ARMY LOGISTICIAN

SEPTEMBER-OCTOBER 1981

ABOUT THE COVER

The cover photo symbolizes the spirit of victory that prevailed at Yorktown 200 years ago when the Union Jack was hauled down, signaling the defeat and capitulation of the British and the certainty of American independence. The article beginning on page 2 reveals the important role that logistics played in that decisive victory. (Cover photo by Ted Spiegel)

ARMY LOGISTICIAN

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THE OFFICIAL MAGAZINE OF UNITED STATES ARMY LOGISTICS

ARTICLES

DEPARTMENTS

Army Logistician (USPS 112-430) is devoted to the publication of timely, authoritative information on Army and Defense logistics for the Active Army, Army National Guard, Army Reserve, civilian employees of the Army, and the public. Our purpose is to increase knowledge and understanding of logistics and to encourage and stimulate innovative thought in areas of logistics by providing a forum for those ideas. The views expressed in the articles are those of the authors and not necessarily those of the Department of Defense or the Department of the Army.

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Articles, photographs, illustrations, and items of interest on any facet of Army logistics are invited. Direct communication is authorized to: Editor, *Army Logistician*, Army Logistics Management Center, Fort Lee, Va. 23801.

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A LOG EMPHASIS

ALPC MEETS IN OCTOBER

The 17th meeting of the Army Logistics Policy Council (ALPC) will be held 15 and 16 October at the Army Logistics Center, Fort Lee, Virginia. The theme will be "Ability to Go to War." The council meets periodically to provide central direction for the development, maintenance, and coordination of the Army Logistics System.

LOG PROFESSOR INSTALLED

The Army War College has appointed Colonel James F. Dunn, Jr., as the first occupant of the General Brehon Burke Somervell Chair of Logistics. At the dedication of the chair, Lieutenant General Arthur J. Gregg, Deputy Chief of Staff for Logistics, observed that establishment of a logistics chair at the Army War College "symbolizes the importance of logistics and will stimulate student interest in the role of logistics in support of the total force." (See related story on page 40.)

TOOTH-TO-TAIL RATIO DEFINED

The Army's fiscal year 1982 combat-to-support (tooth-to-tail) ratio is approximately 1 to 1 (52 percent combat to 48 percent support). The percentages apply to the total Army force (Active and Reserve components) in a peacetime configuration. In contrast, the tooth-to-tail ratio in 1973 was approximately 3 to 2.

GENERAL THOMPSON IS DCSLOG; GENERAL KEITH NAMED DARCOM COMMANDER

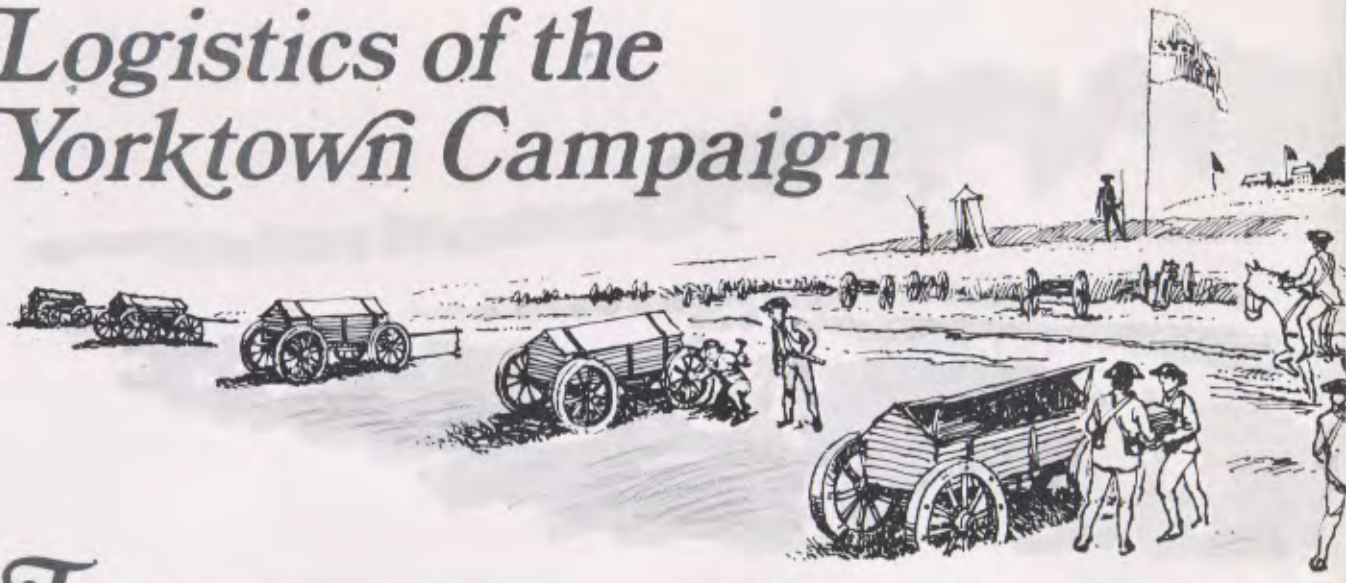
Lieutenant General Richard H. Thompson

Lieutenant General Richard H. Thompson was assigned as Deputy Chief of Staff for Logistics, Department of the Army, effective 1 August. He replaces Lieutenant General Arthur J. Gregg, who retired after serving more than 2 years as the DCSLOG. In addition, the President has nominated Lieutenant General Donald R. Keith for promotion to the rank of general with assignment as the Commanding General, U.S. Army Materiel Development and Readiness Command, effective 31 August. General Keith will replace General John R. Guthrie, who has commanded DARCOM since May 1977 and is retiring 1 September.

Lieutenant General Donald R. Keith

(Continued on page 46)

Logistics of the Yorktown Campaign



Two hundred years ago this Autumn, America's independence was assured by the outcome of a siege waged against the British forces occupying the small seaport village of Yorktown, Virginia. Although the Revolution did not officially end until almost 2 years later, both American and British political and military leaders recognized the decisiveness of the event and hostilities virtually ceased.

Numerous historians have discussed the campaign that culminated in the surrender at Yorktown on 19 October 1781, but few have considered the logistics aspect. Nevertheless, an analysis of the operation reveals that logistics — as much as tactical superiority, good generalship, numerical strength, and luck — played an important part in the outcome at Yorktown.

While the term "logistics" was not in use in 1781 — and while logistics considerations of the 18th century may seem rudimentary today — soldiers then, as today, could not fight unless they were properly supplied. Just as today, soldiers needed food, weapons, transportation, clothing, and shelter. The situation at Yorktown was one in which the allies had, at last, the logistics support they needed, while the British did not.

While logistics was in America's favor in 1781, both immediately before and during the siege, such had not been the case earlier in the war. Without a strong central authority to coordinate department efforts and marshal the resources of the country, the army had been poorly fed and clothed and sporadically paid. Movement of troops, artillery, and supplies was often hampered by poor roads, inadequate transport animals and vehicles, and the British Navy's control of ports and waterways. Supplies were inadequate because of incompetent or negligent officials; poor administration in the Commissary, Clothing, and Quartermaster Departments; and insufficient funds.

By mid-1781, when the Yorktown Campaign began taking shape, the logistics situation of the Continental Army had improved somewhat. A superintendent of finance had replaced the Board of Treasury; in that position, Robert Morris was instrumental in getting money with which to pay the troops and procure rations. A clothier-general had superseded the former method of having States provide clothing; however, while clothing procurement improved, supply depended on the still-sluggish transportation. Contracting for subsistence had replaced the system of specific supplies; but the contract system did not begin until December 1781 and never was fully implemented in the South. In spite of these changes, one could not say that at the threshold of Yorktown the army was well supplied, well fed, and well clothed.

Unsuccessful in their drive from Canada and their attempts to control the middle colonies, the British had turned their attention to the South late in 1778, capturing first Savannah and later Charleston. Using those cities as bases, the British Army under the command of Lord Charles Cornwallis planned to subjugate the Carolinas and then move north. But after the battle of Guilford Courthouse, Cornwallis realized that the Carolinas campaign had not accomplished anything significant and decided to march to Virginia. He did not coordinate this move with his commander-in-chief, Sir Henry Clinton, who wished Cornwallis to subdue and hold the Carolinas from the base at Charleston. In justifying his precipitancy, Cornwallis wrote: "I was most firmly persuaded that until Virginia was reduced, we could not hold the more southern provinces, and that after its reduction, they would fall without much difficulty."

Cornwallis reached Petersburg, Virginia, on 20 May and during the next few weeks tried to dislodge the forces of the Marquis de Lafayette from the area.

☐ *The French artillery park.*

Lafayette was in command of a small American contingent sent by Washington to defend Virginia. Although the British outnumbered the Americans almost two to one, Lafayette successfully evaded Cornwallis, who boasted that "the boy cannot escape me."

In June, Lafayette was reinforced by 1,000 infantry and several guns under the command of General Anthony Wayne. Not successful in capturing Lafayette and fatigued by 6 months' marching, Cornwallis turned to the coast to replenish his supplies and receive reinforcements, burning crops and tobacco warehouses, confiscating food and supplies, and picking up loyalists and Negro slaves along the route. At Williamsburg, he received instructions from Clinton, who feared an offensive from a joint American-French army, to move to Portsmouth and embark 2,000 men north.

Following a number of vacillating letters, Cornwallis finally was instructed to establish a defensive naval port at Old Point Comfort in the Hampton Roads. Clinton told Cornwallis he "was at liberty to add York Town as an additional security to Old Fort Comfort . . . but not to remove the station from James River to York River." However, based on advice from his engineers, Cornwallis decided to occupy Yorktown and Gloucester rather than Old Point Comfort and moved his troops in August. Immediately he began building fortifications, first at Gloucester and later at Yorktown. Lafayette and Wayne took positions at Williamsburg, about 12 miles from Yorktown, to observe Cornwallis.

Meanwhile, Washington had been trying to get French cooperation for a combined land and naval assault on New York, which he planned for the Summer of 1781. Washington believed that an assault on New York might force Clinton to recall troops from Virginia and relieve pressure on Lafayette. He also pointed out the allies' lack of "command of the water" and cited "the inevitable loss of men from so long a march . . . and the difficulty, I may say impossibility, of transporting the necessary baggage, artillery, and stores by land." In spite of Washington's well-justified proposal for a campaign in the North, an unexpected turn of events sent the armies southward.

In June, Washington learned from Count de Rochambeau, commander of the French expeditionary force, that a fleet under Admiral Francois de Grasse would be available to assist the armies around midsummer. Shortly thereafter, he wrote De Grasse recommending that the French fleet proceed north to cooperate in an attack on New York City. But on 14 August word came that changed the situation: De Grasse would not come to New York but would arrive in the Chesapeake later in the month and be available only until 15 October, when he must resume his defensive position around the West Indies. With him, the admiral was bringing 3,200 troops under the Marquis de St. Simon, 300,000 piastres borrowed from the Spanish governor at Havana (equivalent to 15,000 British pounds), and additional artillery.

Upon learning of De Grasse's decision on 14 August, though at first distraught, Washington made a quick and momentous decision — he would march to Virginia. If De Grasse could hold control of the Chesapeake Bay, the allied forces possibly could jointly force the enemy to surrender. In this manner, the allies-on-the-Hudson made their entrance into the theater of the Yorktown Campaign.

Once the decision had been made to pursue Cornwallis, the allies moved out of New York quickly, feinting toward New York City to deceive Clinton as to their true intentions. With only 2 months to move the combined forces 450 miles south from his present headquarters to effect an operation in conjunction with the French Navy, Washington had to move swiftly and plan decisively en route. Leaving half of the Continental Army in New York to watch Clinton, Washington's force, about 2,000 strong, crossed the Hudson in ferryboats on 20 and 21 August. The French, about 4,000 strong, did not complete their crossing until the 26th, having been delayed by muddy roads, poor horses, bulky supplies, and a shortage of boats. The allies moved through northern New Jersey in 3 columns, which converged at Princeton. Then they marched in a single column to Trenton, where they were to take boats down the Delaware River to Head of Elk, Maryland, and there embark for Virginia. However, when they reached Trenton, in spite of Washington's urgent let-

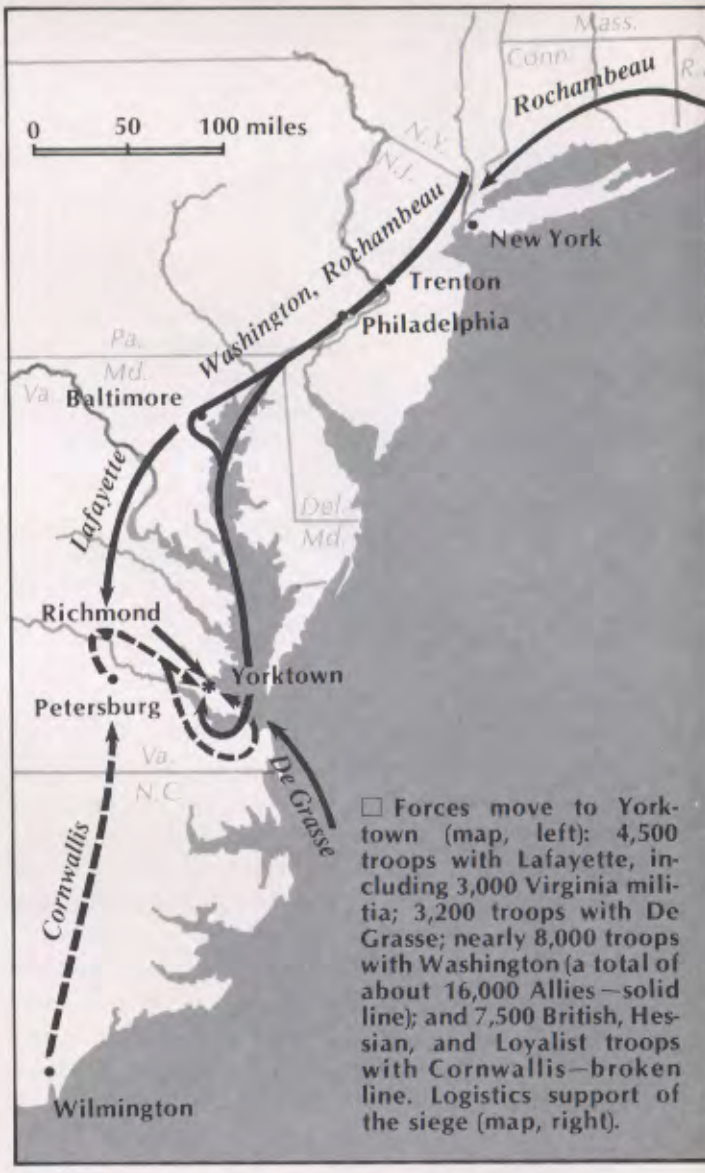
ters, there were only enough boats to carry the entrenching tools, artillery, supplies, and other equipment, in addition to a few men. The rest of the army continued to Head of Elk by land, obtaining supplies along the way.

The American troops arrived at Head of Elk on 6 September, and the French joined them 2 days later. From Head of Elk, the advance troops of each army as well as most American artillery and ordnance supplies embarked on light schooners and sloops, open barges, and derelict ferries that had been gathered from throughout the Chesapeake Bay area. The rest of the Army kept marching on the west side of the Chesapeake to Baltimore and Annapolis, where they were picked up by frigates sent up by De Grasse. The horses, along with a few men to oversee foraging, continued south by land.

Such is the general outline of the route and methods of the famous march to Yorktown. Today it is difficult to appreciate the extraordinary and successful efforts in logistics planning and coordination that were required to move a base of operations nearly 500 miles with the limited resources at hand. One may recall that earlier Washington himself had considered the venture an "impossibility." But when the move became tactically expedient, Washington worked out the logistics support, directing and supervising the move south.

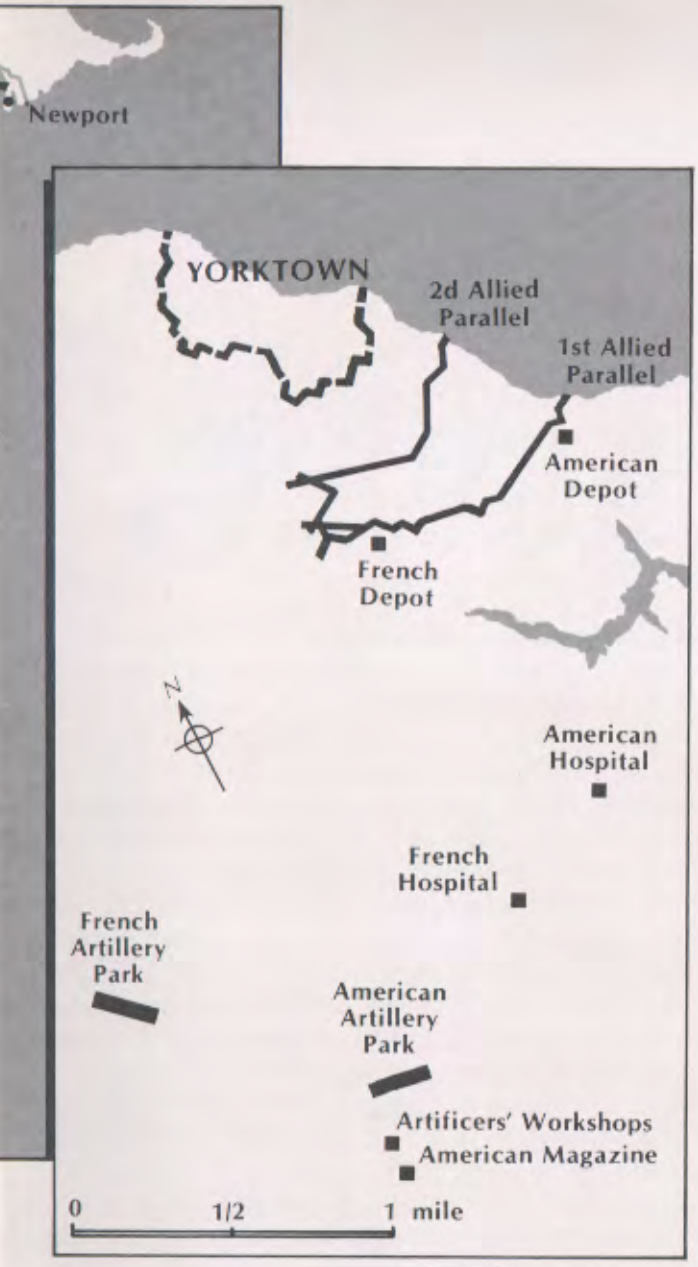
His correspondence suggests that he had more confidence in the ability of the director of finance, Robert Morris, than in his other department heads. For example, Washington asked Morris to assist Timothy Pickering, the quartermaster general, in procuring the watercraft needed to take the men and supplies down the Chesapeake, although transportation was a responsibility of the quartermaster. Also, Morris — rather than Ephraim Blane, the commissary general — was largely responsible for the success of subsistence supply during the Yorktown Campaign. Another very important type of logistics support arranged by Morris was, as one would expect, financial. Borrowing the equivalent of $20,000 from Rochambeau, he was able to fulfill Washington's seemingly impossible request — to send "a month's pay" to Head of Elk to pay the Continental Army, the first pay in specie many of them had received.

Washington continued to direct the logistics preparations for the movement and operation southward. He wrote letters to friends, department heads, and State officials asking for private shipping vessels, food, forage, entrenching tools, and other supplies. He issued specific combat-loading instructions to Pickering and Major General Benjamin Lincoln to insure that equipment needed first for siege preparations would be the first to arrive. He ordered troops for whom water transportation was not available at Head of Elk on to Baltimore and Annapolis and wrote to De Grasse requesting additional watercraft be sent to pick them up. For those who would continue south with the animals, he planned an overland route from Head of Elk to Williamsburg. Even when he paused to rest at Mount Vernon, which he hadn't seen in 6 years, he arranged for the Virginia Militia to repair the roads that were to be used by those marching south.



☐ Forces move to Yorktown (map, left): 4,500 troops with Lafayette, including 3,000 Virginia militia; 3,200 troops with De Grasse; nearly 8,000 troops with Washington (a total of about 16,000 Allies—solid line); and 7,500 British, Hessian, and Loyalist troops with Cornwallis—broken line. Logistics support of the siege (map, right).

All of this joint logistics planning and coordination paid off. On 18 September, the first boats arrived from Head of Elk, having been delayed by unfavorable winds and stormy weather. For many vessels, the trip south took 12 to 14 days. Nevertheless, men, equipment, and supplies arrived in good condition and debarked at Jamestown Island, Burwell's Ferry, Trebell's Landing, and College Landing. All craft had arrived by 26 September.



While the allied forces were moving south, De Grasse with 28 ships-of-the-line reached Virginia in late August with French infantry reinforcements and financial assistance. On 5 September, while the last of St. Simon's 3,200 troops were disembarking at Jamestown Island, the French fleet engaged the British fleet in the Chesapeake. While not decisive from a naval standpoint, the battle of the Capes was crucial to the allies' success in the campaign. As the two fleets maneuvered and exchanged ineffective fire in the Atlantic, a smaller French fleet under De Barras slipped in the Chesapeake and up the James with most of the French artillery, which was heavier and more effective than the American artillery. The British sailed back to New York for repairs, giving the allies control of American waters for the first time in the war. With the sea route of logistics and tactical support thus cut off, Cornwallis' fate was sealed.

Even before the French blockade and American-French siege operations, the logistics situation of Cornwallis was not good. Because the British Army lacked sufficient entrenching tools, all the spades, shovels, saws, and chisels were taken first to Gloucester to construct works there. Gloucester was planned as an aid in blockading enemy vessels, a base for foraging operations, and a means of escape; Yorktown was seen as a military bulwark capable of defending the British Navy from an attack by land or sea, not a fort that could withstand a siege. Nevertheless, once the meager entrenching tools were returned from Gloucester on 22 August, Cornwallis did what he could to strengthen and expand the existing earthworks.

