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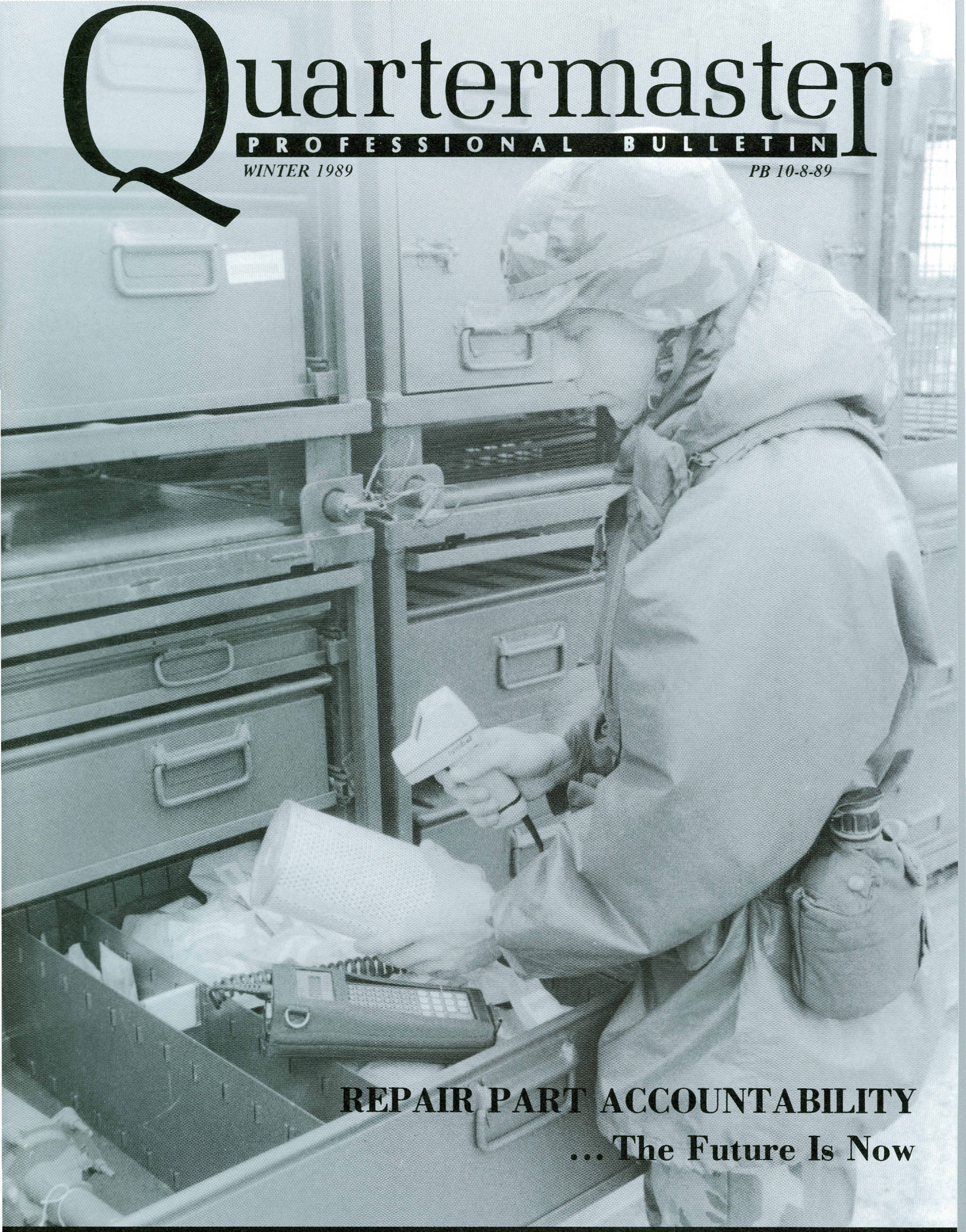

REPAIR PART ACCOUNTABILITY
... The Future Is Now

Headquarters, Department of the Army

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U.S. ARMY QUARTERMASTER CORPS

Key To Logistics

THE QUARTERMASTER GENERAL

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THE QUARTERMASTER PROFESSION

Brigadier General Paul J. Vanderploog

It is difficult to explain the idea of a profession. For those in the U.S. Army, the best way to explain it is as a way of life. I try to relate this concept to our new Quartermaster soldiers and lieutenants as they begin their careers at the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA. The young soldier may not fully understand until he or she enters the noncommissioned officer ranks. New lieutenants surely will not comprehend the idea until they spend time in their first unit.

The incoming Quartermaster soldier represents a cross section of America. The great majority of these volunteers are patriotic citizens willing to serve our country effectively and well. Their level of education is generally higher than those who served in the past because our educational standards have risen. Their understanding of national and international events will be deeper because of the vast increase in recent years of news coverage. But, despite their motivation and education, they really have no idea that they are entering an institution that will shape their lives.

Military service traditionally has many institutional features, including extended overseas tours, 24-hour availability, frequent family moves, subjection to military discipline and law, and the inability to resign, strike, or negotiate over working conditions. Soldiers' behavior within the military structure of the U.S. Army includes not just the official structure, but also schools, associations, publications, customs, and traditions. The professional world of soldiers tends to encompass an unusually high percentage of their activities. They normally live and work apart from the rest of society -- and have fewer nonprofessional social and physical contacts than most other professionals.

The military permeates every aspect of a soldier's life. A soldier need not leave the post for the birth of child, marriage, or a funeral. Quarters are normally provided as well as a commissary for food and a post exchange for clothing and necessities. Also on post, the soldier can golf, have dinner, go dancing, attend a movie, or any of a number of recreational activities. The U.S. Army post resembles any other American community -- plus the added factor of the military mission which binds all together in a common purpose.

That military mission is what really sets us apart. Our political commitments and our strategic posture demand readiness for almost any contingency, almost anywhere. We must develop cost-effective, innovative strategic deterrents at the same time we prepare to fight in short-notice contingencies, such as we recently faced in Panama.

In an age that places a high value on technological expertise, it is easy to forget that we are members of an ancient and honorable profession. Specifically, regarding the U.S. Army, Quartermasters have been diligently providing the means of victory since 1775 as the sustainer of Armies.

Today, the strategy and tactics of war are more dependent on logistics than ever before. Weaponry has become more complex and demanding of support. Paralleling this, the Quartermaster mission has become much more challenging. The doctrinal and equipment changes resulting from the development of the Airland Battle Concept have made the Quartermaster Corps' position a pivotal one. Historically, pride of profession has been a necessary characteristic of a soldier. Reading military history can help all soldiers understand the significance of their roles. However, it is often not enough, especially in the Quartermaster Corps where our deeds often receive little mention because of the nature of our business.

Service in the U.S. Army and Quartermaster Corps can be, and is, very rewarding. A value placed on this type of reward perhaps cannot be quantified. It is the challenge of Quartermaster leaders to mentor young soldiers, help their transition into this "way of life," and guide them to professionalism. Soldiers of all ranks should know the important role the Quartermaster Corps plays in our nation's defense. Quartermasters serving in today's Army are part of a proud profession, a long military history, and a rich heritage. Our soldiers can be proud of past accomplishments and confident they will continue the Quartermaster tradition of excellence.

BG Paul J. Vanderploog is the U.S. Army Quartermaster General

QUARTERMASTER STANDARD-BEARERS

CSM Milton B. Hazzard

The Army theme for 1989 rightly focuses attention on the noncommissioned officer (NCO) as the backbone of the Army. Special emphasis is placed on NCO responsibilities for training the soldier to established standards. How great is this responsibility? Let's compare it to our sister services. Enlisted men and women in the Navy and Air Force play key roles; but, generally speaking, officers fight the major combat systems. Officers maneuver the ships and fly the planes into combat. In the Army, with few exceptions, soldiers maneuver and fight every combat system, from the M16 rifle to the M1 tank.

The same comparison can be made within the ranks of combat service support soldiers. Quartermaster soldiers are spread throughout the battlefield, relying on their tactical/technical competency and initiative. They cannot rely on the security of a base or the close supervision on board a ship with the complexity of the battlefield and the sophistication of modern weaponry. Combat today requires soldiers who are tough, bright, and highly motivated. Enforcing discipline, maintaining standards, and excellent training by NCOs make it all happen.

NCOs maintain the high standards and quality that are the foundation of our current trained and ready force. As the year of the NCO ends, we must continue performing four critical roles: we must be exemplary first-line leaders, we must serve as the Army's primary trainers, we must be standard-bearers of units, and we must continue to instill and maintain discipline in the ranks. The execution of these four roles is necessary in producing the quality of force needed for the future.

I think that our role as leaders is captured best by the image of NCOs as standard-bearers. Throughout history, the national and unit standards or flags have served as rallying points for soldiers embroiled in battle. Because of the symbolic importance of the colors, the NCO has historically been entrusted with the unit standard.

In this day of sophisticated communications, rapidly moving forward support elements, and a constantly changing battle focus, we no longer have the ability to constantly display our colors at all battle locations. However, this does not represent a change in the tradition that holds the senior NCO present responsible for the display, care, and security of unit colors. Symbolically, by that charge, the spirit of the Army through the units that those colors represent is in the hands of the NCO Corps.

Fulfilling this challenge is not easy. Standard-bearers lead from the front of the unit. They set high standards and enforce them. The standard-bearers must be tactically and technically proficient, be in excellent physical condition, and be of sound judgment. They must possess and display unquestionable moral and ethical standards. Those who are unwilling or unable must be appropriately dealt with.

As standard-bearers, NCOs have the honor of leading America's finest men and women. It is a great feeling when you see a soldier that you have mentored successfully progress through the ranks and contribute to the mission. It is also rewarding when you ensure that soldiers and their personal concerns are appropriately dealt with.

As long as we have NCOs who feel this pride -- the year of the NCO will never end. Standard-bearers will continue to pass Quartermaster colors to new professionals into the next century.

CSM Milton B. Hazzard is the Command Sergeant Major, U.S. Army Quartermaster Center and School (PROV), Fort Lee, Virginia.

CLASS IX (REPAIR PARTS) OVERVIEW

Many customers claim to have been victims of the supply system. They assert that the system does not promptly provide repair parts. However, do these "victims" fully understand their roles in making the system work?

Anyone affected by the lack of repair parts needs to understand the system, in some detail. For example, the driver of the HMMWV (High Mobility Multipurpose Wheeled Vehicle) should know how to follow up the requisition of a new mirror with the unit's prescribed load list (PLL) clerk. Subsequently, the PLL clerk should know how to get the daily transaction listings from the supply support activity (SSA) to balance against the document register of parts requests. As the requests are forwarded, each level (platoon through division) becomes involved in parts readiness issues.

Consider how the entire system functions from the unit level to the wholesale warehouse. Understanding the operation of the entire system will help our customers comprehend their importance in making the system work. Let's examine the supply system and learn why the customer needs to see the big picture.

The U.S. Army's supply system continues to evolve. Currently, supplying repair parts follows a four-tier delivery system. The tiers can be either wholesale or retail.

From the top, the two basic wholesale supply levels are the national inventory control point (NICP)/depot level and the general support (GS) supply activities. The NICPs function as the "great warehouses in the sky," procuring equipment directly from the civilian manufacturers. The NICPs sell repair parts to the GS supply activities, which act as middle managers between the NICPs and the direct support (DS) activities. The DS SSA "sells" directly to the using unit--our customer.

Each of these vertical tiers processes the requisitions that remain unsatisfied at the next lower level. The clearest way to understand the operational concept is to follow a requisition from the customer through the supply system.

At the unit level, a technical inspection of a piece of equipment--a truck, radio, or chemical mask--identifies either a maintenance or a supply deficiency. A lug nut may need tightening or a mirror may be missing. An item requiring supply action is identified by its national stock number (NSN) and referenced in the Army Master Data File (AMDF) microfiche. The unit PLL clerk uses the AMDF to complete a DA Form 2765 (Request for Issue or Turn-In) as a requisition, listing the NSN, description, cost, class and source of supply, restrictions, and other information. The level of readiness and organization required by the unit's table of organization and equipment (TOE) and the equipment's criticality combine to suggest the correct priority designator (PD) for the requisition. A supply deficiency which deadlines the unit's single pacing item could be a PD 02, while requisitions to replenish the PLL would be a PD 12. The completed requisitions then go to the supporting DS unit.

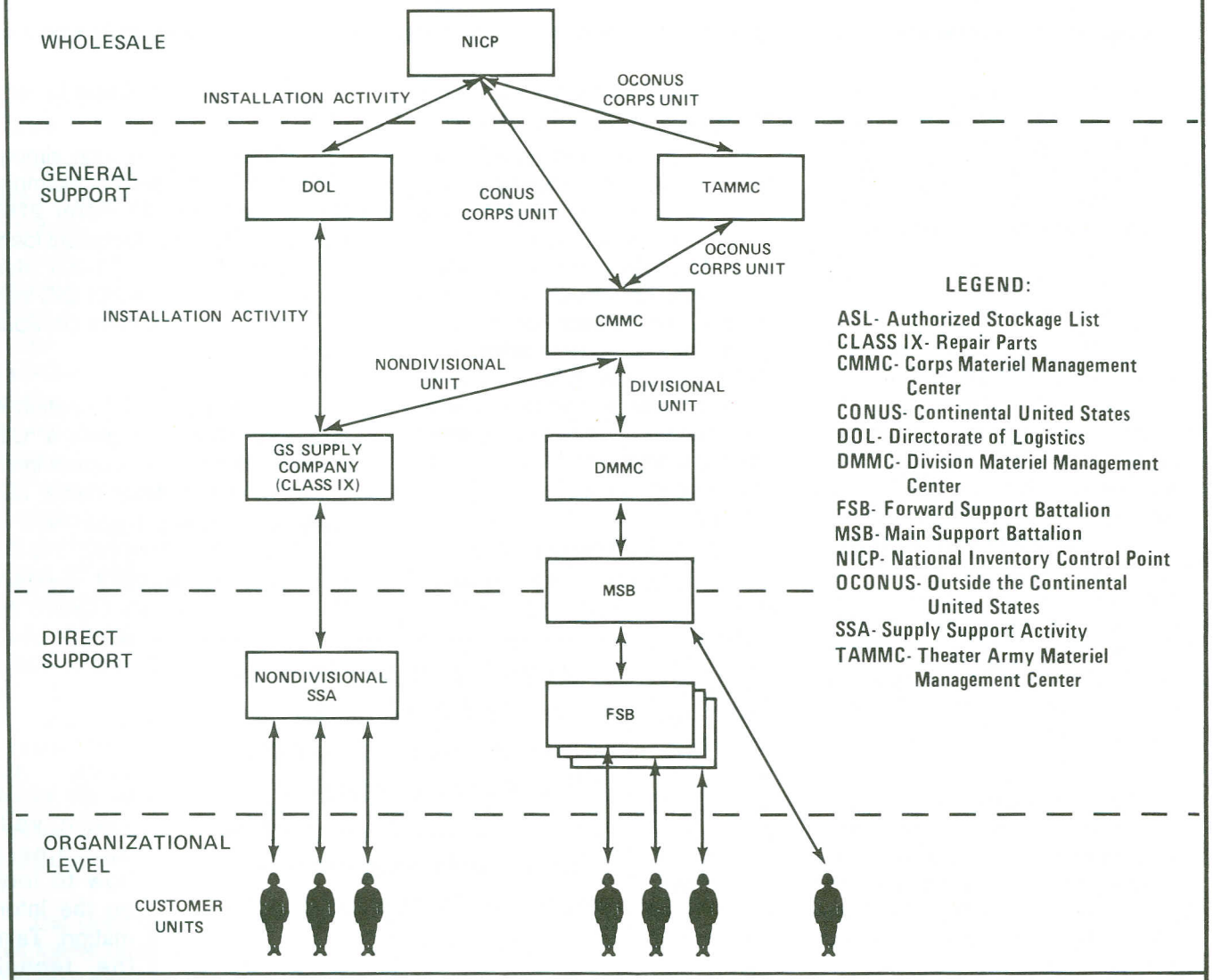
At the DS level, the closest geographical SSA accepts the requisition, edits it for correctness, and processes it in the next daily cycle. The daily cycle checks the balance on hand in the warehouse and reacts. If the NSN has a positive balance on hand--the warehouse owns some of the needed stock--then a materiel release order (MRO) is created. The MRO directs the warehouse to pull the items for issue. On the other hand, if the NSN has a zero balance--the warehouse is out of stock--then the requisition must go to a higher source of supply. The customer unit gets a due-out, the equivalent of an IOU, and the requisition goes up to the next supply tier.

The higher sources of supply, which provide parts to the DS unit rather than the user, function as GS suppliers. Thus, the main support battalion (MSB) in the division functions as the GS supplier for its supported forward support battalions (FSBs), while also acting as a DS supplier to its own using unit customers. Since the nondivisional SSA functions as its own main warehouse, the nondivisional GS supply companies receive the DS unit's unfilled requisitions. If the supporting GS unit cannot fill the request, the requisition is forwarded to the division materiel management center (DMMC) or, for nondivisional units, the corps materiel management center (CMMC). The MMC verifies funding and can check such higher sources of supply as the installation directorate of logistics in the continental United States (CONUS) or the theater MMC if overseas. If all levels of the U.S. Army's supply system cannot fill the requisition, the request then goes to the NICP.

The NICPs act as the wholesale procurers of supplies for the U.S. Army's supply system. Item managers control each commodity under their areas of expertise. The NICPs interface with the actual manufacturers of equipment and parts. Contracts to make specific parts are managed at the NICP level.

This brief overview should help demonstrate the importance of educating the customer on the structure of the supply system. Readiness improves when the customer can order the right part and understand how the request is processed. Consequently, the former "victims" become those who benefit as they learn that the system works.

REPAIR PARTS REQUISITION FLOW



FLOW OF REQUISITIONS

ORGANIZATIONAL LEVEL: The customer unit needs a part. The unit completes a request and takes it to the designated support unit, either the nondivisional Supply Support Activity (SSA), the divisional Forward Support Battalion (FSB), or the divisional Main Support Battalion (MSB).

DIRECT SUPPORT (DS) LEVEL: The DS SSA issues the part if it has a balance on hand. If the warehouse is zero balance, the SSA gives the customer a due-out (an IOU) and then, based upon the issue priority designator, passes the request to a higher source or fills the request upon receipt of Authorized Stockage List (ASL) replenishment.

GENERAL SUPPORT (GS) LEVEL: GS is tailored to support the command's needs. Thus, the CONUS installation's Directorate of Logistics (DOL) receives requisitions from the installation's DS and GS SSAs and attempts to fill the requisitions with available stocks, before passing the requisition to a higher source. Similarly, the OCONUS Theater Army Materiel Management Center (TAMMC) checks unfilled requisitions, after the division and corps MMCs have verified funding, and attempts to fill the requisitions with stocks already on hand in the theater.

WHOLESALE LEVEL: The national inventory control points interface directly with manufacturers to procure equipment and parts for the U.S. Army supply system.

RECEIVING ITEMS: Receipts can either funnel back down the chain of supply, or for critical shortages, go directly to the DS SSA.

NOTE: This represents the most common flow of requisitions within the Class IX arena. However, there are occasional deviations from this flow of requisitions.

Class IX Customer Assistance: Strategies for Success

LT Lisa M. Shaler-Clark

With today's complex weapons systems and related equipment, the need for having the right part in the right place remains a key to success. Class IX (repair parts) providers stand poised on the interface between supply and maintenance, ready to meet this challenge.

As MAJ Patrick J. Davis, S3 (Operations and Training Officer), 177th Forward Support Battalion, Fort Irwin, CA, summarized: "Unfortunately, on the battlefield, time is a luxury which is rarely available. If a combat unit is short equipment waiting on parts for repair, then that combat unit must do without the equipment." ("Warlord Maintenance at the NTC" (National Training Center), Ordnance, August 1989, pages 2-6). On the modern battlefield, doing without critical equipment can mean losing the battle.

To avoid defeat, the combat service support community needs the customer's (user's) assistance in tailoring the support package. Effective assistance relies on clear and continuous communication. Each party must understand the other's desires and concerns. In short, the supplier must stay close to the consumer.

First, focus on the need to communicate with the customer. Then, direct your efforts toward educating the customer on formal and informal procedures to improve Class IX support.

Without clear, concise communication, the supply system becomes a maze, frustrating the supplier and customer as they try to reach common ground. Consider the following example.

The eager Class IX provider, striving to improve the supply support activity (SSA) customer assistance program, calls the customer to explain the current situation:

"Okay, you got an AE1 card from DMMC with a CS status. That could be telling us that we busted MRQ, especially since the Image Intensifier Tubes are on CECOM's hard-core list. Could be, too, that the parameter files do not recognize your DODAAC (Department of Defense activity address code)--maybe someone tried to do a mass cancellation on you. Let me check the parameters and call the item manager at NICP. I will get back with you."

The helpful Class IX technician hangs up the phone, feeling pleased with the outstanding customer assistance. However, the combat arms customer, when queried by the commander on the status of the repair parts, could only reply that "they're going to get back with me."

> ***Develop a customer-oriented attitude among your soldiers. Give them a sense of pride in understanding the supply system well enough to explain and troubleshoot it.***

Explaining the somewhat complex supply system to our customers in words they do not understand is truly counterproductive. Like the other technical services in the U.S. Army, Quartermasters use jargon and acronyms frequently. Technicians might find these shortcuts meaningful, but customers often find them confusing and frustrating.

To truly help your customers, speak their language. Be aware of the amount of jargon you use. Explain the acronyms. A combat arms soldier need not become a supply expert to help your SSA improve the quality of Class IX support.

Explain the situation simply, and tell why it matters. For example, the customer's DA Form 2765 status card has the document identifier code (DIC) of AE1--but what does that mean? The AE1 DIC indicates that the document provides supply information.

What supply information is provided? The card gives a "CS" status. Point out the correct interpretation of the status cards, and show them where Department of the Army (DA) Pamphlet 710-2-1 (Using Unit Supply System (Manual Procedures)) explains the supply cards and statuses. The "CS," for example, is a computer code for supply status. Teach your customers how to look up the information. Take the techniques from the Defense Logistics Agency Customer Assistance Handbook (October 1986, 19th Edition), and give your customers a list of commonly used supply statuses and DICs. Incorporate this information as an annex to your external standing operating procedure.

Define the MRQ as "maximum requisition quantity," and tell the customer that the national inventory control points (NICPs) use MRQs to limit the number of items ordered on a single requisition. Explain that United States Army Materiel Command (AMC) controls commodity commands such as the U.S. Army Communications-

Electronics Command, called CECOM.

CECOM and the other commodity commands track critically short items throughout the entire U.S. Army supply system on the quarterly "hard-core list." Show the customer how you, as SSA manager, track national stock numbers (NSNs) on the hard-core list for intensive management within the SSA. Make sure the customer understands how computer "parameter files" depend on correct Department of Defense activity address codes (DODAACs) and how a "mass cancellation" affects computerized files. Explaining the system simply helps the customer understand how you are working to solve the problem.

Once effective communication has been established with the customer, concentrate your efforts on educating the consumer by describing formal and informal procedures to improve Class IX support.

The Department of the Army gives formal guidelines for improving supply functions in such publications as Army regulation (AR) 710-2 (Supply Policy Below the Wholesale Level) and DA Pamphlet 710-2-2 (Supply Support Activity System Manual Procedures) for manual SSA procedures and the Direct Support Unit Standard Supply System (DS4) series of manuals for automated supply procedures. The formal procedures tell the SSA how to do the job right. Time frames and correct techniques for processes such as the daily cycle, receiving and processing requisitions and supplies, and editing requisitions guide the SSA. The SSA can monitor the supply performance statistics to identify areas to improve. Accurate location surveys and good inventory control ensure the technical capability to provide excellent customer support. Emphasis on helpful responses to customers strengthens the customer's confidence in the SSA.

The customer needs education on the procedures to improve the SSA's customer support. Customer reconciliation represents one of the most powerful teaching tools available. A customer who does bimonthly "recons" carelessly or not at all, fails to identify potential problem requisitions. Errors can be as embarrassing as having an anchor delivered instead of a lug nut. The commander of the customer unit can save precious Class IX funds by checking the company document register against the bimonthly reconciliation lists. The automated SSA also gives the prescribed load list (PLL) clerk a daily transaction list. By checking today's daily transaction listing against yesterday's, the PLL clerk can identify and correct any NSN errors, quantity, or priority designator quickly. A timely follow-up or change request can get the right part to the customer much faster.

Reconciliations on both a daily and twice-monthly basis form a crucial link for feedback between customers and the SSAs. Errors can be identified early and corrected. A longer-term method for improving customer support connects actual customer demand history to the PLL and the authorized stockage list (ASL). The PLL and the ASL support a customer unit in war. Customers must learn to tell the SSA whenever a part from any other source has been used so the customer can ensure recording the demand for that NSN. The ASL procedure bases the calculations for adding or deleting NSNs from the ASL on actual demands for the item. Building up sufficient recorded demand means that the repair part that the unit uses can be added to the ASL. Therefore, the unit's role in shaping the ASL to support its actual needs remains essential.

Many of our customers are reluctant to tell the SSA when they "acquire" an item. However, the customer's input provides key information for tailoring the customer's own repair parts support package. SSA personnel should emphasize the importance of sharing demand data, working the PLL review lists, and actively participating in the quarterly ASL review boards. Customers can and should impact upon their own repair parts support. These formal feedback mechanisms give the customer a voice in improving support.

Understanding the supply system's different levels and the requisition flow enables the customer to follow up on requisitions. The AMC's Logistics Control Agency (LCA) controls inventory in motion, traveling from the wholesale level to the user. LCA uses current information to update its logistics intelligence file (LIF). Anyone knowing the document number of a requisition can query the LIF to learn the latest status. The trick, however, comes in knowing the current, correct document number. The document number of a request can change its identity at each level operating with an ASL. Thus, the organizational document number listed in the unit PLL clerk's document register in the motor pool changes to the direct support (DS) SSA's document number when that item is both on the ASL and at zero balance. The SSA gives the unit a due-out and generates its own requisition to replenish the ASL.

The only limit to building a solid customer assistance program is a lack of imagination.

That replenishment request, under the DS SSA's document number, passes to the general support (GS) unit. If the NSN is on the ASL at that warehouse, a zero balance in the warehouse would cause the DS SSA to receive a due-out. Then the ASL replenishment requisition would go, under the GS unit's document number, on up the supply chain. Any queries to the LIF under the subordinate document numbers would locate no record of the item. Thus, to avoid panic situations, know whom to ask about higher ASLs which can cause the document number to change. A little knowledge here goes a long way in getting your current supply and transportation status!

A word of caution: The LIF offers managers a great service. To maintain this tool, keep queries to a minimum! The supply system sends statuses to subordinate levels automatically. Reserve the LIF for critical items or those requisitions for which no status has been received. Proceed through the system before you hit the LIF. That way, the system does not get so clogged with routine queries that your critical "got-to-have-it-to-deploy" questions get slowed down.

In addition to the LIF, cultivate a battery of management tools. As mentioned, AMC does have commodity command logistics assistance representatives (LARs) for the major commands and installations. Work closely with your LARs. They have access to LCA trend information. For example, the LAR for the U.S. Army Tank Automotive Command, Warren, MI, knows that alternators for the High Mobility Multipurpose Wheeled Vehicle (HMMWV) are becoming critically short in the U.S. Army supply system. Your local LAR can offer advice about ordering the next higher assembly for critically short items or tell you what rebuild kit to order. The LAR can give you an estimate of the "get-well date" for a particular problem. The LAR can even determine if a given NSN is being recontracted. LARs can help you, as SSA manager, identify problems before they become severe.

Use your external and internal standing operating procedures as training documents. Give your customers a point of contact for resolving problems--perhaps the customer service section.

Teaching classes to your customers offers another way to improve understanding and support. The SSA might give a class to the battalion motor sergeants and PLL clerks on what to check on the unit document register. The accountable officer could give a block of instruction on the commander's options in precommand training. Incoming commanders, deeply concerned about readiness, are very eager to learn techniques to improve their unit readiness.

Train your soldiers as well. Give them the skills they need to do the job well. After soldiers have mastered their primary mission, cross-train them. Develop a customer-oriented attitude among your soldiers. Give the soldiers the sense of pride in being able to understand the supply system well enough to explain and troubleshoot it. Nothing discourages a good soldier like not having the skills needed to do the job. Take the time, and train well.

Use your external and internal standing operating procedures as training documents. An annex explaining status codes and terms could help not only your customers, but also the SSA staff. Spell out the procedures for identifying problems. Give your customers a point of contact for resolving problems. A logical point of contact could be the customer service section. Create a good customer service section from the soldiers who receive requisitions. Train them to answer questions, and train your customers to direct their questions to someone who can help them.

