balanced Force Reductions, Conventional Stability Talks, the Conference on Security and Cooperation in Europe, and the Conference on Disarmament in Europe.

The number of federal and state environmental laws has increased dramatically in recent years. As a consequence, the Army has witnessed increased environmental violations, litigation, and curtailment of missions because of environmental considerations. The Army received 129 Notices of Violation during FY 88 from regulatory agencies. Actually, this number represented a significant reduction from FY 87, but wastewater and drinking water violations increased. The Army's installation restoration program grew significantly as seventy-three additional installations entered the program. The Army completed a fivefold increase in preliminary assessments/site investigations, which brought the total to 3,054 sites. It also completed 55 remedial investigations/feasibility studies, which brought this total to 300, along with 99 remedial design/remedial actions. Notable among these cleanups were Cornhusker Army Ammunition Plant (incineration of explosive contaminated soil), Alabama Army Ammunition Plant (Area A Cleanup), West Virginia Ordnance Works (remediation of explosives contamination), Twin Cities Army Ammunition Plant (installation of a ground water recovery system), and Rocky Mountain Arsenal (Basin F cleanup).

In order to streamline Army environmental management, effective 1 October 1988, the Army Environmental Office became a Headquarters, Department of the Army, staff support agency under the Assistant Chief of Engineers who serves as the Army's

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Program Manager for the Environment. The U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), located at Aberdeen Proving Ground, Maryland, transferred from the Army Materiel Command to the Corps of Engineers as a field operating agency that also reports to the Assistant Chief of Engineers. USATHAMA has performed hazardous waste cleanup on Army properties since the mid-1970s. Its primary responsibilities have included the Installation Restoration Program, the Army equivalent to the Superfund program, and development of new technologies to abate or permanently treat hazardous waste. With its transfer to the Corps of Engineers USATHAMA assumed two new duties-providing oversight on environmental compliance at Army installations, ultimately the responsibility of installation commanders, and developing and implementing an environmental training program for the entire Army:

The issue of closing or realigning military installations received considerable attention within and without the Defense Department during FY 88. A matter of ongoing concern to the Army, it received recent investigation by the Army Long-Range Stationing Study (LRSS) established by the Chief of Staff in November 1986. He tasked the LRSS group to examine the Army's long-range stationing needs through the year 2020. It has produced a computer model for making stationing decisions and will develop a plan to transfer the model to Army Staff operational proponency. In May 1988 the Secretary of Defense chartered the Commission on Base Realignment and Closure to investigate workable methods

for the Defense Department to eliminate installations and property excess to American defense needs. Composed of twelve persons-former members of Congress, retired Pentagon officials, and military and environmental specialists-commission members deliberated eight months.

Prompted by the deliberations of the Commission on Base Realignment and Closure, Congress passed PL 100-526, which President Ronald Reagan signed on 24 October 1988. The law endorsed the work of the commission and cited particulars to implement its findings. It required the Secretary of Defense to approve or disapprove the entire list of the commission for closing or realignment of American military installations. If he approved, he must forward it to Congress no later than 16 January 1989 or the action would automatically terminate. Congress could not modify the list and had forty-five working days, beginning 1 March 1989, to disapprove the complete list by a majority in both houses or the measure would become law. The commission released its findings

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on 29 December 1988 and recommended that the Pentagon close 86 bases (13 of them major ones), partially close 5 others, and realign another 54, which would result in either adding or losing personnel. Recommended action on Army installations included closing Fort Sheridan, Illinois, and the Presidio of San Francisco, realigning Fort Dix, New Jersey, to semiactive status, but significantly increasing personnel at Fort Belvoir, Virginia, and Fort Devens, Massachusetts. Public Law 100-526 stipulated that closings and realignments would begin 1 January 1990 and end by 30 September 1995.

Management: Acquisition

The 1986 Defense Department Reorganization Act required centralization within the Secretariat for Headquarters, Department of the Army, responsibilities for research, development, and acquisition. The disestablished Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA) and the Contracting Directorate of the Office of the Deputy Chief of Staff for Logistics merged with the Office of the Assistant Secretary of the Army (Research, Development, and Acquisition) (OASA [RDA]). The lieutenant general who formerly headed ODCSRDA became the military deputy to the ASA (RDA). In compliance with both the Reorganization Act of 1986 and President Reagan's National Security Decision Directive 219 of April 1986, advocated by the Packard Commission, the Army established a three-tier acquisition program management system-the Army Acquisition Executive (AAE), program executive officers (PEOs), and project/product managers (PMs). The Under Secretary of the Army, who also served as the AAE, held full responsibility for all acquisition matters within the Department of the Army. He reported directly to the Defense Acquisition Executive, the Under Secretary of Defense for Acquisition, on all Army acquisition matters. PEOs direct several similar acquisition programs, while PMs supervise only one program.

During FY 88 the AAE concluded that the Army needed to reorganize and reduce its PEO positions. In a 4 August decision memorandum, he announced several changes effective 15 September 1988. The Army would retain PEOs for close combat vehicles, combat support, chemical/nuclear operations, troop support, armaments, strategic defense, intelligence and electronic warfare, communications systems, command and control systems, the Standard Army Management Information System, and the Management

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Information System. The existing PEO structure had a special category, program manager, a person who headed only one major system and reported directly to the AAE. These included the light helicopter (LHX), chemical demilitarization, and the Reserve Component Automation System (RCAS). The AAE kept the LHX program manager and disestablished chemical demilitarization, but Congress disposed of RCAS. The AAE moved responsibility for chemical demilitarization to the Office of the Assistant Secretary of the Army (Installations and Logistics) (OASA [I&L]). Congress had transferred RCAS from Forces Command to the National Guard Bureau in January 1988. This change removed RCAS from the PEO system and required the RCAS program manager to report directly to the Secretary of the Army.

The AAE consolidated several PEO positions. Close combat missiles and fire support joined to form a new PEO for fire support. The Forward Area Air Defense System (FAADS) and the longer range air defense system merged into a PEO for air defense. Combat aviation and combat support aviation combined to form a PEO for aviation. The AAE disestablished the PEO for ammunition, and a general officer, the Deputy Chief of Staff for Ammunition of the Army Materiel Command, assumed this function. Additional changes abolished the PEOs for health care systems and engineer programs and assigned these procurement functions to The Surgeon General and the Chief of Engineers, respectively. The AAE disestablished the PEO for communications networks, and the networks' organization and programs, except for the project manager for the Army Worldwide Military Command and Control System Information Systems (AWIS), transferred to the Information Systems Command. A new PEO for strategic information systems will maintain appropriate oversight of AWIS. Finally, the AAE disestablished the PEO for financial management information systems, and the Director of Finance and Accounting at Fort Benjamin Harrison, Indiana, assumed responsibility for the redesign and development of Army financial systems. These changes reduced the numbers of PEOs and program managers from 22 and 3 to 15 and 1.

Management: Information

The Army is developing its Managing Information Long-Range Plan (MILRP) to provide for the future direction of the Information Mission Area (IMA). It supports the Army Information Architecture (AIA) and the IMA cycle. While helping to focus on

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capabilities for the objective configuration of the AIA, it also has short and mid-range importance. MILRP influences the acquisition process by providing guidance to the Information Management Plan, the Long-Range Research and Development Acquisition Plan, The Army Plan, the Army Command and Control Master Plan, and the Information Management Master Plan. MILRP's longer range focus seeks to anticipate the impact of change and to design an effective transition of Army programs and resources to form the IMA into the 21st century. Because of rapid technological change, MILRP will identify those technological advances that have high potential for IMA use. It also will investigate the usefulness of consolidating the five IMA disciplines (automation, communications, printing and publications, records management, and visual information) into a common technological base, combining similar information programs, and adapting command and control systems for deep battle doctrine, which foresees reliance on autonomous small unit operations. The Office of the Director of Information Systems for Command, Control, Communications, and Computers (ODISC4) released an MILRP draft for staffing in FY 88.

In June 1986 the Army announced its standards for procuring Army information systems equipment and indicated that any limitation on competition from vendors would comply with existing laws. Several federal agencies and many vendors complained that the Army had restricted competition, and the General Accounting Office (GAO) conducted an investigation of the allegations. With the emergence of approved Defense Department, federal, national, and international standards, the DISC4 rescinded the Army's original standards on 14 December 1987 and confirmed the Army's support for the Defense Department standardization program. These Defense Department standards include the government Open Systems Interconnection (OSI) Profile, Standard Query Language, and Portable Operating System Interface for Computing Environments, which are rapidly becoming federal, national, and international standards. OSI standards, for example, allow computers made by different nations or manufacturers to interoperate. A NATO standardization agreement ratified OSI standards and served as the basis for the SIGMA/HEROS command and control interoperability demonstration between the U.S. and West Germany in 1984. Acceptance of OSI standards by the federal government will provide the Army the capability to interoperate in garrison the same way it can interoperate with NATO and other allies.