Work was directed by British engineers and performed by 8,000 British troops and 2,000 Negro slaves. With only 400 spades and shovels, 190 pickaxes, 160 hand hatchets, 200 felling axes, and 32 wheelbarrows to be used in constructing batteries, redoubts, abatis, and other parts of the fortification, it is not surprising that time ran out. To arm his batteries, Cornwallis had to strip the frigates *Charon* and *Guadaloupe* since he had brought little field artillery with him from the Carolinas. When the first siege line opened on 6 October, Cornwallis' defensive line was not completed, partly because of the insufferable heat and rampant sickness, but largely because of a shortage of necessary materiel.

Early on 28 September the allied force, which now numbered about 16,000, marched from its camps near Williamsburg toward the British positions at Yorktown, 12 miles away. The troops reached Yorktown that afternoon in spite of the sandy roadbeds and insufferable heat. However, horses and oxen, which were brought south by land, did not begin arriving until 1 October and delayed the arrival of siege pieces and the opening of the batteries for several days.

Once they took their positions on 30 September, the allies immediately began fabricating component materials to be used in building the fortifications. Armed with hatchets, mallets, axes, and billhooks, infantrymen were detailed to trim boughs and branches and fashion them into fascines, hurdles, saucissons, gabions, fraises, palisades, and abatis. Washington ordered that a certain number of these be kept ready in the supply depots at all times, each regiment furnishing a specified number. One individual, called the superintendent of materials, was appointed to oversee and account for all the component materials and tools at points selected by the engineers.

☐ *American depot for engineer supplies.*

The actual planning and construction of the trenches, redoubts, batteries, battery parks, and powder magazines was the responsibility of the allied engineers. While infantrymen under the supervision of the engineers constructed redoubts for the infantry and batteries for the artillery, soldiers in the artificers' camps stacked cannonballs, loaded shells, and readied cartridge ammunition for the artillery. Cannons, mortars, and howitzers began arriving after a slow trip from Trebell's Landing across rough terrain, where roads had to be repaired and bridges constructed. Once the batteries were completed, the artillery was moved onto platforms.

The pieces were laboriously pushed and pulled through the trenches and hoisted into the batteries by soldiers, for fear that the horses would rear under fire and damage the artillery. At this time, the focal point of activity shifted to the artillery, commanded by Knox, who had supervised the transport of Washington's ordnance south. Artillery not used in the batteries was kept in parks, under the supervision of a field officer, who ordered repairs on the pieces and carriages and daily restockage of ammunition in the magazines.

By 9 October, all was ready for siege operations from the first parallel, 600 to 900 yards from the British line. By the 11th, 52 guns were in service, with General Friedrich Wilhelm Augustus von Steuben directing siege operations. Although their artillery was clearly superior to that of the besieged, crumbling the enemy's fortifications and decimating his ranks, the allies decided to increase the effectiveness of their firepower by constructing another line about half the distance between the first parallel and the British earthworks. Two outer redoubts that prevented the extension of the American lines to the York River (the French portion had been completed) were taken on the night of 14 October, and the British sortie the next night proved ineffective. Even an attempt to escape to Gloucester on the night of the 16th and 17th was thwarted by a violent storm.

Thus occurred the investment and siege of Yorktown. But even during the feverish, around-the-clock activities of siege operations, many kinds of logistics actions were keeping the besiegers supplied with ordnance, food, clothing, shelter, and medical provisions. Most important from the standpoint of siege operations was the supply of artillery pieces, equipment, and supplies. We know exactly what artillery pieces were brought to Yorktown by the American Army from very thorough ledgers of shipments from Head of Elk kept by Brigadier General Henry Knox, artillery commander. At Yorktown, American artillery consisted of bronze and iron mobile field guns ranging from 3- to 12-pounders; a large number of howitzers, 6- and 8-inch in caliber; mortars, ranging from 8- to 10-inches in caliber; and iron siege pieces, including 18- and 24-pounders. Besides the artillery pieces, Knox's bill of lading lists garrison carriages, traveling carriages, mortar beds, various shells, powder in barrels, cannonballs, smith's equipment, paper cartridges for cannon, fuses, slow match, grape shot, cannister shot, port fires, rammers and sponges, kegs of oil, tar barrels, spare carriage wheels, and wagons. However, there is no indication that artillery platforms constituted part of the cargo shipped from Head of Elk. Instead, the American Army built platforms at Yorktown from oak and pine planks gathered on the Delmarva peninsula.

Storage depots for the heavy ordnance, carriages, and limbers were called artillery parks; the French and American armies had separate parks. Behind these were the artificers' workshops, where repairs were performed, and the central magazine for light ordnance and ammunition, both protected by infantry guards. Also behind the artillery parks but more forward than troop support facilities were the engineers' trench depots for the deposit of carpentry and entrenching tools and component materials.

Commissary and quartermaster facilities, where food, clothing, pay, and a ration of rum could be obtained, were placed directly behind the unit encampments. Supply of these troop necessities continued to be problematic, food less so than the other commodities. After the campaign Blane reported that the allied armies at Yorktown had been "plentifully supplied" with provisions, but accounts of private soldiers contradict his definition of plenty. Even drinking water was at times scarce because the British had contaminated streams and wells with heads of steers, dead horses, and the bodies of Negro slaves. While liquor made up part of the soldier's ration, its insufficiency, whether perceived or actual, was supplemented by rum sold by sutlers and soldiers' wives.

Clothing, too, was inadequate. In a letter of 3 October, Wayne wrote: "We are much distressed of shoes, shirts, and overalls." The clothing of the Virginia Militia was even scantier than that of the Continentals; one commentator observed, "They wear loose breeches and some have shoes, but a great many are without them."

Because the British had felled most of the trees in the vicinity to prepare abatis, firewood became scarce, so scarce that Washington issued orders forbidding the soldiers' "pernicious practice" of stripping farmers' fences for firewood. A shortage of tents in some units prompted Washington to direct redistribution of the shelters so that "the troops sharing the same danger and fatigue may enjoy equal benefit."

The need to work in the rain combined with hot days and cold nights, sometimes without adequate shelter, produced a variety of illnesses, ranging from the common cold to malarial fever. Recognizing the importance of good health to the success of the siege, Washington ordered "that every possible attention ought to be paid to the preservation of it." He instructed quartermasters to furnish straw, good bread, and one gill of rum to each soldier daily. Quartermasters also were to insure that the area surrounding the camp was kept free of litter. Old sinks (latrines) were filled up and new ones dug at 3- or 4-day intervals. Unit officers inspected the sanitary condition of tents daily.

Washington directed a detail be raised to remove and bury the dead horses "and other putrid bodies" at least ½ mile from camp. One of his greatest fears was that an epidemic of smallpox would infect the allied armies. During the siege, Cornwallis turned out most of the 2,000 Negroes, starving and stricken with smallpox. To lessen the chances of infection, Washington forbade his soldiers from "having any Communication with the Houses or Inhabitants in the neighborhood or borrowing any Utensils from them." Although smallpox did not become epidemic in the allied armies, by the end of the campaign about 1,700 Americans and an equal number of French soldiers had suffered sickness or injury.

Those not seriously ill or injured were ministered to in the field at either the French or American hospital far to the rear of the first siege line. Both hospitals were near the main trench thoroughfare to expedite transportation of wounded soldiers. Soldiers who were seriously ill or wounded were taken by ambulance route to the hospital at Williamsburg, which had been established in the Governor's Palace. By the end of the siege, 1,000 American soldiers had been treated at Williamsburg.

As far from ideal as was the American logistics situation, that of the British was worse, and it grew even worse as the siege progressed. Cornwallis' withdrawal from his outer position so limited his wood resources that he ordered his men to dismantle houses to obtain the lumber needed to strengthen his fortifications. His troops suffered from a variety of illnesses, especially smallpox. Hundreds of horses were killed for lack of forage and dumped into the York River, only to be washed up a few days later to decay on the beach. Cut off from food supplies to the north as well as to the south (allies were blocking logistics support to Gloucester), Cornwallis' men went hungry, their rations having been cut by one-third. Shelter became scarce, as more and more walls crumbled under allied siege fire. The troops who escaped logistics deprivations still risked being killed by tactical fire; in fact, over twice as many British soldiers were killed than the combined American-French casualties. With ammunition, food, and medical provisions virtually exhausted, and hope of rescue or logistics resupply vanished, Cornwallis began negotiations for surrender on 17 October. Two days later, on 19 October, the surrender was symbolically enacted when the British laid down their arms outside Yorktown.

The victory at Yorktown must, in the final analysis, be attributed to a number of factors, including, of course, French supplies, French finance, a powerful French fleet, and an allied French Army with expert engineers and superior artillery. But neither foreign assistance, nor tactical superiority, nor inspired leadership, nor adroit strategy — nor all of these combined — was the victor at Yorktown. Yorktown was a great achievement in logistics for the allied armies, a great failure for the British. Victory became a reality because of the remarkable logistics achievements that supported the tactics and strategy of the siege.

In a letter dispatched to a friend a day after the surrender, Lafayette wrote: "The play, sir, is over. The fifth act has just been closed." The lead part in the play may very well have been Logistics. ALOG

How to Succeed in Logistics

by Lieutenant General Richard H. Thompson

The Army's recently appointed Deputy Chief of Staff for Logistics offers career advice to young Army officer logisticians.

"What should I do to be competitive in my Army career?"

I am asked this question during virtually every visit that I make to the field. Young, energetic Army officer logisticians are concerned about the kinds of things they should do to improve their competitive edge in vying for career development opportunities.

Having served on a number of selection boards for various coveted opportunities, I've given considerable thought about how to answer that often posed question. I would like to share some of those thoughts with all of you logisticians who have pondered that question.

First, we need to understand our Army, not only its missions and functions but also its values and beliefs. Our Army is in transition, just as our society is in transition, but the element of transition has always been present. At no time in our Nation's history have the opportunities, challenges, and satisfactions for Army logisticians been greater. It's a "super" time to be serving our Nation.

Regardless of your current position or experience there are going to be occasions when your seniors will be perplexed, or even dismayed, by some of your attitudes. There is, indeed, a generation gap; but there are also core values and beliefs that you and your seniors can jointly embrace and build a lifetime of service around. I think there are three beliefs that can be universally shared —

- The Army is a profession. It is a profession that requires dedication, sacrifice, and commitment. Service to our country, in the highest and finest sense, is the principal reward.

- The Army is people. The Army is not an impersonal assembly of sophisticated weapons of destruction linked by high speed electronics. It is people, and people — comrades, family, friends, and countrymen — are whom the soldier is willing to die for.

- The Army is opportunity. The Army, as perhaps no other institution, offers the opportunity to serve, to develop, to grow, to share, and to contribute.

These, then, are some of the beliefs that I think are mutually shared. I also think there are some fundamental values — values steeped in our Nation's heritage and culture — that can be mutually shared. Among those values are —

- Honesty and integrity. These words describe specific, recognizable values, not hazy concepts. They mean "tell it like it is" and "be willing to stand up and be counted."

- Dedication. This, too, is a recognizable value, manifest in our willingness to defend our free society and its constitutional guarantees.

- Pride. This value is perhaps our most obvious and is demonstrated by the pride we take in our Nation of free men, women, and children; in our profession that helps keep our Nation free; in our soldiers and our leaders; and, most of all, in ourselves.

- Enthusiasm and optimism. This value is reflected in our attitude that we can and will do the job.

- Respect. This value is demonstrated in our dealing equally with our fellow soldiers regardless of race, sex, age, or station in life.

After recognizing these fundamental values and beliefs, let me share with you some things that I think a young logistician can do in charting his career to maximize his contributions and to achieve his potential. I offer these in no particular order of importance.

- Go after the tough jobs. Contrary to popular belief it can be beneficial to volunteer. Assert yourself and as a logistician assert your service to your customer.

- Stay physically and emotionally fit with a healthy appetite for work and a positive attitude toward mission accomplishment.

- Serve with troops as early and as often as possible. You'll keep that vitality and sense of urgency that is so important to a small unit's success.

- Learn to praise openly, counsel wisely and honestly, and chastise privately, impersonally, and without emotion.

- Don't work toward efficiency reports and scores; give each job your best and the reports and scores will take care of themselves.

- Learn to speak and to write expressively, understandably, and concisely. Be articulate without being verbose.

- Be active — a competitor and a doer — guided by technical knowledge, logical thought, and common sense. Don't do anything stupid.

- Understand and learn from your mistakes. You'll make mistakes and correct them or be corrected, but maturity comes from understanding them.

- Remember your obligations to our taxpayers and to our Army and be ruthless in your efforts to weed out fraud, waste, and abuse.

- Study war and understand it — it's our profession. Learn from the triumphs and tragedies of our past leaders. Make their logistics successes and mistakes pay off for you.

- Don't get bogged down in the technical minutia and jargon of our logistics systems. Realize their importance, learn their critical points, and measure their effect on the combat units that you support.

- Learn to communicate with the commanders and staffs that you support in their language and thought patterns. Your knowledge is an important asset to them.

- Care for your soldiers — the good ones and the not-so-good ones. Help, nurture, and defend them; for they will be what they think they are and what you think they are.

- When you evaluate subordinates, emphasize the importance of their jobs in plain, simple language. If they have done well, say so. We logisticians tend to understate things.

- Don't plan your retirement at the 10th year of service. Pursue assignments that provide continued professional growth, not necessarily those that will be most marketable at your 20th year.

- Learn when to listen and when to speak up. It has been said that you can't listen your way into a problem, but it is equally true that you can't listen your way out of one either.

- Study your career opportunities and actively participate in managing your own development. Review and update your officer record brief and microfiche.

- Know your career manager at the Military Personnel Center. Talk with him. Tell him your goals, aspirations, and hopes and follow up in writing so that he doesn't forget. Use the preference sheet.

- Let your boss help you, just as you help your soldiers. Learn to communicate your needs to him and let him watch you grow in responsibility, knowledge, assuredness, and maturity.

- Don't be afraid to ask for help or information when you need it, but don't be foolish enough to "shoot from the hip." Don't be afraid to say, "I don't know," but then go find out.

Remember, logisticians are important members of the Army team. There is a bright future for you on that team. Attune yourself to become a more vital part of that team, drawing upon the emerging regeneration of America's defensive strength. ALOG

Lieutenant General Richard H. Thompson is Deputy Chief of Staff for Logistics, Department of the Army.

Maintaining a Watercraft Fleet

by Colonel John J. Vargo, Jr.

Will the Army get out of the "navy" business, or will funds be forthcoming to revitalize an aged, decimated fleet of watercraft? Those questions are important not only to those associated with Army watercraft but also to total Army responsiveness and readiness.

The Army Materiel Development and Readiness Command (DARCOM) commander, for one, has proposed that the Army relinquish its watercraft mission to the U.S. Navy, pointing out the painfully obvious fact that the Army has lost much of its watercraft capability through neglect. Although the major commands immediately expressed disapproval, in the past they have excluded watercraft in their plans for contingency operations.

How did the Army's 599-craft "navy," which contained as many as 14,000 watercraft in World War II and included more than 2,000 as recently as the Vietnam War, get to such an all-time low? Moreover, why is it that the designs of today's watercraft differ little from those of World War II, in spite of the many technological advances that have taken place during the 40-year period?

The state of the Army fleet today can be attributed to a number of factors. First, and quite ironically, we always have had more boats than we needed. As a result, there hasn't been the same concern for replacing and updating boats as there has been for other equipment. Therefore, even though the Army used watercraft extensively for combat support in every conflict in which it has been involved since World War II, the quantity of boats on hand made up for the lack of quality.

To further complicate matters, there is the fact that the worklife of Army watercraft is much longer than that of other types of more sophisticated military equipment. When one considers that the Army often keeps

equipment beyond its projected normal service life, it is not surprising that watercraft come to be thought of as practically immortal. Unfortunately, they aren't immortal, unless we want to keep something even after it has lost its usefulness.

There is also a cost factor. Even though year after year required operational capability (ROC) documents are approved that recognize the obsolescence of the fleet, little is done. Why? Because watercraft compete for money poorly with other equipment because of their high unit investment cost and low priority for replacement.

Then there is the continuing question of whether or not the Army really needs a watercraft fleet any longer. The nature of war has changed in such a way that it practically precludes the prompt use of watercraft, since old-design craft must be towed or hauled to reach many places. However, in southwest Asia employment of watercraft in over-the-shore operations may become a necessity. We must consider how much support other nations, particularly in Europe, could give the fleet in terms of harbors and docks and how vulnerable this support would be to enemy destruction.

Finally, there are the objection that watercraft should be solely the Navy's job and the belief that the Army should simply tag along, no matter what statutes, doctrine, and missions dictate.

When we add to these factors the Army's inability to define and defend a quantitative wartime requirement for boats, it apparently becomes more prudent to wait, rather than jump into an expensive commitment to modernize the fleet. But as we wait, the Army fleet becomes more outdated.

As the fleet ages, so do the personnel who have worked in the Army marine programs. They have been able to keep up the fleet, almost miraculously, because of their knowledge of out-of-the-way supply sources for repair parts. But as they retire, this knowledge will retire with them. Thus, keeping the fleet supplied with repair parts will become more and more of a problem.

Availability and readiness will become more problematic, since repairs are dependent on taking parts from one boat to fix another. Safety, too, will become more of a concern as age and neglect take their toll. No matter how much money is spent on maintenance, it will be impossible to insure a "safe and serviceable" condition for watercraft, because no such standard exists for boats.

It is no wonder, then, that the question of whether or not the Army should stay in the boat business frequently arises. The fact remains, however, that the Army has committed itself to maintaining a watercraft fleet. Therefore, we must address the problem seriously. I believe that realistic goals are attainable, provided that funding is forthcoming.

Since fielding replacement equipment tends to be a time-consuming affair, even when commercial candidates can satisfy an operational requirement, the immediate support problem is not resolved. To help solve this problem, a new support system has been proposed that recognizes the unique supply difficulties of Army watercraft and thus will be more responsive to the users' needs.

The new support system under development will include more lenient storage and demand criteria, east and west coast controlled salvage, centralized periodic inspections to verify watercraft conditions, reduced depot storage assets, and contract bond rooms for equipment such as the LACV-30. Although not the most economical, this system is a reasonable one if customer service is the priority objective.

Selective product improvement programs (PIP's) also provide a temporary solution. These programs improve readiness by upgrading onboard communications, navigation, electronics, and emission controls. What PIP's can't do is improve the operational capabilities of a 1940 design. Furthermore, the use of PIP's has two adverse effects. If PIP's are used, the Army is obligated to keep outdated equipment well beyond its normal life expectancy. On the other hand, if it is decided to classify an item below standard, clearly identifying it as operationally deficient, regulations preclude the application of a PIP. Thus, it's a "catch 22" situation. While PIP's

☐ **Suitable replacements for the LARC LX (above left) and the BDL Mark I, the Lieutenant Colonel John U. D. Page (below), can be found commercially.**

are like minidevelopment programs in their administration, management, and test requirements, simple engineering changes don't always turn out as economical as was expected.

All of these problems related to the improvement program surfaced during the Army's recent landing craft utility modernization program. Such pitfalls must be avoided in the future. Even if PIP's were used wisely, how often and how long can the Army realistically continue to use them?

The solution to the Army's watercraft predicament is an updated fleet that can meet the water transport needs of today. One course, a new fleet with identical equipment in both kind and number, would probably cost over $2 billion. That's not what is being recommended, however. But even what is being recommended — a fleet improvement program — will be very expensive since we waited so long to begin the revitalization effort.

The only "new" watercraft design to which the Army has committed itself is the LACV-30, a high-speed amphibian that will replace the wheeled LARC XV's. The LACV-30 design is based on that of the commercial Bell Aerospace Textron *Voyageur.* The Army will get four LACV-30's in 1981 and eight more over the next 2 years.

As was recommended by a study group of the National Academy of Sciences in 1978, we need to encourage the use of commercially produced vessels and craft, such as tugs and harbor service watercraft. Many of them answer the Army's needs without modification. The incorporation of automation on these commercial boats allows for drastically reduced crew requirements, a significant cost savings.

There are suitable commercial replacements for even the landing craft 1600 Class LCU and the beach discharge lighter, BDL Mark I. The commercial boats can provide added payload capacity in terms of both weight and utility. They are faster and have smaller crew requirements. They are capable of self-deployment and, most importantly, they represent less investment cost relative to current designs.