Help your customers tailor the SSA support to their needs. Major training deployments such as rotations to the National Training Center (NTC), Fort Irwin, CA, offer great opportunities to tailor support packages. The materiel readiness support activity (MRSA) can develop a tailored PLL or mandatory parts list (MPL) to support the equipment density on the customer's table of organization and equipment (TOE). MRSA even has the capability to consider geographical or climatic factors. Another great source of information in tailoring PLLS/MPLs/ASLs for a specific event are the after-action reviews from similar events. Many units take the same equipment to REFORGER year after year. Retaining the demand history data and noting lessons learned

in a good after-action review can help improve support. Learn the lessons from previous exercises!

A key internal factor which affects customer assistance is the attitude within the SSA chain of command. The SSA manager must strive to foster an open, trusting attitude. A soldier should feel no fear in coming to the SSA manager to describe a supply process which did not go as intended. The doctrine of no surprises must be clear: bad news does not get better with time. Telling the SSA manager that a mistake was made--that the soldier performed mass cancellation on all open documents for a unit, for example, rather than deleting just a few open documents--means solving the problem. Mistakes like that do not stay secret. Foster that trust.

The only limit to building a solid customer assistance program is lack of imagination. Any techniques which help your customers understand the supply system should be shared with fellow SSA managers. The U.S. Army frequently does not provide as much prior training as SSA managers or accountable officers would like to have, so share good ideas. Keep abreast of coming changes in the U.S. Army's supply system. Be aware that this strictly vertical flow of requisitions is recognized as problematic. The U.S. Army is currently testing a more interactive system called the Objective Supply System. Know enough about both current and coming systems to educate your customers. You are the supply expert! Sharing your technical expertise with your customers not only makes them appreciate your efforts, but also helps you identify problems before they get out of control. Use your customers to improve your supply support!

LT Lisa M. Shaler-Clark, a student in the Officer Advanced Course at Fort Lee, Virginia, was Accountable Office and Supply Support Activity (SSA) Manager in a nondivisional SSA service unit of V Corps, U.S. Army, Europe.

WHAT IS AN IMSO?

Have you ever heard or seen the acronym IMSO? Here at Fort Lee, VA, there is an IMSO in the U.S. Army Quartermaster Center and School (PROV). This officer is the "American Ambassador" on post, the representative of the United States among our international military students attending courses here from approximately 55 different countries, ranging from Australia to Zaire. The IMSO is the International Military Student Officer.

The IMSO is responsible for all matters involving international military students and their family members in the International Military Security Assistance Training Program. The IMSO provides guidance in all problem areas resulting from the widely divergent backgrounds and cultural, national and language differences.

This position is unique because of daily actions in sensitive areas such as religion, discipline, political situations, and possible disenrollment from class. The IMSO plays a very important role in assuring that the international military students' stay at Fort Lee is productive and pleasant. The mission has been accomplished when the students return to their home countries with warm feelings about the American people and the United States. This is vital to the total success of the security assistance program.

Another important aspect of the IMSO's responsibilities is conducting an informative and well-balanced Department of Defense (DOD) Informational Program. This program is deigned to foster a balanced understanding of the United States and its people through activities geared to cover 12 specific DOD objectives. These objectives can be achieved by exposing the international student to such facets of American life as local, state, and national governments; political parties; agriculture; economy; education; public and social welfare; and human rights.

The IMSO's job is very challenging, interesting, and rewarding. Dedicated IMSOs work throughout the Army service schools where international students attend courses. These "Ambassadors for the United States" perform a small but very important role in the security of our country.

FOCUSED PRESCRIBED LOAD LIST (FPLL)

CPT Michael J. Fehn

EDITOR'S NOTE: Due to resource constraints, final validation of the Focused Prescribed Load List (FPLL) System could not be accomplished. However, ideas from the FPLL will be incorporated into a revised concept now on the drawing board. This article by CPT Michael J. Fehn was written as FPLL approached the validation stage. The concepts in the article are presented to stimulate innovative thought.

An adequate and timely supply of repair parts to maintain wartime and peacetime readiness is a major logistical task. A large network of national inventory control points coupled with theater, corps, direct support, and unit-level supply operations exist to receive, store, and issue Class IX (repair parts) to meet this need. A high state of readiness for our expansive combat and combat support weapons systems inventory, as well as present logistical limitations, would have caused our Class IX supply system to grow to an unmanageable size if not for automated management procedures.

IMPROVE EFFICIENCY

The U.S. Army is exploring several concepts to more effectively support Airland Battle doctrine while improving the efficiency, reducing the size, and limiting warehousing requirements of repair parts. The combat authorized stockage list (ASL)/prescribed load list (PLL) program addresses the inadequacy of our present demand-based stockage policies. The objective supply system concept is being tested to reduce order ship time (OST). Reducing OST may reduce the number and density of repair parts stocked in a theater of operations. Already proven and fielded is the Unit Level Logistics System (ULLS). With the Standard Army Retail Supply System (SARSS), ULLS has brought automation to the world of the PLL clerk.

The focused prescribed load list (FPLL) concept addresses unit-level Class IX operations in armor and mechanized infantry battalions. FPLL's goals are to reduce the logistical burden on the maneuver company commander, reduce resource requirements for PLL operations under AirLand Battle doctrine, and still function in peacetime. Although modified applications may be workable in other types of units, FPLL only addresses armor and mechanized infantry battalions in heavy divisions.

FPLL HISTORY

The FPLL concept originated in U.S. Army Europe (USAREUR). In 1986 General Glenn K. Otis, then Commander in Chief (CINCUSAREUR), directed the 1st Armored Division to design a PLL system that would meet the previously described goal. The 1st Armored Division was chosen because of the division's experience as the U.S. Army's "test bed" for ULLS and SARSS automated management systems and the combat ASL/PLL program. The CINCUSAREUR intended to take full advantage of advanced supply methods incorporated in the 1st Armored Division and envisioned for the rest of the U.S. Army. USAREUR conducted internal testing of the concept in Spring 1987 using the 2/6 Infantry Battalion (Mechanized) and the 2/70 Armor Battalion of the 1st Armored Division. Initial test findings led to further review by the U.S. Army Training and Doctrine Command (TRADOC) for Armywide application. In Autumn 1987, the U.S. Army Quartermaster School (now the U.S. Army Quartermaster Center and School (PROV)), Fort Lee, VA, became proponent for evaluating the concept.

PLL CONTROL

FPLL consolidates control of the PLL in the battalion/task force (TF) maintenance platoon and organizes PLL subsets to support TF maintenance operations at three primary locations on the battlefield: forward of the unit maintenance collection point (UMCP), at the UMCP, and in the field trains. These PLL subsets support maintenance tasks and maintenance time guidelines established in FM 71-2 (The Tank and Mechanized Infantry Battalion Task Force). Individual company PLLS, which are routinely maintained no farther forward than the UMCP, would no longer exist. FPLL would require mechanized infantry battalions to prestock tank repair parts to support mixed task force operations of Airland Battle doctrine. Improving The Army Maintenance Management System (TAMMS) and PLL management and record-keeping with ULLS (Version I) permitted resource reductions while still processing all supply requests and TAMMS functions.

PLL INNOVATIONS

The following three PLL subsets of FPLL replace individual company PLLS:

- **A breakaway box,** containing repair parts for making repairs that take less than two hours. There will be one breakaway box for each line company in the battalion. The boxes will be located with each company maintenance team (CMT) assigned by the battalion

maintenance officer to support companies and task force teams operating forward of the UMCP. Stockage will be limited to critical requirements transported on the CMT's M113 armored personnel carrier.

- **A UMCP package,** with repair parts to support repairs that can be completed in six hours or less. This package will be located in the UMCP to support organizational maintenance performed by the battalion maintenance section. The UMCP package will also be the primary source of repair parts to replenish breakaway boxes. When a UMCP package becomes depleted, it will be exchanged for a fully stocked replacement package kept in the field trains. The depleted package will be replenished by the forward support battalion to prepare for the next exchange.
- **A base PLL,** in the field trains to support repairs that can be made in 36 hours or less. It will also provide secondary resupply to the UMCP and CMTs. The base PLL will be replenished by the forward support battalion.

PEACETIME READINESS

The base PLL will be the primary source of repair parts in peacetime. It will include repair parts associated with peacetime readiness requirements. The stockage of high-use, critical repair parts forward of the UMCP has always been recognized in maintenance doctrine, but not in supply policy. The breakaway box fills this policy void. Breakaway boxes and UMCP packages will key on shoot, move, and communicate maintenance requirements. The intent is to focus repair parts stockage according to the maintenance tasks expected. Moving demand-supported repair parts not normally used in the UMCP to the base PLL provides increased space for repair parts that maintain combat effectiveness. Coupled with prestocking of repair parts to support task force operations, FPLL heightens the way the heavy maneuver unit will fight under Airland Battle doctrine.

COMPUTERS REDUCED

FPLL reduces the number of computers required to support TAMMS/PLL management functions. FPLL, as tested in the 1st Armored Division, needed three ULLS (Version I) computer systems to conduct daily business. Originally, individual company PLL operations required six computers in a mechanized infantry battalion and five in an armor battalion. Computers are located in the field trains to reduce the threat from the enemy. All routine actions are passed to the field trains for processing. To improve responsiveness to critical parts requirements in the UMCP and forward, small laptop computers to perform only parts requests are being considered for the UMCP.

Army of Excellence (AOE) force structure significantly reduced the number of soldiers authorized for TAMMS/PLL operations without a proportional reduction in mission. Many units routinely reassigned personnel to perform TAMMS/PLL functions. FPLL attempts to improve efficiency and, thereby, work with Army of Excellence resourcing.

TRADE-OFFS

There are trade-offs. By focusing on the maneuver battalion's high intensity Airland Battle mission, FPLL may limit the unit's ability meet the broader spectrum of military response. Review by TRADOC activities and U.S. Army major commands has generated other concerns that are being analyzed. Applicability of ULLS is a major hurtle. After two years of use in the 1st Armored Division, the introduction of ULLS (Version II) significantly altered the effectiveness of FPLL to operate in peacetime. This forced the 1st Armored Division to revert to company PLL procedures in the four battalions using FPLL. All these issues will be reviewed.

The U.S. Army's commitment to improving its "tooth to tail" (combat-to-combat service support) ratio will not weaken. New and innovative management techniques, coupled with advanced technologies, will be necessary to meet the U.S. Army's goal to reduce the size of its Class IX inventory and to use evolving doctrine for the 1990s and beyond.

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OBJECTIVE SUPPLY SYSTEM

Jay W. Briggs

I never cease to be amazed with technological advances. Men in space, laptop computers more powerful and many times faster than the initial roomful of cathode ray tubes that I grew up with, stealth bombers, fiber optics, and satellite communications are only a few of the examples. Just the things you can now do from the comfort of your home boggle the mind. Some people now work at home, rarely ever going to the office. You can bank at home, trade stocks and bonds from home, and shop from home.

If I can watch a shopper's program on television or find an item I want in a mail order catalog, I no longer have to hunt from store to store to make the purchase. I just pick up the phone, dial a toll-free number, place the order, provide a credit card number, wait a couple days, and a truck delivers directly to my doorstep.

If I can go directly to the source of supply to satisfy my requirement, why do I force the prescribed load list (PLL) clerk to shop around to find out who has the item available to satisfy the U.S. Army's requirement? Why do I lock that soldier into a regimented process of sequentially searching the division, then the corps, the theater, and finally the national level to find the required item? With today's technology, can't we do the searching for the PLL clerk? Can't we tell the PLL clerk immediately where the part is and when it will be delivered? Can't we concurrently post the appropriate records, charge the right account, place the order, and provide confirmation just as we would expect an airline to do if we were calling for plane reservations?

That was the challenge laid down by the Commanding General of the Army Materiel Command and the Commanding General of the Training and Doctrine Command. Develop a concept and a system prototype to achieve interactive, near real time processing of requisitions; provide visibility and lateral issue capability of assets; and reduce the time required to fill a customer's request for supplies. Keep it simple, let the computers do the work, and provide instant feedback to those who need the information.

A small task force set out to prove the principle with a 60-day test using the 2d Armored Division and the Directorate of Logistics (DOL) maintenance activity at Fort Hood, TX, as requisitioners. Visibility of their own assets along with those of the 13th Corps Support Command (COSCOM), 1st Cavalry Division, Red River Army Depot (RRAD), Texarkana, TX, and Defense Depot Memphis, TN (DDMT) were used to make decisions on lateral issue or wholesale support. The following are the bottom line results from the 30 September through 30 November 1988 "proof of principle" test:

- Reduced order ship time (OST) from 21.5 days to 6.6 days,
- Lateral issue of $94,000 of previously unavailable assets,
- All records simultaneously updated and current, and
- Instant status provided to the PLL clerk.

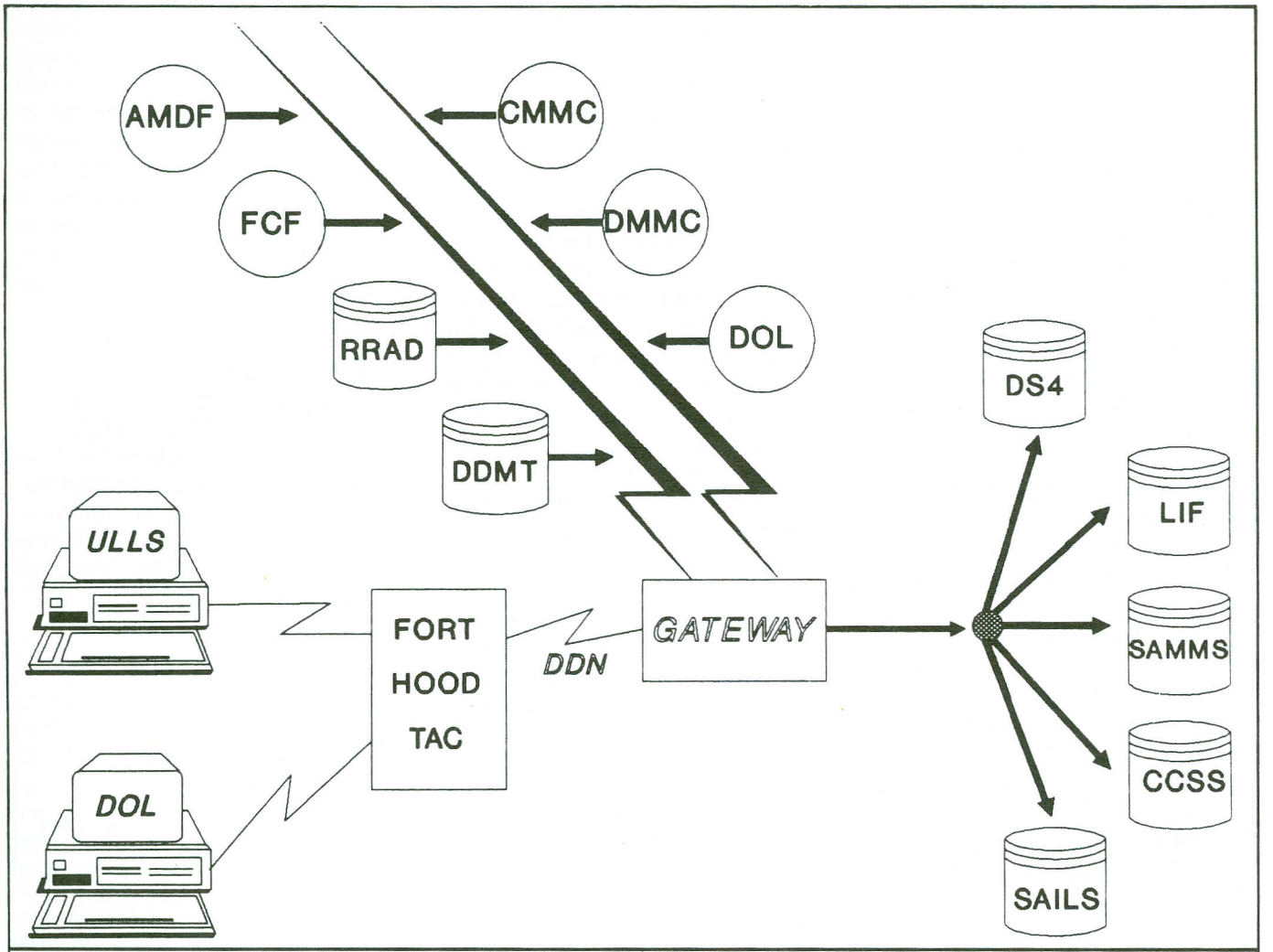
With the "proof of principle" a success, the decision was made to proceed with a full prototype encompassing all units at Fort Hood, TX, and all units at Fort Rucker, AL. While the "proof of principle" test only involved the PLL level and only consumable items, the prototype will include all repair parts and their requisitioners. That means that Direct Support Unit Standard Supply System (DS4) and Standard Army Intermediate Level System (SAILS) requisitions as well as shop stock requests from the Standard Army Maintenance System (SAMS) will benefit from the same lateral search capability and the reduced order ship time.

Using Figure 1, let's walk through the expanded prototype through the eyes of the PLL clerk. Using the Unit Level Logistics System (ULLS), the clerk enters the necessary information on the part required. If the part is available, ULLS will cut the issue and order a replenishment. If the part is not available, the clerk makes the same keystroke that would normally write the request to a floppy disk to be hand-carried to the PLL clerk's supply support activity. Instead, ULLS uses a modem to dial the local terminal access center that, in turn, passes the request through the defense data network (DDN) to a gateway computer.

The "gateway" is the key to the objective supply system (OSS). Resident on the gateway is the Army Master Data File (AMDF) to assure the request is for a good stock number. The gateway then checks the fund control file (FCF) to ensure sufficient funds are available. After passing these two edits, the search begins to find an available asset to satisfy the requirement. Also resident on the gateway are the availability balance files (ABFs) of the divisional, nondivisional, corps, and installation activities. Using a prescribed search matrix, the gateway searches first for assets above the requisitioning objective (RO) to satisfy the requirement. If none are available and the request is a high

priority, the gateway will make a second pass looking for assets above the reorder point (ROP). If an asset is found locally, a referral order will be sent electronically to the activity and item will be issued. An "in the clear" message on the computer screen tells the PLL clerk which local activity will supply the asset.

If an asset is not available locally, the ABFs of RRAD or DDMT (the area-oriented depots, from a Defense Logistics Agency standpoint, supporting Fort Hood and Fort Rucker) are searched. The PLL clerk is informed if the asset is available in the depot and when it



LEGEND:

AMDF- Army Master Data File
CCSS- Commodity Command Standard System
CMMC- Corps Materiel Management Center
DDMT- Defense Depot Memphis, TN
DDN- Defense Data Network
DMMC- Division Materiel Management Center
DOL- Directorate of Logistics
DS4- Direct Support Unit Standard Supply System
FCF- Financial Control File
GATEWAY USAISC-P- Gateway. U.S. Army Information Systems Command- Pentagon
LIF- Logistics Intelligence File
RRAD- Red River Army Depot, TX
SAILS- Standard Army Intermediate Level Supply System
SAMMS- Standard Automated Materiel Management System
TAC- Terminal Access Center, Fort Hood, TX
ULLS- Unit Level Logistics System

'For every day the order ship time is reduced, the U.S. Army stands to save $15 million.'

will arrive. The gateway then forwards the requisition to the wholesale source of supply for formal release from the depot.

Important to remember is that regardless of the action taken on each request for supply, the gateway simultaneously updates the appropriate computer files (such as DS4, SAILS, logistics intelligence file (LIF), Standard Automated Materiel Management System (SAMMS), and Commodity Command Standard System (CCSS)) with the appropriate information. Dues-in, dues-out, assets, and financial transactions are recorded in the appropriate files through a process called dynamic concurrency. For lateral issues, the losing activity's financial account is credited and the gaining activity's account is debited.

Of utmost importance to the PLL clerk is that the gateway gives the clerk an "in the clear" message on the computer screen. The clerk knows if a good requisition is working the system, from where the asset will be supplied, and how to answer the commanding officer's questions on the status of due-in parts. The PLL clerk no longer has to wait 5 or 10 days to be able to answer these questions. The whole process from initial request, edit checks, asset search, file update, and response on the screen takes only 17 seconds. While that is fast compared to the current system, we believe we found a way to get the time under 10 seconds. After all, shouldn't the U.S. Army's supply system be as efficient as your favorite airline's system?

While the benefit to the PLL clerk becomes obvious, there are additional benefits to the U.S. Army. Every day of the year there are approximately $15 million of repair parts in the supply pipeline. For every day the order ship time is reduced, the U.S. Army stands to save $15 million. Readiness also stands to gain because end items will be down far fewer days due to supply shortages. Additionally, units will require far less stockage than they do today because of the increased response time from the depot. Units will not be requesting from a depot the same item that a sister unit, in the same geographic location, is in the process of turning in.

The potential expansion and future benefits after worldwide extension are only limited by the imagination. Worldwide asset visibility would provide the capability to find an item in short supply to remove a tank from deadline on the front line at the Fulda gap. It would provide a true demand picture to the wholesale level and provide for more efficient use of procurement dollars. It could be expanded to other classes of supply and reap additional savings and improved support. It could be expanded to include maintenance and transportation so decisions on trade-offs between repair, return, lateral issue, and procurement can be made.

But we must walk before we can run. The results of the prototype at Fort Hood and Fort Rucker should be available in Spring 1990. Decisions can then be made on how far and how fast the U.S. Army should proceed. We think we have a winner. We just have to wait for the final results to arrive.

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THE STANDARD ARMY MAINTENANCE SYSTEM

SFC Willard C. Sabourin

Automation has reached the direct and general support maintenance community in the form of the Standard Army Maintenance System or SAMS. SAMS is actually not one single system but a combination of two separate systems which feed each other. Both levels of SAMS operate on the Tactical Army Combat Service Support Computer System (TACCS).

SAMS-1, found at the direct support (DS) and general support (GS) maintenance activity, deals primarily with work orders, tasks, and parts. The system is structured under this concept: when a piece of equipment is broken and is evacuated to that level for repair, a work order will manage actions necessary to fix the item and get it back into use. To complete the work order, several tasks must be accomplished. To accomplish these tasks, certain parts may be required. By breaking down the management of repair actions, by tying parts to tasks, and by tying tasks to a parent work order, SAMS-1 provides managers at all levels better visibility of completed work and future work and of parts required and parts received/installed. SAMS-1 allows transfer of incoming parts between work orders of varying priorities. For the budget managers, SAMS-1 also tracks parts costs and manhour costs (both military and civilian labor).

SAMS-1 also manages the shop stock and bench stock in the direct support unit/general support unit (DSU/GSU). These stocks are similar to the prescribed load list (PLL) in a unit motor pool. Like the PLL, the DS/GS stocks are demand-driven; but a PLL is maintained on a use-one-replace-one basis. The DS/GS stocks are based on the requisitioning objective (RO)/reorder point (ROP) concept. As parts are issued out of stock against work order tasks, SAMS-1 continuously monitors the numbers. When the quantity on hand of a particular item reaches the ROP, SAMS-1 will automatically produce a requisition to bring the stockage level back up to the RO. SAMS-1 also automates the document register, so the manual document register is no longer used. The computer maintains the register, assigning document numbers, tracking the status of requisitions, and completing the transactions as parts are received.

> ***SAMS fielding currently stands at about 85 percent for the Active Army and about 25 percent for the Reserve Components.***

SAMS-1 maintains a constant requisition, status, and receipt interface with the Standard Army Retail Supply System (SARSS). While primarily a maintenance system, SAMS-1 also performs the Class IX (repair parts) supply functions necessary to support the maintenance operations. SAMS-1 incorporates bar code technology through the use of Logistics Marking and Reading Symbols-Tactical (LOGMARS-T) in the supply processes of receipt, inventory, and location survey.

SAMS-1 is also considered a "mailbox" for the reporting of unit-level deadlined equipment. In unit motor pools using the Unit Level Logistics System (ULLS), this reporting is done automatically through magnetic media (normally floppy diskette transfer). Units still using manual operations in the motor pool submit two manual reports daily to the supporting SAMS-1 site regarding deadlined equipment and parts at the organizational level. SAMS-1 compiles all of this inoperative equipment data for reporting to SAMS-2.

SAMS-2 is located at the materiel management center (MMC) and in the support operations section of divisional support battalions. SAMS-2 deals with maintenance management information reported by subordinate SAMS sites. The data that SAMS-2 works with includes the deadline status of equipment at unit level as well as equipment in DS/GS maintenance activities. It also receives work order status from its SAMS-1 locations to monitor the work at those activities. Thus, at the division-level MMC, current data is available on the status of all of the reportable equipment within the command. SAMS-2 also provides a production index by enabling managers to identify a backlog of work at a particular maintenance activity.

SAMS-2 at the MMC extracts selected data on reportable items from the entire division-level command and reports this information to the Army's Materiel Readiness Support Activity (MRSA) in Lexington, KY. MRSA uses this information to track Armywide trends and other significant data.

New enhancements to SAMS include a Serial Number Tracking module which, as an initial test, will track 27 serial-numbered components of the M-1 tank. The module will eventually be expanded to track additional serial-numbered components of end items. There is also a personnel accounting module being added that will track,

by shop section, the duty status of personnel. In the near future, Material Condition Status Reporting (MCSR) will be returning to SAMS, but under its new name of the Army Materiel Status System (AMSS). MCSR was a part of SAMS when it was initially fielded, but was removed to be restructured. When the work is completed, AMSS will be incorporated into an upcoming software change package.

SAMS fielding currently stands at about 85 percent for the Active Army and about 25 percent for the Reserve Components. Fielding to Army Reserve and National Guard units is moving fast, with all fielding projected for completion during 1992.

Units receive both SAMS operator training and supervisor training when the system is fielded to the unit. All training materials are left behind with the unit for use in sustainment and new operator training. SAMS-1 operator training is also given to all military occupational speciality (MOS) 76C (equipment records and parts specialist) students at the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, and the Ordnance Center and School, Aberdeen, MD. The Ordnance Center and School provides a SAMS-2 overview to its Noncommissioned Officer Education System (NCOES) attendees. Separate computer-based tutorials exist for both SAMS-1 and SAMS-2 and are provided to each site when the system is fielded to the unit. They are helpful in the sustainment training effort. A SAMS "Commander's Orientation" is available on diskette and is also provided to each site for use as a system overview for new managers.

SAMS is working so well in the tactical units that a new system is being designed to operate in the installation and the table of distribution and allowances (TDA) environments. It will be appropriately called SAMS-I/TDA. Testing on this new system is currently scheduled for FY 91.

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AUTOMATION IN THE MOTOR POOL

SFC Willard C. Sabourin

Coming soon to the motor pool nearest you is something designed to make the lives of every TAMMS (The Army Maintenance Management System) and PLL (prescribed load list) clerk a lot easier. The Unit Level Logistics System, commonly known as ULLS, automates the TAMMS and Class IX (repair parts) supply functions in the unit motor pool.

As with all automation systems being fielded today, ULLS does not change the jobs that soldiers do. ULLS does give soldiers a new tool for their jobs. In this case, the new tool is a microcomputer with a resident interactive operating system. Many of the old tools that ULLS replaces are forms and records previously prepared and maintained manually.

In maintenance, some of the functions that ULLS automates are equipment usage (miles and/or hours) and fuel usage. By using data from technical manuals that is stored within the computer, ULLS manages scheduled maintenance activities, eliminating the use of DD Form 314 (Preventive Maintenance Schedule and Record). This same data also enables ULLS to manage Army Oil Analysis Program (AOAP) functions. The system reports inoperative equipment status at the organizational level to the Standard Army Maintenance System (SAMS) at the appropriate direct support unit (DSU), automates the work request and status interface with the supporting DSU, and keeps "backside" DA Form 2406 (Material Condition Status Report (MCSR)) data available upon demand.

PLL Clerk Saves Time

Because ULLS accomplishes vehicle dispatching, DD Form 1970 (Motor Equipment Utilization Record) will no longer need to be maintained by hand. There is an alert dispatch process which quickly provides dispatches for all vehicles assigned to the unit. ULLS also produces operator's licenses, replacing OF 346 (U.S. Government Motor Vehicle Operator's Identification Card).