Progress continued during FY 88 in procuring improved information systems for Army functional area operations. Project 80X is acquiring integrated hardware and communications to replace outdated, leased automatic data processing

equipment (ADPE) that supports the TAPA. The new system will support Headquarters, Department of the Army, processing for officer, enlisted, and civilian personnel records to include such applications as officer and enlisted assignments. Contractors installed the initial large-scale ADPE at the Army Personnel Center in St. Louis, Missouri, in January and another one at the Information Systems Command, Alexandria, Virginia, in May 1988. Networked minicomputers installed at the Enlisted Records Evaluation Center, Fort Benjamin Harrison, Indiana, and the Central Clearance Facility, Fort Meade, Maryland, facilitate integration of the system expected to become fully operational in early FY 89.

The Acquisition Information Management (AIM) program will help implement the 1986 reorganization, which centralized Headquarters, Department of the Army research, development, and acquisition management in the Secretariat and established the program executive officer (PEO) concept. By using existing information systems, it will integrate the classified and unclassified acquisition data exchange requirements of the Army Acquisition Executive, the Army Staff, PEOs, the Army Materiel Command, the Training and Doctrine Command, the Information Systems Command, and other acquisition managers. The Assistant Secretary of the Army (Research, Development, and Acquisition) (ASA [RDA]) acts as the functional proponent for the AIM program, which he regards as the top priority Information Mission Area project in the RDA community. The Major Army Information Systems Review Committee approved the AIM program in September 1988. Progress in the implementation of AIM, expected to continue into the mid-1990s, depended upon available funding at the close of FY 88.

The Reserve Component Automation System (RCAS), authorized in August 1986 and assigned to Forces Command, sought to consolidate essential data to facilitate Army mobilization requirements. In January 1988 Congress moved RCAS from Forces Command to the reserve component and placed responsibility for the program upon the Chief, National Guard Bureau. In February a new project manager took charge of RCAS with the intent of using office automation, telecommunications, distributed data bases, and distributed processing capability to provide timely and accurate information for mobilization planning and execution. RCAS will incorporate two major subsystems-Mobilization Command

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and Control (MOBC2), the primary RCAS element, and Unit Administration. In FY 88 the National Guard Bureau did not foresee significant immediate progress in the development of RCAS but anticipated fielding of critical elements of the program by FY 92.

The Army made additional improvements in its visual information programs during FY 88. On 25 March the Vice Chief of Staff dedicated the Video Teleconferencing Facility located in the Army Operations Center Conference Room in the Pentagon. It and several other Army organizations-the Training and Doctrine Command, Forces Command, Army Materiel Command, Information Systems Command, Health Services Command, and the Army War College-now comprise the Headquarters, Department of the Army, Video Teleconferencing Network. The network allows secure conferencing on data classified through secret between two facilities and unsecure conferencing between multiple facilities for unclassified matters. It also permits conferencing with subscribers in other networks such as the major subordinate commands of the Army Materiel Command. Officials anticipate expansion to the Command and General Staff College and Western Command by the end of 1988 and video teleconferencing between Army and other Defense Department organizations to follow in the near future.

Headquarters, Department of the Army, and the Army Materiel Command are decentralizing authority for managing visual information resources. For example, the Army Materiel Command now allows its 56 visual information activities to buy equipment directly, which costs no more than $5,000, and to report such purchases only once a year. Another change affected Headquarters, Department of the Army, and other Defense Department authorities' approval of videotapes. Now, Army major television facilities can produce and distribute technical/safety reports immediately to commanders. Headquarters, Department of the Army, granted authority to the Army Materiel Command to allow installations to control their local television and motion picture productions. Installations can make category one productions for official use, acquire some commercial productions for internal consumption, and maintain pertinent records locally. Release of visual information materials or productions to the public still requires clearance by Army

public affairs.

Management: Resources

The Army leadership established Task Force ROBUST (Redistribution of BASOPS (Base Operating Information System) /Unit

[99]

Structure within TDA) on 1 May 1988. They charged ROBUST to analyze all active and reserve component TDA organizations to assure that each one has the proper configuration and manning to support the warfighting CINCs and to accomplish critical mobilization missions. ROBUST requested each TDA unit to develop its Mission Essential Task List (METL) and to focus it on the organization's contribution to the Army's warfighting capability. The results determined unit requirements and the subsequent allocation of manpower to meet those requirements. ROBUST evaluation teams performed human intelligence collection on selected unit identification codes; three used an area approach-CONUS, Europe, and the Far East/Panama-and one used a functional approach. Army officials intended the work of Task Force ROBUST to complement the Army of Excellence concept. The ROBUST staff expected to submit a final report to the Secretary of the Army and the Army Chief of Staff in November 1988.

An allied topic, The Army Authorization Documents System-Redesign (TAADS-R) project begun in 1986, is updating the automation employed by TAADS. TAADS serves as an automated system and a management process that records approved unit structures, Modification Table of Organization and Equipment (MTOE) and TDA. Army agencies use it to requisition people and equipment. TAADS-R is combining current automated systems-TAADS, VTAADS (Vertical-TAADS), ITAADS (Installation-TAADS)-into a single system, consolidating official authorizations' data into one data base, supporting either centralized or decentralized management by allowing the building of MTOEs and TDAs at all authorized Army echelons and providing worldwide electronic linkage of unclassified information. The Decision Resource Data Base located at the Army Information Systems Command-Pentagon will maintain centralized documentation. Processing will take place on the mainframe and personal computers at user sites, but review and approval prerogatives remain unchanged. Full deployment, projected for two to three years, will include Headquarters, Department of the Army, the major Army commands, and 68 installations worldwide.

The Army Civilian Personnel System (ACPERS)-Field Level, begun in July 1987, will upgrade and standardize automated data processing support for Army civilian personnel administration. It will replace existing systems and interface with other automated systems, meet expanded peacetime requirements, and support mobilization. ACPERS will assist local commanders and civilian personnel offices by supporting position management, personnel

[100]

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program planning, recruitment and placement, training and development, and sustainment of the work force. The Army decided to adopt the Air Force Personnel Data System-Civilian as the baseline for ACPERS. Programmers are modeling Army requirements into the system that will operate at a data service center in San Antonio, Texas. The Air Force Manpower and Personnel Center will maintain the software as it already does for the Navy Department. The major Army commands and installations will participate in the installation of the system. The schedule calls for the ACPERS systems acceptance test in early FY 89 with deployment to commence shortly thereafter.

The Army has adopted the standard general ledger (SGL) for financial accounting now required for all federal agencies. In the early 1980s the Grace Commission, the General Accounting Office, Army Inspectors General, and other investigative groups emphasized that federal agencies used hundreds of inconsistent accounting systems. In 1984 the Office of Management and Budget formed an interagency group to develop an SGL chart of accounts for all federal agencies that would control all financial transactions and resource balances, satisfy basic OMB and Treasury Department reporting requirements, and integrate proprietary and budgetary accounting. In FY 87 OMB published the new SGL chart of accounts. Treasury Department Bulletin 87-08, dated 30 September 1987, required all federal financial systems to adopt the SGL for preparing external reports by 1 October 1988. Responding immediately, the

Army issued its SGL accounting policy and procedures statement also on 30 September 1987. The SGL integrates appropriation, property, revenue, and expense accounting to facilitate control of all resources from receipt to consumption or disposal.

Following successful development and testing of Standard Financial Systems (STANFINS)-Redesign Subsystem 1 (SRD1) by the program executive officer for Financial Management Information Systems, the Army installed SRD1 at Forts Hood and Sam Houston, Texas; Benjamin Harrison, Indiana; Huachuca, Arizona; and McCoy, Wisconsin, in FY 88. SRD1 automates the finance office disbursing and collection operations for travel pay and commercial vendor payments. It provides substantial manpower savings by automating manual operations and system-to-system interfaces. The Army's largest interactive data base management system, SRD1 uses 149 interactive data base files and 670 COBOL programs, which contain more than 1,077,000 lines of code. Still in progress at the end of FY 88, an Army cost benefit/economic analysis was evaluating whether SRD1 should run on microcomputers and installation

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processors or in the Army Standard Information Management System network. The Army Finance and Accounting Center hoped to deploy SRD1 to 28 additional CONUS installations during FY 89.

Training ammunition management has undergone reevaluation in the 1980s. In the past, projected requirements based on unit forecasts routinely exceeded actual expenditure of selected items by more than 300 percent. The Standards in Training Commission (STRAC) developed Department of the Army Pamphlet 350-38, *Standards in Weapons Training,* in FY 86 that, for the first time, provided models for training ammunition planners. STRAC models, however, coupled with idealized training plans by managers, resulted in authorizations exceeding expenditures by 65 percent in FY 86. Planners revised their models in FY 87 and utilized historical expenditure data to predict training ammunition requirements. They computed tank, Bradley fighting vehicle, and mortar ammunition at STRAC levels and all other systems at 110 percent of units' historical expenditure levels. A revised methodology approved in January 1988 established Program Objective Memorandum (POM) and budget requirements at 110 percent of historical expenditures for tank, Bradley, artillery, and mortar systems and 105 percent for other systems while also adjusting for known changes in the training environment. Other ongoing efforts to improve training ammunition management include examining ways to procure less costly ammunition and increasing the use of training devices and simulators.