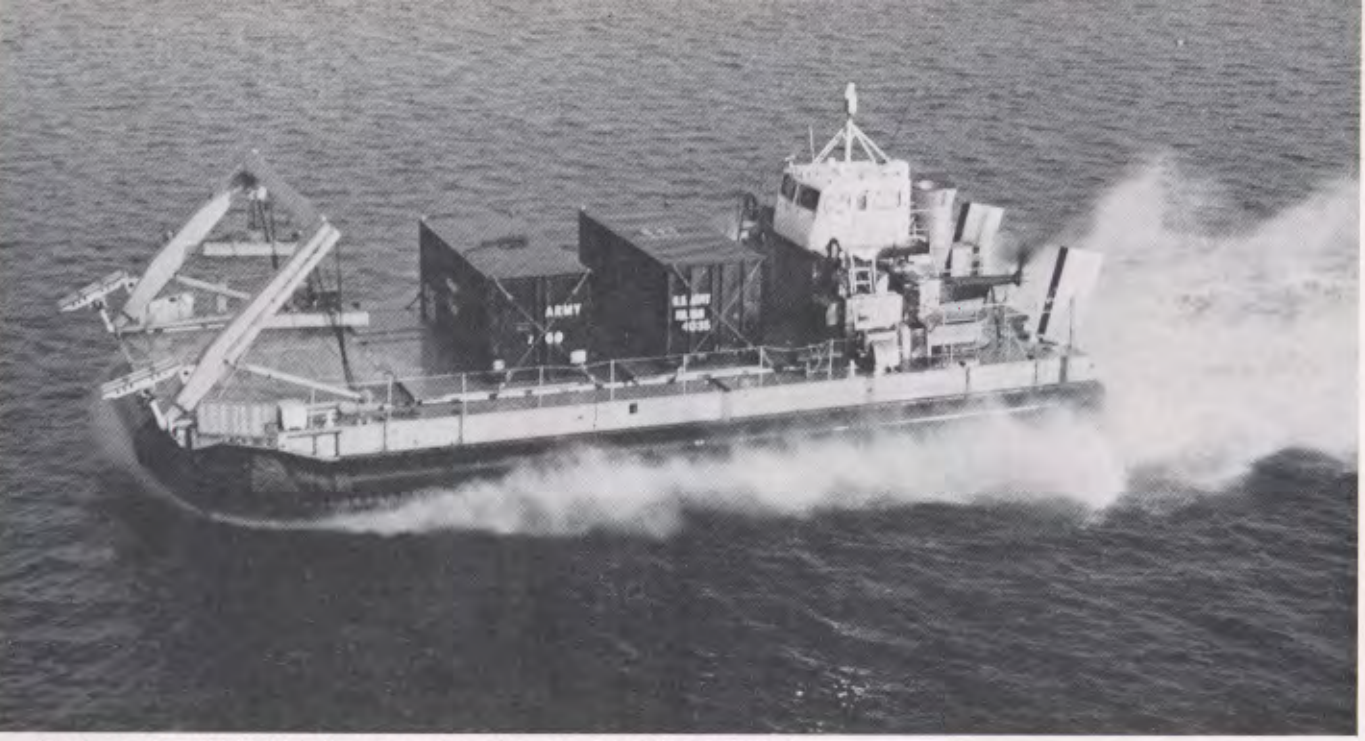
Commercial boats have been found that satisfy already approved ROC's. Instead of investing in a new model of Army watercraft through internal research and development, the most suitable commercial candidate should be procured by contract. Consideration is being given to leasing such craft before procuring them to allow Army personnel who will work on the watercraft to participate in a hands-on evaluation of a current, state-of-the-art piece of equipment. This is better than looking at a 40-year-old Army boat and trying to guess what the boat of the future should include. Only after the commercial boat has been given a thorough review would a procurement specification be finalized to support a competitive acquisition.

The economics of such an approach can be evaluated as the program progresses. The economic prospects become very promising when one considers that a more powerful and efficient fleet is attainable with operating costs of about one-half that of today's fleet. This savings would be possible because the new fleet would allow reductions of one-half in crew and fleet size, since the boats would be more mechanized and have a greater carrying capacity.

Although this may sound like a "look-how-much-we-can-save" approach, there is a difference. Fleet modernization is mandatory. The penalty for not modernizing now is the continued reliance on watercraft that can't perform as required — watercraft that would provide unreliable and costly support for any mission.

If we move more toward the adaptation of existing commercial boats, the question remains: How much research and development capability should we maintain in house? While it's true that boats are boats and the Navy knows a lot about them, that doesn't mean that the Army shouldn't be just as smart, within reason.

Based on the well-founded premise that there are



☐ **The LARC-XV (left) is being replaced by the LACV-30 (above).**

valid equipment requirement differences between Army and Navy boats, considering legal role, mission assignment, and current doctrine, there is no need for a duplication of effort. Regardless of numerous allegations to the contrary, no duplication of effort now exists, nor does the Army envision a duplication effort after its modernization efforts. The need to communicate with the Navy when marine-related problems arise will remain. The Army must be able to tap the Navy's research and development experience when it needs to. After all, the Army's watercraft research and development strength has dropped to a dangerous low in recent years, with no current or future funding to increase it. How can watercraft research and development capability be justified under such program constraints? Not very well.

There are valid research and development actions that should be accomplished if DARCOM is to uphold its commitment to the combat soldier. First, we must recognize the current state-of-the-art of watercraft in order to provide technical assistance in the joint development of letters of agreement and required operational capability documents. Second, we must determine which acquisition strategy is appropriate — nondevelopmental items, military adaptation of commercial items, or pursuing full-scale research and development in-house. Third, DARCOM must be aware of when a Navy development item has the potential of satisfying an Army requirement. And fourth, DARCOM must provide guidance to Army engineering organizations before, during, and after a new equipment item is added to the inventory. We should make it easier to transition from applied research and development to the purchase of nondevelopment items or adaptation of commercial items without intermediate steps when circumstances allow.

A joint watercraft requirements master plan has been developed by DARCOM and the Training and Doctrine Command (TRADOC) to document the overall requirement for watercraft. The plan, submitted to DA in August of 1980, was approved by DA as a concept document. It will serve as a roadmap for upgrading the fleet. The realistic goals proposed in the plan are attainable, provided the funding is forthcoming.

The goals listed in the plan will not be easily attained. It has never been easy to compete with combat systems for dollars. What is hoped for is that a reasonable program supported by valid needs, articulated as well as possible in a combined DARCOM-TRADOC plan, will make clear to everyone a long-standing problem. As a result, we should hope that the Army will provide the money to correct the watercraft deficiencies. If it doesn't, we can expect more proposals in the future for the Army to get out of the watercraft business entirely.

In the watercraft business, what we need is change, not the status quo. ALOG

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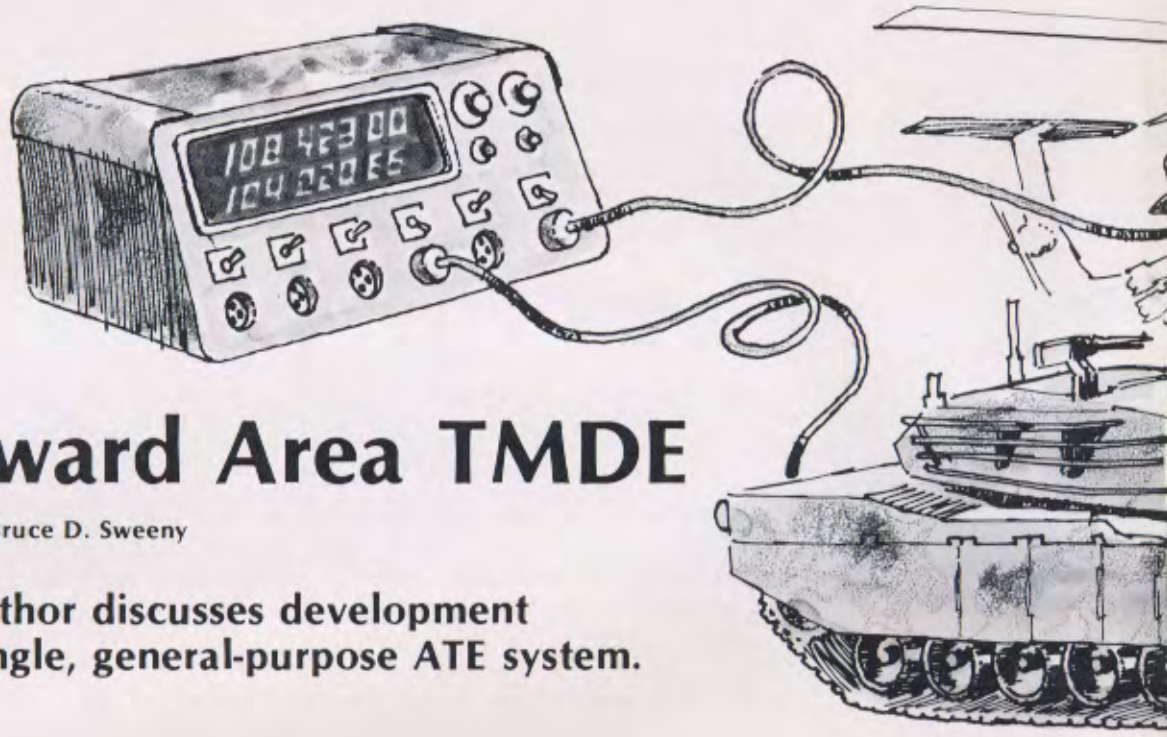

Forward Area TMDE

by Major Bruce D. Sweeny

The author discusses development of a single, general-purpose ATE system.

The U.S. Army is investing much time and money in the development and acquisition of new combat and combat support systems. By 1985, scores of new or improved systems will have been fielded, including the Abrams tank and infantry and cavalry fighting vehicles; advanced attack, Scout, and Blackhawk helicopters; in addition to TACFIRE, MISSILE MINDER, and FIREFINDER fire control systems. Units equipped with these systems will have an abundance of finder-killer capabilities that must be maintained combat-ready until required. Therein lies the root of the problem.

Of the many materiel "integrated logistics support" factors, test, measurement, and diagnostic equipment (TMDE) is receiving heightened attention from systems managers. Nonetheless, TMDE is in danger of becoming the most critical support shortcoming for units with new weapon systems. To improve the speed and quality of field maintenance, a complex, new approach is gaining support Army-wide.

The current theme for materiel maintenance is "fix forward." This concept generally requires the following division of labor—

- Operators or organizational repairmen — using built-in test or TMDE — repair the system by replacing component "black boxes."
- Direct support and intermediate maintenance unit personnel — using TMDE — repair component "black boxes" by replacing modules.
- General support maintenance personnel — using TMDE, including automatic test equipment (ATE), if required — repair selected modules by replacing piece parts.

The job of obtaining the TMDE required for each prime system has been the sole responsibility of the acquisition manager. He has been given great latitude in selecting or developing TMDE. Due to vastly increased use of electronics, especially digital, in new Army materiel systems, we have repeatedly discovered that Army standard discrete TMDE cannot effectively carry out the approved maintenance concepts. The result has been a proliferation of system-peculiar TMDE, much of it automatic, at all maintenance echelons. Acquisition controls imposed by the U.S. Army General TMDE Activity frequently are not effective, largely because there is no truly general-purpose, standard alternative for forward area direct support and organizational maintenance.

It is imperative that we strive for stricter control and standardization of ATE acquisitions. Otherwise, ATE development, especially development of the ATE system software and controller hardware, may be duplicative. Initial procurement of many new system-peculiar ATE items that are deployed to all direct support units or user organizations is extremely expensive. The re-

quired repair parts, support, and test equipment for the ATE further dilutes the Army support capability. But the most serious impact of ATE proliferation is upon the repairmen.

Organizational, direct support, and general support repairmen are part of the support "tail" of the Army. The "tail" must not grow so large that it threatens the combat power or readiness of the "tooth." Moreover, although our complex new weapon systems require highly trained support maintenance repairmen, such people are not available in adequate numbers. Even were they available, the Army could not afford the necessary increased training time, given today's low first-termer retention rates.

Automation of TMDE systems will relieve skill-level requirements for repairmen. The built-in computer feature of ATE systems will allow for self-paced training. In addition, off-line programing of ATE by highly skilled test engineers means that field repairmen will not have to engineer a diagnostic test each time an item is brought in for service.

As things stand now, repairmen must become adept at using the many varied pieces of TMDE needed to support the diverse systems requirements of their commodity specialties. General-purpose ATE will greatly reduce the need for many discrete TMDE units. If the Army does not develop a single, general-purpose ATE system, it must at least reduce the number of these test units by adopting multiapplication ATE's.

At the most forward maintenance echelons (organizational or unit level), very rugged, simple-to-use, lightweight, and fast TMDE systems are needed to provide reliable, responsive support. At direct support and intermediate levels, where there are fewer environmental constraints, ATE can be truck-mounted or made stationary in a building. Here, there is time to perform more thorough diagnostic tests and analyze results.

A solution to the problem of TMDE proliferation is the development and adoption of a single, general-purpose electronic ATE system. This system must be reconfigurable in the field, so that compact ATE units can be set up to test the largest number of testable units possible. It must not be so large and heavy that fixed installation is required. Since complete test requirements of new supported systems are not available now, the design of the ATE system must be such that new technology can be inserted through a modular hardware and software design. Thus, additional test capabilities can be designed to interface with the host ATE system.

Introduction of this general-purpose, forward-area revolutionary ATE system should be gradual. Support for prime weapons and support systems should be time-phased as maintenance procedures are converted to computer software, then validated and distributed. Repairmen initially will use the ATE for some jobs, conventional TMDE for others. The net training impact on repair courses will be slight at first. Eventually, however, course length and complexity can be reduced. Gradually, it will become possible to cross-level test workload among field maintenance shops using the general-purpose ATE, and eventually even consolidate some shops due to the much improved productivity.

Of course, to take full advantage of the current state-of-the-art in automatic testing equipment, much more planning and doctrine development are required. Army materiel maintenance must be treated as a vital commodity in itself, as armor and armament are considered today. It will take time — but, let us hope, not too much time — to impress upon commanders servicewide that current field maintenance problems will not only remain but grow exponentially as the vast array of new weapon systems reaches the field. A general-purpose ATE system for field use may be the answer to these problems.

ALOG

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Army Announces Water Doctrine

by Colonel Gerald Z. Demers and John R. Finger

The Army's near-term water doctrine is designed to insure an adequate water supply for joint forces operating in an arid environment.

The Army's commitment to NATO remains strong. But while Europe is still the central focus for shaping Army forces, world events signal a need to accept responsibilities in other parts of the world. In particular, readiness for defensive action in the southwest Asia-Arabian Gulf regions deserves immediate attention.

In such regions, providing water of suitable quality and in adequate quantities becomes a challenge. Surface water sources are rare. Where they exist, the sources may be saline or brackish. To compound the problem, there is a need for increased individual consumption in these areas of scarce water in order to prevent heat casualties. To encourage increased water consumption, drinking water must be cooled.

Traditional methods of water production, purification, and distribution will be inadequate in arid environments. Engineer units are neither equipped nor organized to meet the new challenges. Moreover, engineer resources should not be diverted from their primary mobility-countermobility-survivability combat support missions. New concepts, including new equipment and organizations, are therefore needed for water supply support.

Several steps have already been taken. The Department of the Army designated water supply as a combat service support function, with management responsibility assigned to the Deputy Chief of Staff for Logistics. In keeping with the realinement, the U.S. Army Training and Doctrine Command designated the U.S. Army Logistics Center as its executive agent for water resources and transferred water supply combat developments responsibility from the Engineer School to the Quartermaster School. The Quartermaster School already has begun to develop long-term, all-environment water support concepts, doctrine, and organizations for the Army of the future. There are future plans to transfer the responsibility for training development as well as training to the Quartermaster School.

Meanwhile, the Logistics Center addressed the problem of near-term support in arid environments, trying to determine what "fixes" could be made to existing doctrine, organizations, and equipment to upgrade water support capabilities as rapidly as possible. This near-term doctrine is designed to improve the Army's readiness to deploy to arid environments should the need arise in the near future.

Near-term solutions were based on an examination of the water requirements of a joint force operating in an arid region. Water consumption planning factors were developed through joint efforts with the Navy, Air Force, and Marine Corps. The chart on the right on the opposite page lists various water consumption categories, with the requirement expressed as gallons per man per day for each category. All categories listed on this chart — drinking, hygiene, food preparation, vehicles, medical, graves registration, laundry, and construction — are uniform factors common to all services. The requirement for water to be used for aircraft and turbine washing, however, differs for each service because of their unique equipment and mission profiles. In addition, there is a 10-percent waste and evaporation factor. The left chart shows the total requirement for each service, including waste and water for aircraft, and a weighted average factor that may be used in estimating total requirements for a joint force.

Of particular significance is the requirement for individual drinking water. The 4-gallons-per-man-per-day figure is based on considerable research and evaluation, including data from the Arab-Israeli conflicts and from the Surgeon General's office. There is ample historical and medical evidence that this level of consumption is needed to prevent heat casualties. It is equally evident that the average soldier will not normally or voluntary consume 4 gallons per day. Therefore, commanders and unit leaders must continually monitor and supervise water intake to insure unit effectiveness. To help commanders encourage individuals to drink enough water, units will be provided with equipment that will cool their drinking water to approximately 60 degrees

Fahrenheit in desert areas.

Arid environment consumption planning highlights the magnitude of the water supply problem. A 250,000-man force, for example, would require approximately 5 million gallons of water per day, based on the 20-gallons-per-man-per-day factor. Under normal circumstances — in temperate climates with numerous *fresh* water sources available — this requirement would not be difficult to satisfy. In a desert environment, however, the requirement presents a significant logistics problem. The lack of dispersed water sources means that water must be obtained from some major central source. In the worst possible situation, this central source probably would be the seashore. New equipment would be required to desalinate water, since current erdlators are not suitable. Once treated, this large quantity of water must be distributed throughout the area of operations.

Since the water supply problem closely resembles the POL (petroleum, oils, and lubricants) supply problem, the concept of operations developed by the Logistics Center has been patterned after that system and is outlined in TRADOC Pamphlet 525-11. In the near term — that is, until new units can be designed, organized, and equipped — the concept envisions the use of existing POL supply units to perform the water storage and distribution functions as well as command and control. In an emergency these units would substitute water equipment for their petroleum equipment. The functions they would perform and procedures they would employ would be similar to those for which they have been trained. Only the product handled would be different.

Except for previously planned 600-gallon-per-hour reverse osmosis water purification units, most of the equipment they would use is being procured as part of a specially funded and urgent acquisition program. Among the criteria used in selecting equipment items, availability and the speed with which they could be procured were prime considerations. Most equipment will be available within the coming year. Some items will be issued to selected units for training purposes, while the remainder will be held as operational project stocks by the Forces Command. In the event of contingency operations in an arid environment, this equipment would be issued to predesignated units and incorporated into a water system such as that illustrated on pages 18 and 19. The diagram shows a typical system as it might appear in a mature, fully developed theater. The water system, like the force itself, will actually be developed in phases.

The first elements entering an area of operations will be combat forces with little or no combat service support. Equipped with individual canteens (both 1- and 2-quart varieties), 5-gallon cans (with insulating jackets), and other common table of allowances equipment, the units will carry only enough water for immediate survival.

Resupply of water will be accomplished by tactical aircraft (C-130's) from the staging areas. Equipment used for aerial resupply will consist of 55-gallon and 250-gallon fabric drums and the forward area water point supply system. The system consists of a set of six 500-gallon drums, a pump, and the necessary hoses. These drums are normally used in pairs (one pair in use at the unit, one in transit, one at the staging area). This

Service	Gallons per man per day
Army	18.9
Air Force	21.5
Navy	24.4
Marine Corps	19.5
Force Average	20.0

Consumption Categories	Gallons per man per day
Drinking	4.0
Hygiene	4.0
Food preparation	3.0
Vehicles	0.3
Medical	2.0
Graves registration	0.2
Laundry	2.0
Construction	1.5

Force requirements for water by service, including waste and water for aircraft (above). Water consumption rates common to all services in an arid environment (right).

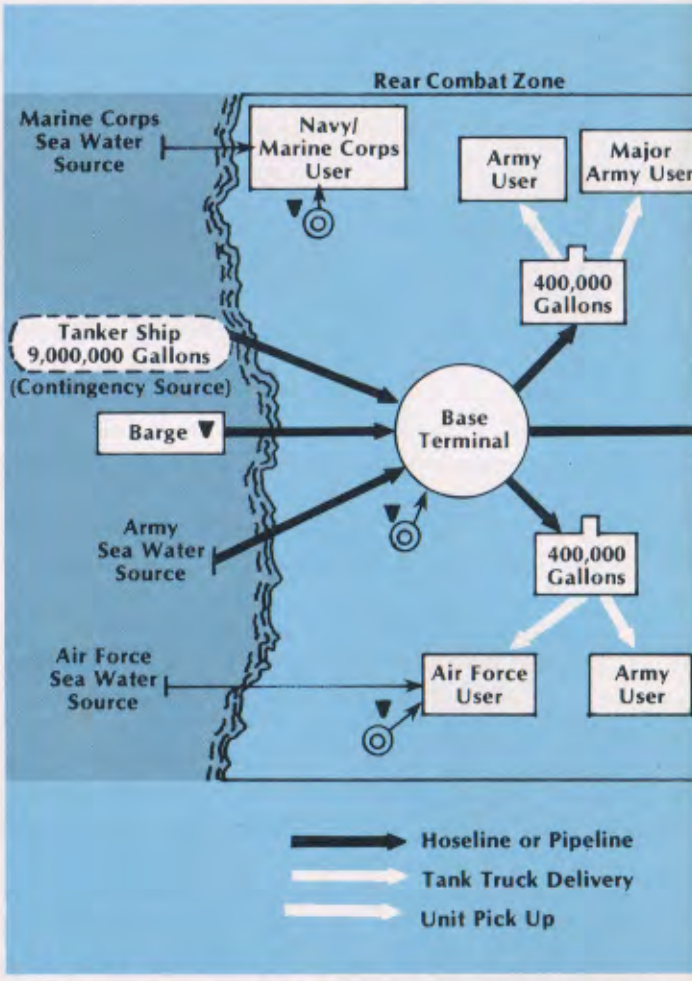
nonexpendable equipment must be recovered for reuse. Where air-landed support is not feasible, water will be supplied using expendable, 6-gallon bag-boxes, containers similar to those used in dining facility milk-dispensing machines.

As follow-on forces arrive in the objective area, the troop population and its water requirements will increase beyond the resupply capability of tactical aircraft, which will then supply only the most forward-deployed and isolated units. An in-country water supply system will be established near the seashore or other major source of water. While engineer elements attempt to detect ground water sources and begin well-drilling operations, combat service support units will provide large-scale water purification, storage, and distribution. Engineer teams will purify the water using modified commercial 150,000-gallon-per-day reverse osmosis water purification units. (Some of these same units may be mounted on barges and operated just offshore.) The treated water will be stored in a base terminal system consisting of 50,000-gallon collapsible fabric tanks; the system will be operated by a pipeline and terminal operating company.

Medium truck companies will distribute water to users. These companies will be equipped with 4,570-gallon collapsible fabric tanks specially designed to convert an M872 cargo semitrailer into a "tanker." To insure that forward operating bases continue to receive adequate supplies of water until fully operational supply routes can be established, it may be necessary to rely also on fixed-wing aircraft, helicopters, and other trucks.