In supply, ULLS computes and maintains the PLL. This is done internally within the system, so the old visible index file of DA Form 3318 (Records of Demands - Title Insert) will become a thing of the past. ULLS maintains a continuous requisition, status, and receipt interface with the Standard Army Retail Supply System (SARSS), eliminating the manual preparation of Military Standard Requisitioning and Issue Procedures (MILSTRIP) requisitions (DA Forms 2765 and 2765-1 (Requests for Issue or Turn-In)). ULLS automatically maintains the document register, so no manual DA Form 2064 (Document Register for Supply Actions) need be maintained. ULLS receives an automated catalog download of Army Master Data File (AMDF) data from SARSS every month and stores this data within the system. Using this catalog data, all requisitions are automatically edited for accuracy before being submitted to SARSS. This alone will save a lot of time for the PLL clerk who will no longer have to research each requisition. It will also cut the requisition rejection rate to nearly zero.

ULLS Recomputes PLL Monthly

ULLS automatically recomputes the PLL on a monthly basis, a time-consuming process when done manually. ULLS also assists in the inventory process by providing inventory lists and will provide the unit commander with a daily listing of all high priority and high-dollar-value requisitions submitted that day.

One of the greatest benefits to the users of ULLS is the amount of time saved in comparison with the older, manual systems. In many cases, ULLS saves time by instantly performing many tasks "behind the screen" that used to be done by hand. One good example for a TAMMS function is when PFC Smith reports to the motor pool to be dispatched a 5-ton cargo truck. ULLS will first check its internal records to see if PFC Smith is qualified to operate a 5-ton truck. Then ULLS will check to make sure that the particular vehicle is available, is not deadlined, and is not scheduled for any services during the anticipated dispatch period. When the vehicle is returned to the motor pool, the miles and hours driven and fuel consumed will be automatically posted to the vehicle's maintenance records. The miles driven will be credited to PFC Smith's driving record.

ULLS Automatically Takes Steps

Another good example is a PLL function of supply. A vehicle becomes deadlined for a broken brake pedal, and a new brake pedal in the PLL is issued to the mechanic. The demand for the brake pedal is recorded in the PLL files as is the issue of the pedal. A requisition is automatically prepared by ULLS for a replacement pedal, a document number is assigned to the requisition, and the action is posted to the internal document register. If the requisition is filled during the next supply transaction interface with SARSS, it is posted to the document register and the action closed. If the SARSS site did not have a replacement brake pedal on hand, the status of that requisition will have been provided to ULLS and that status recorded in the document register and due-in files. After the PLL clerk entered the issue of the brake pedal from the PLL, ULLS took care of several steps automatically. It is easy to see how much time was saved over a manual system.

ULLS Training Begins Soon

ULLS is currently operating in only a few units--primarily those units that were involved in the testing of an earlier version of the system. The Office of the Secretary of Defense (OSD) granted approval in May 89 to field ULLS to the remainder of the Active Army, and the fielding process is now in full swing. Basically, any unit that is authorized to maintain a PLL will be authorized to use ULLS. That amounts to some 13,000 sites Armywide. The OSD approval to field ULLS also included approval to install it on any IBM-compatible computer system (meeting certain requirements) as the interim hardware. This approval means that ULLS is a tactical, go-to-war system. A unit with ULLS will use the system in the field just as it does in garrison. Many units are using the Zenith model 248 computer. Testing is currently underway at the U.S. Army Logistics Center, Fort Lee, VA, operating ULLS on the Zenith model 286 computer. The Zenith model 286 is a laptop computer

which, if adopted, will be even easier to transport.

Formal ULLS operator training will begin soon at both the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, and the Ordnance Center and School, Aberdeen, MD. All military occupational speciality (MOS) 76C (equipment records and parts specialist) advanced individual training (AIT) students will receive the operator training.

ULLS Common in More Motor Pools

Operator training is also provided to units by Logistics Center contractors as part of the fielding process, and supervisor training is given at that time. A version of the supervisor's course is taught by the Quartermaster School in the Noncommissioned Officer Logistics Program (NCOLP) course. There is a comprehensive, computer-based tutorial provided to each ULLS site when the system is fielded to the unit. The tutorial is intended for sustainment and new operator training.

Now that ULLS is rapidly becoming a common sight in more and more motor pools, units already using ULLS have learned a lesson in system support. Some of the early ULLS users experienced a minor problem in the support department. It seems that some command system support office (SSO) personnel, who are often spread pretty thinly, suddenly felt overwhelmed by an automated system installed at virtually every motor pool in the command. Units with ULLS have learned that unit SSO people should familiarize themselves with ULLS and try to give assistance to the using units when problems arise.

In the opinion of most users, ULLS is the best thing that has happened to the motor pool in a long time. It will serve the U.S. Army well.

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CLASS IX MOBILITY OVERVIEW

Paul Fournia

To resupply Class IX (repair parts) to field units, the Quartermaster Corps has ongoing equipment modernization plans that support AirLand Battle doctrine.

Threat tactics depend on maintaining rapid offensive actions over long distances. These threat forces have a wide range of sensing devices that target for destruction both direct support unit (DSU) Class IX (repair parts) personnel and equipment in forward support and main support battalions. As a result, authorized stockage list (ASL) items will receive hostile air attacks from artillery and missiles. To counter this threat capability, the U.S. Army must minimize the time for locating or targeting supplies and maximize the time for conducting resupply operations.

The U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA has been involved in several reviews to determine the best, economical equipment for ASL mobility.

In 1978, the U.S. Army Logistics Center, Fort Lee, VA, conducted an ASL mobility study. This ASL mobility study referenced a U.S. Army Europe (USAREUR) survey dated June 1974 which identified two divisional maintenance battalions capable of moving less than 21 percent of their repair parts.

This 1974 study also reflected that interviews with some USAREUR commanders identified a need for 100 percent mobility of forward DSUs and 50 percent mobility for divisional direct support (DS) elements in the rear.

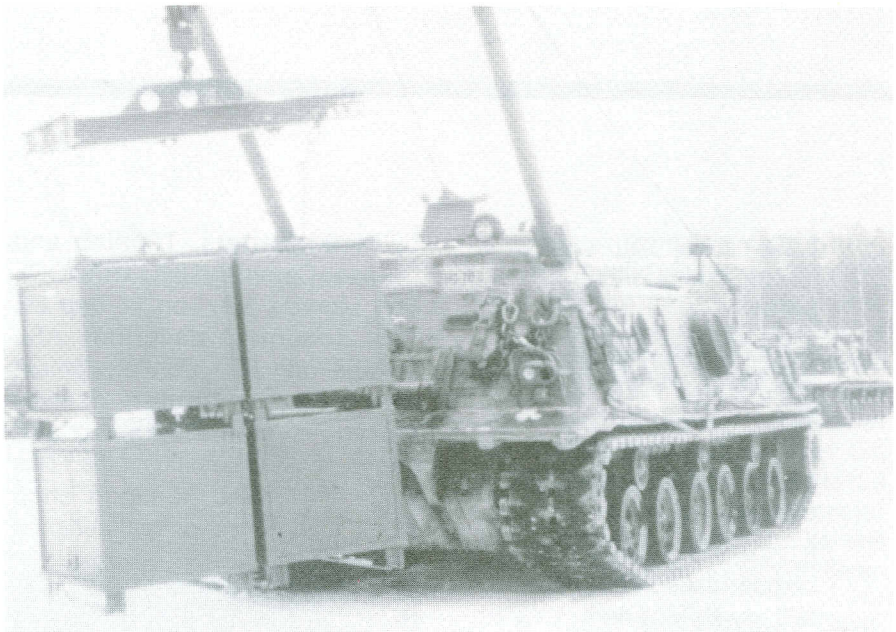
Data from field visits and interviews also supported the conclusion that forward elements must be able to displace 80 percent of their repair parts within 30 minutes and resume operations shortly after arrival at their new location. Also, the remaining 20 percent of repair parts for forward elements should be ready for movement within 3 to 4 hours. The data also indicated that divisional DSU rear elements need to be 50 percent mobile and capable of movement by echelon. As a result of that study, these standards were included in AR 710-2 (Supply Policy Below the Wholesale Level).

- The U.S. Army Logistics Center's April 1983 Combat Service Support Mission Area Analysis (CSS MAA)

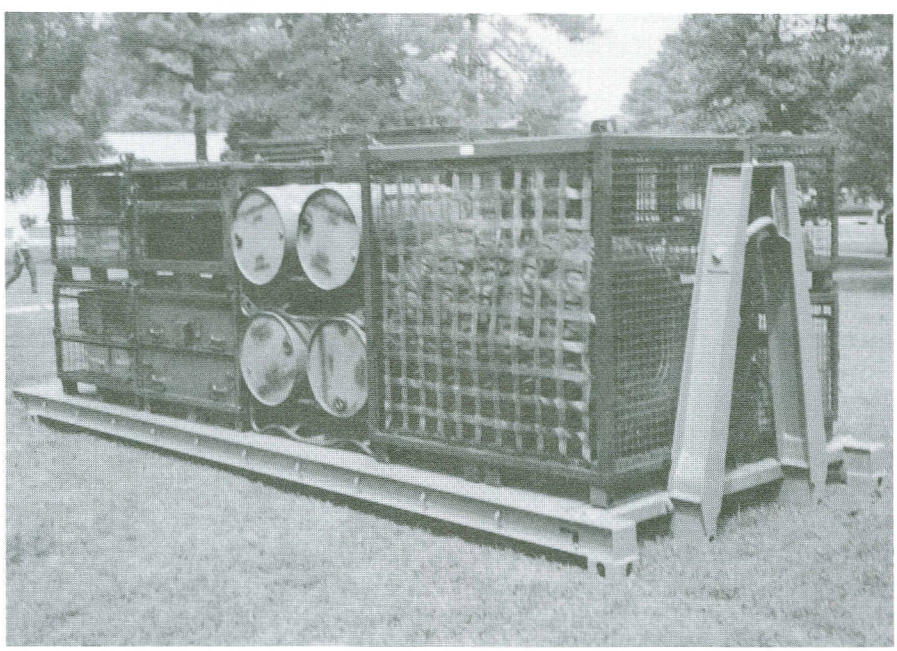
also studied the ASL mobility problem. The analysis concluded that properly configured M129 vans could eliminate the ASL mobility deficiency.

- In 1986, a joint assessment by the U.S. Army Materiel Command, Alexandria, VA, and the U.S. Army Logistics Center used the 1st Armored Division, USAREUR, Ansbach, Germany, combat ASL weight and ASL cubic dimensions to study the forward logistics exchange (FLEX) pallet benefits. This assessment found that ASL mobility requirements are determined by cubic dimensions rather than the number of lines in the ASL. The U.S. Army Logistics Center developed and staffed a method for computing the ASL mobility equipment requirements based on ASL cubic dimensions. Equipment requirements based on ASL cubic dimensions will start appearing in tables of organization and equipment (TOEs) this year.

The September 1987 Equipment Configuration Analysis for Combat Authorized Stockage List Mobility was developed in a combined effort between the U.S. Army Quartermaster Center and School (PROV), the U.S. Army Logistics Center, the U.S. Army Ordnance Center and School, Aberdeen, MD, and the U.S. Army Aviation Logistics School, Fort Eustis, VA. It analyzed alternative equipment configurations and recommended suitable ASL mobility equipment for future concept evaluation program (CEP) testing.



OLD METHOD: Class IX Forward Logistics Exchange (FLEX) pallets are loaded by using a recovery vehicle boom.



NEW METHOD: A palletized load system (PLS) flat rack with Class IX and Class III on FLEX pallets awaits movement by the Universal Self-Deployable Cargo Handler (USDCH).

This Equipment Configuration Analysis for Combat Authorized Stockage List Mobility covered the following seven equipment configurations for bin items and two equipment configurations for bulk items:

- Configurations for bin items.

  1. Semitrailer van, repair parts, 12-ton, XM1063.

  2. Semitrailer van, supply, 12-ton, M129, with bins and drawers.

3. Semitrailer van, supply, 12-ton, M129, with FLEX pallets.

4. Semitrailer, flatbed, 22.5-ton, M871, with FLEX pallets.

5. Palletized load system (PLS), 16.5-ton, with FLEX pallets.

6. PLS, with international standardization (ISO) container with bins and drawers.

7. British transferable stores container.

- Configurations for bulk items.

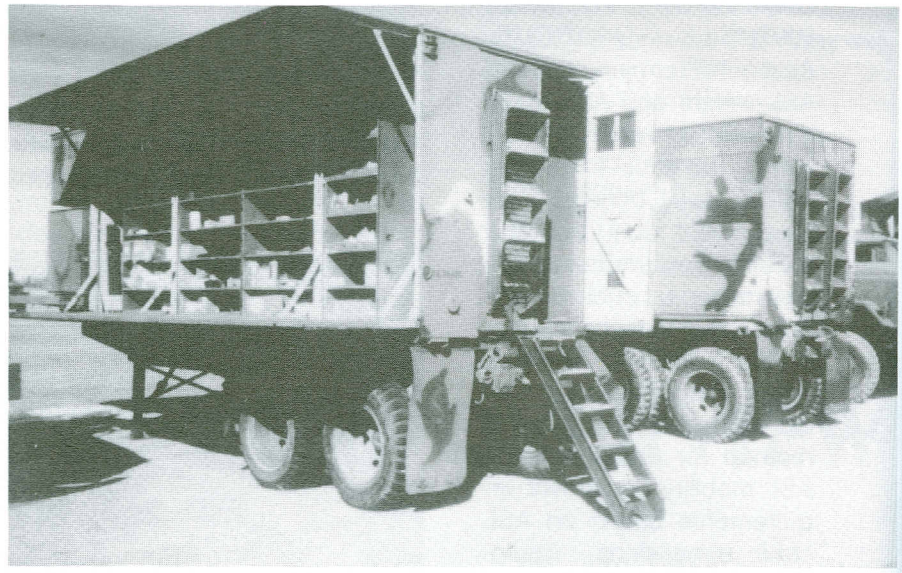
1. Semitrailer, flatbed, 22.5-ton, M871.

2. PLS, 16.5-ton, with flatracks and sideboard kits.

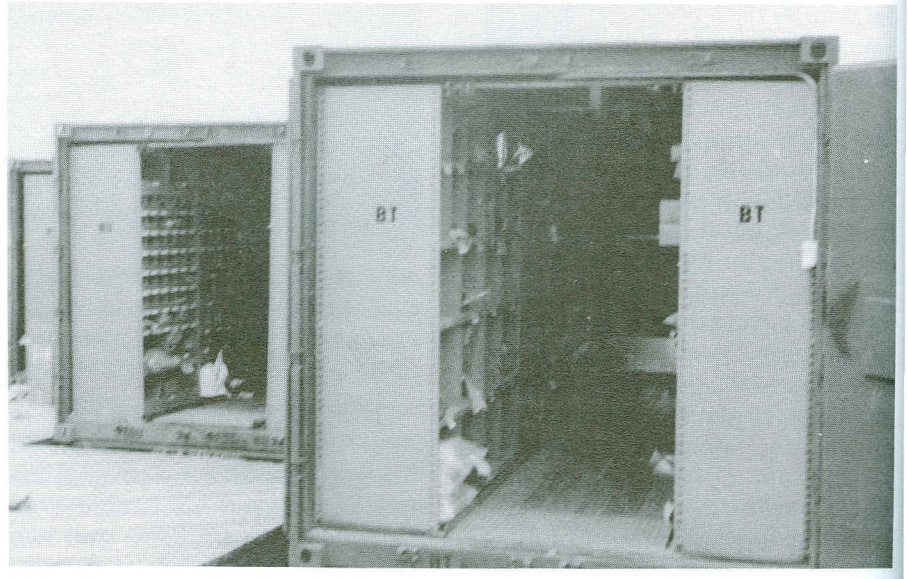
In April 1989, the U.S. Army Quartermaster Center and School (PROV) completed a cost analysis on the same equipment alternatives for combat ASL mobility for the U.S. Army Logistics Center. Rules for moving a heavy division ASL involved 100 percent mobility using one lift of bin and bulk ASL based on cubic dimensions and weight in the forward support battalion, and 50 percent mobility of the total bin and bulk ASL in the main missile and aviation DSUs. These costs included operational and support costs during a 20-year period for which fielding will begin in FY 1996. The U.S. Army Logistics Center staffed this cost analysis with two major Army commands (MACOMS) and will brief the Department of the Army Deputy Chief of Staff for Logistics (DA DCSLOG) with a coordinated recommendation.

The operational and organizational plan for the mobility container system (MOBCON) was approved by Headquarters, Training and Doctrine Command (HQ TRADOC), Fort Monroe, VA, on 21 Sep 89. This document describes ASL storage and transport equipment which have modular, drawer storage systems to store and transport ASL items in bins. This system will also transport shop stock inventories of maintenance units and repair parts supply throughout a theater of operations.

MOBCON variations on the airmobile container will replace the aging X-4 200-cubic-foot capacity fiberglass containers currently in the light forces aviation maintenance units. The interior-exterior (INTEX) pallet will supplement the U.S. Air Force's 463L pallet and will



OLD VANS: The M750 repair parts vans are reportedly unsafe and too small for today's required repair parts.



NEW VANS: The M129 semitrailer supply vans, parked at a loading dock, have built-in bins for Class IX stock requiring environmental protection.

allow for combat resupply on a throughput basis from the depot to the individual soldier's fighting position.

The MOBCON will be capable of operation worldwide on primary and secondary roads and on cross-country terrain. The ASL operations include around-the-clock use under all weather and battlefield conditions in all climates.

This equipment will be deployable by C130 and larger U.S. Air Force cargo aircraft, by rail, and by ocean vessels. The equipment requires a prime mover. Once deployed, the equipment is expected to be relocated approximately three times per week for a distance of approximately 20 kilometers over varied terrain ranging from paved roads to soft soils. At all other times except during movement, the equipment is available for issuing stocked items. Annual movement is expected to be less than 4,800 kilometers. The peacetime mission is identical to the wartime mission except that movement would be less frequent (only during training exercises or administrative movements). Typical annual movement will be approximately 800 kilometers.

The following percentages show MOBCON operation by terrain and climate usage--

- Terrain usage (percent of the miles):
  1. On Road
     (Primary) 30 percent
     (Secondary) 55 percent
  2. Off Road
     (Trail) 10 percent
  3. Cross-country 5 percent
- Climate usage (percent of the fleet):
  1. Hot 15 percent
  2. Temperate 80 percent
  3. Cold 4 percent
  4. Severe Cold 1 percent

In April 1989, the U.S. Army Logistics Center developed short-term and long-term heavy division ASL mobility equipment plans. The short-term (present to FY 1994) emphasizes the use of M871 flatbed semitrailers with FLEX pallets and environmental protective kits consisting of sideboards, bows, canvas, and associated hardware. This kit was approved as an additional authorized list item for M871 and M872 semitrailers by the U.S. Army Tank Automotive Command, Warren, MI. There are some bin items which require a greater degree of environmental protection than FLEX pallets will provide. The U.S. Army Logistics Center estimates these items will comprise approximately 15 percent of the total ASL. These items should be moved in 12-ton, M129 semitrailer vans with commercial cabinets. Bulk stocks in the short-term would be moved on M871 flatbed semitrailers.

Another U.S. Army Quartermaster Center and School (PROV) initiative, the Ballistic Protection System, involves using synthetic fiber blankets (such as Kevlar or Spectra) to provide ballistic protection to supplies and items such as Class IX (repair parts) stocks from indirect and direct battlefield fire. The concept calls for protective sheets which can be connected together in various sizes and configurations.

For the armored division's six direct support companies, the prototype FLEX pallet covered by the Ballistic Protection System would resemble the following:

- Maintenance Company, Forward Support Battalion: 85 percent of the cubic dimensions of bin items should move in FLEX pallets on M871 semitrailers with environmental protection kits. The remainder of bin items should reside in M129 vans with commercial cabinets. Bulk stocks will move on M871 semitrailers.
- Light Maintenance Company, Main Support Battalion: 85 percent of the cubic dimensions of bin items should move in FLEX pallets on M871 semitrailers with environmental protection kits. The remainder of bin items should reside in M129 vans with commercial cabinets. Bulk stocks will move on M871 semitrailers.
- Missile Maintenance Company, Main Support Battalion: This unit has no bulk stocks. Due to the small size, high fragility, and high cost of missile repair parts, all of its bin stocks should move by M129 vans with commercial cabinets.
- Aviation Intermediate Maintenance (AVIM) Company: 85 percent of the cubic dimensions of bin items should move in FLEX pallets on M871 semitrailers with environmental protection kits. The remainder of bin items will reside in M129 vans with commercial cabinets. Bulk stocks will move on M871 semitrailers.

Most of the heavy divisions already have the previously listed equipment, but not in the recommended mix. The predominant van listed in tables of organization and equipment (TOEs) is the 6-ton,

M750 repair parts van, with a requirement for 39 each in the armored division TOE. This van is both inefficient and unsafe, as described in detail by a U.S. Army Materiel Command Materiel Readiness Support Activity (MRSA), Lexington, KY, report. The report describes the M750 repair parts van as an old piece of equipment, too small for both the cubic dimensions and the weight of today's required repair parts, and unsafe because the expandable side doors that double as work platforms tend to collapse during use. The U.S. Army Logistics Center recommends that it be replaced throughout the Army with the M129 supply van as soon as possible.

The Army Materiel Systems Analysis Agency (AMSAA), Aberdeen, MD, is developing sample mandatory parts lists under differing sets of stockage requirements. The sample lists are part of an effort to reduce the cubic dimensions of mandatory parts lists stocked in the heavy division.

The long-term (present to FY 2000) Class IX (repair parts) mobility phase for equipment includes the light infantry division, air assault, and airborne divisions. All of these long-term equipment recommendations center upon use of the PLS to move combat ASL stocks. Normal bin stocks will move in the mobility container system pallets on PLS flatracks. However, bin items requiring extra protection will move in ISO containers or other shelters furnished with commercial cabinets and mounted on PLS flatracks. For bulk items, all will be permanently stored on PLS flatracks. The Ballistic Protection System could also be used for bulk stocks.

Another U.S. Army Quartermaster Center and School (PROV) "value added" Class IX (repair parts) assistance system scheduled for fielding in FY 1996 is the Universal Self-Deployable Cargo Handler (USDCH). This materiel-handling forklift will achieve convoy speeds with ease and have the capability to lift 4,000-pound, 6,000-pound, and 10,000-pound loads. In addition to loading Class IX (repair parts) containers on the PLS flatracks, the cargo handler's 23-foot extendable boom will easily stuff containers with Class IX pallets. The equipment's self-deployable feature will eliminate the current lowboy and tractor requirement to displace the 6,000-pound and 10,000-pound rough terrain forklift. This saves personnel and equipment and also gives field commanders greater flexibility in timing and location.

In summary, Class IX (repair parts) mobility in the future will be faster--thanks to the PLS maneuverability, the Universal Self-Deployable Cargo Handler's flexibility to handle 4,000- to 10,000-pound loads, and the elimination of lowboy and tractor requirements for displacement. The MOBCON system's modular construction, for both field and garrison flexibility, plus a quick capability for external airlift by helicopter, all tie together enhancements to improve the support of AirLand Battle by the Quartermaster Corps.

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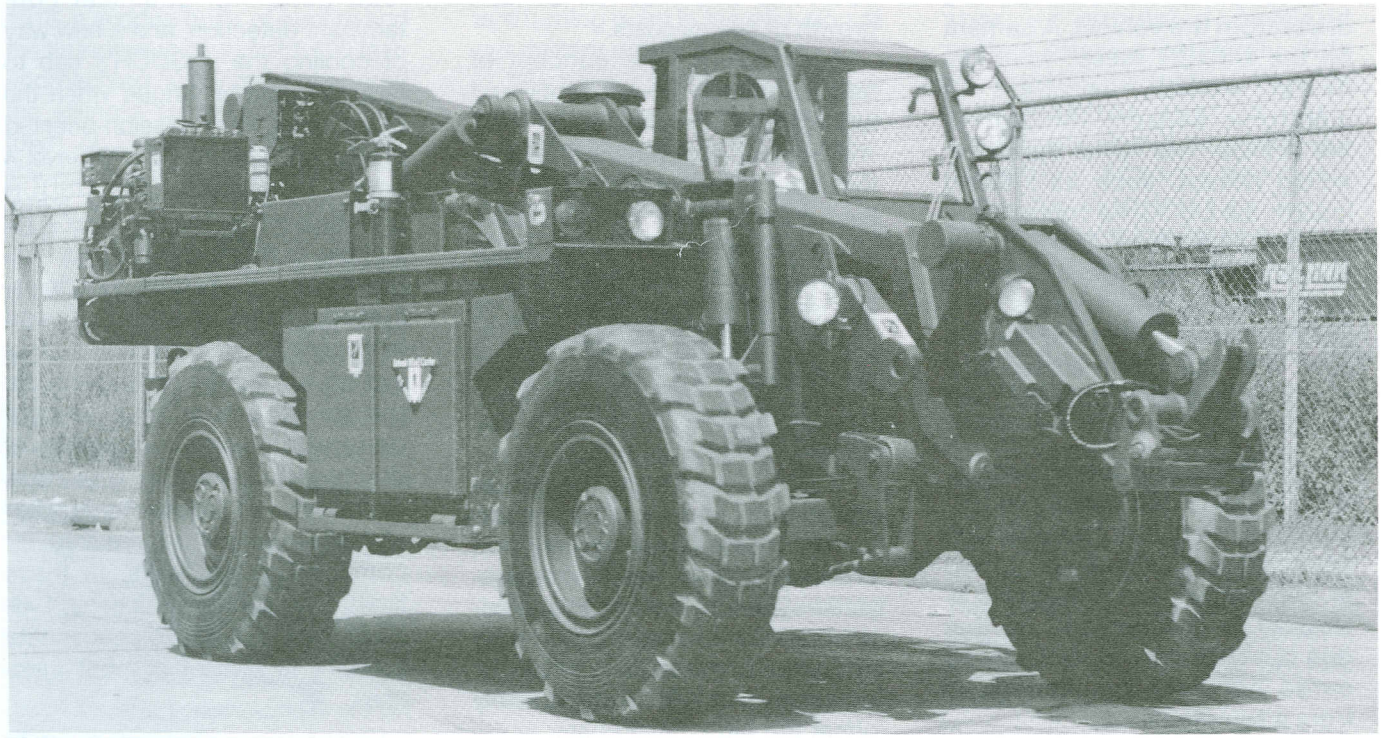
UNIVERSAL SELF-DEPLOYABLE CARGO HANDLER FORKLIFT TRUCKS

Bobbie Gale Stell

Current doctrine dictates that the U.S. Army of tomorrow be a more flexible, mobile fighting force able to fight in extreme environments. This means that battlefield support units must also be more flexible and mobile.

The Universal Self-Deployable Cargo Handler (USDCH) will meet these challenges. The USDCH can achieve convoy speeds, traveling more than 45 miles per hour (MPH) on the highway. This eliminates the need for scarce transportation assets to relocate, allowing use of those assets for other critical missions. The USDCH operates in the harshest environments including rough terrain, desert, and nuclear, biological, and chemical (NBC). With cold weather kits, the USDCH



The Universal Self-Deployable Cargo Handler

also can operate in cold and severely cold climates.

The USDCH is a fixed frame, variable reach forklift truck. It has three interchangeable special features that enable it to conduct all the mission requirements of the currently fielded 4,000-, 6,000-, and 10,000-pound rough terrain forklift (RTFL). By replacing these forklifts with the USDCH, the costs of maintenance, sustainment, and repair parts will be drastically reduced. The USDCH will also allow the U.S. Army to train operators and maintenance personnel more efficiently, because they will only have to operate and repair one type of forklift instead of three.

The USDCH will be used in combat support (CS) and combat service support (CSS) units throughout the theater for logistical support. The USDCH can handle all classes of supply. Typical missions for the USDCH are lifting and removing stock from storage, stuffing and unstuffing containers, transloading between vehicles, carrying supplies, placing items into stock, and off-loading cargo on pallets (to include U.S. Air Force 463L pallets) from line-haul vehicles.

The USDCH will be deployed in the main support battalion and forward support battalion of divisional units. It will also be in the general supply company; maintenance company, light; maintenance company, heavy; terminal service company; and all other units that presently use the 4,000-, 6,000-, and 10,000-pound rough terrain forklift.

The USDCH's new technology will be introduced in four phases. The first phase will result in a cargo handler with basic capabilities. Succeeding phases will add enhancements.

The Phase I cargo handler will have 4,000-, 6,000-, and 10,000-pound lift capacities; detect contamination and warn the operator; maintain convoy speeds; be self-deployable; travel over improved and unimproved surfaces, as well as cross-country; and sustain 24-hour operations during day and night in any weather.

The Phase II cargo handler will use robotics technology for cargo handling. With robotics, computer-controlled robots perform manipulative tasks, as on an assembly line in private industry. The Phase III cargo handler will have all the capabilities of the Phase II cargo handler (basic and robotic-assisted capabilities) plus teleoperation capability.