Several developments in Army logistics management took place in FY 88. The ODCSLOG published Volume I, *Logistics Vision,* of the Army Long-Range Logistics Plan (ALRLP). It assists logistics planners, materiel developers, Army and private sector schools, and industry to visualize the Army's future logistics needs. The other two volumes of the ALRLP consist of internal implementation and control instructions for the ODCSLOG, which include an automated data base that resides on the Headquarters, Department of the Army, Decision Support System. To improve logistics support during training exercises in Central and South America, ODCSLOG implemented a system of routing requisitions directly from a supply support activity to the national inventory control point. It reduced order and shipping time from more than fifty days to less than twenty. The system operates on tactical Army combat service support computer system hardware, uses standard Army retail supply system software, and requires no training or increased resources. Officials expected to test the system with a heavy division for possible application to all Army units. Logistics Applications of Automated

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Marking and Reading Symbols (LOGMARS) employs bar codes and scanners to expedite processing materiel throughout the Army. By the end of FY 88, LOGMARS was helping to process more than 40 percent of Army retail receipts.

The Military Traffic Management Command (MTMC) is fielding two new ocean terminal automation systems that improve deployment management. The Terminal Support Module (TSM) incorporates LOGMARS and interconnects with the Standard Port System overseas and the Terminal Management System in CONUS to move cargo quickly through ports. Fielded to all MTMC CONUS outports and reserve component Transportation Terminal Units (TTU) and

being fielded to MTMC OCONUS ports, TSM successfully supported REFORGER and TEAM SPIRIT training exercises in the mid-1980s. The other ocean terminal automation system, Computerized Deployment System (CODES), provides an automated ship-loading planning tool to MTMC. Being fielded to all CONUS terminals and reserve TTUs, CODES uses the same basic hardware as the TSM and also performed successfully during testing with REFORGER and TEAL SPIRIT exercises. CODES allows loading planners great flexibility with its rapid ability to consolidate, process, and display a wide variety of cargo data and ship characteristics. It lets CINCs make extensive changes in deploying units, and loading planners still can make optimum use of available stowage space.

For the last several years the Army has experienced continual underfunding for its nontactical vehicles (NTVs). The Army's NTV fleet consists of commercially designed vehicles used for recruiting, training, security, medical care, sanitation, facilities maintenance, and other like needs worldwide. In FY 86 Congress directed the Army to investigate cost reduction measures for its NTVs. The Army made an agreement with the General Services Administration (GSA) to convert its CONUS NTVs, about two thirds of its total NTV fleet of 60,000 vehicles, to GSA ownership by FY 91. In effect, the Army would lease its CONUS NTVs from GSA for less cost than direct procurement by the Army from commercial suppliers. Recently, the Army has disposed of more NTVs than it replaced. With only $28.7 million for NTV procurement in FY 87, the Army purchased 1,728 vehicles and disposed of 2,731. The Army received $39.8 million and $18.0 million in the FY 88/89 budgets but estimated that it needs $100 million annually to replace its NTV fleet. By the end of FY 88 the Army was leasing 17,000 NTVs from GSA and redoubling its efforts to obtain increased NTV funding from Congress.

The FY 86 Defense Authorization Act directed the Army, as the Defense Department executive agent for chemical demilitarization, to destroy the entire unitary chemical stockpile by 30 September 1994. The FY 89 Defense Authorization Act extended the program completion deadline to 1997. As discussed in Chapter 4, Congress has directed the Defense Department to replace unitary weapons with a modern binary chemical stockpile. In 1986 the Army established the program manager for chemical demilitarization located at Aberdeen Proving Ground, Maryland, to manage the estimated $3.2 billion chemical demilitarization program. Assisted by the EPA, the Federal Emergency Management Agency (FEMA), and the Department of Health and Human Services, the Army developed a programmatic environmental impact statement (PEIS) for destroying the unitary stockpile stored in CONUS. This affected eight CONUS installations-Aberdeen Proving Ground, Maryland; Anniston Army Depot, Alabama; Lexington-Blue Grass Army Depot, Kentucky; Newport Army Ammunition Plant, Indiana; Pine Bluff Arsenal, Arkansas; Pueblo Army Depot Activity, Colorado; Tooele Army Depot, Utah; and Umatilla Army Depot Activity, Oregon.

The PEIS considered destruction of the stockpile both on-site and at central locations. The Army decided in February 1988 that it would involve less risk to destroy the chemical stockpiles at their current storage sites rather than move them off post. As directed, on 16 March 1988 the Defense Department forwarded to Congress a revised Army plan for chemical demilitarization. It included the PEIS Record of Decision of on-site incineration at all eight CONUS facilities. The Johnston Atoll Chemical Agent Disposal System has been constructed and will undergo testing soon. It is the first full-scale chemical disposal facility that employs the reverse assembly/incineration process, which mechanically separates the different components of the chemical munition (agent, explosives, and metal parts) before burning them in separate furnaces. Sixteen months of verification testing at Johnston Atoll will precede its use at any other site. Another disposal method being tested, cyrofracture/incineration, freezes the whole munition in liquid nitrogen, fractures the munition in a press, and then incinerates everything in one furnace.

Budget

Aware of congressional insistence upon tighter military spending, the Army Chief of Staff announced his priorities for the FY 88

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budget. (See Table 3.) The Army must maintain essential force readiness and give priority to forward-deployed and

quickly deploying units. It must protect essential sustainability by addressing the highest requirements of the warfighting CINCs. The Chief of Staff sought to minimize the impact of tight money upon force structure and to reduce spending by slowing the pace of modernization and eliminating marginal programs. The Army began FY 88 with about $76 billion rather than fine $79 billion it had requested and then encountered a series of additional money problems. The Army budget based the foreign currency exchange rate with West Germany at 2.06 Deutsche Marks, but the rate fell much lower and created a deficit in excess of $500 million. Congress authorized a pay raise for Army civilian employees but did not appropriate the $101 million necessary to cover it. Congress underfunded the Army's portion of the Civilian Health and Medical Program of the Uniformed Services by $169 million, while the Army faced unexpected increases in civilian health benefit payments by $45 million and GSA price increases of $40 million. Congress further restricted Army budget operations by prohibiting the transfer of monies in long-term procurement accounts to pay current year operations and maintenance expenses.

In May 1988 the Deputy Secretary of Defense issued a plan for reduced spending to all Defense Department offices. His initiatives included a restriction on routine maintenance, a freeze on civilian hiring, a halt to civilian overtime pay for hourly workers, and deferral of some supply and equipment purchases. Late in FY 88 Congress relented in its prohibition of transferring monies between accounts, which allowed the Army to sustain its operations and maintenance expenses. The Army's FY 89 budget request of $78 billion reflected a 1.3 percent reduction in FY 88 purchasing power. Nevertheless, the Army leadership expected to continue essential improvements in readiness and sustainability. Favorable aspects of the proposed FY 89 budget included adequate support for the most essential requirements of the warfighting CINCs; active component ground OPTEMPO of 850 miles and air OPTEMPO of 15.8 hours; continuance of the conversion of heavy forces to modern designs, the Forward Area Air Defense Program, the development of improved armor/antiarmor weapons, and most quality of life programs. Funding would remain inadequate, however, to maintain sufficient equipment modernization and war reserve stocks. It also would provide for only 50 percent of required depot maintenance for major end items and would allow the backlog of maintenance and repair of facilities and housing to worsen.

TABLE 3 - ARMY BUDGET
($ in millions)

	FY88	FY 89
Research, Development, Test, and Evaluation	$ 4,671	$ 5,031
Investment		
Aircraft Procurement, Army	2,718	2,792
Missile Procurement, Army	2,321	2,587
Procurement, Weapons and Tracked Combat		
Vehicles, Army	3,208	2,961
Procurement of Ammunition, Army	2,274	2,008
Other Procurement, Army	5,113	4,774
Military Construction, Army	1,260	1,144
Military Construction, Army Reserve	95	80
Military Construction, Army National Guard	184	138
Family Housing Investment, Army	306	197
Chemical Agent and Munitions Destruction	198	163
Total Investment	$17,677	$16,844
Operations		

Operations and Maintenance, Army Reserve	858	759
O&M, Support of Other Nations	242	252
O&M, Special Operations Forces	190	179
O&M, General Purpose Forces	3,475	3,669
O&M, Communications Activities	988	1,011
O&M, Intelligence Activities	302	305
O&M, Environmental Restoration	178	-
O&M, Maintenance Activities	2,149	2,454
O&M, Supply Activities	2,929	3,005
O&M, Medical Activities	2,306	2,326
O&M, General Personnel Activities	671	698
O&M, Training Activities	1,072	1,129
O&M, Administrative and Associated Activities	853	959
Base Operations	5,776	6,098
Total	$21,989	$22,844
O&M, Army National Guard	1,857	1,797
National Board for Promotion of Rifle Practice	4	4
Stock Fund, Army	193	322
Family Housing Operations, Army	1,255	1,330
Military Personnel, Army	23,701	24,419
Reserve Personnel, Army	2,263	2,260
National Guard Personnel, Army	3,234	3,325
Army Industrial Fund	122	94
Operating Gain/Loss (-)	(57)	(28)
Total Operations	$54,561	$56,367
Total TOA	$76,909	$78,242

[106]

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

8

Special Functions

Civil Works

Pursuant to the 1986 Defense Department Reorganization Act, PL 99-433, the Assistant Secretary of the Army (Civil Works) (ASA [CW]) holds responsibility, on behalf of the Secretary of the Army, for directing and supervising all aspects of the Army Civil Works program. The Commanding General, U.S. Army Corps of Engineers, and the Corps Director of Civil Works manage 264 military and 28,000 civilian personnel who execute the Civil Works program. These general officers report to the ASA (CW) on all Civil Works matters. The Civil Works program consists of water resources project activities-planning, design, construction, operation and maintenance-and regulatory program activities.