As the logistics base expands and the force builds, additional water units will arrive to establish tank farms. Each tank farm will be capable of storing 800,000 gallons of water using 50,000-gallon collapsible fabric tank systems. The POL supply companies operating these installations will also operate tactical water distribution systems. Each system consists of seven 10-mile segments of hoseline with appropriate pumping equipment. These hoselines will normally be used to move bulk quantities of water from base terminals or pipehead terminals to the tank farms. While the hoselines also could be used to deliver water to the divisions, the normal mode of transport from tank farms in the corps area to the division rear area will be by the "tankers" of the cargo truck companies.

At division level, all water specialists formerly assigned to the engineer battalion will now be assigned to the supply and transport (or supply and service) battalion. The supply and transport battalion will operate a 300,000-gallon storage facility consisting of 20,000-gallon collapsible fabric tanks in the division's main



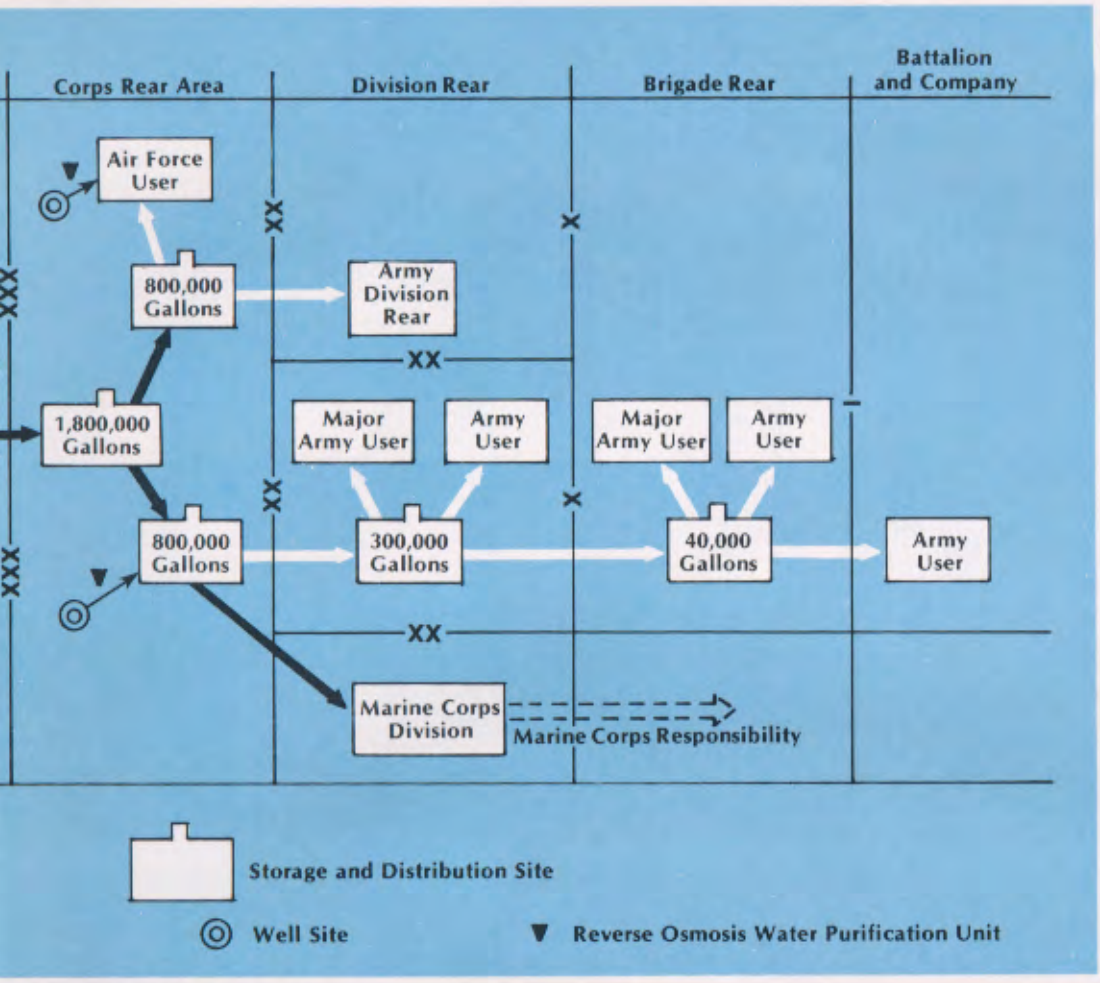
☐ **Typical tactical water supply and distribution system in**

support area. From that facility, water is delivered to the brigades by truck.

In each brigade support area the supply and transport battalion will operate water points using two 20,000-gallon collapsible tanks, with a spare tank available to facilitate rapid displacement. Units will pick up water at these points using their 400-gallon water trailers and the 55- and 250-gallon drums mentioned earlier. Each unit authorized a 400-gallon trailer or mess equipment will also be authorized a small mobile chiller. This skid-mounted device can cool up to 800 gallons of water from 120 degrees Fahrenheit to 60 degrees Fahrenheit each day. The unit can be mounted on the water trailer or transported in other unit vehicles.

Units with no land lines of communication will continue to be resupplied by air. Such aerial resupply may originate from the brigade, division, or corps support areas, depending upon the situation. All sites and facilities will be capable of supporting combat units by air.

The complete system is designed to handle only potable or treated water. This will eliminate the need for dual sets of equipment, simplify equipment markings,



an arid theater of operations.

and reduce the risk of nonpotable water being inadvertently consumed. To prevent bacteriological contamination, every facility will be capable of rechlorinating the water as it moves through the system. Water quality will be constantly monitored by operating personnel at each level and spot-checked by medical teams.

Although the system described assumes the worst possible situation — where raw water is available *only* at the shoreline — flexibility has been built in. The divisions will be equipped with 600-gallon-per-hour reverse osmosis water purification units, as will corps level engineer water supply companies. As wells are developed or as local water sources are discovered, water treatment can be accomplished at those sites. Use of local sources and wells will greatly reduce the storage and distribution burden.

The concept just described, then, is composed of three new elements. First, the purification equipment is now capable of treating saline or brackish water. Second, the concept provides for equipment and units that perform storage and distribution functions, including aerial resupply. Finally, units will be capable of cooling their drinking water.

The conversion of petroleum units to units with a water storage and distribution capability in this interim system places a heavy burden upon the existing Army POL force structure. The Quartermaster School is currently designing, organizing, and incorporating into the Army structure general support water companies that will eliminate the need for POL unit conversion.

In the meantime, this new concept of operations insures that, should a United States force deploy to arid environments on very short notice, we will be able to supply that force with water, a commodity just as vital as ammunition. ALOG

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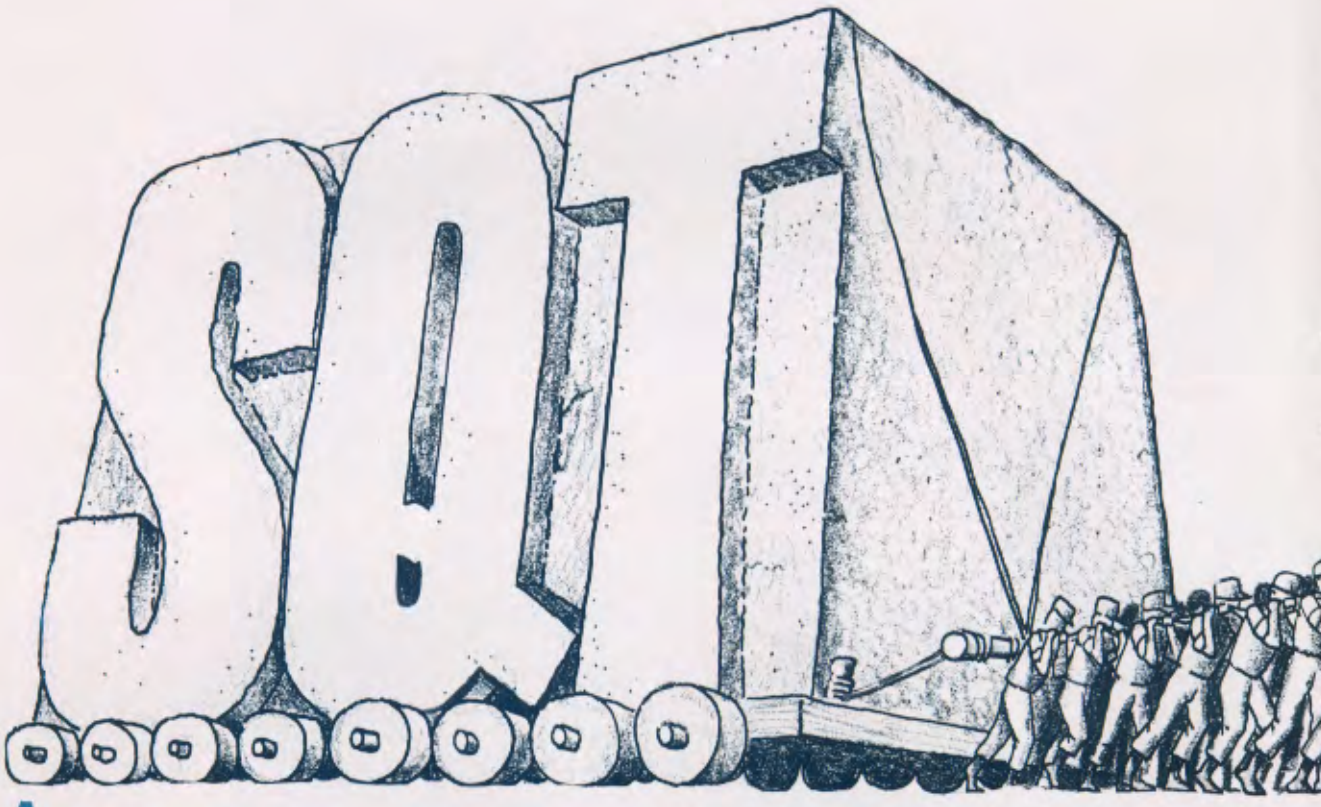
John R. Finger is a logistics management specialist in the Water Resources Management Office at the U.S. Army Logistics Center.



All Army units have always had assigned missions, tasks, and special duties that require resources and time. In the case of combat units, their prime purpose is to be prepared for combat. Both individual and unit maintenance and training are necessary and reinforcing to that prime purpose. The situation is different in combat support (CS) and combat service support (CSS) units. Their first priority is the day-to-day support of all operating units. Then they worry about maintenance and training.

Training in the field units has, in recent years, become an increasing burden for a number of reasons. Constrained resources in the training community have forced advanced individual training to be reduced. As a result, most soldiers completing it are a long way from being qualified in their military occupational specialty (MOS). The unit must then provide on-the-job training to bring these new soldiers up to a level where they can contribute effectively to the accomplishment of the unit's mission.

Another reason why training has become so burdensome is the Army's very structured training program. The structure begins at the individual level and builds to complex evaluations of larger units up to battalion level. The whole Army training and evaluation program (ARTEP) is dependent upon individual skills as measured by the skill qualification test (SQT) program. The SQT program requires intensive management to insure proper implementation.

The structured training program presents particular problems for CS and CSS units, more so than for the combat units. Three factors are present in the CS and CSS units that make training an enormous and almost unmanageable burden. Those factors, in order of importance, are—

- Mission accomplishment.
- Noncommissioned officer (NCO) technical proficiency.
- Training management.

The first two factors have always presented some problem; and now, the third factor, when coupled with the management of the SQT program, becomes the proverbial "straw that breaks the camel's back." Let's look briefly at each of the contributing factors as they affect CS, CSS, and combat units.

Let me cite, for illustrative purposes, a personal experience. As commander of the 1st Support Battalion (Provisional), 1st Infantry Division Forward, in Germany, the SQT program was part of my responsibility. The battalion is much like a minidivision support command. It has maintenance, medical, supply and service, signal, and administrative companies. The management problem might be somewhat greater than in the CS or CSS unit that has only one primary functional mission, such as a signal or a supply and transport battalion.

To make maximum use of assets to accomplish the SQT program, the division forward assigned battalions specific SQT responsibilities. My battalion was assigned

SQT's — Support Unit Burden

by Lieutenant Colonel Patrick A. Bowman

The Army's current training and evaluation program strains support unit resources.

SQT's for 29 MOS's with associated skill levels, while combat battalions had 8 or less. Granted, many of the 29 were for low density MOS's, but these require the same management efforts as SQT's with high density MOS's. Attempts were made to shift the testing for low density MOS's to units that had those MOS's in greater densities, but even this required coordination, time, management, and soldier training. I learned recently that the battalion now has responsibility for SQT's for 41 MOS's.

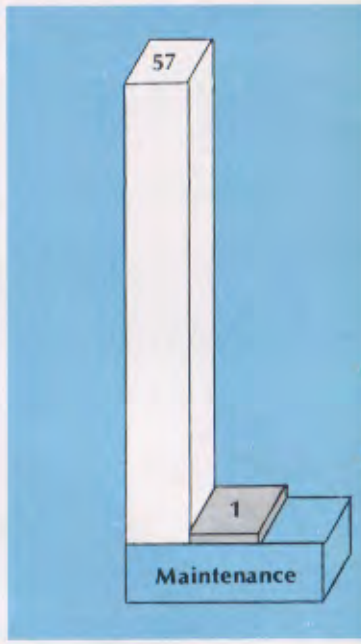
Consider the magnitude of this training burden, then consider the command emphasis that is currently being placed on unit readiness. Readiness reporting now requires units to track readiness on a daily basis so that the monthly report reflects the monthly period rather than a 1-day snapshot. This puts more pressure on maintenance, requires more intensive management, and adds pressure to the support system. To operational readiness now add the other required "ash and trash" details and you can begin to see that formalized training in CS and CSS units gets a pretty low unit priority. Commanders at all levels can ill afford to allow unit readiness to drop. Thus, training takes a back seat if readiness is likely to suffer because of time spent on training.

If an infantry soldier is neither training nor maintaining, then he is not performing his primary purpose of getting ready for combat. The same would be true of the mechanic, except when he is training, vehicles are not being fixed, which is his primary purpose. Formalized training for the support people can directly and adversely affect unit readiness.

The second factor, noncommissioned officer technical proficiency, becomes a big problem for CS and CSS units because the noncommissioned officer is recognized as the key to unit training. The NCO must be able to evaluate the proficiency of the individual soldier and the capabilities of his section, squad, or platoon and determine what training is needed. He then must be technically qualified to develop and conduct that training. He must manage time, facilities, equipment, and personnel in that training effort. The NCO must also possess leadership qualities that motivate individuals and units to achieve the desired training objectives. Under today's structured training system, this is asking a great deal in technical proficiency alone.

There is a vast difference in the technical proficiency required of NCO's in support units as compared to that required in the combat units. The variety of complex equipment, the technical aspects of mission accomplishment, and the complicated MOS structure in the support career management fields (CMF's) create this difference. Compare for a minute the CMF's.

Of the 30 CMF's, 5 are combat, another 5 are low density that hardly fit either combat, CS, or CSS, but the remaining 20 can be classified as CS or CSS. Compare the communications-electronics operations career management field (CMF 31) with the infantry career



management field (CMF 11). As an example, consider the infantry E7. He, in all probability, has been promoted through the skill levels of 11B10, 11B20, 11B30, to 11B40. He is supervising people doing essentially jobs that he once did himself.

Such is not the case with the communications-electronics E7 at the 31Z40 skill level. He was promoted from E6 to E7 from one of five different MOS's — either 05C, 36E, 26R, 31M, or 31N. In his "capper" MOS, 31Z40, he must now supervise, train, and evaluate personnel in highly technical areas where he, himself, may never have had formalized training or experience. The situation becomes even worse when he is promoted to E8, 31Z50, and his supervision broadens to five to eight additional technical fields. When our infantryman is promoted to E8, he will have only two additional MOS's to worry about.

The problem of technical proficiency is not going to become simpler in the future, nor is a major restructuring of MOS's likely. In fact, future weapon systems will be more complex for repair and maintenance, while increased operational complexity will be held to a minimum. These systems will require more and more technical proficiency from NCO's in the CS and CSS career management fields. They will have to be able to provide training in even more tasks of even greater complexity. It is apparent that successful training in the CS and CSS units will become even more difficult to achieve.

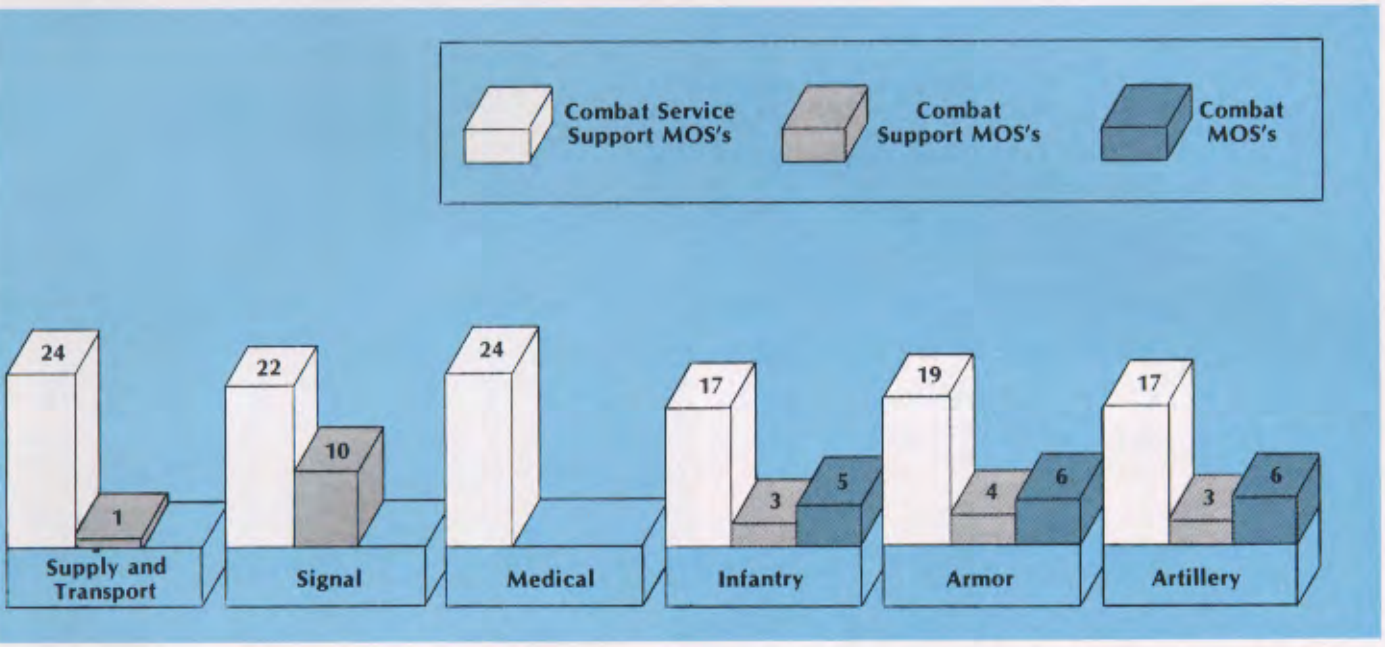
Another vast difference between combat units and CS and CSS units exists when one compares the management of training. To properly implement the SQT program, there is a definite sequence of tasks and events that must be tracked and accomplished. At least 19 specific tasks have been identified that must be accomplished in sequence within specific time frames. This represents a significant management effort.

The SQT management effort is more burdensome in CS and CSS units than in combat units because of the greater number of MOS's that must be tested. The manner in which the CS and CSS MOS's are grouped for testing, which may involve several units, further complicates managing the program.

There should be no doubt that implementing the SQT program in CS and CSS units is more difficult than in combat units. The SQT program works fairly well in combat units because it was designed primarily to establish minimum essential standards for combat readiness. It works very well for this purpose since the combat units have fewer SQT's to conduct and there are fewer mission conflicts so that resources can be concentrated.

The opposite situation exists in CS and CSS units. This makes the SQT program an unmanageable burden for these units. How can the Army make the program more equitable for all units and give CS and CSS soldiers an equal opportunity to earn scores comparable to their combat arms contemporaries?

The first step is to recognize and acknowledge that CS and CSS units have greater difficulty implementing the program. The next step is to realistically tailor the training in these units so that the CS and CSS soldiers have a



Number of military occupational specialties by type found in the various battalions.

fair chance of success in passing the tests. The highest resource drain is in conducting the hands-on portion of the SQT. Elimination of the hands-on portion for maintenance soldiers would certainly make the program more manageable in CS and CSS units. Expanding the job site portion of the test over a longer period of time and requiring evaluation on some specific tasks for specific MOS's could be substituted for the hands-on portion. This would provide individual evaluation and minimize interference with the unit's day-to-day mission.

Elimination of the SQT for first-term enlistees would reduce the number of soldiers to be tested and evaluated and would reduce the collection and retention of voluminous data. By eliminating the SQT requirement for skill level 1, greater attention and resources could be given to evaluating skill levels 2 to 4, which is where the significant technical problem exists.

A tailored SQT package that relates to the soldier's assigned unit should be developed. Not all units have the same equipment, and soldiers in certain MOS's are frequently tested on equipment they have never seen. For example, a soldier with an MOS of 31M, multichannel equipment operator, who is assigned to a division signal battalion works with different equipment than a 31M who is assigned to a corps or army area signal battalion. To test these 31M soldiers on all types of multichannel radios is unfair to the soldier and the unit. These soldiers should be tested on their proficiency with available equipment and on their ability to contribute to the unit's mission.

Tracking and managing the SQT in a CS or CSS battalion is a full-time job for one or two people, depending upon the number of MOS's in the battalion. A definite need exists to authorize an augmentation to the training slots in the battalion S3. The addition of SQT management personnel would greatly increase the probability that SQT results in CS and CSS units would be more "successful."

The handwriting is on the wall. The SQT is here to stay. It works well in combat units because it was designed to test combat skill efficiency. In combat support and combat service support units the conflict between day-to-day mission requirements and formalized training severely limits the SQT's effectiveness.