Teleoperation removes the driver from the vehicle. A camera on the USDCH "sees" what the driver would see. Sets of electronic sensors throughout the vehicle "feel" what the driver would detect, such as shifting load or the USDCH's contact with cargo to be lifted. The USDCH operator "drives" from a distance by monitoring two screens: one screen displays what the camera sees and the other screen displays computer feedback from the sensors.

The Phase IV is a new generation USDCH, just off the production line, that incorporates the capabilities of Phases I, II, and III. Also driverless, the Phase IV USDCH is programmed so that one operator can control several cargo handlers simultaneously from a remote site.

The dual strategies of improving the USDCH in increments and incorporating commercially developed capabilities act together to slow cost increases. Also, using new technologies will help lower costs and, at the same time, enhance performance. Microelectronic and robotic components will be used extensively in the USDCH program, particularly in robotics and teleoperation. Costs for these components are declining, and that will contain growth of overall costs.

Additionally, the concept of using common components and technological developments for a variety of robotic systems and other logistical equipment systems will help contain costs. System cost and effectiveness will be the major determinants in selecting the type of USDCH to field. The type of USDCH selected will also have a significant impact upon the composition of the future material handling systems.

USDCH enhancements in automation and mobility are expected to raise development and production costs higher than previous systems. However, considerably lower manpower and operational costs as a result of automation will significantly offset the high initial costs.

The U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, is the proponent for the USDCH. A proof-of-principle prototype USDCH was delivered to the U.S. Army Belvoir Research, Development, and Engineering Center (the materiel developer) at Fort Belvoir, VA, in July 1989. This vehicle will be used to test the concepts of self-deployable materials handling equipment, multicapacity load handling, chemical contaminant detection, and a new way of cooling the USDCH's cab to reduce operator fatigue when the driver must wear mission-oriented protection posture (MOPP) level 4 gear. In addition, this USDCH prototype will be the test vehicle for a series of preplanned product improvements to include robotic-assisted load handling and teleoperational capabilities. This system will lay the groundwork for the development of a second generation vehicle capable of driverless operation. Driverless operations will reduce the number of military personnel required for combat support tasks. In these times of personnel reductions, it will allow the U.S. Army to concentrate soldiers in critical combat functions.

Bobbie Gale Stell is a Logistics Management Specialist in the Logistics Systems Branch, Directorate of Combat Developments, U.S. Army Quartermaster Center and School, Fort Lee, Virginia. She is the combat developer for the Universal Self-Deployable Cargo Handler (USDCH), general purpose forklifts (rough terrain and conventional), and related materials handling equipment (MHE).

CORRECTIONS

The article by LTC Daniel D. Ziomek entitled "Restructuring of the MAM Program" in the Autumn 1989 issue of the Quartermaster Professional Bulletin contained errors in the accompanying charts. In Figure 2 on page 58, the correct title for the chart is "MAM CANDIDATE = 4M." In Figure 3 on page 59, the correct title for the chart is "CERTIFICATION = 4Z." For Figure 4 titled "CRITICAL (4Z) POSITIONS," item (5) should read this way: "(5) ALL LTC/COL POSITIONS REPORTING TO A PM OR PEO." The author is the Army proponent manager for the MAM (Materiel Acquisition Management) Program and editor-in-chief of the Army RD&A Bulletin, Alexandria, VA.

AN EARLY LESSON IN REPAIR PARTS

Dr. Steven E. Anders

In the predawn hours of March 9, 1916, a sudden burst of gunfire and the thunderous sound of 1,500 fast-approaching cavalrymen shattered the stillness surrounding the little town of Columbus, NM. Panic-stricken residents were among the latest victims of the notorious Mexican leader Francisco"Pancho" Villa. In its wake the raiding party left several smoldering buildings and 16 dead (eight civilians and eight soldiers). This was the second such murderous episode along the border in three months. When news of it reached the national media, an outraged citizenry demanded retribution.

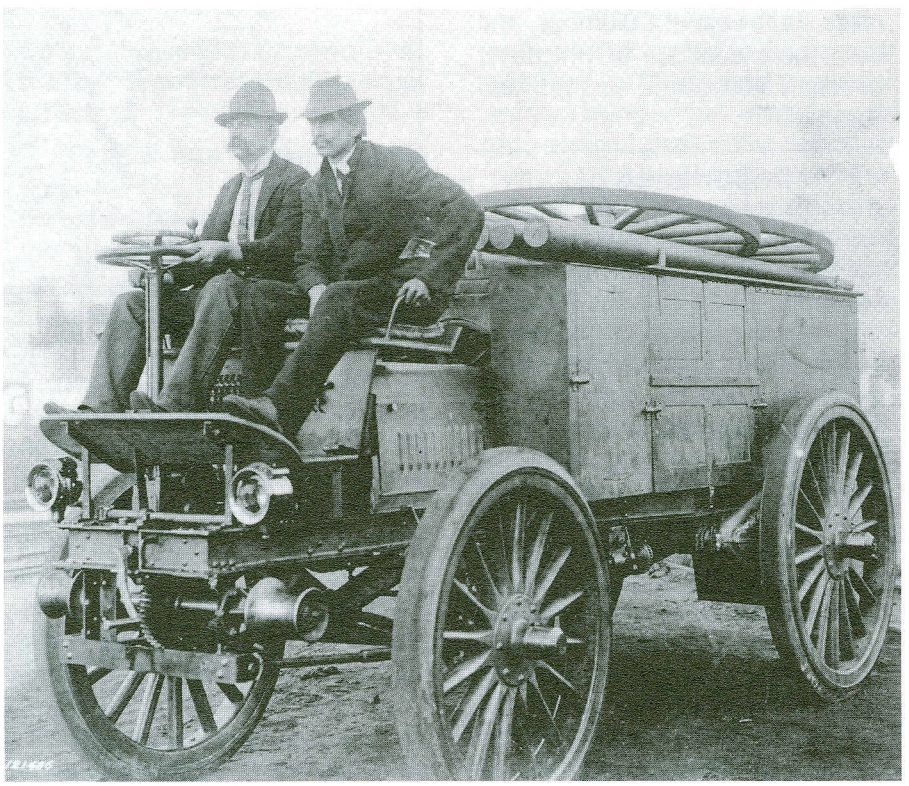
The Wilson Administration quickly dispatched additional troops to the area and began mobilizing the National Guard. In the meantime, Brigadier General John J. "Black Jack" Pershing, commander of Fort Bliss, TX, 125 miles east of Columbus, was ordered to lead a cavalry-heavy force south of the border in hot pursuit of the fleeing Villistas. The subsequent year-long operation--known in American military history as the Punitive Expedition--would eventually include a force of 10,000 Regular Army soldiers ranging over thousands of square miles in northern Mexico. General Pershing never achieved his primary objective of capturing the elusive Villa. However, he effectively disrupted the wily leader's marauding band and secured the border against future incursions, before being called away to head the American Expeditionary Force (AEF) to Europe the following spring.

Looking back, one is tempted to view the Mexican venture as puny rather than punitive, a mere dress rehearsal for the real thing. In fact, though, it was a wrenchingly difficult campaign from start to finish, a campaign that taxed both the spirit and ingenuity of those involved. It also marked an important turning point in the evolution of our military establishment.

The border incident flared up at a time when the U.S. Army was still adjusting to nearly a decade and a half of constant reform and reorganization. New ideas, methods, weapons, and equipment were drastically changing the face of battle in the modern era. The Old Army was making way for the New. One modern observer has rightly called the Punitive Expedition "the last of America's nineteenth century wars and the first of those of the twentieth century."

No Easy Task

To start with, General Pershing faced enormous obstacles from both the climate and terrain. His area of operation encompassed most of Chihuahua province, a sparsely populated, semiarid region offering relatively little food, water, or forage. Daytime temperatures soar in early spring, making it oppressively hot, while nights are below freezing. The high-peaked Sierra Madre Mountains formed a virtually impenetrable barrier along the western portion of the state. To the east, traffic was confined to a thin network of unimproved dirt roads running from town to town--not what one would hope for when conducting a maneuver-type campaign. Movement through this "little known and entirely unhandy country," as one old soldier put it, was further hampered by bad maps, a hostile population, and lukewarm support from the host government.



As early as 1907, the Quartermaster Corps experimented with motorized vehicles.

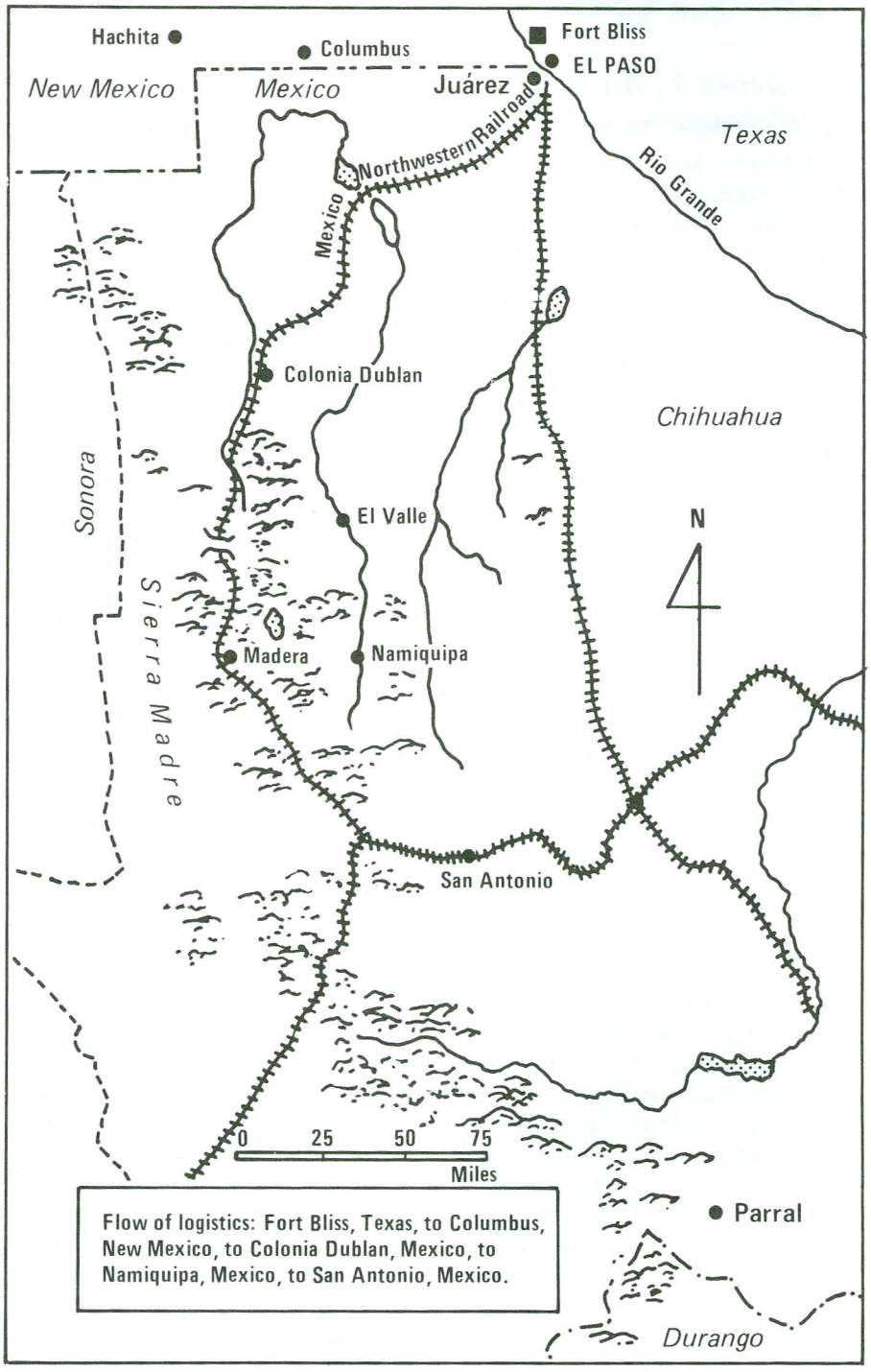
General Pershing's order of battle initially consisted of two reinforced cavalry brigades, one reinforced infantry brigade, and a battalion of field artillery. The infantry units were on hand to protect the lines of communication and ensure the cavalry's safe return in case of a general uprising. General Pershing was also to receive reconnaissance support from the newly created 1st Aero Squadron, then part of the U.S. Army Signal Corps.

With very little time for preparation, General Pershing decided to attack in two swift-moving columns, one from Columbus, NM, and the other from Hachita, AZ, 40 miles west at a place called Culbertson Ranch. (See map.) These forces were to converge in the vicinity of Ascension, Chihuahua, about 60 miles southwest of Columbus, and from there continue in whichever direction intelligence sources indicated.

Importance of Sustainment

Mission success clearly depended upon quickness, good intelligence gathering, and an unbroken flow of logistical support. In particular, it was the commander's intent that no activities should falter for want of supplies. General Pershing's original supply plan called for using the Mexican Northwest Railroad to haul goods directly from El Paso to Colonia Dublan, and from there as far south as possible along the line of march. Pack trains and escort wagons would be used to transship material from the railheads to the troops themselves. It was assumed that all other necessary items could be procured locally by issuing invoices and receipts.

LOGISTICS ROUTE



Flow of logistics: Fort Bliss, Texas, to Columbus, New Mexico, to Colonia Dublan, Mexico, to Namiquipa, Mexico, to San Antonio, Mexico.

Punitive Expedition of 1916: Area of Operations

As it turned out, this time-honored system of local procurement fell flat. U.S. Army supply soldiers quickly discovered that Mexican farmers regarded their official receipts as mere "scraps of paper," and would accept nothing short of cold cash. (Consequently, unit commanders often had to dip into their own personal funds for local purchases.) This, though, was only a minor disappointment. Far more devastating was Washington's failure in its early efforts to secure use of the Northwest Railroad. For the immediate future

at least, General Pershing was told that he would have to come up with alternate means of transportation.

On March 15, just six days after Columbus was sacked, the first cavalry column crossed the border into Mexico. It passed through Ascension and reached Colonia Dublan on the 17th, where it was joined by the second column a day later. Quartermaster pack trains followed behind with less than five days forage and rations. When these ran out, advancing units had orders to begin living off the land.

Major General Frederick Funston, Commander of the U.S. Army's Southern Department at Fort Sam Houston, TX, was responsible for funnelling supplies from El Paso (the zone of interior, so to speak) to the base depot at Columbus. From there forward it was General Pershing's job, or rather that of his chief quartermaster, Major John F. Madden, to set up and run the main supply route.

As his first priority Major Madden had to see to it that the base depot gained some semblance of order and efficiency. Columbus at the start was a complete mess! Daily shipments of every class of supply were arriving by the tons in unmarked wagons, trucks, and train cars. Since few storage facilities were available, work crews simply offloaded material by hand and stacked it in the open in massive heaps, wherever space permitted.

Well before the base area's sorting out process could be completed, Major Madden opened a second (intermediate) depot at Colonia Dublan. By the end of March the main body of troops had gone more than 300 miles south, and two advanced depots were started at Namiquipa and San Antonio. Dozens of other tiny supply and maintenance points cropped up at various locations in between. This, in effect, constituted the main supply route.

Pack mules and wagon trains still played a vital role in the Punitive Expedition of 1916.

Once the Wilson Administration proposed and U.S. Congress supported the Punitive Expedition, and the "pipeline" to south Texas was turned on, getting supplies to the area in the amounts needed was not that difficult. Key industries were already gearing up to support the Allies in Europe. At the same time, several of the nation's leading railroad executives eagerly volunteered their services in an effort to hasten the flow of supplies to the border. Getting those same supplies to the fighting front, however, posed a much greater challenge. The problem, of course, was LACK OF TRANSPORTATION.

Denied use of the main railroad running through the theater of operations, General Pershing's quartermaster had to look elsewhere for support. He recognized early on that, owing to the peculiar nature of the theater and the type of warfare being waged, animal-drawn wagons and pack trains could not carry the full burden of supply. Fortunately, new technology offered an alternative in the guise of motorized vehicles. "The big story in army logistics during this period," one recent author observed, "was the development of the truck."

Establishing Motor Truck Companies

The U.S. Army had been experimenting with various types of motorized vehicles off and on for nearly a decade. As early as 1907, the Quartermaster Department procured a 5-ton supply truck and put it into service around Philadelphia. The first field maneuvers were conducted in 1909 using trucks borrowed from key manufacturers. As interest grew with each passing year, more serious experiments

'The campaign also taught another hard lesson, namely, the importance of repair parts or today's Class IX supply items.'

were undertaken. Also during this time, company-grade quartermaster officers took to visiting auto companies throughout the Midwest.

Two long-distance test runs in 1912--one from the nation's capital to Fort Benjamin Harrison, IN, and the other from Dubuque, IA, to Sparta, WI--showed that gasoline-powered vehicles were both durable and dependable, when driven over fairly good roads. The U.S. Army drafted its first vehicle specifications in 1913, then purchased a handful of trucks for use in cities and on posts with suitable roads here and abroad.

By 1915 the U.S. Army had satisfied itself that motorized vehicles were "entirely dependable, even over difficult roads." Evidence further suggested a 1 1/2-ton truck was probably best suited for all-around field service. Thus, the Quartermaster Department issued revised specifications and put forth a new Motor Truck Company table of organization. (See Figure 1.) By then, too, a growing number of U.S. Army officers had either read about or witnessed firsthand the successful employment of trucks on the Western Front.

In the aftermath of the Villa incident, quartermasters along the south Texas border hurriedly appropriated what trucks were available and rushed them to Columbus. As soon as the 1st Aero Squadron arrived and was unpacked, it also turned over to the local supply officer 12 flatbed trucks and a portable repair shop. These helped of course. But more trucks were needed and quickly for General Pershing to shore up his already threatened line of communications. Luckily, a remedy was already in the works.

On March 11, 1916, the day after General Pershing was ordered to Mexico, the Southern Department requested two of the newly designed motor truck companies to support the Punitive Expedition. The Quartermaster General's Office answered this request in truly record-breaking time. Bids went out on March 14th. Within hours, contracts had been signed with the White Motor Company in Cleveland, OH, and the Jeffery Company in Kenosha, WI, for the purchase of 54 1 1/2-ton trucks. The "Jeffery Quads" differed slightly in that they were four-wheel-drive vehicles.

A special southbound freight train carrying the trucks and their factory-sponsored civilian drivers left the Great Lakes region before daybreak on the 16th and arrived at El Paso less than 48 hours later, having covered a distance of more than 1,500 miles. A team of mechanics worked around the clock off-loading and assembling the vehicles and then bolting escort wagon bodies onto the chassis in place of regular truck bodies. During the time it took to complete this work, the civilian drivers were armed and outfitted--and made ready to move out.

Truck Company No. 3, composed of White trucks, was the first to leave El Paso and journey the 125 miles to Columbus. No one involved had had any previous experience in this type of activity, including the company commander, who positioned himself at the head of the column in a Dodge touring car and signaled the rest to "head 'em up." He and the rest quickly learned that motorized convoy duty was anything but a "white collar Job." Figuring the trip would last maybe a few hours, it took them a whole day instead.

Truckmaster	1
Assistant Truckmasters	3
Machinist	1
Helper	1
Cook	1
Watchman	1
Trumpeter Messenger	1
Chauffeurs (27 motor trucks, 5 motor cycles)	28
Total personnel	37

Quartermaster Truck Company
Table of Organization (1915)

Figure 1.

Truck Company No. 4 with its "Jeffery Quads" followed suit, and both companies managed to rendezvous at the base depot on the 18th. There they rested just long enough to load up with supplies before shoving off for Colonia Dublan.

Down the Trail

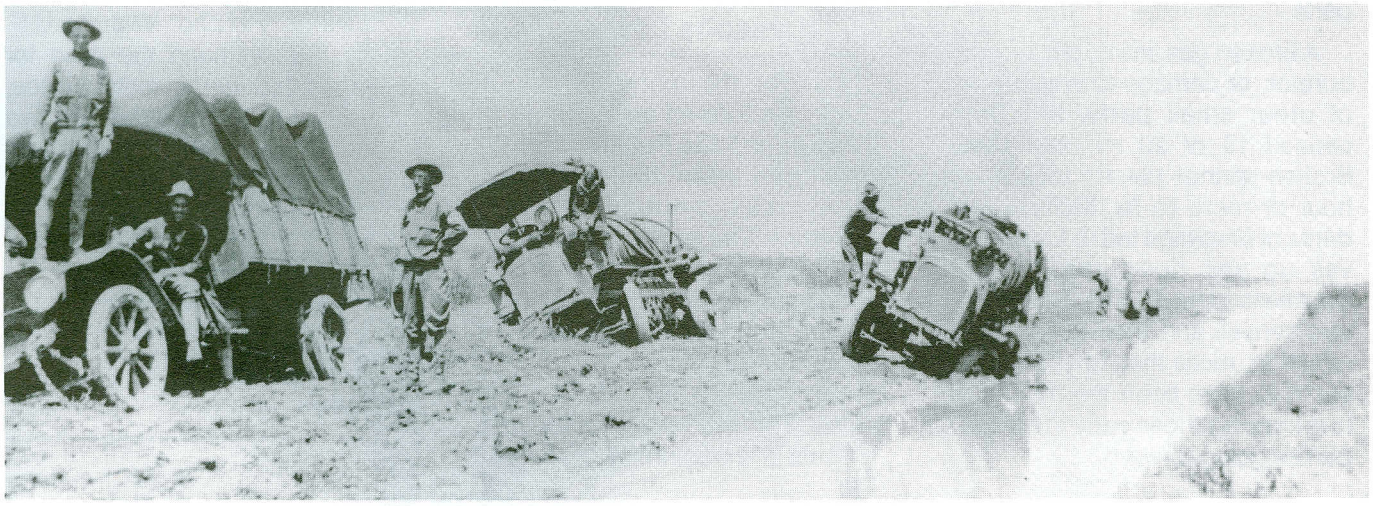
Ten truck companies were formed for use in the Punitive Expedition by the end of June 1916. The U.S. Army in this case did a very practical thing. It invited manufacturers to supply them with trucks, drivers, and maintenance personnel; and in effect, turned this venture into one gigantic field training exercise. The Jefferys and Whites were soon joined by Macks, Packards, Locomobiles, Peerlesses, Velies, and a host of other lesser-known vehicles on the trail leading south from Columbus. Members of the Quartermaster Corps thus got an unprecedented opportunity to observe, take notes, and judge for themselves the advantages and disadvantages of each. In time they also experimented with tracked vehicles, wreckers, and mobile repair shops. They also improvised by mounting automatic weapons on top of vehicles and by placing flanged rims over rubber tires so that some trucks could run on railroad tracks.

Civilian representatives servicing the line into Mexico noted that this was without exception "the hardest test of motor transportation they have ever seen." The first to venture out had a relatively easier time of it. They simply followed the wagon ruts across the desert floor or stayed within sight of the Signal Corps telegraph line. As long as the ground was hard and still fairly flat they could move right along; but as more and more trucks poured onto the trail, the ruts grew into deep furrows and eventually acquired large gaping potholes. Hurrying along these washboard roads, slamming headlong into monstrous chuckholes was, as one driver said in typically understated fashion, "not conductive to good humor."

Road conditions deteriorated to an awful degree once the rainy season set in. For a while the "quads" managed to keep going while others could not. However, as whole lines of trucks eventually sank past their bumpers in muck and mud, movement forward came to a virtual standstill. Momentarily at least, General Pershing had to forsake technology and again rely on the old tried and true--Army mule.

Maintenance and Repair Parts

The terrible roads, heat, rain, rocks, and mud did more than just aggravate drivers. They also took a tremendous toll on the vehicles themselves. Parts got twisted and bent, springs broke, and wheels (even solid disc steel wheels) collapsed or snapped in two because of the strain and constant pounding. It was a heart-breaking experience for drivers when a wheel broke in the middle of the desert and no spares were left. Their only alternative was to transfer as much of the load as possible to another



Mexican roads often got the better of General Pershing's trucks during the rainy season.

vehicle and move on. Many became fairly adept at making spot repairs.

When the convoy reached a bivouac area and everyone else rested, the drivers remained awake pulling maintenance well into the night. One truck company commander, who wrote about his experiences afterward, said that repair and maintenance was indeed the most difficult problem of all. The U.S. Army after all had plenty horseshoers, saddlers, and wheel-wrights, but few mechanics and no viable system for issuing repair parts.

The base quartermaster at Columbus in due course set up a small repair shop, with a crew and overseer furnished by the Locomobile Company. They worked outside at first, in the heat and cold, since no buildings were available. As the crew got better, they managed to conduct more thorough inspections of returning vehicles and even performed major overhauls. This was the only fixed facility during the campaign, however. Standard procedure relied on drivers carrying with them basic tools and a large assortment of the most commonly needed repair parts.

A broken gas line or choked carburetor, or damage to any number of other small parts, invariably caused 15 or 20 minutes delay. Broken springs usually took a half hour or more to fix. Multiple incidents of breakage led to frayed nerves up and down the line and countless delays. The drivers' inventiveness and their sheer determination, more than anything else, seem to have been the major factors keeping those early truck companies going forward.

Quartermasters also learned with each passing day the importance of collecting and recycling parts. Yet it was a lesson that bore constant reemphasis. In one case, for example, an officer carefully removed an entire engine from a damaged vehicle and deposited it in a storehouse at Colonia Dublan for use as spare parts. Unfortunately it was treated as junk and gotten rid of in a week.

Perhaps, though, no worse fate could befall a vehicle than to abandon it alongside the road for any length of time. For as sure as the sun rises, it would fall prey to scavengers. Knowing this, one cautious company commander had a disabled vehicle painstakingly towed to El Valle. He promised to return in a week with the few minor parts needed to fix it. By the time he got back, it was picked clean! Nothing was left but a bare chassis, gracing the desert floor like some forlorn bleached skeleton. The only recognizable part was a single headlight, which, the young officer could not help but notice, was fastened to the roof of an adobe guard house.

Lessons Learned

Despite the many difficulties, trucks performed far more effectively during the Punitive Expedition than even their warmest advocates could have anticipated. The experience led the U.S. Army to revamp its motor vehicle policy and doctrine and to launch a dramatic expansion of its truck inventory (from 600 in June 1916 to 82,500 in June 1918). This marked, if not the end, at least the beginning of the end of an age-old reliance on animals in warfare.

For the Quartermaster Corps, the 1916 venture constituted a series of lessons learned. It demonstrated, for example, the importance of having trained drivers and mechanics. It also demonstrated the need for specialized vehicles, such as tanker trucks, tractors, wreckers, and mobile repair shops. After witnessing firsthand the flaws and shortcomings of various vehicles in the Mexican campaign, the Quartermaster Corps was able to recommend to manufacturers a host of modifications for better endurance and easier maintenance--such things as sturdier frames, higher ground clearance, larger fuel tanks, and the addition of kerosene lights and tubular radiators.

The campaign also taught another hard lesson, namely, the importance of repair parts or today's Class IX supply items. All too often General Pershing's supply convoys fell victim to the "for want of a nail" syndrome and were stopped dead in their tracks for hours, sometimes days on end. Thanks to "Pancho" Villa the U.S. Army saw firsthand the need for standardized parts, maintenance, and supply and spent the next two decades acting on that all-important lesson learned.

Dr. Steven E. Anders is the Quartermaster Corps Historian, U.S. Army Quartermaster Center and School (PROV), Fort Lee, Virginia.

OUTFITTING THE FORCE: ECWCS - A FRIEND IN THE FIELD

CPT Daniel G. Grassi

The Extended Cold Weather Clothing System (ECWCS). Just the sound of it makes you shiver. However, as the new state of the art in U.S. Army cold weather clothing, the ECWCS will do everything but make you shiver in the field. Since its initial fielding, the ECWCS has become a true friend to soldiers Armywide.

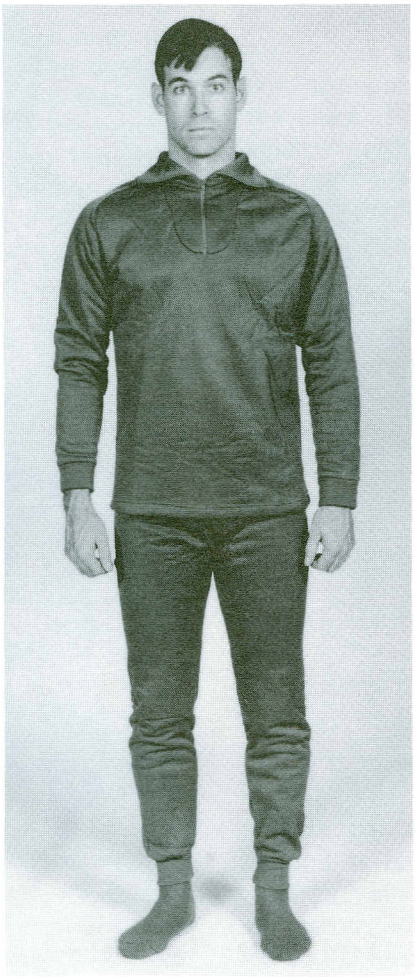
The mission of today's field soldier demands mobility, durability, and flexibility on the battlefield. The ECWCS design gives soldiers the best protection while allowing them to accomplish their mission.