With a budget of $3.4 billion, the Civil Works program in FY 88 operated and maintained 1,200 projects, had 359 projects under construction, and managed 12.9 million acres of real estate. It operated 232 navigation locks and 25,000 miles of navigation channel. The Civil Works program maintained flood control operations over 442 major lakes and reservoirs and, in the past ten years, has prevented flood damage estimated to average $12.2 billion per year. In FY 88 the Corps of Engineers produced 30 percent of American hydropower and generated $370 million in revenue from power sales. It responded to ten flood disasters in FY 88 and performed about $350 million of reimbursable work for federal, state, and local governments. With a staff of 946 permanent and 782 temporary rangers, the Corps operated 2,500 of the 4,300 recreation sites at 472 water projects, most of them lakes.

The Water Resources Development Act of 1986 (PL 99-662), signed by President Reagan in early FY 87 as the first major water resource authorization act in sixteen years, revitalized the Civil Works program. It emphasized faster completion of sound water projects and called upon nonfederal sponsors to pay an increased share of the cost for planning, design, and implementation. In response to this legislation, the ASA (CW), working together with

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the Corps, established a commitment and provided new direction to efforts already under way for more responsible and efficient management of Corps projects, called Initiative 88. Modeled after proven practices in the private sector, the elements of Initiative 88 entail the Secretariat's early involvement in the project planning process, the life cycle project manager concept, rigorous control of construction costs and schedules through the use of a uniform code of accounts and project reports, clear definition of roles and responsibilities, strategic planning, and a construction productivity advancement research program.

The drought of 1988, one of the worst droughts of this century, destroyed $13 billion in farm production and contributed to 73,000 wildfires, which burned more than five million acres. Below normal winter snowpacks in the Pacific Northwest, California, and the western plains states, and scarce winter and spring precipitation in many of the midwestern and southeastern states indicated probable widespread water shortages for the summer. Nine of the eleven Civil Works divisions located across the country endured moderate, to severe impacts on their missions with a slowdown of navigation presenting the most visible problem. The Corps of Engineers Emergency Operations Center in Washington, D.C., began issuing daily navigation reports, while other groups such as the Interagency Drought Policy Committee, cochaired by the Assistant Secretary of the Army (Civil Works) and the Secretaries of Agriculture and Interior, coordinated drought relief efforts. Controlled releases of water from federal reservoirs in the Missouri and Ohio River basins and accelerated channel dredging and maintenance by the Corps kept the important barge traffic moving on the Mississippi River. Increased water flow from Corps projects on the South Atlantic Division's Chattahoochee River relieved water supply and quality needs in the Southeast.

The drought of 1988 threatened the fresh water supply of the greater New Orleans, Louisiana, area. Normally, the flow

of the Mississippi River keeps the salt water of the Gulf of Mexico from moving upstream to any great extent even during the slack summer months. The drought, however, caused the river flow to drop so low early in the summer that the heavier salt water from the Gulf began creeping upstream along the river bottom and mixing with the water used for public consumption. The Louisiana governor declared a state of emergency and requested federal assistance. The Corps of Engineers responded by raising an underwater sill, or dam, in the Mississippi River about 80 miles above the Gulf of Mexico to minus 45 feet and agreeing to ship fresh water to'

[108]

New Orleans and the surrounding parishes. The sill halted the movement of salt water upstream and allowed the main river current to push it downstream and out to sea. Before the salt water problem abated, Corps barges had carried fresh water to several Louisiana communities located near the Gulf.

Regulatory Activities

President Reagan and Soviet General Secretary Mikhail Gorbachev formally ratified the Intermediate-Range Nuclear Forces (INF) Treaty in Moscow on 1 June 1988. It eliminated Soviet and U.S. nuclear weapons that have a delivery range between 300 and 3,400 miles. The Soviets maintain 133 INF sites located in the Soviet Union, East Germany, and Czechoslovakia. The U.S. operates facilities at 31 sites in CONUS, West Germany, Great Britain, Belgium, the Netherlands, and Italy. Soviet missiles marked for elimination include 80 SSCX-4 cruise missiles and the following ground-launched ballistic missiles-650 SS-20s, 170 SS-4s, 6 SS-5s, 726 SS-12s, and 200 SS-23s. The U.S. must destroy 442 ground-launched cruise missiles along with 170 Pershing la and 247 Pershing II ballistic missiles. The INF Treaty contained several verification provisions. In addition to an exchange of data on the missiles and their locations, it allowed on-site inspections by each country to validate the data exchanged and to verify both missile destruction and cessation of further production. The treaty further provided for short notice on-site inspection at INF sites during a three-year reduction period and ten years thereafter as well as verification by national technical means such as satellite imagery.

The Defense Department activated the On-Site Inspection Agency (OSIA), an interagency organization, in Washington, DC, in January 1988. It tasked OSIA to conduct INF Treaty inspections in the Soviet Union and Eastern Europe and to coordinate U.S. activities associated with Soviet inspections in the U.S. and Western Europe. An Army brigadier general heads OSIA, assisted by deputies from the Arms Control and Disarmament Agency, the State Department, and the Federal Bureau of Investigation (FBI). His staff consists of about 300 personnel, 150 permanent and 150 temporary, with a ratio of about 65 percent military to 35 percent civilian taken from the armed services, the Coast Guard, and other federal agencies. In September 1987 the U.S. And the Soviet Union agreed to establish Nuclear Risk Reduction Centers (NRRC) to lessen the possibility of war between the two countries by accident or misunderstanding. The White House directed that the NRRC,

[109]

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activated at the State Department in March 1988, would transmit communications between U.S. And Soviet officials regarding INF inspections. Soviet INF inspectors can enter the U.S. at two points-Washington, DC, and Travis Air Force Base, California. Army Pershing sites in CONUS that the Soviets may inspect include Redstone Arsenal, Alabama; Fort Sill, Oklahoma; Pueblo Army Depot Activity, Colorado; Fort Huachuca, Arizona; Dugway Proving Ground, Utah; and the Longhorn Army Ammunition Plant, Texas.

As for destruction of the missiles affected by the INF Treaty, Soviet officials indicated they would burn most of their weapons in pits but also may launch some for disintegration in the upper atmosphere. The U.S. Air Force planned to fly its cruise missiles, deployed in Europe, to Davis-Monthan Air Force Base, Arizona, and cut them apart with chain saws. The Army decided to transport its Pershing II missiles, deployed in Europe and stored in the U.S., to two Army installations located in the U.S. for destruction-the Pueblo Depot Activity and the Longhorn Ammunition Plant cited above. It will destroy all of the Pershing 1a models at their present location, the Pueblo Depot Activity. The destruction procedure calls for burning the solid fuel propellant and crushing the motors and other portions of the missiles with

bulldozers. The Air Force and the Army will transfer the nuclear warheads from their destroyed missiles to the Defense Nuclear Agency for storage. The treaty also requires destruction of missile launchers, so the Army developed a plan to destroy Pershing launchers located in Europe at Hansen, West Germany. OSIA supervised the first destruction of Pershing rocket motors at the Longhorn Ammunition Plant on 8 September 1988. Implementation of the INF Treaty required a conventional force adjustment by the Army. It proposed to restructure its four Pershing II battalions-the 1st, 2d, and 4th Battalions of the 9th Field Artillery, 56th Field Artillery Command, in West Germany, and the 3d Battalion, 9th Field Artillery, 214th Field Artillery Brigade, at Fort Sill-into a field artillery brigade.

Support to Other U.S. Agencies and Foreign Governments

Many parts of the U.S. experienced unusually dry weather during 1988, and lightning caused an outbreak of forest fires in Yellowstone National Park, Wyoming, and surrounding areas during the early summer. The Interior Department responded with a policy which alternated between allowing the fires to burn and periodically attempting to control them with civilian firefighting resources.

By mid-summer the fires had worsened considerably, and on 18 August the Interior Department requested help from the Defense Department under the Military Assistance to Civilian Authorities Plan. Forces Command then tasked Sixth U.S. Army to organize a response effort by the Army. Joint Task Force West Yellowstone, which consisted of about 2,600 personnel from the 9th Infantry Division (Motorized) stationed at Fort Lewis, Washington, and other Army elements from Forts Benning and Stewart, Georgia, and Fort Hood, Texas, along with 1,500 marines from Camp Pendleton, California, began arriving at Yellowstone on Sunday, 21 August. During the preceding day, Black Saturday, fires destroyed more than 165,000 acres of parkland.