The lack of technical proficiency by CS and CSS noncommissioned officers, brought about by the CMF structure and the sheer numbers of MOS's, creates an unmanageable burden. Certainly, CS and CSS soldiers need to be trained and evaluated, but it must be done in a feasible, effective, equitable manner. There is a great need to modify the SQT program for CS and CSS units and soldiers. ALOG

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Field Bathing—With a Difference

With more women soldiers performing field roles, new refinements have been brought to field bath units.

The female soldier is now integrated into the mainstream of today's Army. The "nontraditional role" of women in the Army, like brown shoes, will soon be a thing of the past. Women soldiers are performing key roles in more and more occupational areas. With ever-increasing numbers of women in the Army, many of the ways in which the Army has trained, worked, and lived have changed. These changes have required fresh approaches to many traditional, established procedures. Field bath operations are one of them.

With more female soldiers participating in Readiness Command and XVIII Airborne Corps field exercises, ways had to be found to provide separate but equal bathing facilities. The 364th Supply and Service Company, part of the 1st Corps Support Command, at Fort Bragg, North Carolina, found an innovative way to provide this necessary service.

The bath unit has been reconfigured to serve both male and female soldiers simultaneously, overcoming what could otherwise have been an awkward and cumbersome problem to manage. The equipment used is essentially the same as that which has always been available to units charged with the bath mission. The important difference is the way in which that equipment is configured and used.

The separate male and female facilities are positioned to permit the use of common components of equipment in simultaneous operation. The male and female facilities each consist of a security and dressing tent connected to a showering tent. The tents may either be set up parallel to each other or at right angles to each other. The tents then share a common water source, common heating and pumping equipment, and a common sump.

Perhaps the most important factor is the operational methods used by the bath unit, for it deals with the morale and well-being of the individual soldier. Operational innovations make field bathing less of a hassle and more of a welcomed experience.

Even before entering the security and dressing tent, soldiers are provided an opportunity to wash mud from their boots. The boot wash is nothing more than a 55-gallon drum cut in half lengthwise, filled with water, and fitted into a rack for stability. A long-handled brush is provided to scrub away accumulated mud and grime.

As soldiers enter the security and dressing tent, they are met by an individual who serves as headcounter and who secures personal valuables such as watches and wallets. Plastic pouches with serially numbered pins are used to contain the valuables. Walls of the tent are lined with wooden benches and coat hooks and have full-length dressing mirrors. All soldiers are provided soap and foot powder.

But this is where the similarity between male and female facilities ends. The security and dressing tents are strictly set up with the user in mind.

The male soldiers' tent has the traditional shaving stands down the center with washbasins and mirrors, but now there's an added convenience — electrical outlets for electric razors (or perhaps even blow dryers). The female soldiers' tent surpasses the male soldiers' tent for field conveniences. The accompanying photographs show how these facilities can be made less spartan with very little extra effort.

The logistics of providing bath services is not significantly different than before. The bath units are housed in standard general-purpose, medium-sized tents that have been outfitted with a floor of wooden pallets and covered with rubber matting. Each has either one or

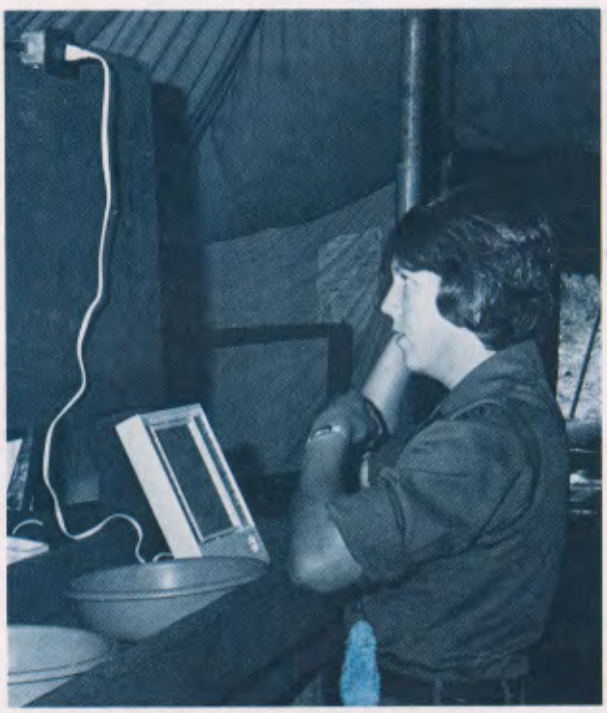
two four-head shower stands, depending upon the density of the supported force.

Field bath units can be classified as either "wet" or "dry" depending upon the water source. If water is pumped directly from a natural source, such as a river or stream, the facility is classified as "wet." If water is transported to the site, it is classified as "dry." "Dry" facilities are supported by 5,000-gallon tanker trucks that deposit 3,000 gallons of water in rubber bladders from which it is pumped through the showers.

Site selection for the facility is predicated on traditional considerations of central location with accessibility to as many soldiers as possible and adequate concealment. Environmental considerations may, today, play an even greater role in site selection. Extreme care is taken not to pollute the area around the site. Shower water is drained into a sump that measures 8 feet square and is filled with approximately 20 tons of gravel for filtering.

Many advantages have resulted from the operation of the dual-shower facility in the 1st Corps Support Command. For one thing, a great deal of time is saved. Units no longer have to keep track of different bath hours for male and female soldiers. Economy of transportation to and from the bath unit site is also achieved. With round-the-clock operation of the dual facility, units may schedule all personnel, regardless of sex, whenever it is most advantageous to the unit. Less fuel is also used in operating water pumps and heaters and in transporting water to dry facilities.

Providing tactical combat service support is the mission of the 1st Corps Support Command and this dual bathing facility is but one example of how the command is keeping pace with the needs of today's soldiers.



Bath units for male and female soldiers don't look much different outside (top left), but inside, accessories such as hair dryers (top right), makeup mirrors (center), and necessary electrical outlets (bottom) make surroundings less spartan.

Battlefield Recovery

— Key to Sustainability

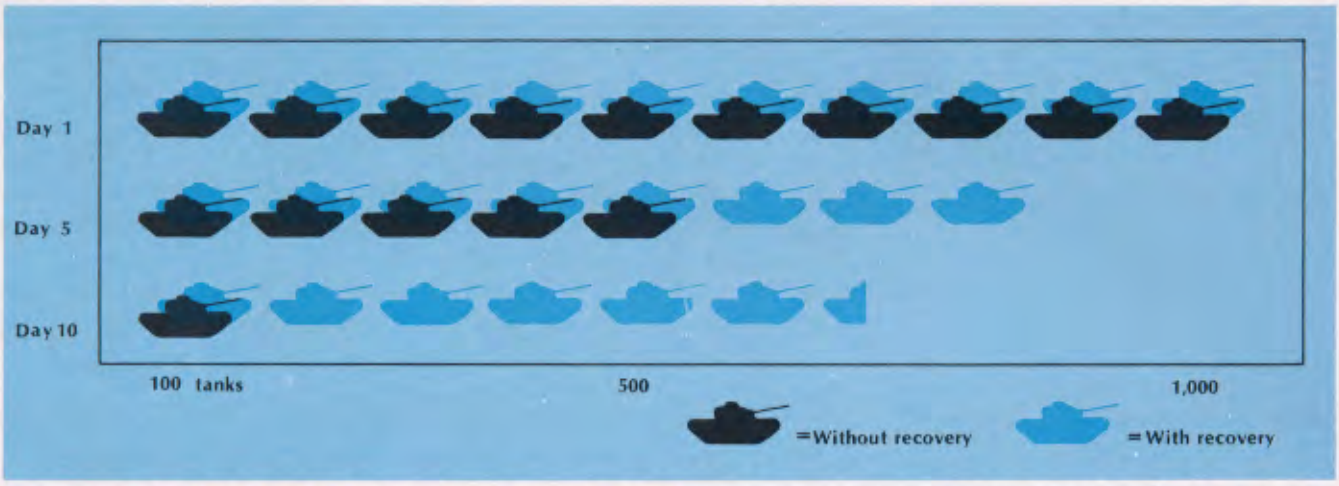
by Lieutenant Colonel Don E. Butts
and Major Walter Mullaney

The United States has, during the 20th century, overwhelmed its enemies with floods of fighting materiel. There were, of course, temporary shortages at times in every major conflict, but time and productivity of the U.S. industrial base were always on our side. This insured the United States of fielding the best equipped fighting forces in the world.

There have been significant changes in the last 30 years, marked by the development and proliferation of highly sophisticated and effective weapon systems. The increased firepower, accuracy, range, and mobility of these weapon systems have created an extremely mobile and lethal battlefield. Both sides of any future conflict will likely sustain devastating losses in short periods of time.

The 1973 Middle East war approached destructive levels that once were attributed only to the use of nuclear weapons. General Adan, commander of an Israeli armored division, estimated that his division alone consumed more than 800 tanks in a war that lasted only days. This kind of lethality on a nonnuclear battlefield establishes battlefield recovery as an essential element in winning the land battle.

High technology weapon systems have brought consequential changes in strategy and tactics. Today's strategy emphasizes winning the "first battle" with what we have on hand, characterized as a "come-as-you-are" war. This strategy acknowledges that our industrial base is not likely to have adequate startup time and enough productivity to influence the outcome of the first battle, which may be measured in days. Replacement equipment needed to sustain combat power will have to come from limited in-theater stocks and from the rapid repair and return of disabled equipment.



The effect of the loss of 100 tanks per day on a 1,000-tank force over a 10-day period with and without battlefield recovery.

Getting those limited in-theater stocks to where they are needed will be greatly constrained by the availability of transportation. Most surviving transportation assets will likely be required to move ammunition; petroleum, oils, and lubricants; and subsistence items to the combat troops. The combat commander's surest source for replacement equipment will be the disabled vehicles on the battlefield. It will be the *only* source directly under his control.

Actions must be taken now to insure that the Army will be able to effectively recover equipment from the battlefield and quickly repair and return it to service, thus sustaining critical combat power. To do this, an effective system of battlefield recovery is necessary. The importance of such a system is shown graphically by the chart above. Probability studies predict, and the Middle East experience bears out, that three operable systems can be made from every five disabled ones. The chart shows a 1,000-tank force with a loss rate of 100 tanks per day. Without an effective battlefield recovery system, the force is annihilated in 10 days. With a system that can return 3 out of 5 disabled vehicles, over 600 will still be operable after 10 days.

Effective recovery is essential to survival itself. Vehicle recovery from the battlefield is primarily the responsibility of the "owning" unit. Each time a vehicle is disabled, the unit is confronted with a set of recovery decisions. The basic question is, Should we or could we recover the vehicle at all? In essence, triage must be performed for equipment, just as it is for people.

The unit must decide if the vehicle has more than just "junk" value, if it has usable parts still intact, and if the risk in recovering it is acceptable. When a unit is holding or advancing in a battle, it can indulge in deliberate decisionmaking. When it is withdrawing, however, a triage decision must be instantaneous and is, essentially, irreversible. The battle situation will dictate if a vehicle can be recovered and, if so, how. A "hardened" recovery vehicle will be required if the disabled vehicle is under enemy fire or observation. Recovery teams must also be trained for recovery operations under fire. Using another combat vehicle to tow a disabled vehicle is costly in combat power. It means taking two vehicles out of the battle.

The unit must minimize the time and effort involved in recovery and be reasonably certain that once recovery is undertaken, the disabled vehicle can be moved far enough from the battle area to allow time to repair and re-crew it. Collection points must be designated for tanks, howitzers, and wheeled vehicles in each brigade or battalion area so that maintenance personnel have two or three disabled vehicles from which to make one serviceable one. A logistics system for analyzing and reporting the serviceable parts and the residual value of damaged equipment is needed. Determining who recovers a vehicle will be the product of all these earlier decisions.

The chart on page 28 shows the recovery assets of various divisional battalions. While the maintenance battalion seems well equipped in comparison to other battalions, it represents only about 10 percent of the division's resources. Adequacy of these resources in the combat battalions is dependent upon the flow of battle. In a retrograde situation, for example, capability of the recovery vehicles would be quickly saturated and the unit would be dependent upon tow bars when it could least afford to divert combat vehicles to recovery missions. Units must learn to consider the full range of

often overlooked recovery assets. A 2½-ton truck using a tow bar can pull an M113. An M88 can pull two tanks at one time. One out of every two tanks should carry a tow bar. For a tank battalion, 27 additional tow bars would cost less than $12,000. When compared to the cost of one tank, tow bars are a worthwhile investment. Tank crews should be trained to use tow bars to increase our recovery capabilities.

Where do we begin the recovery process? At the forward edge of the battle area. The initial triage decision must be made by the using unit, for they must either recover the vehicle or destroy it. On the high-mobility battlefield there isn't time to consult with the direct support unit contact team. Equipment users must be indoctrinated to recover every disabled vehicle possible. Command emphasis must be given to recovery to overcome the natural tendency to write off disabled vehicles as "war losses."

Turnaround time for the recovery vehicle is critical. When a vehicle is recovered, it should be taken immediately to the direct support unit contact team in the battalion trains for evaluation. If repairs can be completed in 12 hours or less, the vehicle should be left there. If repairs will require from 12 to 36 hours, the battalion maintenance section should take the vehicle to the brigade trains. Turnaround time from battalion to brigade would be about 3 hours. If the repairs are likely to take from 36 to 120 hours, the direct support maintenance unit should take the vehicle to the division support area. If vehicles can't be towed or if there are enough of them to be evacuated, heavy equipment transporters should be sent from division support to pick them up. Note that the U.S. division has only 6 heavy equipment transporters for tank evacuation while the German division has 36.

Doctrinally, it is significant that the burden of recovery is on the using unit. The recovery capabilities of the maintenance direct support units will be absorbed by requirements of the brigade and division repair missions. In reality, the recovery and evacuation mission probably will be limited to moving nonoperational equipment to battalion or brigade trains direct support units.

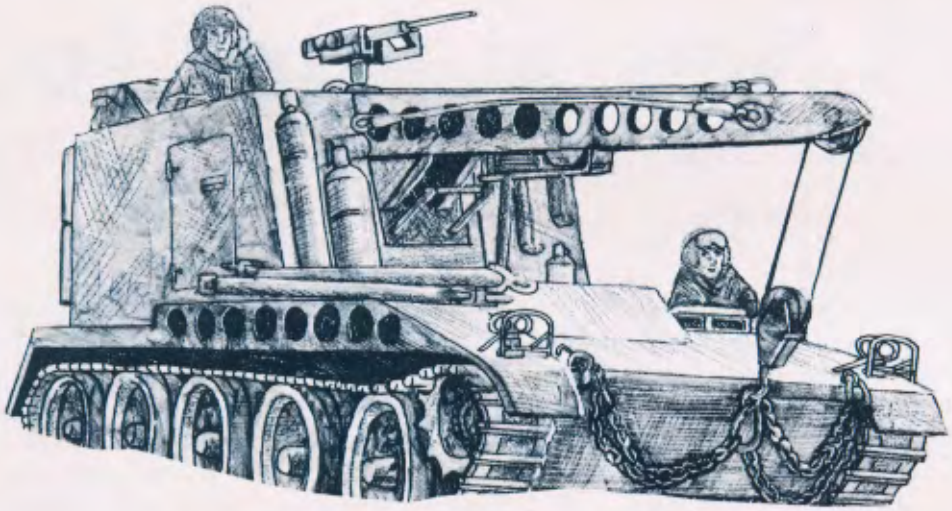
The collection and refit areas must be carefully selected and the flow of disabled equipment to the collection point must be closely coordinated by the G1, G3, and G4 with the tactical plans. The key consideration in area selection should be that it is accessible, yet far enough from the forward edge of the battle area to permit time to make repairs. If it is too near the battle area, the site could be overrun. When a vehicle is to be evacuated to the brigade trains, the tactical plan should provide at least 36 hours before the collection area is likely to be overrun by the battle.

In the refit area, where two or more tanks are used to make one operational tank, provisions must be set up to re-crew as well as repair. Empirically, we recoup 60 percent of the tanks but only 30 percent of the crews. Perhaps an integral medical and maintenance team should be provided. An alternative might be to designate

	Tracked recovery vehicles		Wreckers		Tow bars		
Battalion	M578	M88	M816	M553	Light	Medium	Heavy
Armor	2	5	1	1	6	3	11
Infantry	4	2	2	0	7	6	0
Artillery	1	0*	1	1	6	2	3
Maintenance	0	4	8	0	14	1	9

*Each 8-inch howitzer battalion has one M88A1.

□ **Divisional recovery resources.**



☐ **The M578 tracked recovery vehicle can be used to recover M113's and the fighting vehicle systems.**

"secondary" crews for each tank from among other units in the division, since crew replacements will not be provided for at least 10 days or more. "Secondary" crew members could be designated by paragraph and line number from the table of organization and equipment, and training could be provided during peacetime.

The magnitude of the recovery task, the considerations that it must be given, the doctrinal responsibility of the units, and the resources available for it have been described. Unfortunately, the system, as described, is seriously flawed. First, the recovery mission is either ignored or inadequately played during field training and command post exercises. Combat units are not recovery-oriented. Second, there is no logistics system currently that will analyze and report the residual value and condition of disabled vehicles and identify undamaged parts. Third, maintenance contact teams have no organic communications system through which to relay information to the direct support unit. Fourth, recovery assets, obviously, are inadequate to meet probable needs.

To survive on the modern battlefield, these deficiencies must be remedied, but where should we begin? I would suggest that all future field training and command post exercises emphasize recovery missions. A series of maintenance collection points and direct support unit sites should be planned. Exercise plans should call for the commitment of unit resources for recovery and allow for the degradation of combat power as a result of using a tank to recover a tank. Tactical plans should include provisions for recovering vehicles under fire and provide training in protecting recovery operations.

Command responsibility for the protection and recovery of disabled vehicles should be clearly established. Plans for the use of recovered vehicles should be carefully made to include providing information on their condition throughout the maintenance chain. Units should insure that one tow bar is on hand for every two tanks and that their use is planned and practiced.

Plans should be made for the triage of crews as well as tanks, and alternate crew members should be designated and trained from among divisional personnel. Realistic recovery requirements should be determined and table of organization and equipment modifications submitted to obtain needed vehicles and equipment for the recovery mission.

If we are to win the critical "first battle" of tomorrow's "come-as-you-are" war, then we must exploit every resource for sustaining our fielded weapon systems. Effective battlefield recovery is the key to our most available resources. ALOG

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Major Walter Mullaney is materiel officer, 123d Maintenance Battalion. He holds a master's degree in logistics management and is a certified professional logistician.

What's New in Army Food

by Lieutenant Colonel William J. Flanagan

The Army food service program is in a renaissance unequaled since the era of the Department of the Army Subsistence Operations Review Board. In 1971 the Board laid the groundwork for today's modern food service program. While there has been continuous progress in improving Army food service, today there are many new developments that promise further improvements.

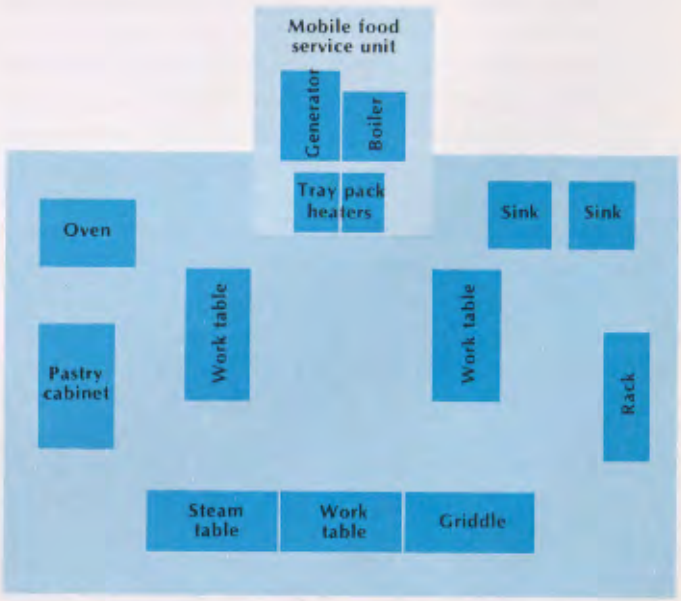
Under development now is a new combat field feeding system that represents the most significant field feeding innovation in 40 years. The system was developed jointly by the U.S. Army Natick Research and Development Laboratories and the U.S. Army Quartermaster School and is scheduled for field testing in fiscal year 1982. If the field tests validate the study findings, the Army will have a new system that offers improved mobility, flexibility, and responsiveness. It will provide a heat-on-the-move capability so that a hot meal can be served 10 minutes after the kitchen unit arrives onsite.

The basic food service equipment in the proposed system is the tactical field kitchen. The tactical field kitchen is made up of two subelements — a mobile food service unit and a supplemental field kitchen kit. The mobile food service unit can be mounted on a 1½-ton trailer or a 2½-ton truck, giving the system its heat-on-the-move capability. It will be used in the combat and maneuver units when combat conditions allow the serving of at least one hot meal a day. For the other two meals, soldiers can use the "meal ready to eat" ration. The mobile food service unit, designed to support company-sized units, can be augmented by adding the supplemental field kitchen. When augmented, an expanded menu that includes A and B rations can be prepared and served from the unit. It also offers improved sanitation.

The combat field feeding system uses primarily the new T-ration. The T-ration is composed of tray-packed products that are fully prepared, shelf-stable, heat-and-serve items. The food items are packaged in containers that are half the size of a steamtable pan and contain 10 to 20 individual servings per container. Meat and nonmeat entrees, starches, vegetables, fruits, and pastries can be obtained in tray packs. Menus can be made up of the tray-packed foods that are on hand.

By using the combat field feeding system, the number of food service personnel supporting field operations can be reduced by 30 to 35 percent and kitchen police personnel can be reduced by 50 percent. Fuel and water requirements for the food service operation can also be reduced by about 35 percent. The net result is a better field feeding system expected to reduce annual operating costs for a mobilized force of 1.1 million personnel by $210 million.