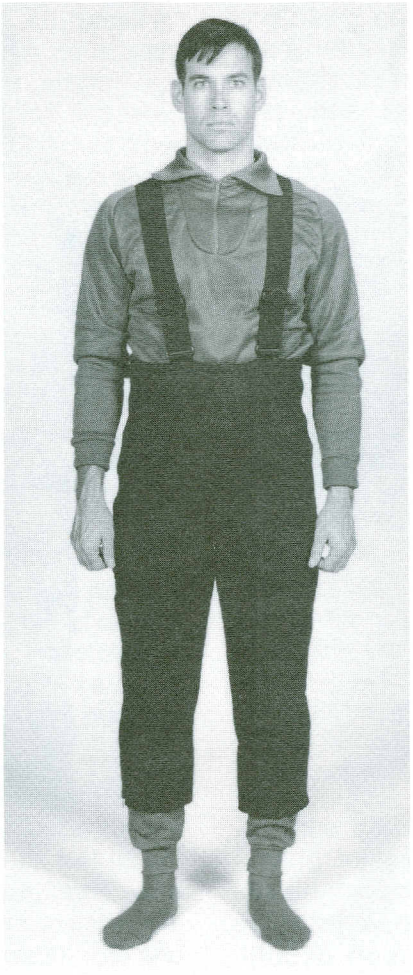
Comprised of 23 different items, the entire system weighs approximately 18 pounds and consists of everything from headwear to footwear. GORE-TEX, a polyester fiber, and polypropylene are the basic materials in the system. They work together to draw moisture away from the body so the soldier will stay warm and dry. Layering the components adds to its effectiveness and makes the system adjustable to match personal preference.

SUCCESSFUL TESTING

Tested successfully at the U.S. Army Cold Region Test Center (CRTC), Fort Greely, AK, ECWCS will provide adequate protection from 40 degrees to minus 60 degrees. The items currently most available are the parka, cold weather shirt, trousers, and polypropylene undershirt and drawers. As the basic items of the system, they have a combined cost per soldier of approximately $325. With the high cost of ECWCS and the ever-increasing limitations on funding, proper wear and maintenance of the system are essential.

While outfitting the 6th Infantry Division (Light) in Alaska, I personally encountered many challenges with the system and its application to a light division soldier in the field. The lessons learned from these challenges should help





educate us as logisticians, so we can provide better service to our soldiers and supported units.

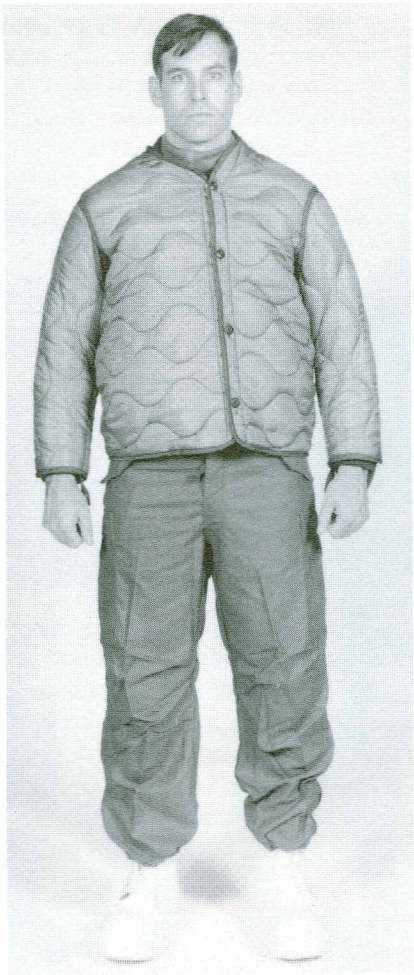
SIZE LIMITATIONS

Be aware that the U.S. Army allows ordering only 15.1 percent of the parkas and undershirts and 19.5 percent of the cold weather shirt in sizes "large" or "extra large." This is not adequate for a U.S. Army division because of the layering concept of the ECWCS and the larger size of today's soldier. This limitation of sizes requires significant modification. Difficulties with the contractors for ECWCS and limited size availability will contribute to longer order ship time (OST) for most installations.

PROPER FITTING

Today's soldiers require adequate clothing with proper fit in order to move on the modern battlefield. Unlike other cold weather clothing used today, ECWCS requires a tight, snug fit. Correct fitting will hold in the natural body heat while allowing perspiration and moisture to filter through the ECWCS system. Soldiers in a cold weather environment normally want clothing that fits loosely and has many layers. They will want to wear T-shirts, civilian articles, and the ever-popular wool sweater in an attempt to stay warm while in the field. Beware! Wool and cotton act as a "sponge" and hold moisture close to the skin, actually causing the soldier to become cold faster. Thus, wearing the wool sweater will severely reduce the protection provided by the ECWCS and should be avoided.

The layering concept , though a great contribution to the effectiveness of the system, becomes a challenge when fitting soldiers with the ECWCS. While personally fitting 2,500 soldiers at Fort Richardson, AK, I became aware firsthand of the difficulties. A relatively small soldier,



layered and fitted correctly, will actually require a medium-sized or even large parka as the outergarment. This experience equates to a need for an even greater modification to limitations on ECWCS sizes that can be ordered. Mission requirements, training environment, weather, and personal experience will contribute to how to fit soldiers with ECWCS. Remember that a proper fit is essential for maximum weather protection and will greatly increase a soldier's safety in the field.

MARKING/ IDENTIFICATION

With its high dollar value, proper identification will greatly contribute to ECWCS accountability at all levels. The composition of the materials used in the system prohibits sewing of any kind. Any punctures or snags to the material severely limit repellency. The parka has a tab for pinning rank. However, the parka has no space allocated for a soldier's name. The shirt was not designed to be worn as an outer garment; therefore, the need for personal identification was not realized. However, the need for identification in the field during a cold weather exercise, such as Brim Frost in Alaska, definitely exists.

Picture yourself walking into a tactical command post for a mission brief. Inside the tent, the Yukon Stove is burning as the staff prepares for the brief. Realizing that it is quite warm inside the tent, you take off your ECWCS parka. Suddenly you have become one of the rank-less and name-less many inside the command post. Who is who?

Someone who has experienced this common situation will quickly see the need for marking the ECWCS in some way. In the 6th Division, we established a policy for printing the soldier's social security number on the inside flap of the parka with indelible ink. This method assists the soldier in both personally accounting for the item and in turning in the item to the Central Issue Facility(CIF). It represents a quick fix but certainly does not solve the actual problem of identification.

MOBILITY/DURABILITY

The lightweight construction of the ECWCS is a definite advantage for mobility in the field. The soldier no longer has to worry about the weight of bulky clothing while moving around to complete a mission. However, mobility is quite restricted in the ECWCS because of its tight fit and difficult "break-in" phase. The snug fit is particularly binding under the arms and through the chest. This binding increases when wearing the rucksack or other field equipment. The break-in phase of the clothing will become easier with continued and active wear.

The durability of ECWCS became highly questionable during Brim Frost '89 as the temperature remained in the minus 50-70 degree range. Zipper construction seems to be weak and prone to breaking or jamming. Once broken, this increases the possibility of tears to the material and also makes the item unserviceable. The GORE-TEX material of the parka and trousers tends to be flammable, and caution must be used when near stoves or hot pipes. Many parkas were turned in to the CIF because of burns or melted material.

Perhaps the most common ECWCS concern in the field centers around its reaction to fuel. It becomes very brittle, stiff, and dangerous when the material absorbs the fuel. Petroleum, oils and lubricants (POL) units should exercise extreme caution or, like the 6th Division, look for alternatives in cold weather clothing protection for fuel handlers.

These maintenance concerns may seem minor now. However, these hindrances can significantly limit a unit's ability to accomplish its mission in a cold weather environment.

LAUNDRY CONCERNS

As with other items of Organizational Clothing and Individual Equipment (OCIE), the individual soldier signs for the ECWCS items from the CIF on the personal clothing record. All items are recoverable; therefore, the soldier must maintain equipment properly. Following correct laundry procedures will enhance the equipment's durability as well as maintain its appearance. Like other items of OCIE, the ECWCS should be taken to the local Quartermaster laundry facility for cleaning.

The U.S. Army Natick Research & Development Command, Natick, MA, has developed basic wash formulas for the ECWCS items. Most Quartermaster laundries are either government owned-contractor operated or contractor owned-contractor operated, and the contractor cannot be required to use the prescribed formulas for cleaning ECWCS. Contractors are responsible for restoring items to their intended appearance using wash formulas of their own choosing. Government personnel responsible for contracts should monitor these formulas to ensure damage does not occur.

Other challenges will arise while trying to maintain the ECWCS through the laundry process. Shrinkage and excessive matting (loose fiber balls) are likely,

especially on the shirt and underwear. Matting causes a very poor appearance and leads to a breakdown in the material's effectiveness. Soldiers have complained that the positioning of the care label irritates their skin, and they will try to remove the labels. This practice can cause problems in two ways for commanders as well as for logisticians. The soldier is accountable for each item by size, and removal of a label will make an item's size an unknown. Also, most Quartermaster laundries will not launder an item of OCIE with no specific care label attached. Unlike the white, long underwear currently in the supply system, ECWCS underwear is recoverable and can be reissued. This will likely cause a morale problem among soldiers.

PROBLEM SOLVING

The seemingly small problems discussed in this article will become quite large to logisticians in the field. They will also become very important to commanders and soldiers who depend on their equipment to survive in the field. As with many other systems, the ECWCS was fielded before all the "bugs" were removed. Granted, we cannot solve all the problems first. However, it is very demoralizing to field soldiers to have equipment that does not fit properly, work correctly, or restricts their movement. It was very difficult for me to tell soldiers in Alaska to "try to rough it during Brim Frost and hopefully afterwards we will have something better for you." Issues which affect the health and welfare of the soldiers are of utmost importance to us as logisticians.

There is very little knowledge of ECWCS at the unit level. If you ask about it, many of the responses will be in the form of a question such as "What is it?" There is a videotape and a "use and care" booklet available, but they are in very limited numbers and do not go in to sufficient detail. There are many government agencies directly involved in the development, design, and supply of the system. This makes it very difficult to determine the agency concerned with a particular problem area.

Each agency is doing good work regarding the system: the difficulties arise with us at the user level. There needs to be continued testing and development of the ECWCS by these agencies so that the soldier will be best suited to accomplish the mission. Commanders need to take it upon themselves to become as familiar as they can with the system. This is our system as soldiers, and it will be our responsibility to take care of it.

CONCLUSION

The Extended Cold Weather Clothing System is and will be a true friend to the soldier in the field. It will protect the soldier from the weather, improve morale, and further enhance the ability to accomplish the mission. As logisticians we should take our mission of providing the best equipment possible very seriously. Field soldiers are the key to today's Army and they deserve the best. Let's give it to them!

CPT Daniel G. Grassi, currently a student in the Officer Advanced Course at Fort Lee, Virginia, was formerly Chief, Retail Services Branch, Directorate of Logistics, United States Army Garrison, Alaska. He was responsible for budgeting, ordering, receiving, issuing, and resupplying the Extended Cold Weather Clothing System (ECWCS).

SOLDIERS IN SPACE

LT Stephen D. Loughnane

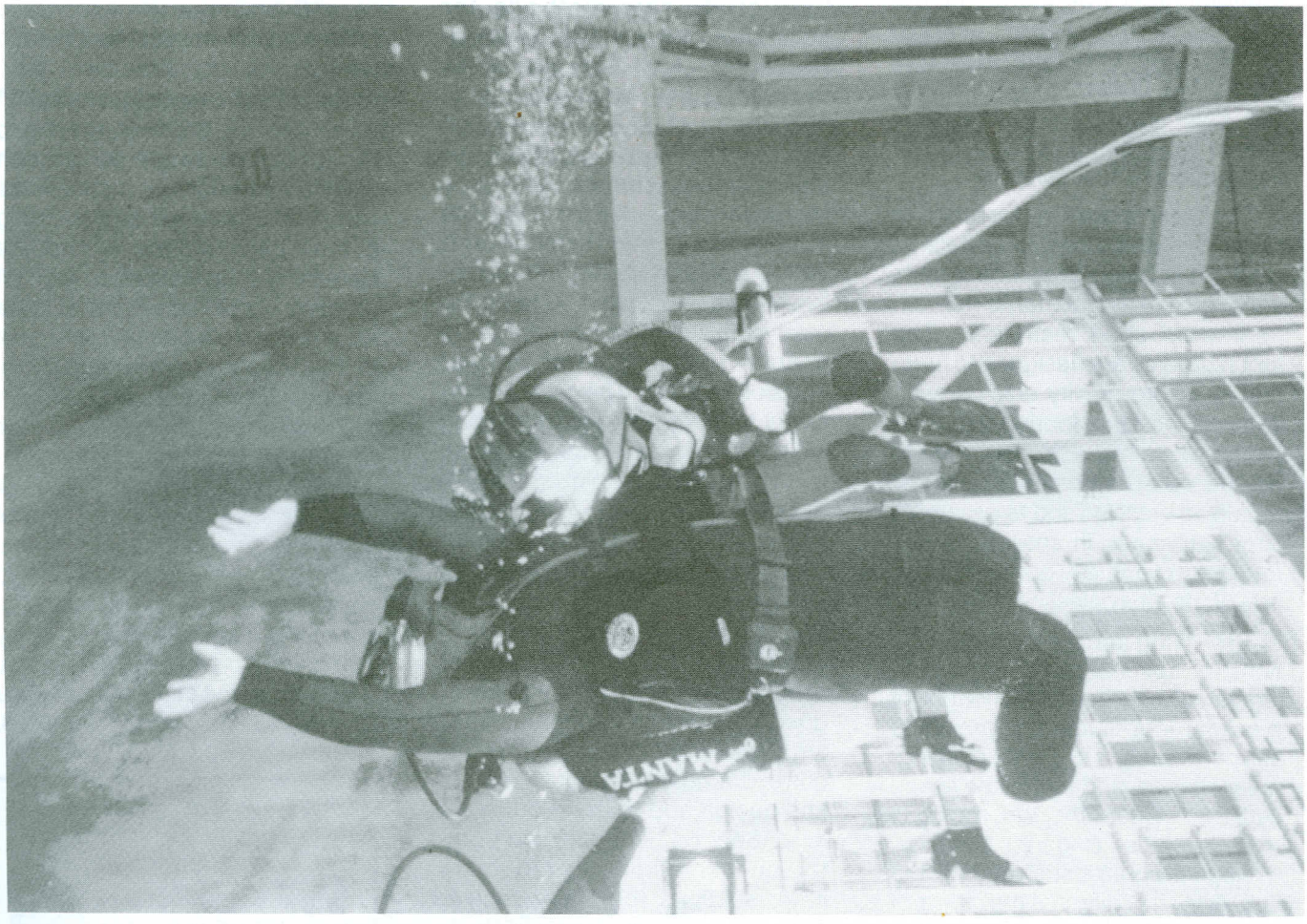
As the United States expands its space program, logistics support and planning for space operations takes on greater importance. The National Aeronautics and Space Administration, in cooperation with private industry, seeks to deploy a number of satellites as well as the space station "Freedom." These ambitious projects will require the support of superior logistics systems.

During his Training With Industry (TWI) assignment with McDonnell Douglas Space Systems Corporation (MDSSC) in Huntington Beach, CA, MAJ Samuel L. Gallagher assisted its Space Logistics Program team with developing techniques and tools for the maintenance and repair of satellites and also the construction of large structures in space. His assignment was just one of many challenging opportunities available to Quartermaster officers participating in the program.

"The main purpose of the TWI program is to allow us to learn civilian managerial and operational techniques so that we can use them as officers," said MAJ Gallagher, who was a captain when he worked with MDSSC from August 1988 through May 1989. He left the TWI program after 10 months instead of the usual 12 months because he was selected to attend the prestigious Command and General Staff College (CGSC), Leavenworth, KS.

TWI officers work with a civilian firm for one year and then apply their acquired skills during a three-year utilization tour. For example, following completion of CGSC, MAJ Gallagher may be assigned to a wholesale logistics position.

TWI provides opportunities for Quartermaster officers to receive practical experience in procurement, contract administration, and the design and development of innovative systems and products.



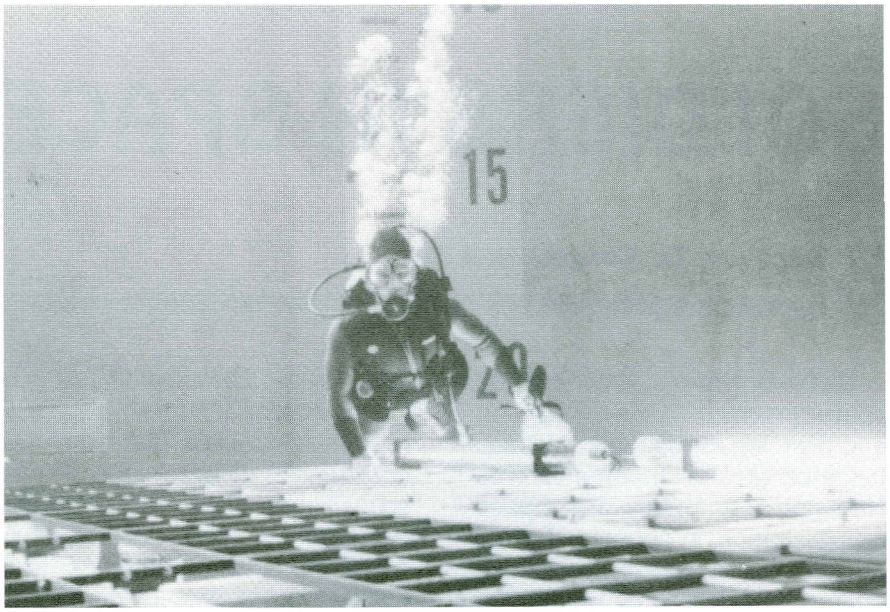
Quartermaster MAJ Samuel L. Gallagher performs a backward movement underwater as he evaluates foot restraints on lunar boots.

While at MDSSC, MAJ Gallagher assisted in procuring parts for the Delta rocket, Titan 34-D, and the space station. In addition, he received training in contract performance systems and participated in planning logistics requirements, provisioning, material flow, packaging, integrated logistics support analysis, and life cycle costing.

However, his work with the Space Logistics Program team proved to be his most exciting experience with MDSSC. Research conducted by the Space Logistics Program seeks to develop techniques and tools used to maintain satellites and large space structures such as the orbiting space station. Evaluation of the newly designed equipment is conducted in the MDSSC Under Water Testing Facility. An experienced scuba diver, MAJ Gallagher served as a test diver during evaluation of a mobile work platform for performing spacecraft maintenance.

The test coordinators again relied on MAJ Gallagher's talents when they discovered one diver's shoe size was too large for experimental shoe restraints. The foot restraints are designed to function in a zero-gravity environment. Without the sure footing provided by the restraints, astronauts would not be able to complete external repairs to vehicles and to assemble large structures in space. His efforts may eventually give birth to an age of the intergalactic foot soldier.

Reviewing the military applications for space logistics, MAJ Gallagher reflected on "the thought of a soldier in a space suit providing support such as food, clothing, maintenance, and fuel to the space station." Currently, the methods may not be evident; however, through programs such as TWI, the U.S. Army has directed the efforts of a number of officers toward finding the answers. Officers who have participated in TWI will maintain liaisons between the military services and industry. The improved communications network will hopefully improve product design and procurement.



Proudly displaying the Quartermaster Regimental Crest on his vest

Therefore, TWI officers learn more than just the effects of changing technology on product design--they study new methods for communicating and ultimately leading people. MAJ Gallagher notes that MDSSC adheres to a philosophy of Five Keys to Self Renewal. The Five Keys are Strategic Management, Human Resource Management, Participative Management, Productivity, and Ethical Decision Making. Participative Management appears to be the catalyst fostering teamwork, group problem-solving, and ethical decision-making. The organization seeks to boost productivity which will ultimately affect strategy and human resource administration.

MAJ Gallagher said his most important learning experience was the understanding of the procurement process. He notes that a number of factors contribute to the increased cost of producing certain items. First, government and military standards and specifications that require documentation for testing and design add to the producer's cost. Second, when the contractor builds a limited production item, such as the Delta rocket, Titan 34-D, or the space station, the start-up cost by suppliers to produce the low volume of parts is greater than the normal mass production line. Though expensive, certification of the manufactured product is absolutely necessary to ensure quality.

This firsthand knowledge of how the industry operates helps improve the military's responsiveness. Overall, the TWI experience proves to be invaluable for each party.

Selection for participation in TWI is competitive. Officers applying to the program must be branch qualified. In addition, a successful company command and a strong overall performance record are necessary. Applications to the TWI program should be submitted in the Autumn for slots opening in August of the following year. Applicants must have two years on station in the continental United States before a permanent change of station (PCS) to a TWI position or must have completed the entire term of their assignment overseas. Officers interested in the program should contact the professional development officer at the U.S. Total Army Personnel Command in Alexandria, VA. The point of contact is CPT Lou Cocker, AUTOVON 221-8119/8123.

LT Stephen D. Loughnane, a student in the Quartermaster Officer Advanced Course at Fort Lee, VA, was S1 (Adjutant) of the 2d Battalion, 66th Armor Regiment, Garlstedt, Federal Republic of Germany.

ARMY'S ONLY ACTIVE DUTY GRAVES REGISTRATION COMPANY DEPLOYS

LT Quinton A. Lewis

The 54th Quartermaster Company (Graves Registration) is the Army's only active duty graves registration company. Its wartime mission is to establish, operate, and maintain a temporary cemetery and collection points. The company conducts search, recovery, identification, evacuation, and interment operations for deceased U.S. military and certain U.S. civilian and allied personnel; disposes of personal effects; and maintains essential records and reports.

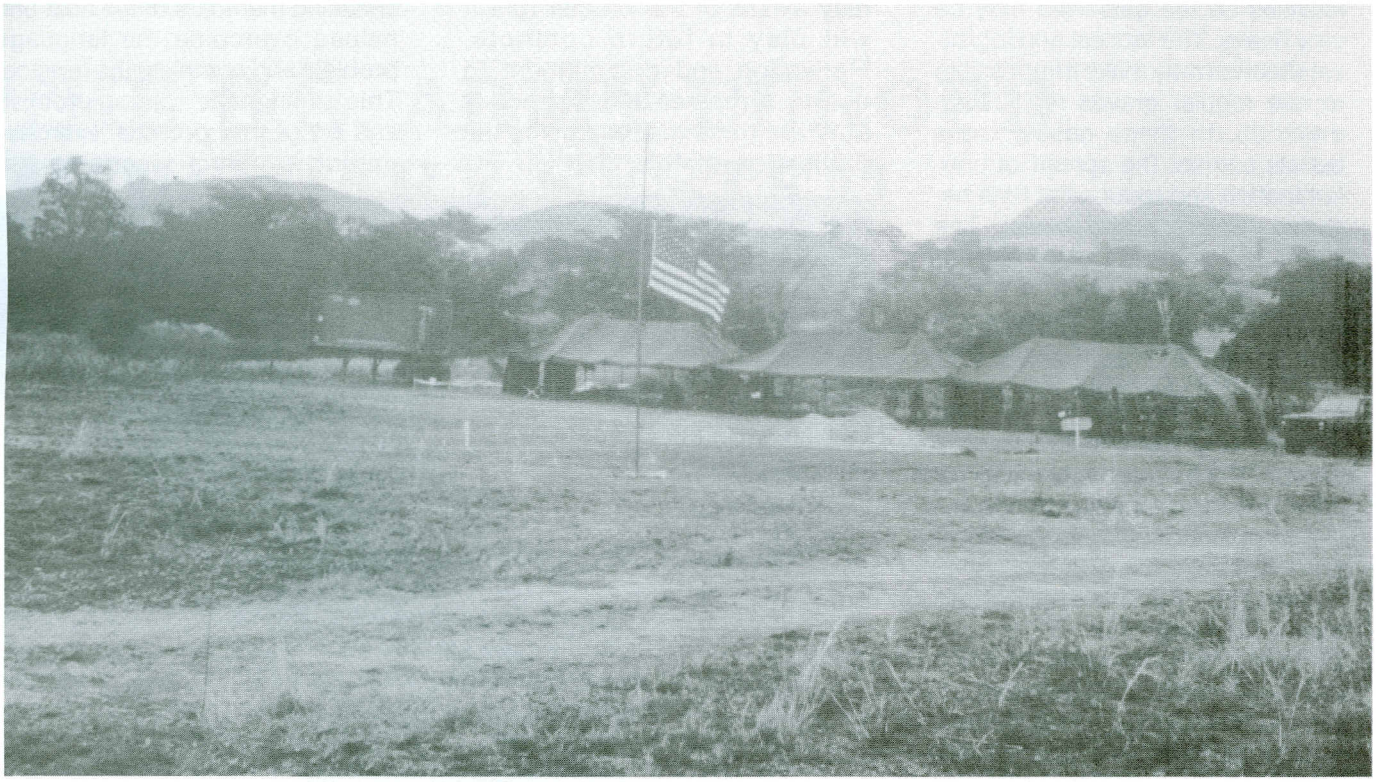
The company at Fort Lee, VA, provides corps-level graves registration and mortuary affairs support. It is organized into one collection platoon, one cemetery and evacuation platoon, a headquarters platoon, and a maintenance section. Its authorized strength is 80 personnel.

The newly activated company recently deployed to Camp Santiago, Puerto Rico, for a field training exercise (FTX) with the 246th Quartermaster Battalion (Graves Registration) (USAR) from 17 July 1989 to 30 July 1989. The 246th is the only graves registration battalion in the Army. In the event of war, the 246th will serve as the 54th's higher headquarters. This marks the first deployment of the company.

The mission of the company while at Camp Santiago was to conduct search and recovery operations, establish a temporary cemetery, and to perform extensive graves registration operations in a nuclear, biological, chemical (NBC) environment. During the five-day FTX, the company conducted numerous search and recovery missions and recovered numerous remains (mannequins).

The temporary cemetery platoon effectively interred all remains received. The company also sent 15 soldiers to the Forensic Institute of Pathology in San Juan for some "hands on" graves registration training. The soldiers worked on new fingerprinting and dental techniques. It also gave the company another chance to work closely with the reservists.

The company received some quality NBC training while deployed at Camp Santiago. Because the NBC training preceded a chemical mission in October 1989 at Fort Lee, VA, the benefits of NBC training in Puerto Rico were immeasurable. The disinterment section of the cemetery platoon trained on the procedures for disinterring remains in a chemically contaminated environment. The training went smoothly and was documented for future use.



Temporary cemetery at Camp Santiago, Puerto Rico, established for a field training exercise

Lowering cemetery flag to half-mast for a burial ceremony

Viewing remains interred for a mass casualty burial

The FTX ended with a mass casualty burial exercise. At times, fatalities on the battlefield may be very heavy. The tactical and logistical situation may make it impossible to use regular graves registration methods. In these cases, mass burials prevent the spread of contamination and reduce the time between recovery and burial. The 246th and the 54th were able to work together and produce a very professional exercise. The exercise gave the participants a realistic look at how mass casualty burials are handled. The benefits for the 54th were twofold. First, soldiers in the company had an opportunity for hands-on training with mass burial techniques and became more proficient in that aspect of graves registration. Secondly, the mass casualty exercise gave the company's command team a chance to evaluate the company on this type of operation. The exercise was a success and set the groundwork and standards that will be followed in future missions.

The 54th Quartermaster Company (Graves Registration) is fully aware of the crucial role it will play in future conflicts. Motivation and commitment to quality, error-free performance of duty are traits that exemplify the dedication of this "PROUD TO SERVE" graves registration company.

A concern for the leaders of the 54th was overcoming the language barrier between their English-speaking soldiers and the Spanish-speaking soldiers of the 246th. For both units to perform effectively on the battlefield, they must be able to communicate. One way the company broke the language barrier was by taking two Spanish-speaking medics and using them as translators. Also, the English-speaking members of the host unit helped overcome the language problem and complete the mission. This willingness to compromise and adapt to a potential exercise-ending problem illustrates the

Checking interment of remains for a mass casualty burial

quality of the graves registration soldiers.