Soldiers from Fort Lewis attended classes in basic firefighting techniques and safety before they deployed. When committed to the line, experienced civilian firefighters accompanied them as advisers. The soldiers worked 12-14 hour shifts under the sweltering sun mopping up hot spots, digging indirect fire lines, and helping the Forest Service start backfires. Access to the fires often proved difficult. Heavy smoke prevented helicopters from flying to the sites in many situations, so the soldiers reached them by hiking several miles through rugged terrain with 90-pound packs. Sometimes they bivouacked near their work sites, and helicopters dropped food and water to them. On 14 September, Task Force Go Devils, about 1,900 additional soldiers from Fort Lewis, moved to Canyon Creek near Helena, Montana, to fight raging fires in that area. Many of the soldiers felt that the long hours and dangerous work provided good training in independent, small unit operations and junior leadership. Several inches of snow fell on the Yellowstone National Park on 11 September and rain two days later signaled a gradual end to the wildfire threat. Army personnel redeployed to their home stations during late September. Two months later, the Secretary of Defense approved the Humanitarian Service Medal for all soldiers who participated directly in the Yellowstone National Park and Canyon Creek firefighting operations.

The Anti-Drug Abuse Act of 1986 directed the Defense Department to contribute resources to national drug interdiction programs. During FY 88 Army assistance included personnel, intelligence, loan of equipment, and training. Army officers served with the National Drug Policy Board, the Drug Enforcement Administration, and the Office of the vice president's National Narcotics Border Interdiction System. Army personnel assisted anti-drug operations in the Caribbean Basin, and mobile training teams provided support for loaned aircraft and also taught combat skills to

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foreign policemen. About 2,300 Army National Guardsmen from 29 states performed 370 support missions. They flew some 3,700 of 5,000 hours of aviation support supplied by the Army. During Operation FLETE, conducted late in FY 88, some 100 guardsmen helped the U.S. Customs Service search incoming cargo carriers for illegal drugs along the borders of Arizona and Texas and at Florida ports. The Army loaned thirty-seven aircraft to federal law enforcement agencies and twenty-six others to the State Department. Other loaned items included night vision and communications

equipment, ground surveillance radar, wheeled vehicles, and weapons. The Army continued in FY 88 to provide jungle operations training to Drug Enforcement Administration special agents at Fort Sherman, Panama.

The Corps of Engineers continued its reimbursable design and construction management support to U.S. agencies during FY 88. It provided the equivalent of 900 work years in support of more than twenty non-Defense Department agencies. Major programs included the Environmental Protection Agency's Superfund program for toxic waste removal, its Construction Grants program for wastewater treatment plants, the Federal Emergency Management Agency's flood insurance program, and the Department of Energy's civilian and military programs. The Corps also helped the State Department on diplomatic security and other construction programs, the Voice of America to upgrade its broadcasting system, and the Federal Aviation Administration with its National Airspace System Plan.

Military security assistance (SA) programs reinforce America's national security strategy by providing materiel, services, and training to allied and friendly countries. The Foreign Assistance Act of 1961 and several other statutes authorize military SA that includes three programs. The Military Assistance Program and the International Military Education and Training program make direct grants. The Foreign Military Sales (FMS) program requires either cash payments or financing by the purchasing countries. Under the International Military Education and Training program the Army trains foreign military and civilian personnel both in CONUS and in their native countries. During FY 88 some 8,800 foreign students received training in CONUS Army facilities. To facilitate the execution of military SA programs, the Army sends teams of specially skilled personnel to assist participating countries. These teams consist of one or more persons assigned to foreign duty for a period of several months to two years. During FY 88 the Army sent 215 teams to 34 countries. By unified command they

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numbered 151 to Southern Command, 35 to Central Command, 20 to European Command, 5 to Pacific Command, and 4 to Atlantic Command.

Military SA funding, a single year appropriation, derives from the Foreign Assistance Appropriation controlled by the State Department. Since FY 86, military SA funding has declined from $5.9 billion to $4.8 billion, and the designation of funds for specific countries by Congress has increased from 46 to about 93 percent. The Army has disagreed with this trend and requested more resources for Latin America and other less developed countries facing low intensity conflicts. In FY 88 the Army leadership proposed a restoration of military SA funding to the FY 86 level of about $6 billion and a reduction in the designation of funds by Congress to the FY 85 level of less than 50 percent. The information in Table 4 shows congressional designation of military SA funds in millions of dollars for FY 88.

TABLE 4 - SECURITY ASSISTANCE FUNDS, FY 88
(in millions)

Country	Amount Funded
Israel	$1,800
Egypt	1,300
Turkey	490
Greece	343
Pakistan	260
Philippines	125
Morocco	52
Tunisia	27
Guatemala	7
Total	$4,404

Go to:

Previous Chapter **Next Chapter**

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

9

Conclusion

During FY 88 the Army contributed notably to the major national security objectives of the U.S. For example, it assisted America's allies and friends in defending themselves against coercion and aggression. Combat aviation and support forces participated in Central Command operations in the Persian Gulf. Army helicopter crews performed both reconnaissance and attack missions. Of the allied forces present, they detected first that the Iranians were laying mines at night in international waters. Army helicopter crews successfully attacked the Iranian ship Ajar and repelled numerous attacks by Iranian gunboats. In another case, in March 1988 the president of Honduras solicited assistance from the Reagan administration in repelling some 2,000 Nicaraguan Sandinista troops intent upon seizing a large Contra supply depot in Honduras. The JCS created a joint task force for deployment to Honduras named Operation GOLDEN PHEASANT. Primary ground troops consisted of two battalions from the 82d Airborne Division and two from the 7th Infantry Division (Light). Their reinforcement of Honduran defenses pressured the Sandinistas to abandon their intended incursion without significant armed contact.

Although it received less publicity than the Persian Gulf and Honduran operations, the Army's military security assistance program continued to provide valuable materiel, services, and training to allied and friendly countries during FY 88. Some 8,800 foreign students received training in CONUS Army facilities, while 215 Army security assistance teams provided technical services and training to foreign military personnel in 34 countries. During FY 88 the Army contributed directly to another major American national security objective, the pursuit and verification of equitable arms reduction agreements. President Reagan and Soviet General Secretary Gorbachev ratified the Intermediate-Range Nuclear Forces (INF) Treaty in June 1988, which eliminated Soviet and U.S. nuclear weapons with a delivery range of 300 to 3,400 miles. The Defense Department created the On-Site Inspection Agency (OSIA) to inspect destruction of Soviet missiles and to facilitate

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inspection by the Soviets of U.S. missile destruction both in the U.S. and Western Europe. The OSIA, an interagency organization, acquired an Army brigadier general as director and a contingent of Army personnel among its 300-person staff. Both OSIA personnel and their Soviet counterparts began inspections in the summer of 1988 which will continue, according to a specified schedule, throughout the thirteen-year life of the INF Treaty.

The budget reductions of the mid-1980s continued during FY 88, and the Army again set strict priorities for its programs. It emphasized essential force combat readiness exemplified by able and well-trained personnel assigned to forward-deployed and quickly deployable units headed by thoroughly prepared leaders. The Army leadership decided to concentrate on the CINCs' priority requirements, to terminate marginal programs, to slow the pace of modernization, and to minimize the impact of tight money upon force structure. It asked for a $79 billion budget but got about $3 billion less. Army officials then encountered money problems with the foreign currency exchange rate, underfunding by Congress for a civilian employee pay raise and CHAMPUS costs, and unexpected price increases in civilian health benefit payments and GSA goods and services. The Deputy Secretary of Defense sought to relieve the money problems in mid-FY 88 with such measures as a restriction on routine maintenance, a freeze on civilian hiring, a halt to civilian overtime pay for hourly workers, and deferral of some supply and equipment purchases. Primary relief came to the Army late in FY 88 when Congress lifted an earlier prohibition against transferring funds in long-term procurement accounts to cover current year operations and maintenance expenses.

The Army fared well in its recruitment of able personnel in FY 88 but suffered strength losses detrimental to its force structure design. Budget constraints reduced its active component enlisted personnel recruiting goal from 131,000 to about 115,000; however, non-prior service recruits exceeded Army quality goals with a 93 percent high school graduate rate, 66 percent with test scores in categories I-IIIA, and only 4 percent in category IV. Money problems and

congressional strength limits required a 20,300 active component and civilian employee reduction-2,330 commissioned officers, 170 warrant officers, 6,170 enlisted soldiers, and 11,690 civilians. The FY 87 Defense Authorization Act, which required the armed services to reduce their commissioned officer strengths (grades of CW2 through 010) by 6 percent within three years, influenced the 20,300 person cut. Concerted efforts by Army and other spokesmen, however, persuaded Congress to reduce the

[116]

Army commissioned officer strength cut required by this legislation from 6 to less than 4 percent, or from more than 6,000 to about 4,000.