Concurrent with the combat field feeding system development, the meal ready-to-eat ration, or MRE, is expected to be entering the inventory by late 1983. That combat ration is the result of the latest food packaging technology and provides a considerable improvement over the current individual combat meal. The ready-to-eat meal will have 12 separate menus. The foods contained in the MRE are more palatable than the current individual combat meal. The flexible MRE pack weighs a third less than the current ration, making it easier to carry in a pocket. The MRE can be heated by body heat if necessary, or the foods can be consumed just as they are. The beverages must be combined with water.



Layout of a basic unit kitchen.

Service

Not only is field feeding receiving careful attention, but equal emphasis is also being given to garrison food service operations. The dining facility modernization program is being revitalized. By the middle 1970's, 198 Army dining facilities had been modernized. In the final years of the decade, the number of modernizations dropped to less than three a year.

Efforts are now underway to obtain the funding required to modernize the remaining 220 dining facilities that were identified in the original modernization program. Although there are many funding obstacles to overcome, the 5-year program for fiscal years 1983 through 1987 has the interest and support of many key Army leaders.

The Army Troop Support Agency at Fort Lee, Virginia, recently distributed a new concept of design and operations for modernizing and constructing new Army dining facilities. Features of the new design concept include indoor queuing to shelter soldiers from inclement weather, more efficient traffic pattern to improve diner flow, and a storage and staging area for insulated containers for food and beverages. The design concepts incorporate energy-efficient operations and an open kitchen area that improves efficiency.

Energy conservation is a critical national program, and the Troop Support Agency has also developed and distributed the Army Food Service Energy Management Program manual for dining facilities. This program is patterned after successful industry programs and can save a minimum of 15 percent, or approximately $4,000, annually in a dining facility's energy usage.

Natick's laboratories are also contributing to the energy conservation effort. Laboratory technicians are evaluating many items of equipment in order to select the most energy-efficient and operationally effective food service equipment for the Army. The most promising innovation is a low-temperature dishwasher that reduces energy usage by 50 percent while conserving water as well.

The computer, too, is coming to Army dining facilities. For the last 2 years, the Troop Support Agency has been laying the groundwork to implement an automated headcount system. Extensive work has been completed on the functional description, economic analysis, and a

Typical entrees from the Army's proposed T-ration.

worldwide onsite evaluation of operating conditions. The Army system will incorporate facets of various automated headcount systems currently in use at many colleges and businesses throughout the United States.

The Army's headcount system will be based on the machine-readable military identification card which is scheduled for introduction in fiscal year 1982. All entries into the system will be keyed to the social security number on the card. Food service is the Army pacesetter for using the machine-readable identification card. Implementation of an automated headcount system is supported by the Defense Audit Service and the Congress.

Initial work is also underway on developing the Army food management information system. If an economic analysis of the system supports it, a computer will be providing tailored recipes for any amounts of food to be prepared, preparing the cooks' worksheet, and assisting in dining facility accounting, control, and requisitioning. This system will also have a troop issue subsistence

activity module that will improve inventory control and increase operational efficiency. These are only a few applications of the proposed system at the installation level. The computer will also be able to assist the Troop Support Agency with the master menu development and with the design of dining facilities.

Automated systems will greatly reduce administration in Army dining facilities, but there are also many ongoing actions to reduce administration now. A Troop Support Agency effort, begun in late 1978, is beginning to bear fruit. Change 3 to AR 30-1, Army Food Service Program, eliminates 17 forms, one headcount system, and the monetary allowance ration system. A complete revision of AR 30-1 is also in progress. Publication of the revision is expected by mid-calendar year 1982. This action is expected to reduce the volume of the regulation by 15 to 20 percent, make it more readable, simplify its use for the Reserve components, delete still more forms, and reduce data requirements on others. The result will be simpler administration for Army dining facilities by eliminating approximately half the current number of forms used.

There are many innovations in field feeding, dining facility design and modernization, and equipment and system simplification; and people who operate the system have not been forgotten either.

The Troop Support Agency has completed an extensive study of tables of distribution and allowance for dining facility staffing. This study will provide the basis for increased staffing to reduce the 60 to 80 hour average work week for food service personnel. Final refinement of this effort is receiving considerable support and assistance from Forces Command and Training and Doctrine Command.

The Army is studying an automated headcount system, similar to the one shown here, that will be based on a machine-readable military identification card.

Efforts are also underway to establish a training course for managers of large dining facilities and to reestablish a basic noncommissioned officer food service management course. Reserve component food service personnel are also receiving additional training. Food service management instruction tailored to the specific problems of the Reserve components is being taught by the Quartermaster School's mobile training teams at several locations throughout the continental United States. Since mid-1979, more than 300 Army National Guardsmen and Army Reservists have received this training.

Several initiatives are underway to make the subsistence management officer's career (specialty code 82) more attractive. Work in this area is being done by a specialty code 82 work group, a subelement of the Army Logistics Specialty Committee. The work group is comprised of representatives of the Office of the Deputy Chief of Staff for Logistics, the Military Personnel Center, the Army Logistics Center, the Quartermaster School, and the Troop Support Agency. The main effort of this group is to advise the Army's general officers of the status of promotions, school selections, and other career developments of specialty code 82 officers. The group also recommends corrective actions required to insure an attractive career program.

Other actions being taken include recoding tables of organization and equipment and tables of distribution and allowances to reflect actual increased requirements for specialty code 82 officers. Efforts are also being made to improve the subsistence officer and commissary officer courses, expand command opportunities for specialty code 82 officers, increase exchange opportunities with other armies, and inform these officers of actions they must take themselves to optimize their career development.

With the innovative programs under development by the Natick Research and Development Laboratories, the Troop Support Agency, and the Quartermaster School, and with the Department of the Army Subsistence Review Committee monitoring overall developments, the Army food service program is contributing to a more effective, efficient, and responsive Army in the 1980's. ALOG

Lieutenant Colonel William J. Flanagan is senior food service staff officer, Office of the Deputy Chief of Staff for Logistics. He is a graduate of Cornell Hotel School and holds a master's degree in food distribution from the University of Delaware.

USING FIELD MAINTENANCE TECHNICIANS

by Walter K. Finlay

Evidence indicates that unit commanders are not totally aware that field maintenance technicians from the Army Materiel Development and Readiness Command (DARCOM) are available to them for logistics support. Questions like "FMT? What is that?" and "Who is he?" are all too frequent.

A field maintenance technician is a technically qualified individual who provides assistance and instruction in installing, operating, and maintaining equipment, weapon systems, communication systems, and other materiel essential to the combat, combat support, and combat service support capability of Army forces.

Why should commanders seek out and use the expertise of field maintenance technicians?

Because field maintenance technicians possess the professional ability to provide both formal and informal instruction on equipment systems, on-the-job training, and hands-on instruction to resolve equipment problems adversely affecting operational readiness. They can analyze maintenance and supply problems, diagnose equipment malfunctions, recommend proper test procedures, and determine correct parts. This avoids the indiscriminate and unnecessary replacement of components and repair parts. Field maintenance technicians also possess the ability to assist commanders in developing and sustaining the maintenance and supply skills of their personnel.

Because of personnel turnover and the continuous introduction of new or modified equipment, commanders should use field maintenance technicians on a recurring, systematic basis. Field maintenance technicians are "on the line" to help improve logistics support to the total Army.

Walter K. Finlay is a supply management representative of the Army Troop Support and Aviation Materiel Readiness Command, Field Services Activity, St. Louis, Missouri, with duty station at Nellingen Barracks, Germany. He is a graduate of the University of Maryland and a captain in the U.S. Army Reserve.

BATTLEFIELD RECOVERY AND REPAIR

by Major Stephen J. Snow

Time will be the prime determinant of the maintenance actions we will take on the future battlefield. Our battle strategy has predetermined that we will yield terrain in order to gain time to deploy CONUS-based units. This battle plan places severe constraints upon those combat service support organizations that have the mission of maintaining the force. Recovery and battlefield repair are very important matters.

As stated in FM 100-5, "Our Army must expect to fight its battle at the end of a long, expensive, vulnerable line of communication. Forward deployed forces, and those reinforcements immediately available, must therefore be prepared to accomplish their missions largely with the resources on hand." From a maintenance perspective, we must think in terms of quick repair of combat-damaged and inoperable weapon systems and act to quickly return them to the battle.

Recovery and repair operations will have to be not only timely but also selective. Inoperable weapon systems must be quickly assessed for repairability using time-to-repair as the deciding factor. Vehicles that are merely stuck or are out of fuel present no decision problem — simply hook up and move out smartly. Vehicles that suffer mechanical failure or combat damage make the decision more difficult.

Battlefield repair assessments must be made quickly by the organizational mechanics in the recovery crew. The combat prescribed load list must be checked to see if repair parts are available with which to quickly make repairs forward. Vehicles that are reparable, but not quickly reparable, must be recovered and evacuated. Severely damaged equipment that cannot be repaired must be cannibalized quickly.

Logisticians should be teaching our recovery team leaders to consider time as the basis for their damage and repair assessments. We must also develop combat prescribed load lists that contain repair parts that can be used to make simple repairs quickly. Time is a critical planning factor for the logistician as well as the tactician. Make the most of it. ALOG

Major Stephen J. Snow is USAREUR action officer for combat prescribed load list and authorized stockage list development and for battlefield recovery and repair policy development in the Office of the Deputy Chief of Staff for Logistics, U.S. Army, Europe.

Army '86 Transportation

by Major Richard J. Corso

Transportation will not be left out of the changes resulting from the Army '86 studies, the Army's modernization plan for the mid-1980's that will result in restructured divisions, corps, and echelons above corps. Redesigned transportation organizations, like many other organizations, will better support the new weapons and advanced materiel systems now being introduced into the Army. New concepts in tactical employment and unit design will help the Army of the mid-eighties meet the threat of aggression with better defensive and offensive forces.

Combat developments planners at the Fort Eustis, Virginia, Transportation School have been closely involved in Army '86 studies from the beginning. Specifically, they have redesigned '86 division level transportation motor transport (TMT) companies and corps level force movement units. As a formal concept, "force movement" is relatively new. In the context of Army '86, it is defined as the task of preparing for and executing the rapid movement of troops and supplies about the battlefield to concentrate combat power at critical times and places. To enhance force movement, transportation planners revised operational concepts for transportation units. These new concepts define interrelationships and interfaces of force movement units with supported and supporting elements at each geographically defined zone of the modern battlefield. Eventually, these concepts will be integrated into all transportation doctrinal publications.

Division-level force movement. Division '86, the first of the major Army '86 studies, has developed a division that is armor-heavy. Its new weapon systems and tactics dictate that force movement, at both division and corps levels, be able to transport radically increased tonnages of supplies, particularly class V. In fact, the Training and Doctrine Command estimates that a heavy division slice (division plus supporting corps combat elements) will consume about 4,545 short tons of ammunition per day during a typical combat situation in Western Europe.

To meet the increased demand for ammunition, armor and artillery battalions will use a new heavy expanded mobility tactical truck (HEMTT). It has a 10-ton ammo payload and an on-board crane to aid loading and unloading in combat environments. The ammunition transfer point (ATP) concept that was developed during the Munitions Systems Supportability Study has been incorporated into Division '86. Basically, the ATP concept involves a forward point in the brigade area to which corps TMT companies will deliver high-volume, fast-moving class V items. There, using the on-board crane and other materials-handling equipment, personnel will transfer cargo from corps trucks to HEMTT's of the armor and artillery battalions.

The divisional TMT company — company B of the division support command's (DISCOM's) supply and transport battalion — is being increased in capability to support class V operations and, primarily, to handle other force movement requirements. The new unit's task vehicles will be forty-two 5-ton cargo trucks and thirty-six 5-ton tractors with sixty-four M871 22½-ton semitrailers. With the increased number of vehicles and higher payload of the semitrailer and cargo truck, the divisional TMT company will have a greatly increased tonnage lift capability. While the M871 will permit container operations within the division, employment concepts do not include habitual use of the M871 that far forward.

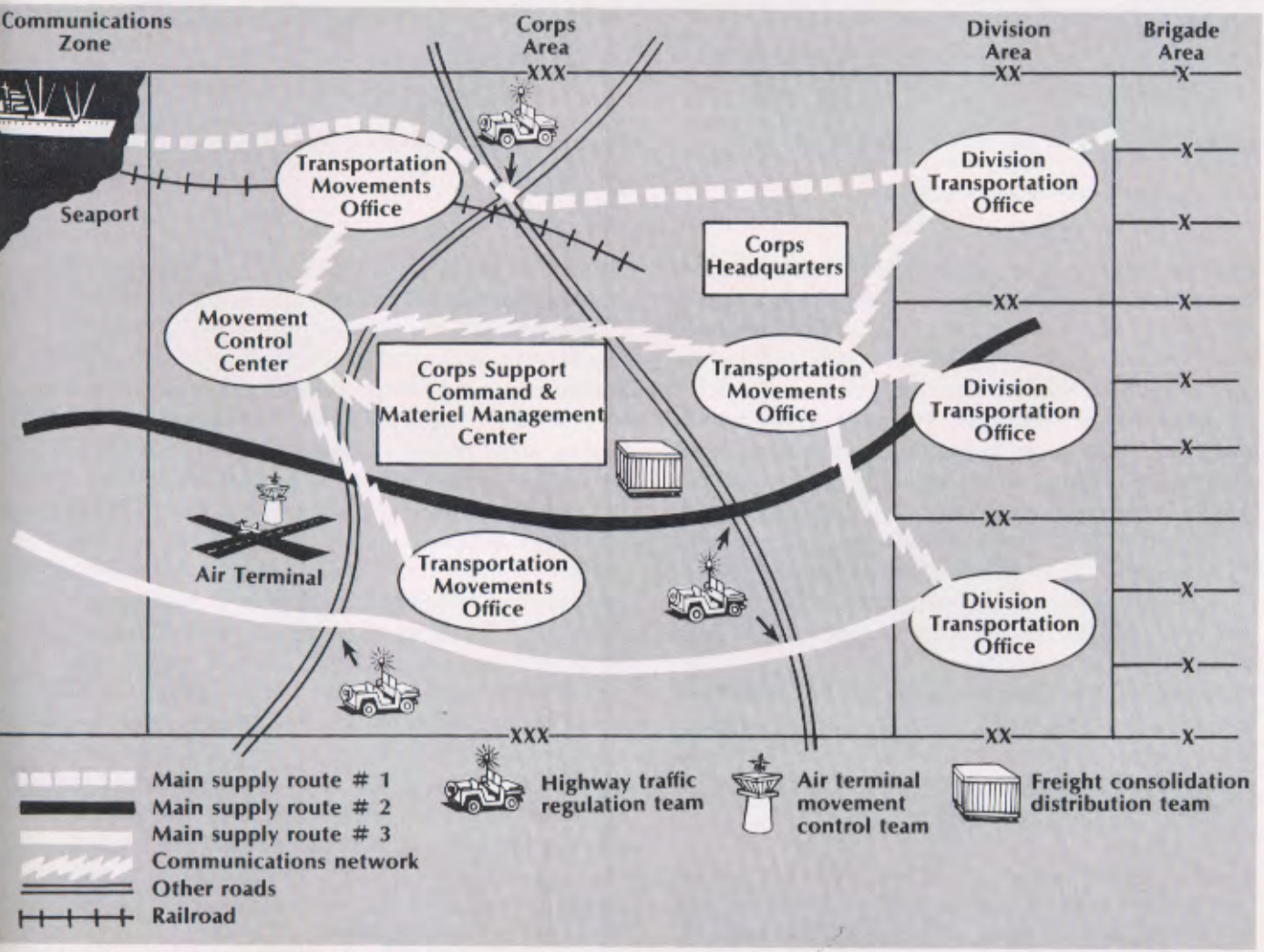
Originally, plans called for a 40-40 split between cargo trucks and tractors. The latter was cut somewhat as part of an overall DISCOM space reduction to make room for company C of the supply and transport battalion. The C company, new at divisional level, is a heavy equipment transporter (HET) unit. Structured to operate 24 HET's on a one-shift operation, this unit will give the division an organic evacuation capability for damaged end items. Consequently, more damaged vehicles can be repaired and returned to combat. The division also will be able to move an armor company in one lift. This capability may favorably decide the outcome of an offensive action or meet a threat penetration.

A light division '86 (infantry) package also has been developed. Aimed at contingency operations, the light division also will have a Western European role, one of combat in mountainous, heavily forested, city, or open terrain environments. This division's TMT company reflects the mission capability of the light division and is smaller than that of the heavy division. Its task vehicles will consist of forty drop-side, 5-ton cargo trucks and twenty 5-ton tractors, with forty 22½-ton M871 semitrailers. Of course, there is no HET company in this division.

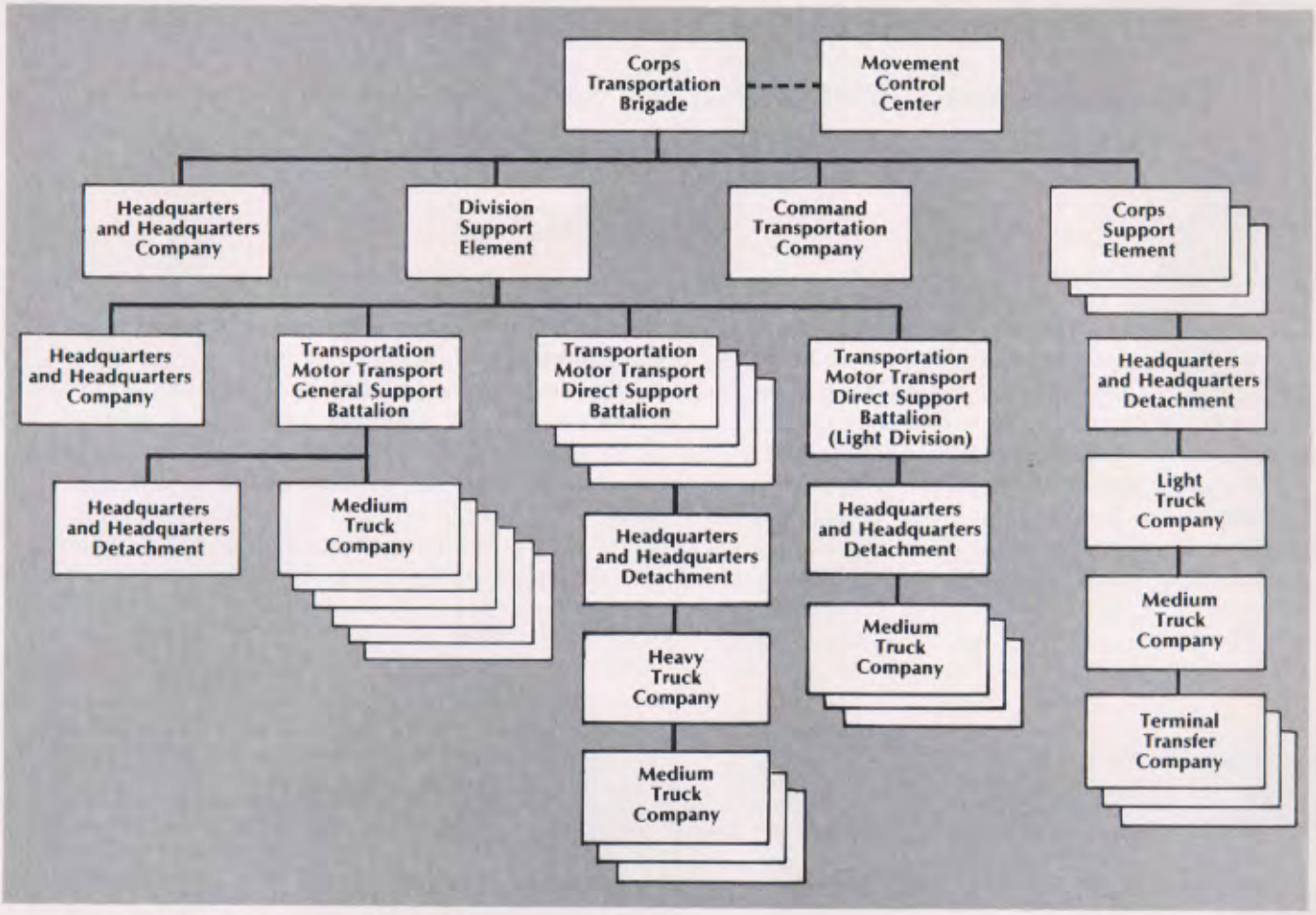
Redesigned transportation structures will improve logistics support for tomorrow's Army.

Corps-level force movement. A transportation brigade will be the heart of the corps-level force movement structure, which is based on the need to deliver ammunition to the fighters as far forward as possible. The organizational structure of the brigade will be alined with major mission operations. These are, first, movements to division-supporting ammunition supply points (ASP's); second, movements directly to division-brigade elements, such as ATP's, and DISCOM supply units; and third, movements in support of the armored cavalry regiment, rear area combat operations forces, corps area direct support and general support units, and entry terminals.

The first two tasks will be accomplished by a TMT group that will provide forward support to the divisions. It will include one battalion of medium trucks (the number depending on the number of divisions), which will operate in habitual support of class V movements from corps storage areas to ASP's. The group also will include one TMT battalion to provide habitual direct support to each division of the corps. Each TMT battalion will consist of three medium truck companies



☐ Corps '86 movement control.



☐ **Corps '86 transportation brigade.**

and one heavy truck company (HET's *only* if the battalion supports a heavy division). The medium trucks will supply the division ATP's and transport classes of supply other than III (bulk), as well as provide for troop lift, lateral resupply, and unit displacements. The HET company will transport class VII major items forward to divisions and return damaged items to corps general support maintenance units. The corps commander also will be able to concentrate HET's for armor unit moves.

Corps rear TMT battalions will accomplish the third mission. They will include medium and light truck companies and terminal transfer companies. Rear battalions also will back up the division-supporting TMT battalions for surge operations.