The soldiers of the 54th never forget to give our fallen comrades the respect and reverence they deserve. Their mission is unique, and every soldier is fully aware that the families of their fallen comrades are looking to them to return their loved ones home for proper burial.

The peacetime mission for the 54th Quartermaster Company (Graves Registration) is to assist after military and civilian disasters such as airplane crashes, train derailments, and floods. The company is currently assembling a disaster response team. The company has a response time of 24-72 hours to deploy for any reason. It is imperative that the company maintain a higher degree of training.

The peacetime role of a graves registration company should be one of training and maintaining proficiency in the event of war. The 54th Quartermaster Company (Graves Registration) trains to become tactically and technically proficient to ensure that they give their best to those who gave their all.

Assembling to pay respects to fallen comrades

In summary, the 54th met the challenge of the field training exercise at Camp Santiago, Puerto Rico. The experience gained and lessons learned can only improve the Army's graves registration capabilities. The 54th Quartermaster Company (Graves Registration) has arrived on the Quartermaster scene and will uphold the fine tradition of the Quartermaster Corps.

LT Quinton A. Lewis is a Platoon Leader and Executive Officer of the 54th Quartermaster Company (Graves Registration), 240th Quartermaster Battalion, Fort Lee, Virginia.

THE U.S. ARMY EUROPE MORTUARY SYSTEM

Donald L. Kerns

The mortuary affairs entitlement is not well understood by soldiers or their family members. In fact, experience shows that less than 5 percent of soldiers or their spouses are fully aware of their mortuary affairs entitlement. They have no idea how much it will cost or even where they can be buried.

To help soldiers and their family members understand their mortuary benefits, the 21st Theater Army Area Command, U.S. Army Europe (USAREUR), wrote a handbook. The handbook outlines, in detail, mortuary benefits for active duty, Department of Defense civilian employees, special category personnel such those with the American Red Cross or United Service Organization, and authorized family members.

The U.S. Army mortuary system in Europe began with activation of the 7707th European Quartermaster Mortuary Service on September 20, 1947. The Quartermaster Mortuary Service was located in the German Municipal Cemetery, Frankfurt, Germany.

In July 1952, the unit moved into newly constructed facilities where it has operated ever since. Over the years the mortuary has undergone several name changes. It is now called the U.S. Army Memorial Affairs Activity Europe (USAMAAE), a subordinate unit of the 21st Theater Army Area Command.

Today there are eight military mortuaries in Europe. Three are operated by the U.S. Army, four by the U.S. Air Force, and one by the U.S. Navy. Licensed civilian embalmers staff each of these mortuaries. They assist in the return of remains for final interment as designated by the primary next of kin.

The following excerpts from the Mortuary Affairs Handbook explain who to see and what to do if a soldier, government employee, or family member dies in Europe.

ACTIVE DUTY MILITARY

If an active duty service member dies while in Europe and no primary next of kin is in the command, a summary court officer will be assigned to assist with matters in Europe. Regardless of where the primary next of kin lives, the summary court officer will help settle the deceased's obligations.

The summary court officer will secure, inventory, and prepare the personal effects for disposition as directed by the primary next of kin. The summary court officer also will ensure that a complete Class A uniform is provided from the personnel effects to the U.S. Army Mortuary.

When the death of an active duty service member occurs in Europe and the primary next of kin is present, several things must happen before departing the command.

The commander will appoint a casualty assistance officer who will accompany the next of kin to the military medical facility to complete the required paperwork.

The military medical facility will determine cause of death, verify positive identification, and provide the Certificate of Death.

The casualty assistance office will contact the mortuary office for an appointment and will escort the primary next of kin to the mortuary.

At the mortuary, the mortuary officer will discuss the following burial options with the next of kin:

- Prepare remains for shipment to a stateside funeral home for burial in a civilian cemetery.
- Prepare the remains for shipment to a stateside funeral home and burial in a national cemetery.
- Prepare the remains for a burial in a local overseas cemetery.
- Locally cremate the remains and bury locally in an overseas cemetery.

The mortuary officer will also brief the entitlements provided by the government. These are funeral and interment reimbursement, preparation, transportation, and casket. The mortuary officer will also brief the U.S. Army's policy of escort, cremation, and, when requested, requirements for a local burial.

DEPARTMENT OF DEFENSE (DOD) CIVILIAN EMPLOYEE

A Department of Defense (DOD) civilian can be Department of Army civilian, Department of Air Force civilian, Department of Navy civilian, or Department of Defense Dependent Schools employee. When the death of a DOD civilian employee occurs and the primary next of kin is not in Europe, the commander of the employee will ensure that all requirements are completed. If the primary next of kin is in Europe, there are several things to do before departing the command.

The civilian personnel office will verify employment of the deceased and will assign a casualty affairs officer to assist the primary next of kin. The casualty affairs officer will contact the mortuary for an appointment. The mortuary officer will discuss the burial options available (the same as for active duty personnel). The primary next of kin will select and provide the disposition instructions. The mortuary officer will also brief on the entitlements and the U.S. Army policy (both the same as for active duty personnel).

FAMILY MEMBER OF AN ACTIVE DUTY MEMBER OR DOD CIVILIAN EMPLOYEE

Many of the U.S. Army mortuary's services are offered on a reimbursable basis in the case of a family member's death. Included are the preparation and casket costs. When the death of an authorized family member occurs in Europe, there are a number of things a sponsor must do. The sponsor must go to the military medical facility and complete the paperwork for positive identification and a Certificate of Death.

The sponsor must also get a letter of bona fide dependency from the Personnel Administration Office or the Civilian Personnel Office. The sponsor also will contact the U.S. Army mortuary for an appointment.

The mortuary officer will discuss the burial options available (the same as for active duty personnel). The sponsor must select and provide disposition instructions. The mortuary officer will brief the sponsor on all entitlements and the U.S. Army's policy.

OTHERS ELIGIBLE

For a contractor's technical representative, non-appropriated fund employee, humanitarian agency personnel, their dependents, and requests by the

U.S. Department of State, mortuary services are only authorized on a reimbursable basis. Service includes preparation, transportation, and casket. All funeral and burial charges are paid by the primary next of kin. If the employer intends to pay completely or partially, a letter of intent to pay must be given to the mortuary.

When a U.S. citizen not authorized mortuary support dies in Europe, the nearest U.S. Consulate or U.S. Embassy may assist the family. However, before any service can be provided by the U.S. Army mortuary, funds must be on deposit with the U.S. Department of State.

The U.S. Department of State will provide the mortuary a letter requesting mortuary services. All arrangements for disposition are the responsibility of the primary next of kin.

For copies of the Mortuary Affairs Handbook, write to Headquarters, 21st Theater Army Area Command, Assistant Chief of Staff for Logistics, ATTN: Memorial Affairs Officer, APO New York 09325-3730.

Donald L. Kerns is assigned to Headquarters, 21st Theater Army Area Command, where he is the U.S. Army Europe (USAEUR) Command Mortuary Officer.

SAFETY SAVES SOLDIERS

Catastrophe Avoided During Aircraft Refueling

James R. Clark

A recent accident during hot refueling of an AH-1P helicopter had the potential for catastrophe, but quick action by the air crew minimized injury to the refueler and damage to the aircraft.

The helicopter had just landed at a bulk petroleum facility at Wheeler Air Force Base, Hawaii, on 19 April 1989, for hot refueling. As the aircraft was being prepared for refueling operations, the pilot left the rear seat, as required by field manual (FM) 10-68 (Aircraft Refueling) and the unit's standing operating procedures (SOP). The instructor-pilot (IP) remained in the front seat to prepare the aircraft for refueling.

The pilot, acting as fire guard, stood about 5 feet from the refueler. After the refueler inserted the refueling nozzle into the aircraft's closed circuit refueling port, he rotated the flow control handle to the flow position. The pilot, however, noticed that a small red button at the back of the nozzle was still extended. This red indicator button pops up when the tank is full and automatically shuts off flow.

"Thorough training and proper wearing of protective clothing will prevent accidents or minimize damage during refueling."

About 15 seconds after the refueler started the flow of fuel, he checked the security of the nozzle by rotating the nozzle while the flow handle was still in the flow position. Suddenly, the nozzle disconnected from the receptacle. The full flow of fuel sprayed over the refueler, into the engine inlet, and over most of the aircraft's right side.

The fuel ignited almost instantly, and fire engulfed the right side of the aircraft. The refueler began backing away, still holding the nozzle, but the bonding plug was still attached. Without realizing the back blast from the nozzle had saturated his gloves, the refueler reached for the bonding plug. Consequently, his gloves ignited.

The refueler panicked, dropped the still-flowing nozzle, and ran. Immediately, the pilot began spraying the fire with his fire extinguisher while yelling to

the instructor-pilot to get out of the helicopter.

By the time the instructor-pilot could get out of the aircraft, the refueler realized he was running away from the only source of help. The refueler turned back toward the helicopter. The instructor-pilot caught the refueler, knocked him to the ground in front of the aircraft, and the pilot extinguished his burning clothing with the C02 fire extinguisher. The refueler's injuries were limited to second-degree burns on his hands and arms.

The emergency cutoff switch stopped the flow of fuel. Assisted by other personnel in the refueling area, the flight crew extinguished the fire.

Thorough training and proper wearing of protective clothing will prevent accidents or minimize damage during refueling. Training must focus on preventive measures as well as rehearse the correct reactions to dangerous situations. In addition, training must emphasize the importance of wearing protective gear.

One of the greatest hazards to people who work in potential danger areas, such as refueling, is that their work can become routine. This leads to less vigilance and results in carelessness. One of the ways to guard against this is thorough training.

Continuous training makes the proper reaction to a fire or emergency a habit. Periodic exposure to a fuel fire reminds everyone of the present danger. For example, the refueler in the incident just described panicked and ran away from trained personnel who could help him; this was the wrong reaction.

Also, soldiers who handle fuel must wear the proper protective clothing, including helmets, goggles, hearing protection, gloves, and boots.

According to FM 10-68, there is no special uniform for personnel handling aviation fuels. Therefore, refuelers often wear the standard combat uniform.

The U.S. Army Safety Center, Fort Rucker, AL, recommends that the coveralls worn by explosives handlers be worn also by fuel handlers. Air crew members must be reminded that fire retardant flight suits lose their protective properties when saturated with fuel. These flight suits should be removed, as specified in Chapter 7 of FM 10-68, and laundered.

All aircraft refueling personnel are encouraged to wear protective headgear (either the flyer's helmet or the motorcyclist's crash helmet.) The helmet protects the wearer's head from flying debris, but not from rotor blade impact. The built-in earpieces of the flyer's helmet protect the wearer from hearing loss and contain receivers which, with an attached microphone, provide communication capability with the pilot in the aircraft during refueling. In addition, visors on these helmets protect the wearer's eyes and make goggles unnecessary. A motorcyclist's crash helmet may be worn if a flyer's helmet is not available. This helmet is authorized for ground crew members who work in rapid refueling and for soldiers who work at jobs with a danger of head injury from flying debris. Goggles and earplugs should be worn with the motorcyclist's helmet. Visors on these helmets should also be down during refueling operations.

Personnel who handle fuel should wear leather gloves to protect their skin. However, these gloves do not offer fire protection. Air crew members should wear their flame-retardant flight gloves when around refueling operations. Again, these gloves are not resistant to fuel, but they do give some protection to the skin. The gloves lose their flame-retardant quality after being soaked with fuel and should be replaced.

Fuel handlers should wear standard, rubber-soled, leather combat boots. The soles of these boots will not spark on hard surfaces or slip on oily surfaces. The boots should not have any type of metal taps or cleats. Such metal can cause a spark when hit against a hard surface. Fuel tanks on helicopters are vented under the body of the aircraft, and fuel vapors are heavier than air. This makes any spark at ground level extremely hazardous. Combat boots are not resistant to flammable liquids and can become fuel-saturated. If the boots become soaked with fuel, they should be replaced.

Shirt sleeves should be worn rolled down and buttoned, and shirts should be tucked into trousers. Other safety warnings involving clothing include the following: Do not wear or carry loose items of clothing. Do not carry anything in shirt pockets because items could fall out and cause sparks or drop into a fuel tank. Do not wear jewelry that might spark against metal surfaces.

FM 10-68 covers many additional areas of safety during refueling operations, including bonding and grounding procedures. Refueling personnel should be familiar with this manual and exercise extreme caution at all times when working around fuel and refueling aircraft.

James R. Clark, education specialist, is Safety Officer for the Petroleum and Water Department, U.S. Army Quartermaster Center and School (PROV), Fort Lee, Virginia.

SNAKE IN THE GRASS

LT Aimee L. Kominiak

The pipeline snake stretched for miles throughout the island. The 267th Quartermaster Company (Petroleum Operating), 109th Quartermaster Company attachments, and laboratory technicians from the 23rd Quartermaster Detachment of the 240th Quartermaster Battalion at Fort Lee, VA, had arrived to master it.

Their mission: deploy to Okinawa in August 1989 to conduct fixed Petroleum Distribution System Operations (PDSO) and to operate a Tactical Fuel System Supply Point (TFSSP). The joint exercise, called Habu Sakusen '89 (Snake Exercise), is conducted annually on Okinawa, Japan, an island bordered by the China Sea to the east and the Pacific Ocean to the west. The 505th Quartermaster Pipeline and Terminal Operating Battalion hosts the yearly Snake Exercise with support from the 10th Area Support Group headquartered in Japan. The 505th's main objective was for the 267th to augment the 505th in simulated wartime conditions while providing the stateside soldiers hands-on training in petroleum operations. The 115 soldiers from Fort Lee also supported the Bulk Fuel Company, 9th Engineer Support Battalion, U.S. Marine Corps (USMC).

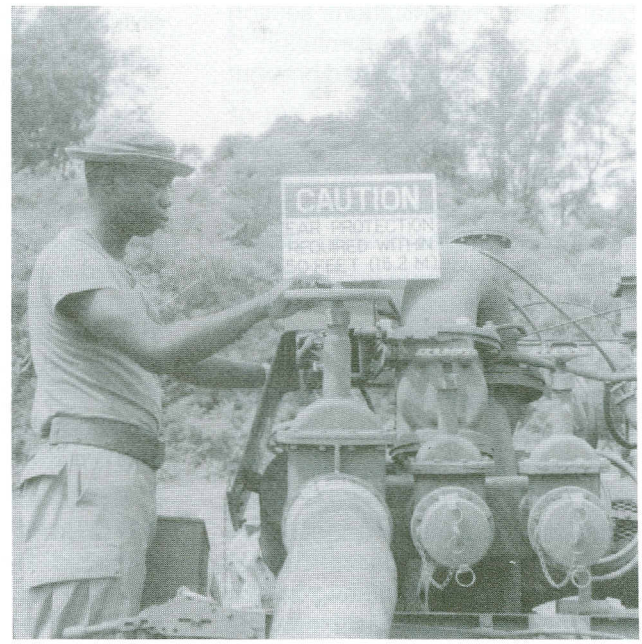
Training on the fixed PDSO was a rare opportunity for the petroleum supply specialists from Fort Lee. The first platoon on the system trained to operate and defend two district terminals. Half of the platoon went to Kuwae District Terminal and the other to Chimu Wan. Chimu Wan, the more extensive of the two terminals, has many capabilities including an offshore tanker discharge facility with both a monobuoy system and a three-legged mooring system, two systems to receive fuel from ocean-going tankers. JP4, JP7, motor gasoline (MOGAS), and diesel fuels are off-loaded and stored at one of three tank farms. Fuel is transferred by 8-inch pipelines from Chimu Wan terminal through Kuwae terminal to the Marine Corps Air Station, Futenma, and the U.S. Air Force's Kadena Air Base.

Kuwae District Terminal receives, stores, and issues JP4 and MOGAS. The terminal, next to Kadena Air Base, consists of two tank farms. Most significantly, the terminal supplies MOGAS to all Department of Defense (DOD) activities on Okinawa.

Training consisted of 505th personnel conducting classes and hands-on training at each location. Training included gaging tanks, blending additives, measuring American Petroleum Institute (API) gravity, and using forms to account for the fuel. The most significant training was learning to operate all pumps and also the proper way to start and stop pumping operations. Training culminated in 267th soldiers operating the terminals with minimum supervision from the 505th.

In simulated wartime conditions, the 267th would not only operate the petroleum distribution system, but defend it as well. The 505th developed a defensive plan for each terminal. As threat conditions were increased, 267th soldiers implemented those plans, which included perimeter defense, roving patrols, and range cards. Nuclear, biological, chemical (NBC) attacks were simulated. Soldiers found themselves valiantly defending terminals against terrorists and saboteurs in full mission-oriented protection posture (MOPP) gear.

While one platoon of petroleum supply specialists was operating and defending the PDSO, the other platoon was operating and defending the TFSSP located at White Beach Terminal. Training on the TFSSP was provided by the Bulk Fuel Company, 9th Engineer Support Battalion, USMC. The challenge in setting up the TFSSP was the hilly terrain.



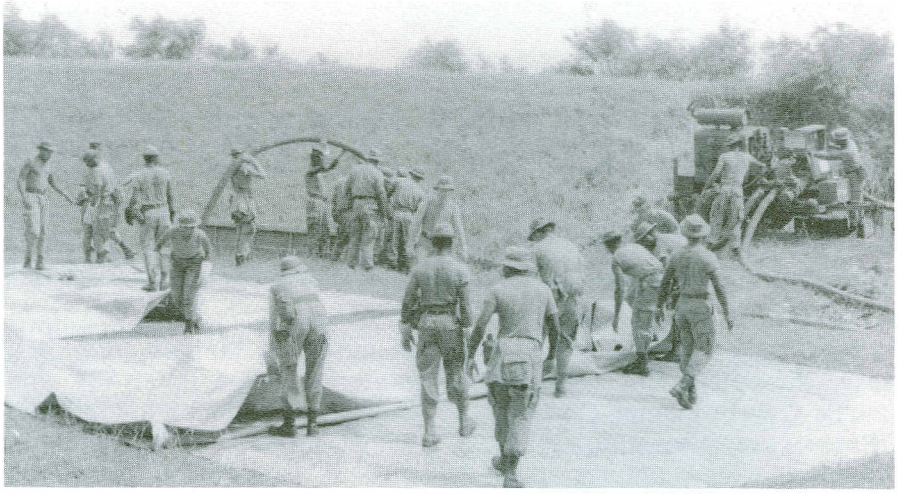
An NCO from the 267th Quartermaster Company begins the TFSSP disassembly by starting a 600-GPM pump.

After 267th soldiers and marines jointly set up the system to simulate a head and terminal operation in wartime conditions, diesel fuel was pumped uphill from White Beach Terminal's tank farm to the marine tank farm on the other side of a ridge. The fuel was then transferred to the 267th's intermediate tank farm. Lastly, the fuel was pumped downhill to the 267th's head terminal tank farm to provide retail support. Through all the training and operating of the petroleum systems, the 267th was slowly but surely mastering the snake.

Laying land-line wire snakes of their own, the 267th communications section played a major role in the success of petroleum operations. The team set up communications for Kuwae terminal, Chimu Wan terminal, and 505th Headquarters. The team also carried equipment uphill to set up communications at the TFSSP. The team worked jointly with the marines at the tactical site. Most notable, however, was the setup and operation of teletypes at the tactical pipeline--a first for the exercise. The communications section was an excellent representation of the expertise the 267th had brought to Habu Sakusen '89.

Training for the communications team was not limited just to communications because the 505th conducted classes for all soldiers in the 267th on spill control and emergency pipeline repair. The marines conducted realistic fire suppression training with soldiers donning flame retardant suits and fighting diesel fires.

While the 267th was training on the PDSO and the TFSSP, laboratory technician attachments from the 23rd Quartermaster Detachment were training at the 505th's laboratory facilities. The primary mission of the laboratory and the Quality Control Branch is to monitor the quality of all petroleum products to be used by DOD divisions located on Okinawa. The laboratory technicians conducted various petroleum tests and worked with such state-of-the-art equipment as a gas chromatograph and a spectrophotometer. Not only did they monitor quality surveillance of the tank farms, but they also conducted acceptance procedures for petroleum tanker discharge that included testing JP7, an fuel used exclusively by the U.S. Air Force. They, too, had done their part to gain knowledge of the pipeline system on Okinawa.



Grappling with hose line 'snakes,' soldiers 'walk the line' to empty fuel from 20,000-gallon bags and hose lines in the TFSSP.

A 267th Quartermaster Company soldier and a U.S. Marine work together for a successful 'pig hunt' yielding a rubber sphere that clears fuel from hose lines.

By the end of the exercise, the 267th and attachments had mastered the pipeline snake. The soldiers learned to operate the PDSO and participated in joint operations with the marines to operate the TFSSP. The communications team set up communications for the petroleum operations, as well as sent hard copy for pumping orders on the first teletypes set up for the exercise. Laboratory technicians conducted sophisticated laboratory tests and gathered information to improve their own laboratory operations. As the plane left the runway for their return to the United States, all the soldiers kept the knowledge gained, ready to use when they once again set out to master another pipeline snake.

LT Aimee L. Kominiak is the Terminal Platoon Leader for the 267th Quartermaster Company (Petroleum Operating), 240th Quartermaster Battalion, Fort Lee, Virginia.

LOGMARS Future Advancements

CPT John P. Hays

A significant challenge facing the U.S. Army is integration of new computers and functional systems into a cohesive, automated architecture to meet the needs of force commanders.

On 28 January 1976, the Office of the Assistant Secretary of Defense (OASD), Manpower, Reserve Affairs and Logistics (MRA&L), provided the charter for Logistics Applications of Automated Marking and Reading Symbols (LOGMARS) and appointed the U.S. Army as the project's executive agent.

The objectives of LOGMARS were to establish a machine-readable system of symbols to be marked by commercial vendors and Department of Defense (DOD) activities on items, unit packs, outer containers, and selected documentation and to establish procedures for using the LOGMARS system. LOGMARS also was established to avoid multiple marking systems within DOD and duplication of effort in automated marking and reading. The long-range objectives were to improve productivity, timeliness, and accuracy in DOD logistics and thereby reduce costs.

On 1 September 1981, a joint steering group published its final report on LOGMARS. This report concluded a five-year study of bar code technology and its potential military applications. The steering group concluded that bar coding provided a cost-effective way for machines to read preprinted data directly, with dramatic manpower savings and increased accuracy.

Since 1981, the term LOGMARS itself has been fearsome to many, calling up images of some monster with programming language and documentation that stretches from here to eternity. Hence, LOGMARS remains an intimidating logistics program--an apparently trackless maze, occasionally opened but rarely penetrated.

When it was first developed, LOGMARS did not help much. Its capabilities were hidden in a fabled complexity that spread a pall over more easy to use manual procedures.

Many of LOGMARS' older systems evolved from a commodity-oriented scheme of management. However, they have been restrained by the automated data processing technologies of the 1970s. They are extremely cumbersome with limited mobility. They are keyed to management of lines (national stock numbers) rather than weapons systems. They are restrained by file design that hampers users from tailoring information or changing requirements. Finally, many older versions of LOGMARS have incompatible operating systems and communications which hinder their use on the varieties of hardware at user sites.

Today's newer logistics systems provide more responsive support to their users with many enhancements already programmed to expand their capabilities. The extension of microcomputer-based systems provides user interactivity along with improved hardware capabilities formerly found in only large-scale computers.

1990s

LOGMARS software for the 1990s has been largely tamed. In the last few years, they have become far more inviting. Technological improvements in LOGMARS are being implemented in the Standard Army Intermediate Level Supply System (SAILS), Standard Army Maintenance System-1 (SAMS-1), and Standard Army Retail Supply System - Level 1 (Interim) (SARSS-1 (Interim)). LOGMARS software stands ready to help the logistician in several ways.

LOGMARS represents the introduction of bar code technology into the U.S. Army logistics system. Bar code devices provide automated data input. Automated data input reduces errors and reduces transaction processing time. The bar codes applied to materiel and documents may be used at one level or at multiple levels. Bar-coded military shipping labels, for instance, will be used throughout the transportation system. Bar codes applied to installation property for inventory purposes, on the other hand, will be used only in a single location and for a single purpose. LOGMARS provides productivity improvement, increased data accuracy, improved management information, better control and accountability, and numerous other benefits.

LOGMARS applications are found in both Standard Army Management Information System (STAMIS) and non-STAMIS environments. Major army commands (MACOMS) have been encouraged to identify and develop non-STAMIS applications. These applications of LOGMARS technology are being used to increase productivity or improve readiness. STAMIS applications are developed under the guidance of the U.S. Army Logistics Center, Fort Lee, VA, with LOGMARS hardware acquisition, fielding, and maintenance controlled by the Project Manager (PM), Automated

Identification Technology (PM-AIT), an element of PM Tactical Management Information Systems (TACMIS), Fort Belvoir, VA.

STAMIS for which LOGMARS applications have been identified include the following:

- Standard Army Retail Supply System - Level 1 (SARSS-1),
- Standard Army Intermediate Level Supply System (Nontechnical) (SAILS-NT),
- Standard Army Maintenance System - Level 1 (SAMS-1),
- Standard Army Ammunition System - Level 4 (SAAS-4),
- Department of the Army (DA) Standard Port System - Enhanced (DASPS-E),
- DA Movements Management System - Redesign (DAMMS-R),
- Standard Property Book System - Redesign (Table of Distribution and Allowances (TDA)) (SPBS-R-Installation/TDA),
- Theater Army Medical Management Information System (TAMMIS), and
- Unit Level Logistics System (ULLS) S-4 Module.

The LOGMARS program management structure was changed in October 1988 to improve coordination of the STAMIS and non-STAMIS programs. LOGMARS funding has been provided for both STAMIS and non-STAMIS LOGMARS applications. This funding, however, is inadequate to support the fielding of all identified LOGMARS applications in the time frames desired. For this reason, LOGMARS initiatives are being prioritized within four major groups:

I. (Highest) A STAMIS application or an application providing essential feeder documents which will be used by a STAMIS.

II. High payback non-STAMIS applications.

III. Somewhat lesser payback applications having a positive cost/benefit ratio.

IV. Unvalidated and/or potential applications.

These automated systems will embody concepts of self-sufficiency and deployability. Systems will shift in focus from commodities to weapons systems management. Stockage and resupply decisions will relate to logistical and weapons system operational and availability factors. Central data bases will capture demands, retain asset visibility, provide catalog support, and document status information. These data bases will make weapons system management easier.

New System

New system design will adapt current and emerging technologies to meet DOD standards. These systems will be integrated with supporting hardware and communications subsystems. Software will contain standard logistics data element definition and will integrate, where possible, commercially available software and hardware technologies such as bar coding and optical character readers. The logistics support structure will sustain hardware and software.

New technology, Microcircuit Technology in Logistics Applications (MITLA), will include microcircuitry, artificial intelligence, expert systems, and Compact Disk-Read Only Memory (CD-ROM). This will economically and efficiently increase accuracy and the processing speed of many functions and decrease cost at all levels.

Microcircuit technology, for example, will augment the LOGMARS process. A device called a "transponder" will be small, portable, and rugged. The transponder will allow the user to identify the contents and quantity, for example, of a particular package or pallet. Additionally, for transportation requirements, the transponder will enable users to determine whether or not a particular item has been shipped. Information, depending on the type memory encoded, such as random access memory, read only memory, and erasable programmable read only memory, will be programmed by the manufacturer, while other information will be programmed by the user. A major advancement of microcircuit technology is that soldiers no longer need to drag their bulky printouts and punched card decks from place to place as they conduct inventories. Encoded information on the transponder is usually read by means of radio frequencies. This non-contact logistics system reduces manpower requirements and the time required to conduct physical inventories.

Artificial intelligence and expert systems also will play significant roles in LOGMARS advancements. Artificial intelligence makes machines perform functions that would require intelligence if done by humans. Artificial intelligence is permanent, offers ease of duplication, is less expensive, is consistent and thorough, and can easily be documented.

Expert System

Expert systems are an example of applied artificial intelligence. The idea is that the knowledge and decision-making rules of an expert are captured in a computer program. An expert system is a computerized advisory program that attempts to imitate or substitute the reasoning processes or knowledge of experts in solving specific types of problems.

The new technology aims to improve productivity, timeliness, and accuracy in DOD systems and thereby reduce cost. The development of these systems will be accompanied by many problems. Some problems exist today, and others could develop tomorrow. However, use of the systems and continued research will ensure that we achieve the successful implementation of all available technology.