In response to requirements of the 1986 Defense Department Reorganization Act for creation of joint duty programs, the Army created 3,025 field grade and 94 general officer joint duty assignments. The Defense Department and the Army successfully persuaded Congress to reduce its tour length requirements. For promotion eligibility to general officer, field grade officers must serve 3 years rather than 3.5, while general officers must serve 2 years rather than 3 for promotion eligibility. Budget constraints and personnel reductions resulted in active component unit design changes in FY 88. An interim design inactivated the 2d Brigade of the 9th Infantry Division (Motorized) and replaced it with a Roundout unit, the 81st Separate Infantry Brigade (Heavy) of the Washington National Guard. The Army canceled activation of two infantry battalions intended for the 6th Infantry Division (Light). Most of the plans for changes in the command and status of units and acquisition of converted helicopters for Special Operations Forces did not materialize during FY 88. The Army Reserve, on the other hand, increased its force structure. It added to its aviation force with two assault helicopter battalions, an attack helicopter battalion, a combat aviation battalion, and several aviation headquarters and support units.

Other noteworthy Army staffing developments occurred during FY88. In cooperation with the recommendations of the Defense Department Task Force on Women in the Military, the Army reaffirmed its sexual harassment prevention program. Following a reassessment of its Direct Combat Probability Coding System, the Army opened 11,138 positions for female military personnel-3,128 active component, 6,274 National Guard, and 1,736 Army Reserve. The Army's civilian work force numbered about 418,000 at the start of FY88. The Civilian Employment Level Plan, which uses a funding rather than a strength ceiling, programmed a civilian work force of about 400,000. By the end of FY 88, Army civilian personnel strength had fallen to about 393,000, attributed largely to the Defense Department's one-for-two hiring freeze implemented during late May through September. Instituted in FY87 as a part of the Army Civilian Training, Education, and Development System, the Civilian Leadership Training Program conducts leadership training for Army civilians at three levels-intern, supervisor, and manager. Through the close of FY 88 it had trained about 2,200 persons.

[117]

The Chief of Staff supported strongly the development and improvement of quality of life programs during FY 88, but budget constraints allowed only modest growth in most of them. The Army reiterated its ongoing commitment to the Secretary of Defense's policy statement on family support program development in the armed services. Army officials opened relocation assistance centers at Fort Benning, Georgia, and Fort Lewis, Washington, in FY 88 to assist both military and civilian personnel. The budget allowed $33 million for construction of thirteen child development facilities at eleven locations. The Army's alcohol and drug abuse prevention and control program continued to operate productively at 192 installations worldwide. CHAMPUS users received modest benefits increases in FY 88. Project Restore allowed Army hospital commanders to hire civilian medical personnel to expand their health services. The Defense Department awarded a fixed price contract to a consortium in California to provide improved and less costly health care to military dependents and retirees in California and Hawaii. Beginning in October 1987, a catastrophic cap applied to all CHAMPUS users. Active duty families pay a maximum of $1,000 a year for covered expenses, while retiree families have a $10,000 liability

In order to accommodate the housing needs of soldiers and their families more adequately during FY 88, the Army

sought construction of 1,532 new homes in CONUS and 446 in Europe, upgrading 703 substandard dwellings into 536 adequate ones and leasing 32,741 units in the private sector. Its housing budget allowed the Army to construct 1,414 new homes in CONUS and 446 in Europe. Available money financed upgrading of 536 substandard dwellings and leasing of 36,715. The Army formulated a comprehensive indoor radon measurement and mitigation program in FY 88. Expected to cost $20-$30 million and to continue through FY 90, active radon testing of Army facilities began in late 1988. The Army Safety program attained its most favorable results ever in FY 88. Reductions occurred in every major category of military personnel accidents. The total number dropped 8 percent from FY 87 with tactical training accidents down 16 percent and accident fatalities down 10 percent. Costs for military personnel accidents fell 21 percent, but civilian injury compensation costs rose despite a 10 percent drop in the number of claims during the past 5 years.

Training served as the Army theme for 1988, and the Army leadership reemphasized a three-pronged approach to a productive training program-individuals, leaders, and units. The Chief of Staff established several training initiatives during the year. One

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directed that the General Officer Steering Committee would meet one to two times a year with principals of Headquarters, Department of the Army, and the major Army commands to discuss training issues. Another initiative created senior leader training conferences to evaluate unit training at the combat training centers. Army officials sought active component ground and air OPTEMPO of 850 miles and 15.8 hours respectively, but tight funding cut these figures to 725 and 14.5. This reduction, however, did not appreciably alter the Army's combat readiness. The NCO education system rated very highly on the Chief of Staff's training priority list and experienced no operational cutbacks. The Army lacked sufficient slots at joint service schools in FY 88 to meet the specialized education needs of its joint specialty officers. As an interim alternative, the Office of the Joint Chiefs of Staff authorized the Army to conduct the first of a two-phase joint professional military education program at senior Army colleges.

Substantial progress in the development of the Combat Training Centers (CTC) program and other training facilities occurred during FY 88. Two CTCs began operations, the joint Readiness Training Center (JRTC) and the Battle Command Training Program (BCTP). As the Army's new light unit CTC with a primary maneuver area located at Fort Chaffee, Arkansas, JRTC trained its first task force in October 1987. Seven task forces rotated through the center during the year, 6 active component and 1 reserve. With headquarters at the Combined Arms Center, Fort Leavenworth, Kansas, BCTP conducted its first training session in January 1988. It provides advanced combat training to corps and division command staffs with the corps/division battle simulation system. During the year the 7th, 9th, 24th, and 47th Infantry Divisions underwent BCTP. Congress supported range modernization by funding eleven firing range projects for the National Guard. Classes commenced at a new military operations on urbanized terrain (MOUT) facility at Fort Hood, Texas. During FY 88 construction began on a MOUT facility at Hohenfels Training Area in West Germany and also the Army's first aerial gunnery range located at Fort Rucker, Alabama.

The Chief of Staff instructed the Reserve Component Training Strategy Task Force to create a comprehensive strategy for the future. Members submitted fifty-two training initiatives, and the Chief of Staff approved their strategy in principle, implementation of all initiatives without cost, and also directed them to develop a resourcing plan. The New Jersey National Guard High Technology Training Center opened at Fort Dix, New Jersey, in October 1987.

With an impressive array of simulation devices, panel trainers, and computer graphics systems, it functions as a test bed for maximizing technology as a training tool. Overseas deployment training (ODT) of the reserve component continued in FY 88 but at a reduced level-some 45,000 soldiers in 2,536 units/cells compared to 55,000 personnel in 3,364 units/cells in FY 87. Federal courts upheld the right of the Defense Department to deploy National Guard units for ODT in suits filed by the governors of Minnesota and Massachusetts, but Defense Department authorities anticipated further court appeals. ODT received more positive reviews in other quarters. In response to a Chief of Staff survey, the

warfighting CINCs and Army component commanders spoke favorably of ODT The Senate Appropriations Committee encouraged the Defense Department to explore new ODT missions for the reserve component.

Although below the levels preferred by the Army, production and delivery continued during FY 88 for equipment and systems that support close combat; fire support; command, control, and communications; air defense; and other mission areas. Fielding of the Abrams tank, which began in 1981, totaled 5,137 by year's end. Bradley fighting vehicle deliveries totaled 4,041 through November 1988-2,300 basic, 1,371 M2/M3A1s, and 370 M2/M3A2s. Utilizing a combined arms approach, the Army's Armor Anti Armor Modernization Plan is pursuing ways to overcome recent developments in reactive armor and electro-optical countermeasures. Technical improvements to existing antiarmor systems include creation of a digital auto pilot to improve Hellfire missile lethality and development of the TOW 2B missile which can fly over and fire down upon an armored vehicle. Still in the testing stage, the Advanced Antitank Weapon System-Medium, will allow infantrymen to destroy tanks despite poor or restricted visibility and electro-optical countermeasures. Congress expects the Army to build and procure 3,000 MIA2 or Block II Abrams tanks and also to field a Block III tank by the mid-1990s. These armored vehicles will have enhanced survivability and improved target acquisition and fire control equipment.

The multiple launch rocket system (MLRS) will contribute to the Armor Anti Armor program with a terminal guidance warhead in development that can destroy enemy armor from above. It will also carry two Army Tactical Missile System missiles and the Binary Chemical Warhead, which began full-scale development in July 1988. The Army Aviation Modernization Plan called for continuing the light helicopter (LHX) program; cooperating with

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Congress in its emphasis upon procurement and technical improvement of the Army's most efficient existing and special mission aircraft; and retirement of outdated airframes. Defense Department officials approved the demonstration/validation phase for the LHX in FY 88 for early FY 89. The LHX will perform armed reconnaissance and light attack missions and complement the larger and more powerful AH-64 Apache. Procurement and technical improvement proceeded during FY 88, although on a reduced scale, for the AH-64 Apache, UH-60 Black Hawk, OH-58D AHIP, CH-4'7D Chinook, and other special mission aircraft. Aircraft scheduled for retirement included the AH-1 Cobra, CH-54 Tarhe, OH-58 Kiowa series, UH-1 Huey, and others.