Petroleum, oils, and lubricants (POL) truck companies will not be part of the transportation brigade but will be assigned to corps-level POL distribution battalions. The corps will be comprised of from six to eight medium POL truck companies.

Logistics airlift structure. Corps logistics airlift also will be excluded from the domain of the transportation brigade. With the exception of combat electronic warfare and intelligence and medical evacuation, corps aviation units will be concentrated in a corps aviation brigade. Three CH-47 medium-lift helicopter companies (24 aircraft each) are planned for a five-division corps. The CH-47's will be under the operational control of the movement control center, even though assigned to the corps aviation brigade. Logistics air operations — including aerial resupply, special weapon displacement, and artillery movement — will be vital to the corps.

Aircraft maintenance throughout will be organized into a three-level maintenance system. Operating air units will have aviation unit maintenance (AVUM) elements. They will be backed up by aviation intermediate maintenance (AVIM) companies, which will, in turn, be backed by forward-deployed and CONUS depot operations.

At division level, the AVIM company will be part of the air cavalry attack brigade that will control all Army air elements. At corps and echelons above corps levels, however, AVIM units will be assigned to aviation support battalions of the maintenance support groups and will provide area maintenance support. The aviation support battalions will have a flexible number of AVIM companies and a supply company that will maintain COSCOM aviation assets.

Although the corps movement control center is not

being changed in unit design, its operational concept underwent a critical review. The control center is a corps support command (COSCOM) unit. It is not assigned to the transportation brigade, nor is it solely a COSCOM element. The control center is a corps asset and as such it must control all movements within the corps zone, tactical as well as logistics.

Even though the center is commanded by the COSCOM commander, it must be operated with the flexibility to support the entire corps. The center must be able to balance both tactical and logistics assets to accomplish both types of lifts. The operating concept involves placing an area transportation movements office team at or near the corps command post. This team will work closely with the corps G2 and G3 staffs, providing a direct link to the control center for tactical intelligence and plans. The movements office also will be the control center's link with the division transportation officers. Finally, the movements office will be prepared to replace the control center as the corps movement control element if the main center is threatened or destroyed.

Echelons above corps force movement. The echelons above corps study has produced some resolutions concerning the number of units, and unit types have been identified and command structures designed for them. In the force movement area, a theater army transportation command (TRANSCOM) will command or control the echelons above corps transportation units for the theater army. Military Transportation Management Command will have command but not operational control of theater ports. The theater army, through its TRANSCOM, will exercise operational control. The TRANSCOM will include terminal units, floating-craft units that will have LACV-30's, TMT units, and medium- and heavy-lift helicopter units.

Movement control within the theater of operations may be converted from a national operation — with its inherent redundancies and conflicting, overlapping operations — to an allied effort. Behind the corps, movement control may be exercised by the host nation territorial command, which will include a United States section under the direct control and supervision of the appropriate allied regional command, Allied Forces, Central Europe, and Allied Forces, Northern Europe. These organizations will be able to divert one nation's assets to support line forces of another. The goal is to make maximum use of all military and civilian transportation resources and to apply these resources where they are needed in a mutually supporting manner.

Host nation resources will be an indispensable element in any Western European conflict. The line of communications is long and demands are great. The United States' contribution to NATO defense is best used forward, in corps and division. In this age of diminishing military manpower pools, we cannot plan for a unilateral theater of operations. The host nations have trained, experienced port operators, stevedores, crane operators, railroad operators, and laborers. Interoperability and interdependence must be the NATO axioms of the 1980's. Host nation coordination of the military assets of alliance members in addition to its own transportation assets will assure this interoperability. This concept has not yet been approved, but it is being developed for the Echelons Above Corps Phase II Study.

Other studies. Other ongoing studies being pursued by the Transportation School's Combat Developments Directorate, also aimed at mid-1980's implementation, will affect the force movement picture to varying degrees. For example, a new tactical wheeled-vehicle study confronts the problem of continuing proliferation of vehicle types. The study points out that it is important to learn just how many vehicles the Army really needs. Early reports indicate a possibility that the ¼-ton truck will be phased out and that vehicles will be standardized as far as possible into 1¼-ton, 2½-ton, 5-ton, and 10-ton models. A related study will deal with the possible elimination of the light-medium truck company and a reduction in the number of light truck companies. It is believed that available personnel and procurement dollars should be concentrated on medium truck companies to use their increased cargo delivery capabilities.

The cost and operational effectiveness analysis study on the CH-47D demonstrates the Army's ability to maintain a medium-lift helicopter capability in the 1990's while eliminating or reducing the new aircraft design and development phase. For the first time, an existing aircraft will be totally renovated to produce a new model, rather than resorting to the more costly and time-consuming developmental stage preceding production.

Water operations studies are aimed at, first, fielding the LACV-30 as an over-the-shore container delivery vehicle and, second, developing a tactical marine terminal — a movable or portable port — that could be used in contingency situations around the world. A redefinition of the concept for terminal operations is at an early stage of development.

Transportation is a dynamic, ever-changing field. As the rest of the Army changes in design and structure as it marches forward toward implementing Army '86 doctrine, transportation will move in the same direction.

Major Richard J. Corso is the Army '86 project officer, Directorate of Combat Developments, U.S. Army Transportation School, Fort Eustis, Virginia. He is a graduate of the University of Notre Dame and has served in a variety of logistics positions.

ALOG DIGEST

NEW PROCUREMENT SYSTEM RENAMED AND REVISED

By 1 October, the Office of Federal Procurement Policy plans to provide the Congress with legislative and management proposals for the New Federal Procurement System, previously called the Uniform Procurement System.

The name change reflects changes in defining and implementing the system. It eliminates the implication of a "centralized" system when the system actually has both centralized and decentralized aspects.

As proposed, the New Federal Procurement System consists of three integral parts — an administratively implemented procurement system, its management system, and its authorizing legislation — that specify how the Federal Government acquires all goods and services.

The proposals for the three parts encompass the entire procurement process but, unlike the proposals for the Uniform Procurement System, do not address logistics except where logistics interfaces with the procurement process. This is based on the assumption that procurement is a function that supports an agency mission and does not encompass mission analysis or supply functions.

The proposals are designed to—

- Promote effective competition.
- Promote dealings and equitable relationships with the private sector.
- Provide clearly established authorities, responsibilities, and accountabilities.
- Develop and maintain a professional, competent, ethical, and properly motivated procurement work force.
- Promote the responsiveness of procurement by simplifying, streamlining, and making procurement processes more uniform.
- Accommodate emergency and wartime as well as normal and peacetime requirements.
- Promote procurement efficiency, effectiveness, and economy within and outside the Government.
- Promote greater reliance on the private sector and support the necessary industrial base to meet Government needs.
- Eliminate fraud and waste.
- Provide adequate controls for centralized policymaking and decentralized and flexible operations. (The heads of executive departments and agencies will continue to be responsible for agency procurement operations and for managing and organizing agency procurement activities, within the constraints of policy.)
- Provide for compatibility with other support processes and programs (for example, logistics and budget).

Goals of the proposals are to improve the procurement process by creating more meaningful competition with latitude for low-cost solutions; increasing accountability and professionalism in the workforce with latitude for initiative and judgement; simplifying the system to make it more timely and responsive; and providing uniform policy, regulations, clauses, and forms with needed operational flexibility.

The legislation and administrative plans for the New Federal Procurement System will be presented to the Congress together rather than separately as proposed under the Uniform Procurement System. Sixteen interagency task groups have reviewed and commented upon the proposals, and public meetings to discuss the proposals were being scheduled at presstime.

☐ Soldiers from the 991st Transportation Company, an Army Reserve unit from Salisbury, North Carolina, load an 8-inch self-propelled howitzer aboard a trailer. The unit moved 25 vehicles, including howitzers, command tracks, and ammunition carriers, from Avon Park, Florida, to Fort Stewart, Georgia, in a recent test of mobilization readiness. The mission covered 1,200 miles and was completed without major mechanical problems or safety violations.

☐ **The Army has received the first of 569 heavy duty rail flatcars it plans to add to the Defense Freight Railway Interchange Fleet during the next 5 years. The flatcar can carry 2 M1 tanks (as shown at left), or about 140 tons. The tanks are secured using 64 chains capable of withstanding 1¼-million pounds of stress. The new car will replace the aging fleet of 80- and 100-ton flatcars now in use and will improve the Army's ability to transport the heavy equipment of armored and mechanized divisions to port areas. The flatcar recently completed testing at Aberdeen Proving Ground, Maryland.**

ARMY LOGISTICS ASSESSMENT DESCRIBES READINESS

For the first time, high level Army planners have a system that provides an overview of the logistics capabilities and constraints that affect combat operations. Developed by the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) working with the Army Staff and the major commands, the system graphically portrays the Army's current capabilities to logistically support anticipated contingencies.

The system, called the Army Logistics Assessment, uses information based on the integration of current tactical and logistics support plan requirements versus capabilities for various contingencies to project a wartime impact on combat operations. According to an ODCSLOG spokesman, the information is organized into a three-dimensional model that is best compared to a loaf of sliced bread. The model is divided in 10-day time slices beginning with the first day of the contingency operation. Each successive time slice is a color-coded matrix consisting of 5 combat function blocks (infantry, armor, etc.) and 38 supporting function blocks such as ammunition, POL, and maintenance. Each of the function blocks is color-coded to reflect the assessment of current capabilities — 81 to 100 percent capability is green; 51 to 80 percent, yellow; and 0-50 percent, red. By looking at these time slices, planners can assess when and why operational difficulties on the battlefield will probably occur, anticipate the consequences, and take corrective action. The objective is to use the assessment as a tool in the budget and program objective memorandum processes to eliminate the Army's most critical logistics shortfalls.

While the Army Logistics Assessment is currently being prepared manually, the ODCSLOG is working to automate the process, including the capability for computer-produced graphics. With automation, the assessment will be continuously updated and should also prove a valuable source of information for crisis management.

BRAKE FLUID CHANGE BRINGS IMPROVEMENTS

Over the next 10 years, the Tank-Automotive Command (TACOM) expects to save the Army approximately $21 million in maintenance and repair costs by converting all vehicles with hydraulic brakes to silicone brake fluid.

According to a TACOM spokesman, replacing the standard polyglycol brake fluid with silicone brake fluid is beneficial because it will sharply reduce brake system corrosion and resultant component failures. While the polyglycol fluid absorbs moisture, the silicone fluid clings to metal surfaces and repels water. The conversion is also beneficial logistically because silicone brake fluid will replace three different fluids now in use — polyglycol brake fluid, an arctic brake fluid, and a preservative fluid for long-term vehicle storage.

The $6.5-million conversion program began on 1 July and will take a year to complete. It will affect approximately 400,000 pieces of equipment, including combat, tactical, administrative, and construction vehicles and materials-handling equipment. Field users worldwide will make the conversions either during scheduled preventive maintenance or whenever brake system repairs are needed. New vehicles and those in storage will be converted to silicone brake fluid before being issued to troops.

DARCOM HEADQUARTERS REALINEMENT PLANNED

In the near future, the Army Materiel Development and Readiness Command (DARCOM) plans to complete a major realinement of several headquarters directorates. According to a DARCOM spokesman, the realinement reflects the expanding role of DARCOM within the Army and the need to reestablish technical expertise within DARCOM headquarters. The intent is to configure and man the headquarters staff to provide responsive service to the command group, higher headquarters, other major commands, major subordinate commands, project and program managers, and separate reporting activities of DARCOM.

As planned, the realinement will—

• Create a Directorate for Supply, Maintenance, and Transportation that would include all the functions of the current Directorate for Materiel Management and some of the functions performed by the current Directorates for Readiness; Plans, Doctrine, and Systems; and Procurement and Production. Among other responsibilities, the new directorate would be the principal manager of assigned fielded systems and would also manage integrated logistics support, force modernization and materiel fielding planning, inventory accounting and logistics data, maintenance standards and provisioning, maintenance interservice support, prepositioning of materiel configured to unit sets (POMCUS), and wholesale logistics systems.

• Add certain functions of the current Directorate for Plans, Doctrine, and Systems to a revised Directorate for Readiness. The revised directorate would be the principal logistics planner and would manage military plans and operations, mobilization planning, and other functions.

• Establish a Directorate of Program Analysis and Evaluation. It would be the DARCOM planner (exclusive of logistics planning) with major responsibility for resource integration and balance.

• Revise the Directorate for Development and Engineering to include the responsibilities of the Office of International Research, Development, and Standardization and the Office of Product Improvement. The new directorate will be the principal manager of all systems except those managed by the Directorate for Supply, Maintenance, and Transportation.

According to the DARCOM spokesman, detailed supporting documentation will be forwarded to the Department of the Army for review by late September.

☐ **The Eighth United States Army (EUSA) has developed tool set accountability aids like the one above to make inventorying tools easier and faster. Individual tool silhouettes are printed in indelible ink on a 4-foot by 4-foot white vinyl sheet to correspond to the tools' sequence in supply catalogs for a particular tool kit. The sheets can withstand constant handling and exposure to solvents and petroleum products and are expected to be usable for from 3 to 5 years. More than 6,800 sheets for 9 different tool kits are in use in EUSA units. Interested persons may obtain more information by writing to Headquarters, EUSA, ATTN: DJMS-MC, APO San Francisco 96301.**

DSCLOG REVIEWS ARMY LOGISTICS

At the recent dedication of the Somervell Chair of Logistics at the Army War College, Lieutenant General Arthur J. Gregg, retiring Deputy Chief of Staff for Logistics, expressed his belief that the state of Army logistics is improving.

General Gregg based his optimism on such recent actions as—

• Making more repair parts available.

• Reducing order-ship times by 60 percent.

• Designing equipment for greater reliability and maintainability.

• Updating logistics doctrine.

• Increasing the number of combat service support units in the Active Army and Reserve components.

• Upgrading airlift and sealift capabilities.

• Modernizing the Army's arsenal with such weapons as the M1 tank, infantry fighting vehicle, Patriot air

defense system, and advanced attack helicopter.

General Gregg concluded that the Congress recognizes the need for improved readiness and additional resources are being provided. Years of inattention and inadequate investment are being reversed and the Army's logistics capability is growing (see related story on page 1).

unavailable to the user for extended periods of time; and tracking warranties and providing warranty information to the field is costly in both manpower and dollars.

The new regulation, with MACOM supplementation, is expected to result in improved warranty management.

ARMY WARRANTY POLICY ESTABLISHED

The Army has published in AR 702-13, Army Warranty Program, the policy on purchasing and managing warranted items. The regulation tasks the major commands (MACOM's) to develop programs on procuring and managing warranted items.

The regulation directs that items be purchased without warranties when an appropriate price reduction can be obtained. If an item cannot be purchased without a warranty, the policy is to accept the warranty and to use it when the Army can benefit.

Differences in the Army's procurement and use of items as compared to the commercial sector gave rise to problems in warranty administration. Some of the problem areas have been — the Army purchaser of an item is seldom the user; the user may not know the item is warranted; if an item fails and the user or an Army maintenance facility repairs it, it usually voids the warranty; items returned for repair under warranty are

COMMERCIAL JEEP REPLACEMENTS EVALUATED

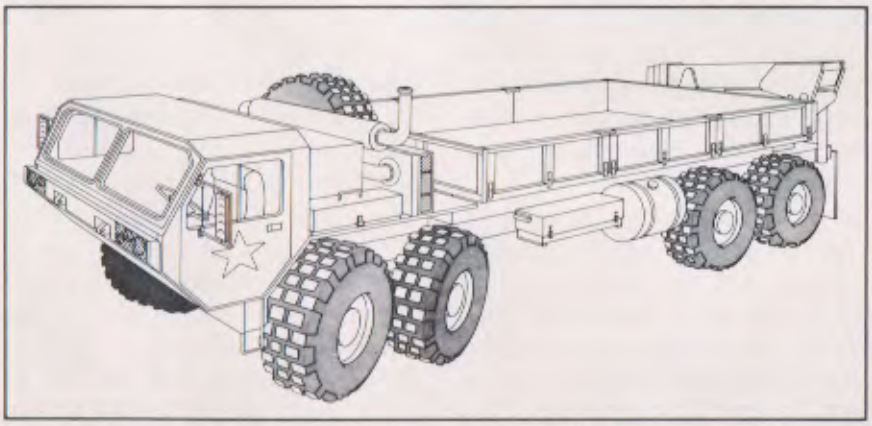
The Army has completed a comprehensive evaluation of 26 commercial four-wheel-drive vehicles in its search for a replacement for the M151A2 Jeep. The evaluation, which was conducted this Summer at Aberdeen Proving Ground, Maryland, was designed to show what utility carriers and pick-up trucks are commercially available and the feasibility of making modifications on the assembly line to meet military-specific needs.

During the evaluation, the largest ever conducted at Aberdeen, each vehicle logged 10,000 miles on all types of road and off-road surfaces. According to a Proving Ground spokesman, the evaluation was noncompetitive but did determine each vehicle's reliability, availability, maintainability, and dependability and developed data on the vehicle's mobility characteristics.

Based on the evaluation results, the Army will develop specifications for its new behind-the-lines cargo carrier and will then prepare requests for bids.

ARMY BUYS NEW HEAVY TRUCK

The Army Tank-Automotive Command has awarded a $251,130,-318 contract to the Oshkosh Truck Corporation for production of the Army's new 10-ton truck, the M977 series of heavy, expanded mobility tactical trucks. The Army will receive 2,140 trucks over 5 years, with an option to buy an additional 5,350 vehicles.



☐ **Artist's rendering of a heavy, expanded mobility tactical truck.**

The M977 series includes five truck models: two cargo haulers, a petroleum tanker, tractor, and wrecker. The trucks are designed to perform such combat service support functions in the forward area as hauling ammunition to transfer points, transporting missile and rocket systems, and recovering materiel from the battlefield. Each truck is powered by an 8-cylinder, 435-horsepower diesel engine and can carry up to 22,000 pounds of cargo.

The first 250 trucks will be delivered next year and will be fielded in late 1982. ALOG

CAREER PROGRAMS

EXPORTABLE MAINTENANCE AND SUPPLY TRAINING DEVELOPED

The Ordnance Center and School and the Quartermaster Center and School have developed prototype exportable training packages in maintenance and supply for Forces Command (FORSCOM) units.

The training packages focus on the duties and responsibilities of key unit personnel, from the battalion commander to the lowest level supervisor with maintenance and supply management responsibilities. The packages cover basic management techniques, identify maintenance and supply indicators, and address document, equipment, and supply flow.

Training takes approximately 2 days using the packages and can be presented by either installation training teams or unit personnel. It is performance-oriented and uses a workshop format.

Units of the 7th Infantry Division are currently testing the prototype packages. If proven effective, the training packages will be used in other FORSCOM units and may be evaluated for use Army-wide.

AMMUNITION INSPECTORS SOUGHT

The Army is seeking noncommissioned officers to be trained as ammunition inspectors, military occupational specialty (MOS) 55X.

Interested soldiers should be in grade E5 and on a standing promotion list to E6 and should hold primary MOS 55B20. They must have a secret security clearance and meet requirements prescribed in AR 611-201 and DA Pamphlet 351-4. Following training at the Army Missile and Munitions School, Redstone Arsenal, Alabama, soldiers will be reclassified to primary MOS 55X and will be promoted to grade E6.

Applications must be processed in accordance with procedure 3-10, DA Pamphlet 600-8, and submitted through command channels to — Commander, Army Military Personnel Center, ATTN: DAPC-EPT-F, 2461 Eisenhower Avenue, Alexandria, Virginia 22331.

OFFICERS' LOGISTICS COURSE OFFERED

The U.S. Army Armor School offers a senior officers' preventive logistics course for field grade officers who have been away from troops and equipment for several years and who have received new command or staff assignments. Company grade officers may take the course on a space-available basis.

The 2-week refresher course covers the Army maintenance and supply systems and records, inspection standards, equipment readiness criteria and materiel readiness, and command and staff responsibilities for maintenance. It also provides instruction on maintenance requirements for specific high-density divisional equipment and their particular preventive maintenance indicators and includes a review of logistics programs such as property accountability and the maintenance management improvement program.

Officers interested in more information on the course may write to — Commandant, U.S. Army Armor School, ATTN: ATZK-MAL, Fort Knox, Kentucky 40121, or call AUTOVON 464-7846.

DISPOSAL TAUGHT BY MAIL

The Army Logistics Management Center (ALMC) has prepared a correspondence course as an introduction to the Defense property disposal system. The new course, designated ALM 38-0080, gives a general overview of the system and insight into the major functions and responsibilities of a property disposal officer.

Persons interested in taking the course should forward a completed Army correspondence course enrollment application (DA Form 145) to — Commandant, USALMC, ATTN: DRXMC-ET-C, Fort Lee, Virginia 23801.

FIRST COURSE FOR FIRST SERGEANTS SET

The initial class of the newly developed first sergeants' resident course, to be conducted at Fort Bliss, Texas, will begin on 5 October. The 8-week course will provide training in the responsibilities of the first sergeant's position, including logistics, administration, unit security, combat operations, discipline, and counseling.

Attendance at the fiscal year 1982 classes will be limited to E7's, promotable E7's, and E8's who are incumbent first sergeants with less than 12 months in the job, or first sergeant designees. Army National Guard and Reserve first sergeants will be able to attend in late fiscal year 1982, and a resident course will be established in Europe during the first quarter of fiscal year 1983.

Soldiers interested in attending the course should follow the application procedures established by their major commands. The commands will select all but 10 percent of the attendees, and the Military Personnel Center will fill the remaining 10 percent of each class with soldiers scheduled for oversea first sergeant assignments. ALOG

RECENTLY PUBLISHED

AR 15-4, Systems Acquisition Review Council Procedures, 1 May 1981.

AR 55-7, LOGAIR Statistical Report, QUICKTRANS Statistical Report, Personal Property Statistical Report, Requirement Control Symbol DD-M (Q) 493, 1 June 1981.

AR 70-9, Army Research Information Systems and Reports, 1 May 1981.

DA Pam 310-25, Foreign Military Sales Publications Guide, 1 May 1981.