CPT John P. Hays, a student in the Officer Advanced Course at Fort Lee, Virginia, was formerly Assistant Brigade S4 (Supply Officer), 18th Airborne Corps, 18th Aviation Brigade, and also Brigade S4, 82d Combat Aviation Brigade, 82d Airborne Division, Fort Bragg, North Carolina.

The ingenious design of these World War II barracks makes it easy for workers to replace shingles after a damaging Texas storm in 1942.

The Mobilization Barracks

E.F. PORTER, JR.

Editor's Note: This article by E.F. Porter, Jr. on a design classic--World War II barracks--is reprinted with permission of the St. Louis Post-Dispatch, where it originally appeared 28 May 1989. The author reports the leadership of the late Major General Charles D. Hartman, a veteran Quartermaster officer and commander of the Quartermaster Replacement Training Center at Fort Lee, VA, when such military construction was under the jurisdiction of the Quartermaster Corps rather than the Corps of Engineers.

If asked to make a list of the types of dwellings most firmly embedded in the national folkspirit, what would most of us put down? The rose-covered Hallmark card Cape Cod? The tract development ranch? The log cabin? The teepee?

How many of us would remember the one kind of building that probably sheltered more Americans, for a more crucial period in their lives, than anything except the hospital where they were born or the nursing home where they will die?

What other style of domicile has been the location for so many Hollywood films and TV dramas, both good and bad, or the setting for so much fiction? What other type of building has been a temporary dwelling for upwards of 11 million Americans?

Humble, homely, unlovely and unloved, the World War II-vintage, two-story GI wood frame barracks, painted jaundice yellow, the type inhabited to this day by Beetle Bailey and Orville Snorkel, is nearing its twilight--and its golden anniversary.

Ceremonies to bid hail and farewell are being planned.

Designed in its original configuration in the late 1930s as the clouds of war were gathering, the mobilization barracks, as it was officially called, was conceived as a temporary structure, built to last long enough to serve one war -- two decades at the most.

They have proved durable and serviceable far beyond the intentions or expectations of their designers. Although Pentagon archives are too confused (apparently as a result of computerization) to determine exactly how many were built, historians estimate it was more than 100,000. Nine thousand, approximately, are still standing.

But not for long. Disturbed by the rising cost of maintenance for the old buildings, Congress six years

ago ordered the Defense Department to tear the survivors down by the end of 1990.

Because federal agencies are now required to consider the historical and cultural significance of anything they propose to destroy, the surviving temporary barracks are being studied and diagrammed as items of the nation's cultural heritage, and there is a kind of rush to preserve some of them as historic and architectural relics.

At the Smithsonian in Washington, part of a barracks (including that unforgettable emolument, a GI latrine) has been made into period rooms. At Fort Leonard Wood, MO, a group of wooden buildings, comprising a mess hall and several barracks, is being preserved as an exhibit. December 7, 1991 (the 50th anniversary of Pearl Harbor, lest we forget), will be the opening day of an exhibit at the National Building Museum in Washington. Plans call for erecting an entire barracks in the museum's vast central hall.

It is doubtful, however, that these stuffed and mounted specimens can capture more than a wistful whisper of the barracks life that so many of us remember: the bleak shadelessness, the dust and mud, the cigarette butts frozen to the ground, the dank odor from squad room floors gone to rot from being scrubbed too often and too well, and the pungent reek of coal smoke, shoe polish and garbage hanging in the nostrils at the break of day. At the historic edifice complex at Fort Leonard Wood, the trees have grown to majestic dignity and the grass, untrodden upon by hundreds of booted feet, is a lush green playground for robins. Violets spangle the edges of the now paved walkways connecting the buildings -- like the poppies in Flanders fields.

While the architectural concept underlying the mobilization barracks can, by stretching a point, be traced back to the Civil War, the actual design emerged during the inter-bellum years of the 1920s and 1930s. Military construction, except for fortifications, was under the jurisdiction of the Quartermaster Corps, not the Corps of Engineers, in those days, and it was a veteran Quartermaster officer named Charles D. Hartman who took charge of the construction program in 1934. Hartman's job was mainly to plan ahead, but even in this he faced some formidable obstacles. Ever since the Armistice, the general staff had been wedded to the notion that the solution to housing an expanded Army was to stockpile prefabricated parts to be assembled as needed by unskilled labor or by the soldiers themselves.

Veteran Quartermaster officer Charles D. Hartman quietly masterminded housing for draftees.

It was a civilian, William Starrett, a principal in the New York architectural firm of Starrett & van Vleck, who threw cold water on that idea. Starrett, who had been an adviser on military construction during the first World War, warned that neither the capacity of the nation's lumber mills to make the parts nor that of the nation's transportation system to carry them could meet the demands of total mobilization. To attempt to assemble barracks with unskilled labor would, Starrett said, result in "disappointment if not disaster."

Experience bears Starrett out. When combat infantrymen, experts in the arts of war but incompetent at simple carpentry, were set to work assembling Quonset huts in Korea, the result was asymmetrical, unstable disasters that did not even keep out the rain. It took the grunts several tries to get the hang of putting together Quonset huts. Some prominent elements in the military establishment opposed planning for any construction. In one of those departures from common sense that marked an otherwise brilliant career, Douglas MacArthur told Congress in 1930 that in the event of full-scale mobilization, troops could be quartered in buildings such as schools, courthouses and city halls and even in commandeered quarters in privately owned buildings.

Only slightly more realistic was the Army's formally adopted mobilization plan, which made no provision for quartering troops but envisioned, instead, that masses of fresh inductees would be bivouacked in tents at race tracks, sports stadiums, fair grounds and whatever other open space could be commandeered and then shipped off to the theaters of operations for training.

Flakey as it may sound today, this was, in fact, essentially the way the influx of recruits had been managed in every previous war. In

World War I, they were housed--and trained only briefly, if at all--in existing installations in the United States before being sent to complete their training in rear areas in France. For many, the first weapons they saw were overseas.

What made such a policy infeasible in World War II was the fact that mobilization began in 1939, more than two years before the United States entered the conflict. The troops could not be shipped to the front when there was no front to ship them to; except for small contingents sent to Iceland and Ireland, they had to be housed at home.

It was Hartman who, with remarkable prescience, foresaw that that was the way it might be. More than a year before the outbreak of hostilities in Europe, with few funds, little office space and with only the most tenuous authorization, he assembled a team of 80 architects and draftsmen, took over an empty warehouse at Fort Myers, VA, and began drawing up blueprints for barracks, mess halls, officers' quarters, chapels, hospitals, headquarters, garages and all the other types of buildings an Army needs to shelter its personnel, stores and equipment--a total of 300 distinct building types.

The plans were called the 700 series -- distinguishing them from the 600 series used in World War I. The plan for the standard 63-man barracks, the design now considered a classic, was coded 700-1165. There was later to be an 800 series with higher ceilings to accommodate double-decker bunks, and a larger latrine, but relatively few of them were built.

On September 8, 1939, a week after the German invasion of Poland, President Franklin D. Roosevelt ordered increases in the regular Army and National Guard; they were modest, and the Army had no trouble accommodating them. But the following spring, General George C. Marshall, the Army chief of staff, called Hartman into his office and told him to start planning to house 2 million soldiers.

Still without funds or formal authorization, Hartman made quiet preparations. Even though he had no money to pay for it, he was able to persuade the plumbing manufacturers to begin casting 2,000 miles of pipe over and above what they would normally produce. He tried to coax the lumber mills to begin building up their inventories, but since he had no funds they refused.

Even after the outbreak of hostilities in Europe, the political climate in the United States obliged Hartman to proceed discreetly. Isolationist sentiment led by such luminaries as Charles A. Lindbergh and Robert R. McCormick, publisher of the Chicago Tribune, was rampant even among the military.

But when within a few weeks in the spring and early summer of 1940, Hitler's legions overran Denmark, Norway and the low countries, drove the British army into the sea and forced the capitulation of France, the political tide turned.

The following September, Congress enacted the first peacetime draft in the nation's history, with a proviso that no man could be inducted unless there was shelter ready for him. Facing Hartman, by now a brigadier general, was an almost impossible challenge: to provide new housing for 400,000 recruits by January 1 and for another 400,000 by June.

Brutally functional as it appears, the design of the 700 series barracks was partly informed by politics. Congress had made clear that while regulars and National Guardsmen could be expected to tough it out in tents, this would not be acceptable for draftees.

When Wendell Wilkie, the GOP contender in the 1940 presidential campaign, accused the administration of being unprepared to take care of the draftees, Roosevelt countered: *I can give assurance to the mothers and fathers of America that each and every one of their boys in training will be well-housed.*

That set the tone. The shower room, sinks and latrine of the 700 barracks were indoors, on the first floor, instead of in separate buildings as had been the case in the 600 model.

The 700s were fitted with forced air central heating in place of the stoves of World War I. The furnace, usually coal, was in a separate room entered from the outside. The heated air entered the squad room by a single duct, hanging from the ceiling. The system drew its air from the furnace room rather than the outside because, as Hartman's group noted, adequate fresh air would enter the building from other openings.

This was certainly true: The 700 barracks were, as anyone who has occupied one can testify, drafty. But the effect of drawing air from the furnace room was to fill the living quarters with a fine miasma of soot.

It was originally planned to leave the barracks unpainted, but after the national painting and decorating trade association protested vigorously that paint was not only essential to preserving the lumber but also to troop morale, Hartman ordered ivory for the exterior walls and "warm gray" for the outside doors.

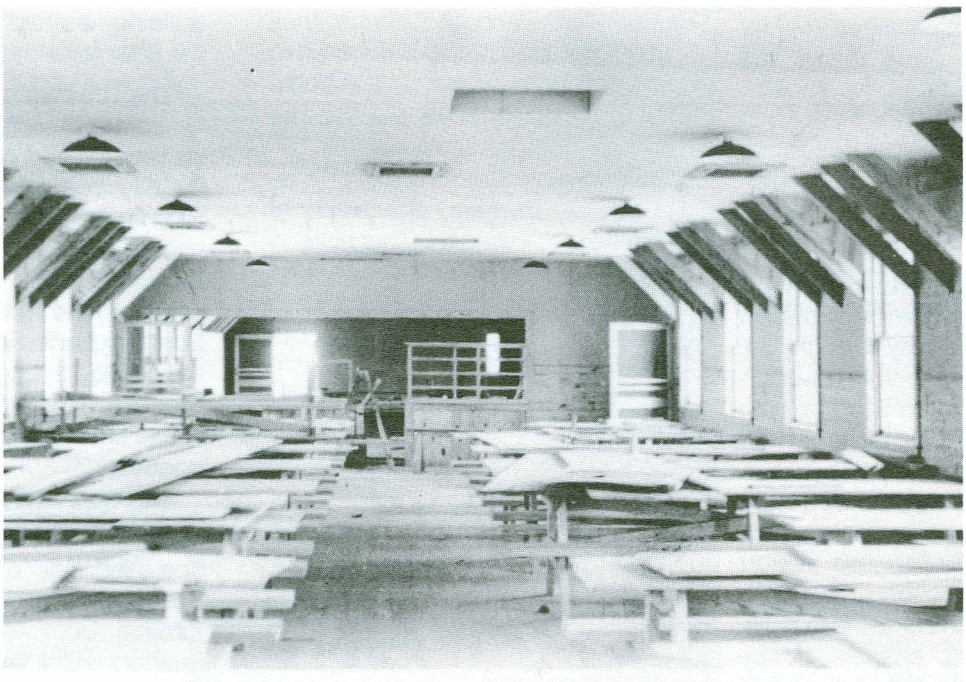
Morale notwithstanding, the interiors remained unfinished and unpainted, with bare wooden studs exposed. Anyone who remembers a painted squad room can be sure it was done later, by the troops themselves.

The most conspicuous feature of many of the 700s was the curious secondary set of eaves, surrounding the building like an awning between the first and second stories.

The features were variously known informally as skirts, pents and eyebrows, but the Army's

official word was aqua media. The origin of the term is murky. It cannot be found in any standard English dictionary, and it appears to have been an alteration of *mediagua*, a Central American colloquialism connoting the same thing that Army builders picked up in Panama.

Though their purpose was to shield the first story windows from water running off the gutterless roofs, and to help keep the interior dry, the effect of the aqua medias was the reverse. Rainwater seeped in where they were attached to the siding, and they were omitted from later models.



The interior of the officers' mess at the Quartermaster School, Fort Lee, VA, awaits finishing touches in 1941.

There were touches of cunning in the design features of the 700s. The gentle slope of the roof -- 5 inches of rise per foot of run, as a carpenter would term it -- allowed men to work on the roof without toeboards or scaffolding.

Inside, a 700 was a forest of wooden columns with braces angling from them like tree limbs. A close look at the construction reveals no skilled joinery. The building, except for the foundation, the plumbing and the wiring, could be put up with a square, a hammer and a saw.

Compounding the incidence of snafus normal in any crash program was the exceptionally vile weather of the winter of 1940-41. The ground at Fort Devens, MA, froze to a depth of 4 feet. Rains turned Fort Leonard Wood into a morass. A camp site in Texas got so wet that the troops kept pet ducks on the company street.

Despite these adversities, the 10 months ending in June 1941 saw new housing for a million men. At some installations, buildings were completed at the rate of one every 54 minutes.

The country's construction industry was delighted. Some contractors were so eager they had to be restrained from starting work before the formal contract was signed. In non-union country, mainly in the South and Southwest, contractors recruited by sending sound trucks through the streets braying news of work to be had at the base nearby. In deeply depressed regions, some job applicants showed up barefoot. Hartman was blamed for many of the snafus, but he was not allowed to share in the triumph. In the fall of 1940, President Roosevelt vetoed that year's river's and harbor's bill, the routine pork barrel measure that constitutes the life blood of the Army Corps of Engineers. The Engineers, left with nothing to do, but with many friends in Congress, maneuvered to take control of the troop housing program from the Quartermaster Corps.

In December 1940, Colonel Brehon Somervell, a Corps of Engineers officer who was a close friend of White House adviser Harry Hopkins, replaced Hartman as head of the program. A few weeks later, construction was formally transferred to the Corps of Engineers and has remained there ever since.

Hartman was admitted to Walter Reed suffering from what was officially termed exhaustion. He served part of the rest of the war as commander of a quartermaster replacement center at Fort Lee, VA. He retired in 1943.

FYI

TRAINING AND DOCTRINE

FOCUS ON LEADERSHIP

The poet Bobby Burns mused that we would be better off if we had the power to see ourselves as others see us. Quartermaster Officer Advanced Course (OAC) students can now do this, thanks to the Leadership Assessment Program (LAP) recently added to OAC. Using LAP, soldiers observe and assess leadership traits in other soldiers; then they provide candid, constructive feedback to one another. This feedback allows OAC students to become aware of specific strengths and weaknesses in areas such as oral communication, decisiveness, and the ability to accept responsibility. The purpose of LAP is to help Quartermaster officers cultivate strengths and set personal leadership goals while attending OAC. Since the feedback sessions are held in private, the information is confidential and is intended to let students know how they are perceived by those around them.

OAC students learn how to do leadership assessment through a challenging practical exercise. The students carefully observe the actions of an appointed leader who must use assorted office supplies such as rubber bands, string, and rulers to design and assemble a catapult capable of launching a paper projectile. Working under a short deadline, the leader must guide group members as they construct the catapult and attempt to destroy an "enemy target" 10 feet away. When the mission is accomplished (or time is up), all observers assess the leader's behaviors in seven leadership areas and provide verbal feedback to the leader.

This activity is very popular with the students because it combines an interesting challenge with the excitement of "shelling an enemy position" during a simulated combat mission. More importantly, soldiers learn techniques for giving honest, caring feedback which can ultimately help good Quartermaster officers become even better.

COURSE ADDITION

As a result of a General Accounting Office (GAO) audit of troop schools, the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, will become responsible for the development, revision, and distribution of six troop school courses effective 1 Oct 90. These courses will be The Army Maintenance Management System (TAMMS) Clerk, Prescribed Load List Clerk, Fuel Handlers, Unit Supply Clerk, Unit Supply Operations/Management, and Unit Armorer.

UPDATE ON SCHOOL MODEL 89

The U.S. Army Training and Doctrine Command (TRADOC) has delayed implementation of School Model 89. As of December 1989, the Office of School Secretary still exists within the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA.

EVALUATION AND STANDARDIZATION

QUARTERMASTER 24-HOUR HOTLINE

During FY 89 the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, Branch Liaison Teams (BLTs) visited 12 installations. Literally hundreds of questions and issues surfaced during these visits. There were questions about changes to field manuals, technical manuals, soldier training publications, skill qualification tests, and other areas. While the teams welcomed the questions and feedback, they want to spread the word that field units do not have to wait for a BLT to get answers. In addition to fielding BLTs, the Directorate of Evaluation and Standardization also operates a 24-hour hotline. The number is AUTOVON 687-3767 or Commercial (804)734-3767. Callers outside Virginia who do not have access to an AUTOVON line can reach the Fort Lee operator toll free by dialing 1-800-554-4570. For toll-free calls placed outside of area code 804 in Virginia, dial 1-800-552-4820.

QUARTERMASTER FAST TRACK PROGRAM

Unfortunately, feedback from the field indicates many commanders are not familiar with the Fast Track Program at the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA (QMC&S (PROV)) and the super assets they are getting with Fast Track graduates. Fast Track graduates departing Fort Lee have letters to the gaining commander in their official personnel folders from the Directorate of Evaluation and Standardization, QMC&S(PROV).

After Fast Track briefings during Branch Liaison Team visits, some commanders have successfully identified Fast Track graduates by asking for a show of hands during inprocessing. Fast Track graduates are out there and can be tremendous assets to their units.

In October 1988, the QMC&S(PROV) implemented its Fast Track Program. To participate, soldiers attending advanced individual training (AIT) at the QMC&S(PROV) must meet or exceed the academic standards established for Fast Track participants in their military occupational speciality (MOS). Both the drill sergeants and instructors must agree that the soldier is a self-motivated, high achiever in terms of soldier and technical skills. Once in the program, Fast Track soldiers spend some evenings and weekends receiving training in additional skill level 1 and selected skill level 2 tasks.

AIRBORNE AND FIELD SERVICES

TRAINING FILM

The Training Material Development Branch of the Airborne and Field Services Department recently finished shooting scenes for a training film on "Air Delivery Recovery Procedures." The 53rd Quartermaster Detachment, 426th Supply and Transportation Battalion, 101st Airborne Division (Air Assault) at Fort Campbell, KY, assisted with producing the educational television tape (ETV). The expected release date is second quarter FY 91.

SUPPLY AND PROFESSIONAL DEVELOPMENT

CHIEF OF STAFF, ARMY SUPPLY EXCELLENCE AWARDS

The Army senior leadership will present awards to the winning units of the Chief of Staff, Army Supply Excellence Awards for FY 89. Individual awards will be sent to commanders of major Army commands for presentation on behalf of the U.S. Army Quartermaster General. The Active Army, Army Reserves, and Army National Guard participated in the on-site evaluations for this competition.

This award program for supply excellence, established in 1985 and followed by the first on-site evaluations in 1986, seeks mainly to improve property accountability and reduce waste. The American Defense Preparedness Association (ADPA) is the program's sponsor that provides plaques and awards to the winning and runner-up units.

The winners and runners-up are as follows:

Active Army TOE Units

- Battalion Level
  Winner - 3d Battalion, 325th Infantry (ABN), Vicenza, Italy, USAREUR
  Runner-up - 18th MI Battalion, Munich, Germany, INSCOM
- Company Level
  Winner - 25th Transportation Company, Schofield Barracks, Hawaii, WESTCOM
  Runner-up - HHC, 19th Support Command, Taegu, Korea, EUSA

Active Army TDA Units

- Battalion Level
  Winner - 10th Area Support Group, Torii Station, Okinawa, Japan, USARJ
  Runner-up - USAMEDDAC, Fort Lee, Virginia, HSC
- Company Level
  Winner - Pusan Storage Facility, Pusan, Korea, EUSA
  Runner-up - SR ROTC IG, ASU, Tempe, Arizona, TRADOC

Army Reserve Units

- Battalion Level
  Winner- 368th Engineer Battalion, Manchester, New Hampshire, First U.S. Army
  Runner-up - 1st Battalion, 158th Aviation Regiment, Grand Prairie, Texas, Fifth U.S. Army
- Company Level
  Winner - 311th Evacuation Hospital, Bismark, North Dakota, Sixth U.S. Army
  Runner-up - HHC, 412th Engineer Command, Vicksburg, Mississippi, Second U.S. Army

Army National Guard Units

- Battalion Level
  Winner - 2d Battalion, 113th Infantry Regiment, Sergeant Bluff, Iowa, Iowa National Guard
  Runner-up - 4th Battalion, 114th FA, Newton, Mississippi, National Guard
- Company Level
  Winner - D Company, 109th Aviation Company, Boone, Iowa, Iowa National Guard
  Runner-up - 1022d Medical Detachment (AA), Cheyenne, Wyoming, Wyoming National Guard

UNIT LEVEL COMPUTER/UNIT LEVEL LOGISTICS SYSTEM - II

The Unit Level Computer/Unit Level Logistics System - II (ULC/ULLS -II) automates the prescribed load list (PLL) and The Army Maintenance Management System (TAMMS) at the unit level. This system will be able to communicate, by using floppy disks, with the Tactical Army Combat Service Support Computer System (TACCS)/ Standard Army Retail Supply System (SARSS) for direct support unit (DSU) supply support and with TACCS/ Standard Army Maintenance System (SAMS) for DSU maintenance support. The ULC/ULLS concept was first fielded using ULLS - I at the 24th Infantry Division at Fort Stewart, GA, in November 1984. This initial system provided many improvements over the manual systems in use and served as a model to build the current system. Although the U.S. Army Quartermaster Center and School (PROV) (QMC&S(PROV)) Fort Lee, VA, is starting to schedule training on this automated system, many field units already use ULC/ULLS - II to maintain their unit's PLLs and TAMMS records.

The ULC/ULLS - II uses an Informix software system on the Zenith 248 personal computer. The Zenith computer is equipped with a 40 megabyte (MB) hard disk drive, and the system requires a 40MB tape drive for back-up procedures. The system also uses the ALPS P2000G printer.

The following data profiles the start of ULC/ULLS training for 76C10 (equipment records and parts specialist) advanced individual training (AIT) soldiers in the QMC&S(PROV):

- A total of 64 hours in the 76C10 program of instruction (POI) provides ULC/ULLS training. This training began with 76C10 class 89-058 which graduated 14 Sep 89. The course administrative data (CAD) sheets were updated to reduce class size from 44 students to 40 students per class because of the limited number of automated systems available.
- ULC/ULLS training will be provided to all 76C students. There will be no additional skill identifier for this automated system. The current critical task list for the 76C military occupational specialty (MOS) contains 10 tasks relating to the ULC/ULLS.
- The Supply and Professional Development Department's Equipment Records Training Division currently has three laboratories. Each has 40 ULC/ULLS systems. The QMC&S(PROV) will train 720 soldiers on this automated system during the remainder of FY 89 and schedule 2,761 soldiers for FY 90.
- The training material is currently being provided by contract. Minor modifications are required for classroom use. This is the same training material provided to the major Army command (MACOM) service schools and also to the U.S. Army Logistics Center, Fort Lee, VA, for extension training. Continued use of training materials prepared by contractors will ensure training consistent with other training activities.

HELP FOR THE RESERVE COMPONENT

The Supply and Professional Development Department has aligned all Reserve Component-special configured packages (RC-SCP) with the latest guidance from the U.S. Army Training and Doctrine Command (TRADOC) for FY 90. Specifically, all technical subjects previously identified for the inactive duty phase of training have been deleted or moved to the active duty phase. This answers numerous field inquiries that brought to light the problems associated with technical training in the inactive duty phase.

In addition, the U.S. Army Reserves asked about possible training packages for the various automated systems to be taught in residence at the U.S. Army Quartermaster Center and School (PROV) (QMC&S (PROV)), Fort Lee, VA. The Supply and Professional Development Department, along with the Directorate of Training and Doctrine, is exploring ways for the QMC&S(PROV) to design and develop system-oriented training materials to be sent to Reserve Components.

AUTOMATION TRAINING FOR 76Y30 BNCOC

The Supply and Professional Development Department's Unit Supply Training Division received 44 Zenith 248 computer systems for the new 76Y30 (unit supply specialist) Basic Noncommissioned Officer Course (BNCOC). The good news is that the new BNCOC program of instruction includes 26 hours of computer training on the Unit Level Logistics System (ULLS-II/Z 248) computer program. The computer training covers background development, key features of the system, hardware and software, and a computer-assisted tutorial package. This course is also designed to familiarize mid-level managers with ULLS-II and its generated reports and listings.

The training is more than 90 percent hands-on. Each student will have a Zenith 248 computer system to work with. This training is not intended to make the 76Y30 BNCOC graduate/mid-level supply manager a qualified operator. This instruction will give the 76Y30 BNCOC graduate the training and knowledge to support the commander and provide the technical assistance and supervision to the 76C10/20 (equipment records and parts specialist) in the critical area of prescribed load list (PLL) and The Army Maintenance Management System (TAMMS) procedures. Training started in October 1989.

HOW TO CHANGE THE UNIT SUPPLY UPDATE

Have you ever thought that rules and regulations covering your supply operations were too restrictive? Too loose? Or, just too hard to understand? Read on. You might be surprised to see how easy it is to make changes.

First, a little background. While proponency for Department of the Army (DA) Pamphlets 710-2-1 (Using Unit Supply System Manual Procedures) and 710-2-2 (Supply Support Activity Supply System Manual Procedures) resides in the Office of the Deputy Chief of Staff for Logistics (ODCSLOG), the action office is the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA. The Supply Proponency Office in the school's Supply and Professional Development Department receives and evaluates suggestions and recommendations for change from Armywide users. In certain instances, authority to deviate from procedures established by the pamphlets may be granted.

The Supply Proponency Office at Fort Lee, VA, receives recommendations for change in two basic ways: "Tops Down" and "Bottoms Up." ODCSLOG, the U.S. Army Logistics Evaluation Agency (USALEA), and the National Guard Bureau submit mandatory changes which usually result from changes to existing regulations, federal laws, or statutes. However, approximately 80 percent of all changes come directly from individuals in the field or from major Army commands (MACOMS). The preferred method for receiving a recommended change is on DA Form 2028 (Recommended Changes to Publications and Blank Forms).

Once the Supply Proponency Office has your suggestions or recommended changes, the office formats the suggestions into staffing change letters for ODCSLOG, which forwards them to all MACOMS and other interested agencies. Twice a year, representatives from the QMC&S(PROV), ODCSLOG, USALEA and all MACOMS meet to discuss and vote on the changes. From this point and prior to the first printing, all adopted changes get a final review by the QMC&S(PROV), ODCSLOG, Adjutant General's Office, and Judge Advocate General's Office. Then the Supply Proponency Office receives proofs from the printer to make any final changes, usually typographical errors or misprints. The proofs are then returned to the printer for a production run and distribution of 130,000 copies.

You may think that "change" stops here. However, once changes to these DA pamphlets are published, a ripple effect is created within other related publications: 47 publications for the DA Pamphlet 710-2-1 and 71 for the DA Pamphlet 710-2-2-- not to mention skill qualification tests, correspondence courses, and other training materials!

As you can see, initiating change is simple. If you believe there's a better way to do business, let us hear from you. Listed below for your convenience are points of contact (POCs) for all publications contained in the UNIT SUPPLY UPDATE:

UNIT SUPPLY UPDATE (Proponency Points of Contact (POCs))

- AR 700-84 (Issue and Sale of Personal Clothing). Proponent: DCSLOG, Headquarters, Department of the Army (HQDA), U.S. Army Troop Support Agency. POC: Mr. Sickles, AUTOVON 687-1664/2250, Commercial (804) 734-1664.
- AR 710-2 (Supply Policy Below the Wholesale Level) Proponent: DCSLOG, HQDA, U.S. Army Logistics Evaluation Agency. POC: Mr. Branch, AUTOVON 977-7566, Commercial (717) 770-7566
- DA Pamphlet 710-2-1 (Using Unit Supply System Manual Procedures). Proponent: DCSLOG, HQDA, U.S. Army Quartermaster Center and School (PROV). POC: CW4 Turner, AUTOVON 687-1716/5001, Commercial (804) 734-1716.
- DA Pamphlet 710-2-2 (Supply Support Activity Supply System Manual Procedures). Proponent: DCSLOG, HQDA, U.S. Army Quartermaster Center and School (PROV). POC: CW4 Turner, AUTOVON 687-1716/5001, Commercial (804) 734-1716.
- AR 735-5 (Basic Policies and Procedures for Property Accounting). Proponent: DCSLOG, HQDA, U.S. Army Logistics Evaluation Agency. POC: Mr. Owen, AUTOVON 977-6032/6634, Commercial (717) 770-6032.