Progress continued during FY 88 in the production and fielding of Army command, control, and communications systems. A deep operations asset that the Army and the Air Force are developing, the joint Surveillance and Target Attack Radar System (JSTARS), permits observation of enemy deployment 100 kilometers and beyond. Officials anticipate initial production of the Army's part of JSTARS, the Ground Station Module, in mid-FY 89. The Army Tactical Command and Control System (ATCCS) integrates five battlefield functional area command and control automated systems-Maneuver Control System (MCS); Advanced Field Artillery Tactical Data System (AFATDS); All Source Analysis System (ASAS); the Forward Area Air Defense Command, Control, and Intelligence (FAADC2I) system; and the Combat Service Support Control System (CSSCS). MCS hardware production began in 1983, and nondevelopmental item equipment deliveries ensued in FY 88. Developers expect initial fielding of AFATDS hardware in FY 94. Testing of ASAS, which connects with the Air Force Enemy Situation Correlation Element, continued in FY 88 with fielding expected in the late 1990s. FY 88 and anticipated FY 89 activities for FAADC21 include continuation of systems integration and software development and competitive selection of a nondevelopmental ground base sensor. Deliveries of the two-person-portable Tactical Army Combat Service Support Computer System, the first CSSCS device fielded, totaled about 8,000 by December 1988.

Three primary communications/data systems support ATCCS. Fielding of Mobile Subscriber Equipment, the Army's new common user voice, data, and facsimile communications system, began at Fort Hood, Texas, in February 1988. Early reports on the Single Channel Ground and Airborne Radio System, the Army's new VHF FM combat net radio initially delivered to Army units in FY88, indicated favorable performance. Low-rate initial production of the

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Army Data Distribution System, an automatic tactical data distribution system, started in 1988. Designed for total air defense coverage to the division area, the Forward Area Air Defense System (FAADS) consists of five major elements. Full-scale development of its command, control, and intelligence component, ground/aerial sensors with a data processing/ distribution system, proceeded in FY 88. The Army selected the air defense antitank system (ADATS) as the FAADS line of sight-forward-heavy weapon in November 1987. With full-scale development planned for FY 89, the fiber optic guided missile mounted on both the HMMWV and the MLRS chassis acts as the FAADS non-line of sight component. The Army procured sixty Pedestal-Mounted Stingers, Stinger missiles erected on HMMWVs for the FAADS line of sight-rear weapon, by the end of FY 88. FAADS combined-arms initiatives in process included installing air-to-air Stingers on the OH-58C/D AHIP helicopter and producing antihelicopter ammunition for tanks.

Army mobilization organization and procedure profited from several FY 88 events. Creation of the Mobilization and Operations Directorate within the Total Army Personnel Agency assigned one Army agency responsibility for designing and executing mobilization policy. Conducted annually, the Individual Ready Reserve screening program successfully contacted 116,852 soldiers from a target population of 187,231. Some 13,500 reserve component personnel assigned to the First Army area participated in a large mobilization exercise, Operation GOLDEN THRUST, in November 1987. Soldiers who in-processed and prepared for overseas replacement at twelve mobilization stations, scattered from New England to Virginia, learned valuable lessons in mobilization procedures. PROUD SCOUT, a JCS command-post mobilization exercise also conducted in November, evaluated the readiness of the armed services for mobilization and multiple theater deployment. It indicated considerable progress since Exercise NIFTY NUGGET of 1978. Positive Army developments included creation of the Army Mobilization and Operations Planning System and preassignment of individual reservists and retirees to specific jobs. Less positive findings showed only moderate progress for Army mobilization station operations and the industrial base, while training base expansion has realized limited progress since 1978.

Deployment and sustainment resources made either marginal gains or suffered losses during FY88. Defense Department officials expect the C-17 Airlifter program to provide 27 million ton miles per day for strategic airlift with construction of 210 C-17s by the year 2001. FY 88 funds provided for construction of the first two

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C-17s with delivery scheduled for 1990. Strategic sealift saw limited gains, but delivery of four logistics support vessels supplemented the Army's offloading assets. The Army received about half of its war reserve stock funding request in FY 88, and stocks remained at about half of anticipated wartime needs. In a favorable sustainment development, the Army fielded 14 of its new modular combat hospitals, deployable medical systems, during the year. In 1987 Defense Department officials approved production of the Army's Inland Petroleum Distribution System (IPDS), and Army logisticians expect to procure more than 40 percent of the CINCs' IPDS requirements by FY 90. Program 7, or Army central supply, transportation, and maintenance operations, endured further funding declines. Purchasing power for central supply and transportation dropped 7 percent from FY 87. Materiel maintenance secondary items got money for more than 90 percent of requirements, while end items received only 60 percent.

Go to:

Previous Chapter

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

Glossary

A3	Army's Armor Anti Armor Modernization Plan
AAE	Army Acquisition Executive
AAWS-M	Advanced Antitank Weapon System-Medium
ACPERS	Army Civilian Personnel System
ACTEDS	Army Civilian Training, Education, and Development System
ADATS	Air defense antitank system
ADDS	Army Data Distribution System
AFATDS	Advanced Field Artillery Tactical Data System
AFQT	Armed Forces Qualification Test
AFSC	Armed Forces Staff College
AHIP	Army Helicopter Improvement Program
AIA	Army Information Architecture
AIM	Acquisition Information Management
AIS	Army Intelligence School
ALRLP	Army Long-Range Logistical Plan
AOC	Area of Concentration
APF	Appropriated Funds
ARI	Army Research Institute
ARTEP	Army Training end Evaluation Program
ASA (CW)	Assistant Secretary of the Army (Civil Works)
ASA (M&RA)	Assistant Secretary of the Army (Manpower and Reserve Affairs)
ASA (RDA)	Assistant Secretary of the Army (Research, Development, and Acquisition)
ASAS	All Source Analysis System
ASD (HA)	Assistant Secretary of Defense for Health Affairs
ATACMS	Army Tactical Missile System
ATB	Army Training Board
ATCCS	Army Tactical Command and Control System
ATTD	Advanced technology transition demonstration
AWIS	Army Worldwide Information System
BASOPS	Base Operations
BCTP	Battle Command Training Program
BCW	Binary Chemical Warhead

BFV	Bradley fighting vehicle
C3	Command, control, and communications
C2I	Command, control, and intelligence component
CAC	Combined Arms Center
CAL	Center for Army Leadership
CANE FDTE	Combined Arms in a Nuclear/Chemical Environment Program of Force Development Test and Experimentation
CELP	Civilian Employment Level Plan
CENTAG	Central Army Group
CGSC	Army Command and General Staff College
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CLTP	Civilian Leadership Training Program
CMTC	Combat Maneuver Training Center
COHORT	Cohesion, operational readiness, and training units (traditional or sustained)
CPC	Civilian Pay Ceiling
CPMP	Civilian Personnel Modernization Project
CSRS	Civil Service Retirement System
CSSCS	Combat Service Support Control System
CTC	Combat Training Centers program
DACOWITS	Defense Advisory Committee on Women in the Services
DCPC	Direct Combat Probability Coding System
DCSLOG	Deputy Chief of Staff for Logistics
DCSPER	Deputy Chief of Staff for Personnel
DEPMEDS	Deployable medical systems
DFT	Deployment for Training program
DOS	Days of supply
DSB	Defense Science Board
DSCS	Defense Satellite Communications System
EEOC	Equal Employment Opportunity Commission
ENSCE	Enemy Situation Correlation Element
EPA	Environmental Protection Agency
EPLRS	Enhanced Position Location Reporting System
FRETS	Enhanced RETS Range Control Station
FAADC21	Forward Army Defense Command, Control, and Intelligence Area System

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FAADS	Forward Area Air Defense System
FEMA	Federal Emergency Management Agency
FERS	Federal Employees' Retirement System

FLOT	Forward line of troops
FM	Field Manual
FMS	Foreign Military Sales program
FOGM	Fiber optic-guided missile
FORCE	Force Evaluation
FRG	Federal Republic of Germany
FTS	Full Time Support force
GAO	General Accounting Office
GMFS	Ground Mobile Forces Tactical Satellite Communication Program
GOSC	General Officer Steering Committee
GSA	General Services Administration
GSM	Ground Station Module
HEMTT	Heavy Expanded Mobility Tactical Trucks
HIV	Human Immunodeficiency Virus
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMX	High Melt Explosive
HNS	Host-nation support
IMA	Information Mission Area
INF	Intermediate-Range Nuclear Forces Treaty
IPDS	Inland Petroleum Distribution System
IRR	Individual Ready Reserve
ISC	Information Systems Command
JAIO	Joint Assessment and Initiatives Offices
JCS	Joint Chiefs of Staff
JLOTS	Joint logistics over the shore exercise
JPME	Joint Professional Military Education program
JRTC	Joint Readiness Training Center
JSTARS	Joint Surveillance and Target Attack Radar System
JTIDS	Joint Tactical Information Distribution System
LCU	Landing Craft, Utility
LHX	Light helicopter program
LOGO	Logistics Center
LOGMARS	Logistics Applications of Automated Marking and Reading Symbols