DA Pam 310-30, Publications Management Officer Guide, 15 May 1981.

DA Cir 755-81-1, Disposition of Condition Code "P" Major End Items, 15 May 1981.

DOD Directive 2000.8, Cooperative Logistic Supply Support Arrangements, 12 February 1981.

DOD Directive 4139.2, The Federal Catalog System, 9 March 1981.

DOD Directive 4500.43, Operational Support Airlift, 13 February 1981.

DOD Directive 5000.9, Standardization of Military Terminology, 23 March 1981.

DOD Directive 5132.3, DOD Policy and Responsibilities Relating to Security Assistance, 10 March 1981.

DOD Instruction 4140.48, Control of Access to DOD Material Inventories by Maintenance Contractors, 13 March 1981.

DOD Instruction 4140.49, Movement of Stock from Attrition Sites, 17 March 1981.

DOD Instruction 4155.20, Contractor Assessment Program, 19 January 1981.

DOD Instruction 4500.37, Use of Intermodal Containers, Special-Purpose Vans, and Tactical Shelters, 17 March 1981.

STANAG (NATO Standardization Agreement) 2316, Marking of Ammunition (and Its Packaging) of a Caliber Below 20 MM, 24 March 1980.

STANAG 2320, NATO Design Mark, 2 February 1980.

STANAG 2321, NATO Code of Colours for the Identification of Ammunition (Except Ammunition of a Caliber Below 20 MM), SOP-2, 30 January 1980.

STANAG 2351, Procedures for Marshaling Helicopters in Airmobile Operations, 8 April 1980.

STANAG 2829, Materiel Handling Equipment, 3 April 1980.

STANAG 2830, Handling Aids, 3 April 1980.

STANAG 2928, Land Forces Ammunition Interoperability (AOP-6), 30 April 1980.

NOTE—*The date listed after the publication title is the date of technical edit. Printing and distribution usually occur several months after this date.*

LOGISTICS 'CAPSTONE' COMING

The Army plans to publish FM 700-80, Logistics, by the end of the year.

Described as the capstone manual for the Army Logistics System, it reviews logistics management at the major command and higher levels and the relationships between the levels.

It covers the processes performed to support the soldier, including how to determine what personnel, materiel, facilities, and services are needed; how materiel is acquired and distributed; how it is maintained; and how it is replaced and eliminated from the system.

The new manual will supersede FM 38-1, Logistics Management.

SYSTEMS ACQUISITION POLICIES REVISED

Recently revised AR 1000-1, Basic Policies for Systems Acquisition, defines basic Army policy, responsibilities, and procedures for acquiring materiel systems.

The revision—

- Increases the dollar threshold for mission element need statement submissions.
- Provides specific guidance for integrated logistics support; reliability, availability, and maintainability; and rationalization, standardization, and interoperability.
- Adds a new term, "designated acquisition program," defined as a program that is reviewed by the Army Systems Acquisition Review Council but not by the Defense Systems Acquisition Review Council. ALOG

A LOG FORUM

RAVE NOTICES

I truly appreciate General Clarke's absolutely superb article, "Leadership, Commandership, Planning, and Success." I have taken the liberty of having it reproduced and distributed to each and every staff section in the Rapid Deployment Joint Task Force headquarters. It will be our "bible."

I believe that General Clarke's most cogent statement, the one which I will constantly reflect upon, is his conclusion that " . . . the ability to plan with practicality and foresight is at the top of the list as the most contributory to successful command."

LTG P. X. KELLEY, USMC
Commander, Rapid Deployment
Joint Task Force
MacDill Air Force Base, FL 33608

I was very much impressed with GEN Bruce C. Clarke's article in your May-June '81 issue of *Army Logistician* — "Leadership, Commandership, Planning and Success." It is imperative, as GEN Clarke maintains, to have the "ability to plan with practicality and foresight." This is foremost an issue of top priority and he explains it most effectively.

As GEN Clark continues to share his experiences, he very nicely gets into quite a bit of strategy — human strategy — which is indispensable for effective leadership; i.e., human communication. Where there is distortion in communication, you can rest assured that failure to carry out a mission successfully will prevail. Keeping one's plans *simple* so as to avoid confusion is optimal advice. I would here add that, while keeping plans simple for maximum human understanding, the level of terminology should also be a paramount issue. Semantics can often play tricks in human minds, and what may seemingly appear to be interpreted as one thing may not necessarily be the total output or intention of the communicator. Consideration here is to be given the diverse ethno-linguistic groups of people that wear the uniform. Cultural and linguistic variances of interpretation differ among different people. Simplicity? You betcha! But also remember language variances and the overall group of people toward whom you are directing your orders.

In the area of training, I find that GEN Clarke puts good emphasis and rightfully so. Training well prior to field experience will prevent potential failure or may even save someone's life. Being realistic and practical, as the general suggests, is imperative.

Typically good, sound management/leadership advice in the area of good communication practices is precisely what GEN Clarke maintains: "Don't assume that your directives have been 100 percent understood."

GEN Clarke's experiences and suggestions for good leadership represent many years of professional training and work, and they should be taken very seriously by anyone in the position of leadership, right from the Army's ambassador — the NCO — to the top, both military and civilian echelons.

SP5 ADALINO CABRAL, USAR
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PRIOR CLAIM

My congratulations to SGM George F. Hemming, NYARNG, Retired, for his excellent article, "Reserve Combat Service Support Training," that appeared in the May-June issue of the *Army Logistician*. He quite accurately describes the operations of the major logistical control headquarters (MLCH) — one of the best and more innovative training concepts for Reserve component combat service support units yet devised.

As a matter of history, I thought you might be interested in where and how the MLCH concept was developed.

The beginnings of MLCH took place in 1972 at Fort McCoy (then Camp McCoy), Wisconsin. The idea was the brainchild of the 103d Support Brigade (now the 103d COSCOM) and its then commander, MG (then BG) Merrill B. Evans.

That first MLCH during the Summer of 1972 consisted of the 103d Support Brigade, 8 support groups, 17 battalions, and 41 companies. These units trained in eight 2-week increments providing actual combat service support to approximately 48,000 Reserve component troops training at Camp McCoy during the 16-week period.

MLCH has operated each year since 1972 at Fort McCoy, training ARNG and USAR combat service support units from all three CONUS armies. Since 1978, the implementation of the MLCH concept has been directed by U.S. Army Forces Command, and MLCH's operate throughout CONUS.

Best wishes for the continued success of your outstanding publication.

COL LOUIS D. ERBSTEIN,
USAR (Ret.)
SSAA, 103d COSCOM
225 East Army Post Road
Des Moines, IA 50315

Reference: "Reserve Combat Service Support Training" by SGM George F. Hemming, NYARNG (Ret), *Army Logistician*, pages 20-23 of the May-June 1981 issue.

The article is well written and is a good simplified description of the complex operations of a support group; however, I must differ with SGM Hemming on one point. He states that the major logistical control headquarters (MLCH) concept began to emerge in 1976, when it was implemented among units performing annual training at Fort Drum, New York.

The 371st Support Group, Ohio Army National Guard, participated

in the MLCH concept of logistics operations at Fort (then Camp) McCoy, Wisconsin, during our annual training of 1975 and 1976. The unit designated as the MLCH was the 103d Support Command, since redesignated as the 103d COSCOM, U.S. Army Reserve from Des Moines, Iowa. The operation was essentially as outlined by SGM Hemming.

CSM WINFRED P. DOUGHERTY,
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371st Support Group
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Kettering, OH 45430

TO STANDARDIZE OR NOT TO . . .

I am writing concerning Major Scoates' article, "Standardization — The Way to Go," in the May-June 1981 issue.

Major Scoates' concept of standardization sounds good and might be good if we had reached the pinnacle of automotive engineering. But with new and better concepts being developed almost daily and the need for even newer and better engineering feats, I think we would very rapidly find ourselves bogged down with an inadequate, obsolete equipment pool. It would be so drastically outdated by the engineering advances of our opposition that we would be outmaneuvered at every turn of the battle.

Under the present concept, we may need to keep a few more parts on hand, but we can replace one segment of the fleet with the most improved candidate available rather than replace it with obsolete equipment or equipment with obsolete components just to maintain standardization. I very highly support the adaptation and use of standard commercial and industrial items and components where possible, but would encourage greater reliance on the local commercial parts stores and dealer chain for needed repair parts. Funding at the using unit level in the form of Local Purchase (SF-44) and/or blanket purchase agreements should be made available to the local commander to enhance availability and reduce downtime. Parts consumption could be monitored through a feeder system similar to that used under the introduction and warranty programs of the M880, M911, and M915 series vehicles. This would provide for programing war reserves.

Local procurement is often frowned upon as an easy source of misappropriation, but to misappropriate a part through local procurement is no easier than lifting that same part off the PLL shelf or acquiring it through the normal supply system.

If we were to start out today with what we believe to be the best engineered components, how long would it be before we were obsoleted by engineering advancements? Can we really afford to lock ourselves to guaranteed obsolescence or the price of updating our entire fleet and, at the same time, stay abreast of engineering advances? What happens if our miracle component, which is now fleetwide, proves unsatisfactory? Can we really risk such total standardization? These are serious questions that need to be answered before we "buy off" on Major Scoates' concept of standardization. After 20 years of operator and organizational maintenance management, as a maintenance NCO, maintenance officer, and AMSA supervisor, I don't think so.

CW2 HOWARD R. THOMAS,
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AMSA(G)113
Greencastle, PA 17225

"TANK" COMMENTS

Somebody goofed! That "U.S. Army tank" on page 4 of your May-June 81 issue is not a tank but an M7 Priest 105mm self-propelled howitzer.

LTC THOMAS F. JOHNSON, FA
XO, US Army Safety Center
Fort Rucker, AL 36362

I have enjoyed *Army Logistician*, and found it to be professionally interesting, but apropos the May-June 1981 issue, am prompted to write my first "letter to the editor."

First, the photograph on page 4 identifies the armored vehicle crossing the Moselle River as a tank. Since it has no turret or pulpit; has no hatches on the front slope plate but rather has viewing ports with hinged "flap" covers; and the gun tube bears a parallel-mounted recoil mechanism, I suggest that the vehicle is a tank destroyer.

Secondly, in the article on page 39 regarding tests of C-5A landing capabilities on other than paved or improved surfaces, the first bullet contained in "Report of Test Results" puzzles me.

It stated that soil conditions at all test sites were adequate as long as those "soil conditions remained the same." I suggest that such a statement is illogical. It would seem patently obvious that the statement that "the soil conditions were adequate" would suffice. Logic would indicate that if soil conditions changed, the condition of adequacy would likewise change.

If I am incorrect on either of the above, I would appreciate being so advised.

LTC SHERMAN A. COWDREY,
QM, USAR

The caption on the official US Army photograph we used read "An American tank of the 4th Armored Division rolls across the ponton (sic) bridge built over the Moselle River. 13 Sep 1944." In reality, the "tank" is correctly identified by LTC Johnson as a self-propelled howitzer which is mounted on a M4 medium (Sherman) tank chassis. Apropos of the C-5A test comment, the study group wanted to be certain that the test results were understood and not overstated. Hence the statement was for clarity.

Letters to the editor are welcomed. Subject matter should relate to magazine content or logistics topics of general reader interest. Length should be no more than 150 words. All must be signed and include name and return address. Upon request, names will not be published. Letters are subject to editing for accuracy, space, and propriety. Address letters to ALOG Forum, *Army Logistician*, ALMC, Fort Lee, Virginia 23801.

A LOG EMPHASIS

(Continued from page 1)

ARMY CHIEF FIGHTS WASTE

In a recent message to the major commands, Army Chief of Staff General Edward C. Meyer directed the entire workforce to use Army resources more efficiently and to work harder to eliminate fraud and waste. He encouraged Army leaders to improve maintenance; reduce the tendency to keep excessive quantities of repair parts; increase energy conservation efforts; and make better use of their soldiers' time, training aids, and training ammunition. According to General Meyer, "Waste or inefficiency, no matter how small, can effectively reduce the resources which could otherwise be applied to other critical missions."

MTMC GAINS KOREAN PORT

The Army has approved transferring operation of the port of Pusan, Republic of Korea, from the 8th United States Army to the Military Traffic Management Command (MTMC). Pusan was the last Army-interest common-user port not under MTMC administration. The transfer, effective 1 October, will not change the resource requirements for port operations.

ARMY PLANS CITA STUDIES

The Army will study approximately 10,000 jobs at 89 locations during fiscal year 1983 for possible contracting out to civilian firms. The studies will be part of the Army's commercial-industrial-type-activities (CITA) program. Under the authority of Office of Management and Budget (OMB) Circular A-76, the armed services are required to contract for commercial-industrial-type work if contractor performance will be cheaper and if military readiness will not be impaired. The OMB director recently asked for contracting studies of 52,000 jobs in the Department of Defense.

SAILS ASI AUTHORIZED

Soldiers in grades E5 to E9 who have successfully completed either the U.S. Army Logistics Management Center's SAILS course 6L, 6R, 6S, 8J, 8K, or 8L should check their personnel records to be sure they have been awarded additional skill identifier F3. Change 15 to AR 611-201 authorizes the courses for the ASI award.

HOW-TO-SUPPORT FILMS PRODUCED

The Army Quartermaster School has produced three films on how to provide combat service support within the division. The films, titled "Combat Service Support in the Division: Parts I, II, and III," depict integrated combat service support operations at the company and battalion (I), brigade (II), and division (III) levels. The films will be available this Fall from installation audiovisual support centers.

WEST COAST CORPS SET

The Army will activate an additional corps headquarters in the continental United States in early 1982. Designated the I Corps, it will be located at Fort Lewis, Washington, and will control three divisions. Creation of a new corps headquarters on the west coast was recommended in the Army Command and Control Study-82 to reduce the number of units reporting directly to Forces Command headquarters.

NG UNITS TRAIN AND MAINTAIN

The Army Forces Command is encouraging Army National Guard (NG) units to provide maintenance support to Active Army units while training at Army installations. Combining training and maintenance support is designed to offer guardsmen hands-on training while concurrently reducing the maintenance backlogs of Active Army units. The concept was successfully initiated in April when personnel of the 1035th Heavy Equipment Maintenance Company, Missouri Army National Guard, performed general support maintenance during a training exercise at Fort Campbell, Kentucky.

CLRTX FINDS BATTERY ILLS

Recent visits by command logistics review teams - expanded (CLRTX) have revealed that lead acid batteries are being activated at the unit level when they should be activated at the direct support level. The teams also found battery shops with inadequate light fixtures; poor storage areas; improper grounding; and a lack of safety equipment, proper ventilation, deluge showers, and separate areas for battery-charging operations. Commanders responsible for battery shops are being urged to insure that all procedures and safety requirements are followed.

MRE RATIONS SENT OVERSEAS

The Defense Personnel Support Center, Philadelphia, has begun shipping stocks of the meal ready-to-eat (MRE) rations to storage points in Europe and Korea. The MRE rations will not be issued to units until existing stocks of the old meal combat individual rations are exhausted in late 1983. Units based in the continental United States, Panama, Hawaii, and Alaska are expected to begin using the new ration during trajning exercises in 1984.

M1 MECHANICS GET BONUSES

Soldiers who maintain the Army's new main battle tank, or those who reenlist to be trained in that skill, are now eligible for selective reenlistment bonuses. The bonuses apply to the understrength military occupational specialties 45E, M1 tank-turret mechanic, and 63E, M1 tank-automotive mechanic. Bonus amounts range from $2,000 to $16,000 depending on the soldier's rank, number of years of service, and length of reenlistment term. Interested soldiers may obtain more specific information from local reenlistment offices.

BATTLE RECOVERY STUDIES LISTED

A bibliography of studies and models titled "Recoverable Items and Recovery Systems" is available to authorized persons. Write DLSIE, ALMC, Fort Lee, Virginia 23801, or call AUTOVON 687-4655 or commercial (804) 734-4655.

MTMC AND MSC TO BE REALINED

To improve Defense transportation and traffic management, the Deputy Secretary of Defense has directed the Army and Navy to plan the transfer of the sealift cargo and passenger booking and contract administration functions from the Military Sealift Command (MSC) to the Military Traffic Management Command (MTMC). The MSC will continue as the sealift operator and procurement agent. The realinement plans are expected to be completed in September.

TANK REPAIR HOTLINE SET

The Depot System Command has established a 24-hour telephone "hotline" at Anniston Army Depot to provide CONUS users with solutions to maintenance problems on all types of tanks. The hotline is designed to complement direct support and general support level maintenance, and tank mechanics should use all available expertise, such as field maintenance technicians, before calling the hotline. It may be reached by calling AUTOVON 694-6582.

CLEAN WATER UNIT PLANNED

The Army has awarded a $1.8-million contract to Dynamic Science, Inc., to produce three prototype 2,000- to 3,000-gallons-per-hour reverse osmosis water purification units. The trailer-mounted, air-transportable units will be able to produce 3,000 gallons of potable water per hour from fresh or brackish water and 2,000 gallons per hour from salt water. The primary users of the water units will be combat forces deployed in an arid environment or operating in a contaminated zone.

LOG SYMPOSIUM SCHEDULED

The 3d Annual International Logistics Symposium will be held 21 and 22 October at the Quality Inn, Pentagon City, Arlington, Virginia. Sponsored by the National Security Industrial Association, the symposium will cover several topics, including planning for international logistics, cooperative programs, worldwide logistics requirements, and follow-on support.

REAL PROPERTY SYSTEM COMING

The Army Computer Systems Command has completed the initial extension of the integrated facilities system (IFS) to 48 primary installations. The initial extension, which ultimately will be implemented at 53 primary and 42 satellite installations, includes three subsystems: real property maintenance activities, assets accounting, and facilities engineering management. Future extensions will add facility planning and new contruction subsystems. The IFS is a multicommand automatic data processing system designed to record and report information on the Army's real property inventory.

CIIP's TO BE AUTOMATED

The Army plans to begin extending the Army clothing initial issue point (ACIIP) system to the CIIP's at the seven Training and Doctrine Command (TRADOC) reception stations and Fort Benning in September. The ACIIP system, developed as part of the automated retail outlet system — a TRADOC-unique system — will automate all inventory management functions of the CIIP's.

DISTRIBUTION MEETING SET

The 19th annual conference of the National Council of Physical Distribution Management will be held 18-21 October at the Chicago Marriott Hotel in downtown Chicago, Illinois. The theme of the conference will be "Distribution in a Re-Industrialized America."

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Developing the Unit Cook

by Major James D. Allen

We at the Quartermaster School frequently hear complaints from the field that graduates of food service advanced individual training (AIT) "can't cook" when they reach their first permanent assignment. That charge deserves an explanation.

The AIT graduate isn't supposed to be a "skilled cook." Rather, the graduate is an apprentice cook who must develop journeyman skills during his first unit assignment. He is awarded skill level 1 of MOS 94B, food service specialist, upon completing AIT, but that doesn't mean he knows everything about garrison and field feeding.

Skill level 1 indicates that the individual has mastered the fundamentals of his specialty, including food preparation, receipt and storage of subsistence items, garrison food service equipment use and maintenance, and field kitchen equipment operation and maintenance. But you can't turn the skill level 1 apprentice loose in the kitchen. He needs the supervision of a skilled food service sergeant. With training, supervision, and experience, the AIT graduate will *become* a skilled food service specialist.

Although the food service sergeant is primarily responsible for training the unit cook, he alone can't produce a staff of skilled food service specialists. He needs command support, technical assistance, and, most importantly, training material. It is in training support that the Quartermaster School helps to develop skilled food service personnel. Developing effective training material is an ongoing process at the school. For example, a revised on-the-job training program recently was developed, and a packet explaining it is now available.

Recognizing that the transition from one skill level to the next is not as smooth as it should be, the Quartermaster School developed a training plan that will insure competence at every level. To cut training costs, only every other skill level will require resident study (skill levels 1, 3, and 5). Training for skill levels 2 and 4 will be conducted on the job using "exportable" training materials.

The skill level 1 AIT graduate completes the primary technical course during his first assignment. The course consists of 14 subcourses alined to skill level 2 tasks. Subcourses QM 6120-6123 deal with administrative tasks; subcourses QM 6124-6129 cover field kitchen operations; and subcourses QM 6130-6133 address sanitation. For more information about these subcourses, write to the Army Institute for Professional Development, U.S. Army Training Center, Newport News, Virginia 23628. After completing the primary technical course, passing the SQT 2 test, and taking a primary leadership course, the specialist is awarded skill level 2. This phase is completed by the individual at grades E1 through E4.

The E5 returns to resident training to prepare for skill level 3. After completing the basic noncommissioned officer course (now under development), passing SQT 3, and performing acceptably on the job, the soldier is awarded skill level 3.

Skill level 4, like level 2, will be achieved through "exportable," on-the-job training. Skill level 4 requires the individual to successfully complete the primary noncommissioned officer course (now under development), pass SQT 4, and perform satisfactorily on the job.

The final food service training phase is conducted in residence. After completing the advanced noncommissioned officer course, the individual demonstrates skill level 5 achievement by passing SQT 5 and an on-the-job evaluation.

To further improve the effectiveness of food service training, the Quartermaster School plans to make training materials better reflect actual food service tasks. Command food service advisers and senior food service sergeants pinpointed in the Quartermaster School's "Key NCO Program" will work with course material developers. This, like the restructured training strategy, will enhance the proficiency of food service specialists and noncommissioned officers. ALOG

Major James D. Allen is chief of the Subsistence Branch, Directorate of Training Development, U.S. Army Quartermaster School, Fort Lee, Virginia.

Coming in the November-December issue —

Resupply for Combat — explains how the 29th Area Support Group expects to sustain USAREUR's combat power by rapid resupply from the reserve storage activities.

Cities Under Siege — admonishes the mineral-dependent industrialized nations — the "cities" of the world — to recognize the potential logistics threat posed by the mineral-rich developing nations.

Village Concept of Combat Service Support — tells of the advantages that can accrue to combat service support units operating from European towns and villages in wartime.