PETROLEUM AND WATER

MOSs 77F and 88M CONVERSION TO COMBAT ARMS MOSs

In a message dated 16 Aug 89, the Army Chief of Staff (ACofS) approved converting 77F (petroleum supply specialist) and 88M (motor transport operator) positions to the combat arms military occupational specialty (MOS) that predominates in each affected unit in the United States Army, Europe (USAREUR). The intent of the conversion is to provide a ready pool of replacement combat arms personnel for the line companies from the combat arms battalions. This conversion will provide added flexibility to combat arms organizations.

The U.S. Army Training and Doctrine Command (TRADOC) has been tasked to convert USAREUR spaces in infantry (IN), armor (AR), field artillery (FA), and task force mixed battalions, division ground cavalry squadrons, and the 11th Armored Cavalry Regiment (ACR).

The conversion will be implemented as an incremental change package to allow major commands to phase in the changes beginning the 1st quarter FY 91. A projected completion date has not been determined. The conversion in United States Army Forces Command (FORSCOM) and the Eighth United States Army, Korea (EUSA) will be delayed for further analysis until resources are available. The affected units will have two drivers instead of one driver for every vehicle assigned.

All driver and fuel handler training will be conducted in USAREUR at a central location. Total training will not exceed 80 hours. The Combined Arms Combat Development Activity (CACDA) recommends conducting centralized training at the 7th Army Training Center.

This conversion to combat arms MOSs affects 873 77F positions and 1,591 88M positions. The 205 77F positions and the 456 88M positions that are being retained are noncommissioned officer spaces.

GRAVES REGISTRATION

GRAVES REGISTRATION FORCE STRUCTURE

Graves Registration (GRREG) Force Structure--resourcing to meet the Armed Forces Graves Registration mission--has been a concern in recent months. Building an adequate force structure in peacetime has proven difficult. In fact, personnel and units will decrease between now and 1993. GRREG spaces in supply and service direct support (DS) and field service companies will be eliminated before 1993 both in the Active and Reserve Components.

Presently on active duty is one graves registration company at Fort Lee, VA. Two active duty GRREG companies, scheduled to be activated in 1990, have been delayed until 1998. Four GRREG companies and one GRREG battalion are in the Reserve Component. By 1993, there will be three more GRREG companies and two battalion headquarters in the Reserve Component, but their authorized level of organization (ALO) will be so low that they will have very little actual GRREG capability. In the European theater, the Department of the Army (DA) has agreed to create one 35-person platoon. Twenty positions already exist in a table of distribution and allowances (TDA) mortuary. DA also has agreed to provide a five-person section for Korea to supplement those GRREG forces already there.

REPLACEMENT OF HUMAN REMAINS POUCH TYPE I

Human remains pouch Type I (national stock number (NSN) 9930-00-170-1492) will be replaced with the human remains pouch Type II (NSN 9930-00-451-1231) with the next revision of common table of allowances (CTA) 50-970.

The Type I is unreliable for transporting human remains and rips easily. The Type I pouch is lightweight nylon that is not waterproof and leakproof. The Type II pouch is a heavy-duty nylon material that is waterproof and leakproof. The Type II pouch resists ripping and can be used over and over again. Remaining Type I stocks will be placed in war reserve for contingency use for temporary interment.

GRAVES REGISTRATION UNIT EVALUATED IN A CHEMICAL ENVIRONMENT

The task of evaluating chemical decontamination of remains and personal effects for safe return to the United States from overseas locations was tested at Fort Lee, VA, 11-27 Oct 89.

Since doctrinal procedures do not exist for the disinterment or processing of chemically contaminated remains and personal effects, EAI Corporation, Edgewood, MD, in coordination with the Graves Registration (GRREG) Center and the 54th Quartermaster Company (GRREG), Fort Lee, VA, and the Chemical School, Fort McClellan, AL, developed a set of draft operational procedures. This Graves Registration Operational Evaluation/Exercise in a chemical environment was the first one of its kind. Test results will be used to write future doctrine.

NEW GRAVES REGISTRATION OFFICER COURSE (8B-SI4V)

As the Department of Defense (DOD) Branch responsible for providing graves registration (GRREG) services during disasters and military operations, U.S. Army GRREG personnel have participated in such operations as the Beirut disaster, the Gander plane crash, and Grenada incident. Lessons learned from these experiences indicated a need for trained officers in staff and command positions with responsibilities ranging from the Joint Mortuary Affairs Office in a unified command to battalion staff. To ensure qualified GRREG officers, one incentive of the Graves Registration Center at Fort Lee, VA, is to implement a two-week GRREG Officer's Course, 5-16 Feb 90. Attendance is open to commissioned officers (Regular Army (RA), United States Army Reserve (USAR), and Army National Guard (ARNG)) of all branches of service who are assigned or anticipate assignment to a GRREG position. Officers who successfully complete the course will be awarded the additional skill identifier (ASI) of 4V (graves registration officer). Official enrollment must be submitted through normal administrative channels. For planning purposes only, provide your training projections for FY 90-93 by telephone or in writing to Commandant, U.S. Army Quartermaster Center and School (PROV), ATTN: ATSM-DTO, Fort Lee, VA 23801, AUTOVON 687-2449/1074; Commercial 804-734-2449/1074.

INTERACTIVE VIDEODISC UPDATE

The Graves Registration Center, U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, plans to integrate the new technology of the 57F (graves registration specialist) interactive videodisc (IVD) into the Graves Registration (GRREG) Training Program during the second quarter FY 90.

This IVD will provide initial and sustainment training on search and recovery operations for graves registration soldiers in skill levels 1 to 3. Currently, the IVD is being upgraded to run on the Electronic Information Delivery System (EIDS). Upon completion of the upgrade, the IVD will be validated and fielded. Submit requests for the IVD through your Training-Audiovisual Support Center.

NEW FILM: 'WALK SOFTLY STRANGER'

The Graves Registration Center, Fort Lee, VA, is currently validating a new film that vividly depicts the history and the various roles of the graves registration specialist during combat. This film, designed to be shown to a variety of audiences, creates a sense of care, respect, dignity, and appreciation for all soldiers and what they defend. It shows how important the graves registration mission is to the soldiers in combat and to their families and friends at home. This film, scheduled for completion during second quarter FY 90, will be available through your Training-Audiovisual Support Center.

GRAVES REGISTRATION COMMON TASK TRAINING

Task 101-515-1900 (Perform Search, Recovery, Evacuation and Burial of Remains) will be included in the revised edition of the Soldier Training Publication (STP) 21-1- Soldier's Manual Of Common Tasks (SMCT) (Skill Level 1). STP 21-1 is scheduled for publication during first quarter FY 90.

ARMY CENTER OF EXCELLENCE, SUBSISTENCE

NEW CENTER FOR ARMY FOOD SERVICE

The Subsistence and Food Services Department of the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, and the Directorate of Food Service, Troop Support Agency, Fort Lee, VA, were consolidated and redesignated as the Army Center of Excellence, Subsistence on 1 Oct 89. Food service articles and professional development information published in the Troop Support Digest will now be submitted to the Quartermaster Professional Bulletin. Individual and personal recognitions will not be published. Submit articles, photographs, and graphic art to Editor, Quartermaster Professional Bulletin, U.S. Army Quartermaster Center and School (PROV), ATTN: ATSM-ACZ-PB, Fort Lee, VA 23801-5032. Obtain local clearance of manuscripts prior to submission.

ARMY FOOD SERVICE CORRESPONDENCE COURSE REVISION

A contract to rewrite and update all military occupational specialty (MOS) 94B (food service specialist) correspondence courses will eliminate problems of obsolete material and confusing subcourses. The Army Center of Excellence, Subsistence at Fort Lee, VA, received thousands of inquiries asking when the courses would be updated. In the past while awaiting approval to rewrite the subcourses, the former Subsistence and Food Services department either made page changes to update the subcourses or deleted the subcourses that could not be corrected by page changes. The new subcourses will contain all of the latest information on food service operations and administration. Some subcourses are being combined for better understanding and better organization. These subcourses will help the food service soldier get a better grip on food service operations in garrison and field operations. The new subcourses will be fielded in increments. The estimated completion time is the end of FY 91 or early FY 92.

94B BNCOC AND ANCOC CHALLENGE

The U.S. Army Quartermaster Center and School (PROV) has yet another challenge for the 94B (food service specialist) Basic Noncommissioned Officer Course (BNCOC) and Advanced Noncommissioned Officer Course (ANCOC) that will strengthen not only the students but also the technical instructors. Phase II Common Leader Training is being integrated into the technical portion of these courses. Some of the subjects in ANCOC are Construct Minefield Obstacles, Military Symbols and Overlays, Platoon Operations and Defense, Professional Skills, Route Reconnaissance, and Wartime Unit Personnel Support. BNCOC subjects are Graves Registration; Leadership Evaluation; Map Reading; Nuclear, Biological, Chemical (NBC); Tactical Communications and Combat Orders; and Wartime Casualty Reporting. Training will be synchronized with advanced individual training (AIT) students. The BNCOC students will train and supervise AIT students during a 3-day field training exercise (FTX). ANCOC students will supervise BNCOC students and plan food service operations for the FTX.

INNOVATIVE USE OF T RATION COMPONENTS

As units gain experience with the Army Field Feeding System (AFFS), they have developed numerous innovations. Preparing hearty soups and stews from leftover T Ration components is one of the innovations. Another innovation is mixing eggs with condiments to improve flavor and eye appeal. The Quartermaster Center and School (PROV) (QMC&S (PROV)), Fort Lee, VA, requested that field soldiers submit unique recipes and techniques developed either to use leftover T Rations or enhance the T Rations.

Armed with input from the field, the QMC&S (PROV) developed a T Ration Field Cookbook. A collection of recipes, this booklet is only a guide and does not restrict anyone from using initiative, knowledge, and expertise. This one-time publication was distributed to food advisors' offices in first quarter FY 90. Ask for it. Add to it.

ARMY FIELD FEEDING OPERATIONS UPDATE

The large, green-covered field circular (FC) 21-150 (Combat Field Feeding System (CFFS) Operations) is being revised. The revised publication will be field manual (FM) 10-23 (Basic Doctrine for Army Field Feeding). It will consolidate field feeding operations information extracted from FM 10-22 (Bakery Operations), the previous version of FM 10-23 (Army Food Service Operations), FM 10-26 (The Army Food Advisor), and FC 21-150, less accountability procedures that will be published in a new Army regulation. It is being prepared to provide the field with one complete manual containing required information for Army field feeding operations. The coordinating draft of the new FM 10-23 will be distributed to the field for review and comments first quarter FY 90. Final print for this FM is scheduled for fourth quarter FY 90.

ARMY APPRENTICESHIP PROGRAM FOR 94Bs (FOOD SERVICE SPECIALIST)

Apprenticeship is one of the oldest recorded training methods. The 94B (food service specialist) Cooks' Apprenticeship Program is based on the sharing of food service and culinary knowledge every day, on the job. Participation greatly improves a cook's chance of continuing a career in the culinary profession when leaving military service. All it takes to get started is a visit to the local education center to sign up for this free program. From then on, all that is required is to maintain a daily log book of activities, verified by the food service sergeant. Credit is given for completion of 94B advanced individual training (AIT). Up to 3,000 hours credit for previous work experience can be awarded if certified by previous supervisors. As one apprentice said: "I'm doing the work anyway, so why not get credit for it?" Cooks who complete the program receive a certificate from the U.S. Department of Labor.

NUTRITION COURSE CANCELLED

The Advanced Food Preparation Nutrition Course, scheduled for 12-30 Mar 90, has been cancelled.

COMBAT DEVELOPMENTS

CONCEPT FOR MAP DISTRIBUTION

The Quartermaster Corps now has the supply mission for standard maps and map products previously provided by the Corps of Engineers. A concept for map distribution is being staffed, and the table of organization and equipment (TOE) for a map platoon is being developed. One platoon will be assigned to a supply company general support (GS) in each corps support command (COSCOM) and theater army area command (TAACOM). COSCOM and TAACOM materiel management centers (MMC) will be responsible for asset visibility and inventory control.

Requisitioning of maps will be handled like any other item of supply. Standard maps and map products include any item available by number from Defense Mapping Agency Catalogs. Supply requests, using map catalog numbers as manufacturer's part numbers, will flow through the standard Army supply system. Planning for map requirements will remain an Assistant Chief of Staff, G2 (Intelligence) and S2, Intelligence Officer (U.S. Army) function. Command and intelligence channels will continue to handle classified maps. The basic objective is to make map distribution conform to the standard Army supply system.

SOFT ARMOR PROTECTION: BALLISTIC PROTECTIVE COVER

A ballistic protective cover is being developed through Belvoir Research, Development and Engineering Center, Fort Belvoir, VA, to protect critical equipment and supplies in the brigade area. Analysis and testing of different materials will determine the degree of protection possible. The performance of a prototype cover was demonstrated in August 1989 during a Soviet artillery effects live fire demonstration by the Field Artillery Board, Fort Sill, OK. The U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA is working toward a joint Army/Marine program for further application and development.

WATER FOR THE NATIONAL BOY SCOUT JAMBOREE

The 79th Quartermaster Company (Water Supply), U.S. Army Reserve, Marion, OH, augmented by the 315th and 431st Quartermaster Detachment, Jacksonville, NC, with assistance from the U.S. Army Quartermaster Center and School (PROV), Fort Lee, VA, provided 1.55 million gallons of water storage and associated water distribution systems to support the 1989 National Boy Scout Jamboree at Fort A.P. Hill, VA. This was the first time a water supply company has fully deployed its storage assets. The operation successfully integrated a tactical water supply system into the installation's distribution network to provide potable water to over 34,000 scouts and supporting personnel 2-9 Aug 89. The knowledge from this exercise will help refine the U.S. Army's field water supply equipment and procedures.

CAREER NOTES

PERSONNEL MANAGEMENT AT THE QUARTERMASTER/ CHEMICAL BRANCH

LTC Stephanie S. Hunter CPT Eric A. Flagg

Quartermaster and Chemical Corps enlisted soldiers can be found in every U.S. Army unit around the world, from the Army's tactical combat divisions and corps units to installations and activities in both the continental United States and overseas. Assigning the right "fighting" Quartermaster and Chemical soldier into the right unit at the right time according to the force readiness needs of the Army is the mission of the Quartermaster/Chemical Branch located in Alexandria, VA. Indeed, this is a very large mission considering what it takes to be involved in the total military occupational speciality (MOS) management of more than 75,000 Quartermaster and Chemical Corps enlisted soldiers assigned worldwide.

As a member of the Quartermaster or Chemical Corps, you have probably wondered how you received orders for assignment and just who is involved in making the decision about where your next permanent change of station (PCS) move will be. Some soothsayers blame assignment managers for using the infamous dart board. Others say it is the big computer in the sky. Recently assigned to the Quartermaster/Chemical Branch in the Army Personnel Command (PERSCOM), I found no dart boards and although computers greatly assist in the assignment process, 42 highly trained noncommissioned officers and civilians assigned to our branch provide their "personal touch" to each and every soldier's assignment. This article will give you a better perspective on how the Quartermaster/Chemical Branch is organized and its role in the assignment process of the Quartermaster/Chemical enlisted force.

The Enlisted Personnel Management Directorate (EPMD) of PERSCOM is divided into a number of divisions, three of which are the career management divisions for combat arms, combat support, and combat service support soldiers. Within the Combat Service Support Career Division are four branches: the Adjutant General, Health Services, Ordnance, and Quartermaster/Chemical Branches. The Quartermaster/Chemical Branch is headed by a Quartermaster lieutenant colonel and a sergeant major (senior personnel sergeant, MOS 76Z50). They are responsible for implementing Army directives and policies for worldwide assignments of Quartermaster and Chemical enlisted soldiers. In addition to assignments, they are also involved in MOS strength management, force distribution, accessions, authorizations, professional development, promotions, reclassifications, retention, and special actions.

As shown on the organizational chart (Figure 1), the Quartermaster/Chemical Branch is subdivided into assignment teams. Each team is responsible for filling continental United States (CONUS) and overseas requisitions based on the needs of the Army. Each assignment team is headed by an assignment team chief who is assisted by a professional development noncommissioned officer (NCO). Together they ensure proper career utilization of the soldier. Personnel requisitions from major field commands are normally approved and processed 5 to 11 months in advance. Included in these assignments are schools for eligible NCOs: Basic Noncommissioned Officer Course (BNCOC), Advanced Noncommissioned Officer Course (ANCOC), Noncommissioned Officer Logistics Program (NCOLP), and other functional MOS training courses. The school's section receives and processes assignments usually with a soldier's PCS orders.

Assignment managers use the career management individual file (CMIF), the enlisted master file (EMF), and other Department of the Army strength distribution tables as management tools in filling assignment requisitions. The CMIF is maintained on all soldiers with the rank of staff sergeant or higher. This file contains a copy of the personnel qualification record (PQR) (DA Form 2A, Personnel Qualification Record, Part I - Enlisted Peacetime, and DA Form 2-1, Personnel Qualification Record - Part II), copies of enlisted evaluation reports

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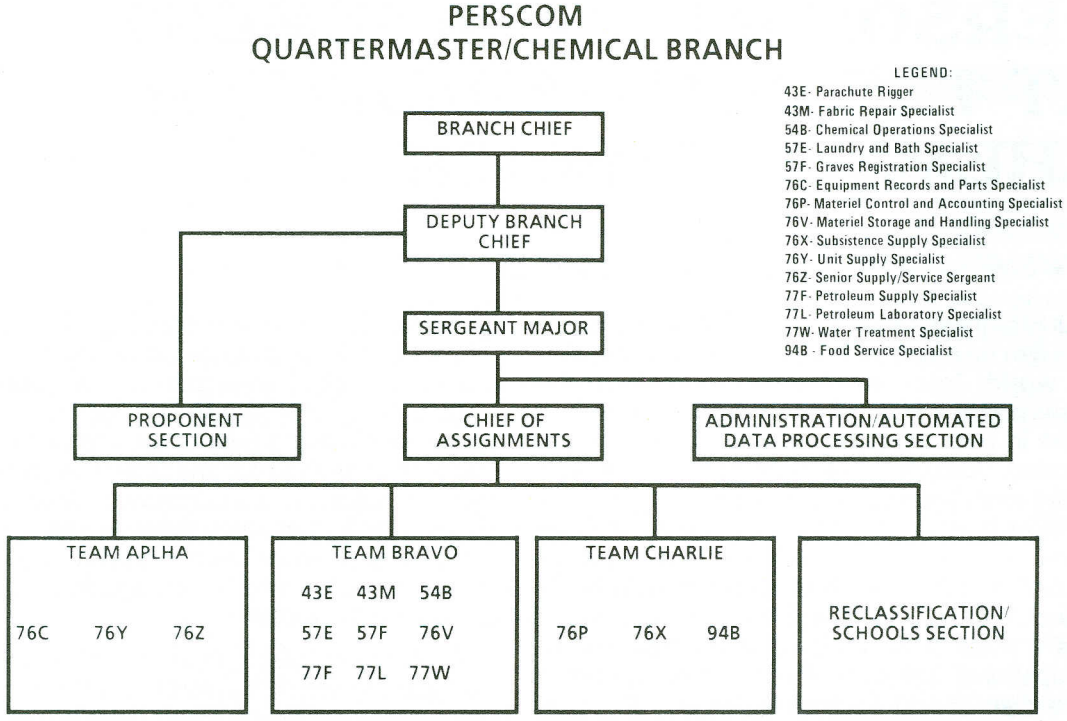

Figure 1.

(EERs), official military performance fiche (OMPF), recent assignment instructions, approved deletions and deferments, records of telephone calls, personal interviews, and visits to PERSCOM. The EMF is a computerized data file compiled of coded information from the PQR, CMIF, and the DA Form 201 (Military Personnel Records Jacket, U.S. Army) field file. The EMF is the primary tool used to identify soldier qualifications, personal preferences, and career needs during the assignment process. These files, in addition to other internal strength reports, assist the assignment manager in finding the right soldier for the right assignment.

As you can see, assigning the right Quartermaster or Chemical Corps soldier to the right unit neither involves a dart board nor is it based on the luck of the draw. Assignments are made in view of the Army's force readiness requirements, your professional development needs and your individual preferences.

How can you get the right assignment? Besides working hard and following the pathway of the Noncommissioned Officer Education System, you must keep your records up to date. Take the time to verify your PQR. Submit a DA Form 4187 (Personnel Action) when you have a change in status or require a stabilization at your present duty assignment. See your personnel services NCO (PSNCO) to find out exactly how to update your records.

The Quartermaster/Chemical Branch is here to serve the soldier. If you are near Alexandria, VA, come to visit and see a professional development NCO. (Make sure you park in the visitor parking area. Towing is strictly enforced.) If you are unable to visit the branch, you can write to us at the following address:

Commander
United States Army Personnel Command
ATTN: DAPC-EPM-L
2461 Eisenhower Avenue
Alexandria, VA 22331

LTC Stephanie S. Hunter, former Battalion Commander of the 25th Supply and Transport Battalion of the 25th Infantry Division in Hawaii, is Quartermaster/Chemical Branch Chief of the Enlisted Personnel Management Directorate, U.S. Army Personnel Command, Alexandria, Virginia.

CPT Eric A. Flagg, Deputy Branch Chief and Proponent Officer, was formerly Commander of A Company, 47th Forward Support Battalion, 1st Armored Division, Federal Republic of Germany.

CAREER NOTES

TOTAL WARRANT OFFICER SYSTEM

CW4 David P. Welsh

Major provisions of the Warrant Officer Management Act of 1989, now before the U.S. Congress, will have a direct impact on those parts of the Total Warrant Officer System (TWOS) requiring enactment into law.

In September 1984, General John A. Wickham Jr., who was then the U.S. Army's Chief of Staff, formed the Total Warrant Officer Study Group. He told the members to conduct the first comprehensive review of personnel management and professional development policies affecting all U.S. Army warrant officers.

The study group found that "the warrant officer force is . . .making critical contributions to the defense of our nation." The group added "that our management and training policies and procedures were in need of significant change if we are to realize the full potential of the warrant officer force."

In June 1985, General Wickham approved the study group's recommendations. The cornerstone of the study group's work is a single definition of a warrant officer that replaces the three different definitions in U.S. Army doctrinal publications. The following is the new definition:

"An officer appointed by warrant by the Secretary of the Army, based on a sound level of technical and tactical competence. The warrant officer is the highly specialized expert and trainer who, by gaining progressive levels of expertise and leadership, operates, maintains, administers, and manages the Army's equipment, support activities, or technical systems for an entire career."

The Warrant Officer Management Act of 1989 is a bill to codify those elements of the TWOS that require enabling legislation before going into effect. The bill amends Titles 10 (Armed Forces), 14 (Coast Guard), and 37 (Pay and Allowances), U.S. Code. Among other actions, this involves the promotion, separation, and mandatory retirement of active duty warrant officers and also establishes the grade of chief warrant officer, W5.

The majority of the act concerns the Active Army. The Secretary of the Army will prescribe regulations to implement the recommendations for the Reserve Components. The proposed Warrant Officer Management Act of 1989 includes the following actions:

- Establish permanent grade of CW5.
- Limit number of CW5s on active duty to 5 percent of warrant officers in each military service.
  - Does not apply to active duty training (ADT), active duty special works (ADSW), or active Guard or Reserve (AGR) soldiers.
  - Five percent of the Army National Guard and U.S. Army Reserves will comply with intent of the law.
- Expand authority of each military service's Secretary to convene--
  - Army promotion list (APL) promotion boards,
  - Selection boards for continuation on active duty,
  - Selection boards for early retirement,
  - Selection of senior warrant officers to serve on boards.
  - Allow each military service's Secretary to establish selection zones and competitive categories--
- Converts from "fully" to "best qualified" criteria,
  - Allows "below the zone" selections,
  - Allows selection boards to report the names of the chief warrant officers it considers unfit for retention in their present regular grade.
- Convert regular Army warrant officers from mandatory release date (MRD) based on active federal service (AFS) to active federal warrant officer service (AFWOS).

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- Permit W5s to remain on active duty for 30 years AFWOS.
- Permit W4s or below to remain on active duty for 24 years AFWOS.
- Retains mandatory retirement age of 62.
- Contain several transition provisions to protect warrant officer entitlements under current law.
- Establish W5 compensation by amendment to Title 37.
- W5 pay and most allowances increase 12 percent over W4 pay and most allowances.
- Special and incentive pay remain at W4 rate.

CW4 David P. Welsh is Warrant Officer Manager, Office of the Chief, Army Reserve, the Pentagon, Washington, D.C.

TAKING CARE OF JUNIOR NCOs

SGM William H. Hicks

All through our careers we've watched our junior officers and noncommissioned officers (NCOs) being developed. However, too many times we've taken the junior NCOs for granted and not realized that we may have damaged their chances for promotion.

Have you seen a junior NCO in your unit being "operationally deferred" from the Basic Noncommissioned Officer Course (BNCOC) because of an upcoming annual general inspection (AGI) or rotation to the National Training Center (NTC) at Fort Irwin, CA? How about sending your unit armorers to the Primary Leadership Development Course (PLDC)? "There's always another class; they can go to the next one!"

How would you feel if you were deferred from going to the Combined Arms and Service Staff School (CAS3) at Fort Leavenworth, KS, the Advanced Noncommissioned Officer Course (ANCOC), or the US Army Sergeants Major Academy (SMA) at Fort Bliss, TX ? Where would that put you with your year group or peer group? This happens to our junior NCOs. Schooling is part of their career progression. Not attending when they're scheduled places them behind their contemporaries. They work long and hard to make our units the best. We owe them the chance to excel.

To assist our junior NCOs in their career progression, we must realize the following:

- A specialist (SPC) must complete PLDC prior to becoming a sergeant (SGT).
- A sergeant/staff sergeant (SGT/SSG) must complete BNCOC to be competitive for promotion to sergeant first class (SFC).
- A SSG/SFC must complete ANCOC to be competitive for promotion to master sergeant (MSG).

Additionally, we must ensure that the first action newly promoted SSGs should take is to have official photographs taken and placed in their records.

Prior to each board they qualify for, we have to send them to review their records and submit new photographs.

If the NCO is truly outstanding and meets the prerequisites, a complete-the-record Noncommissioned Officer Evaluation Report (NCOER), may be submitted prior to the board convening.

You should check all of the above while your NCOs are taking care of you and your soldiers. That way you can take care of them.

SGM William H. Hicks is the Proponent Sergeant Major, Enlisted Proponent, in the Office of the Quartermaster General, Fort Lee, Virginia.

COMING UP IN THE QMPB

SPRING 1990 -- Reserve Components

SUMMER 1990 -- Supply Support Operations at the Wholesale Level

In order to better accommodate our reading audience, the Quartermaster Professional Bulletin is now being distributed individually to Active Duty personnel at the grade of E-8 or higher. Unit distribution will continue at the Battalion level for other Active Army personnel. In the Reserve Components, distribution will continue at the company level.

Officers can ensure that they receive their individual copies by making sure that the address listed on their Officer Record Brief is accurate.

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THE QUARTERMASTER CREED

I AM QUARTERMASTER.
My story is enfolded in the history of this nation.
Sustainer of armies...
My forges burned at Valley Forge.
Down frozen, rutted roads my oxen hauled
The meager goods a bankrupt Congress sent by me...
Scant rations for the cold and starving troops,
Gunpowder, salt, and lead.

I AM QUARTERMASTER.
In 1812 we sailed to war in ships my boatwrights built.
I fought beside you in the deserts of our great Southwest.
My pack mules perished seeking water holes
And I went on with camels.

I AM QUARTERMASTER.
I gave flags to serve.
The medals... crests... the clothes you wear
Are my design.

Since 1862, I seek our fallen brothers
From PFC to President.
In war or peace I bring them home
And lay them gently down in fields of honor.

Provisioner, transporter.
In 1898 I took you to Havana Harbor and the Philippines.
I brought your tents, your khaki cloth for uniforms.
When yellow fever struck, I brought the mattresses you lay upon.
In 1918, soldier...like you.
Pearl Harbor, too. Mine was first blood shed that day.
I jumped in darkness into Normandy, D-Day plus 1.
Bataan, North Africa, Sicily. I was there.

The 'chutes that filled the grey Korean skies were mine;
I led the endless trains across the beach in Vietnam.

I AM QUARTERMASTER. I can shape the course of combat,
Change the outcome of a battle.
Look to me: Sustainer of Armies
I AM QUARTERMASTER. I AM PROUD.