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LOS-F-H	Line of sight-forward-heavy weapon
LOS-R	Line of sight-rear weapon
LOTS	Logistics over the shore
LRSS	Long-Range Stationing Study
LSVs	Logistics support vessels

LUPS	Logistics unit productivity systems ,
MAC	Military Airlift Command
MANPRINT	Manpower and Personnel Integration Program
MCB	Managing the Civilian Work Force to Budget
MCS	Maneuver Control System
METL	Mission Essential Task List
MICAF	Measuring Improved Capability of Army Forces
MILES	Multiple integrated laser engagement system
MILRP	Managing Information Long-Range Plan
MILSTAR	Military Strategic and Tactical Relay Satellite Communications System
MLRS	Multiple launch rocket system
MOBC2	Mobilization Command and Control
MOBMAN	Mobilization Manpower Planning System
MOS	Military occupational specialty
MOUT	Military operations on urbanized terrain
MIZE	Meal, Ready to Eat
MSE	Mobile Subscriber Equipment
MTMC	Military Traffic Management Command
MTM/D	Million ton miles per day
MTOE	Modification Table of Organization and Equipment
MUSALL	Monsanta, Under Secretary of the Army, Lawrence Livermore
MUST	Medical unit self-contained transportable
NAF	Nonappropriated funds
NATO	North Atlantic Treaty Organization
NBC	Nuclear, biological, and chemical
NCO	Noncommissioned officer
NCO-ER	Noncommissioned Officer Evaluation Report
NCOES	Noncommissioned Officer Education System
NDU	National Defense University
NGB	National Guard Bureau
NLOS	Non-line of sight weapon
NORTHAG	Northern Army Group
NRRC	Nuclear Risk Reduction Centers

NTC	National Training Center
NTVs	Nontactical vehicles
OASA (I&L)	Office of the Assistant Secretary of the Army (Installations and Logistics)
OASA (RDA)	Office of the Assistant Secretary of the Army (Research, Development, and Acquisition)

ODCSLOG	Office, of the Deputy Chief of Staff for Logistics
ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSPER	Office of the Deputy Chief of Staff for Personnel
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development, and Acquisition
ODISC4	Office of the Director of Information Systems for Command, Control, Communications, and Computers
ODT	Overseas deployment training
OJCS	Office of the Joint Chiefs of Staff
OMB	Office of Management and Budget
OPTEMPO	Operating Tempo: an Army method that measures the assignment of operating and sustaining resources to a particular training strategy in order to predict levels of combat readiness
OSI	Open Systems Interconnection Profile
OSIA	On-Site Inspection Agency
PEIS	Programmatic environmental impact statement
PEOs	Program executive officers
PLS	Palletized Loading System
PME	Prime Mission Equipment
PMS	Pedestal-Mounted Stinger
POM	Program Objective Memorandum
POMCUS	Pre-positioned materiel configured to unit sets
PPBES	Planning, Programming, Budgeting, and Execution System
PPBS	Planning, Programming, and Budgeting System
PRIME	Phantom Run Instrumented MILES Enhancement
RCAS	Reserve Component Automation System
RCW	Ration, Cold Weather
RDA	Research, Development, and Acquisition
RDTE	Research, development, test, and evaluation program

RDX	Research Department Explosive
REFORGER	Return of Forces to Germany
RETS	Remote Engaged Target Systems
RMP	Reprogrammable microprocessor
ROBUST	Redistribution of BASOPS/Unit Structure within TDA
ROK	Republic of Korea
RPV	Remotely piloted vehicle program
SA	Security assistance program
SCOTT S	ingle Channel Objective Tactical Terminal
SEMA	Special Electronic Mission Aircraft

SES	Senior executive service
SFOB	Single fuel on the battlefield
SGL	Standard general ledger
SINCGARS	Single Channel Ground and Airborne Radio Systems
SL7s	Fast sealift ships
SOF	Special Operations Forces
SSC	Soldier Support Center
STANFINS	Standard Financial Systems
STRAC	Standards in Training Commission
TAADS-R	The Army Authorization Documents System-Redesign project
TAC	Tactical Air Command
TACOS	Tactical Army Combat Service Support Computer System
TACFIRE	Tactical fire direction system
TAPA	Total Army Personnel Agency
TDA	Table of Distribution and Allowances
TOE	Tables of Organization and Equipment
TOW	Tube-launched, optically tracked, wire command link-guided (antitank missile)
TRITAC	Joint Service Communications Systems
TSG	The Surgeon General
TSM	Terminal Support Module
TSP	Thrift Savings Plan
TTU	Transportation Terminal Units
TWOS	Total Warrant Officer System
UAV	Unmanned aerial vehicle
UCMJ	Uniform Code of Military Justice

USAREUR	U.S. Army, Europe
USASDC	U.S. Army Strategic Defense Command
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USTRANSCOM	U.S. Transportation Command
VCSA	Vice Chief of Staff, Army
VHA	Variable Housing Allowance

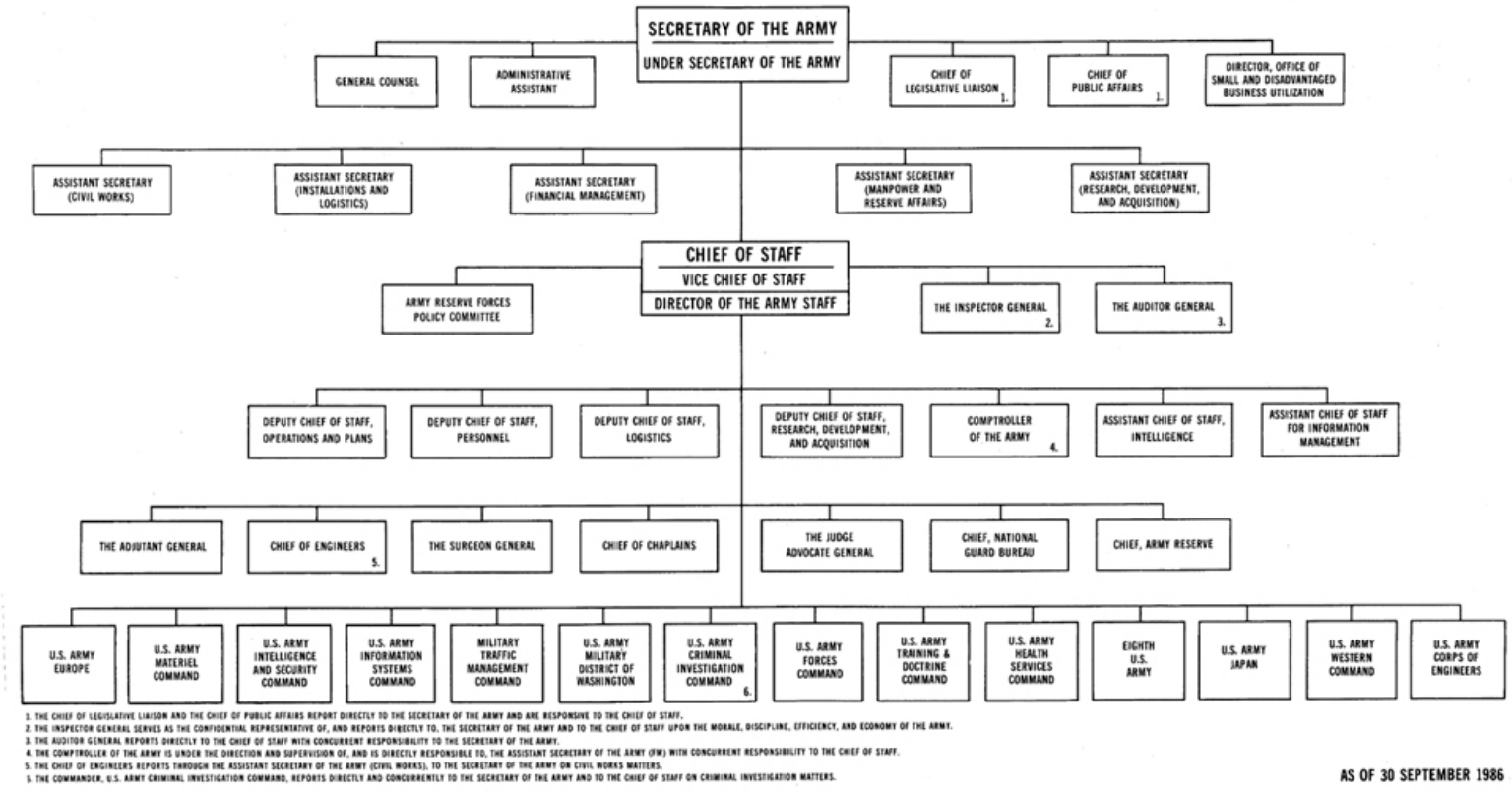
Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003

Appendix

Organization of the Department of The Army



[Back Cover]

Return to Table of Contents

Return to CMH Online

Last updated 17 November 2003