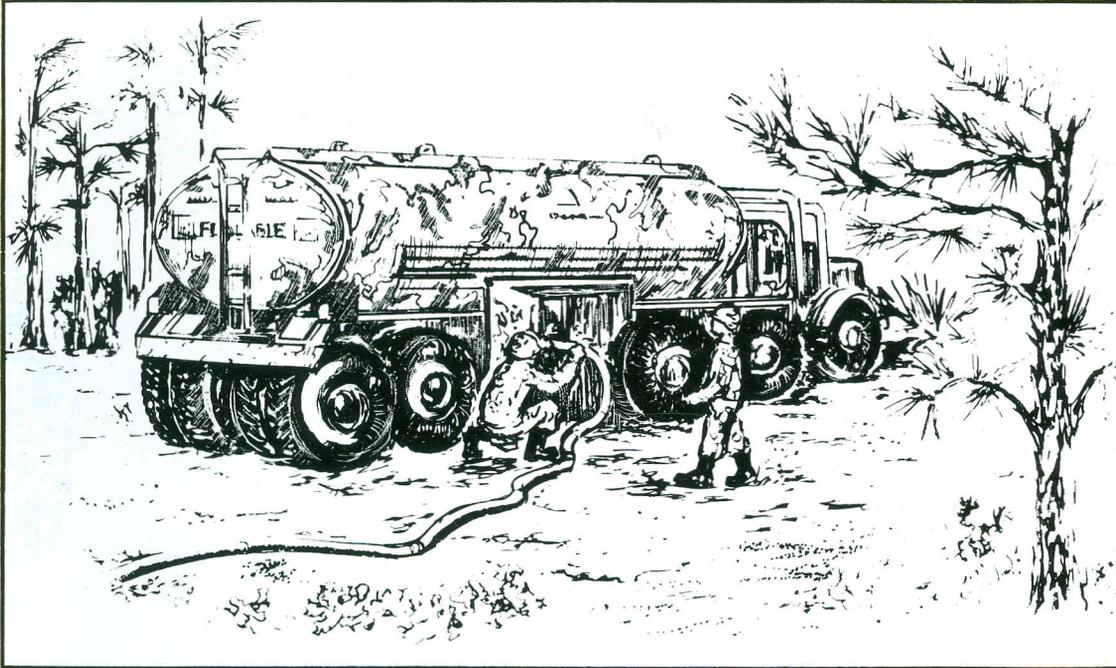


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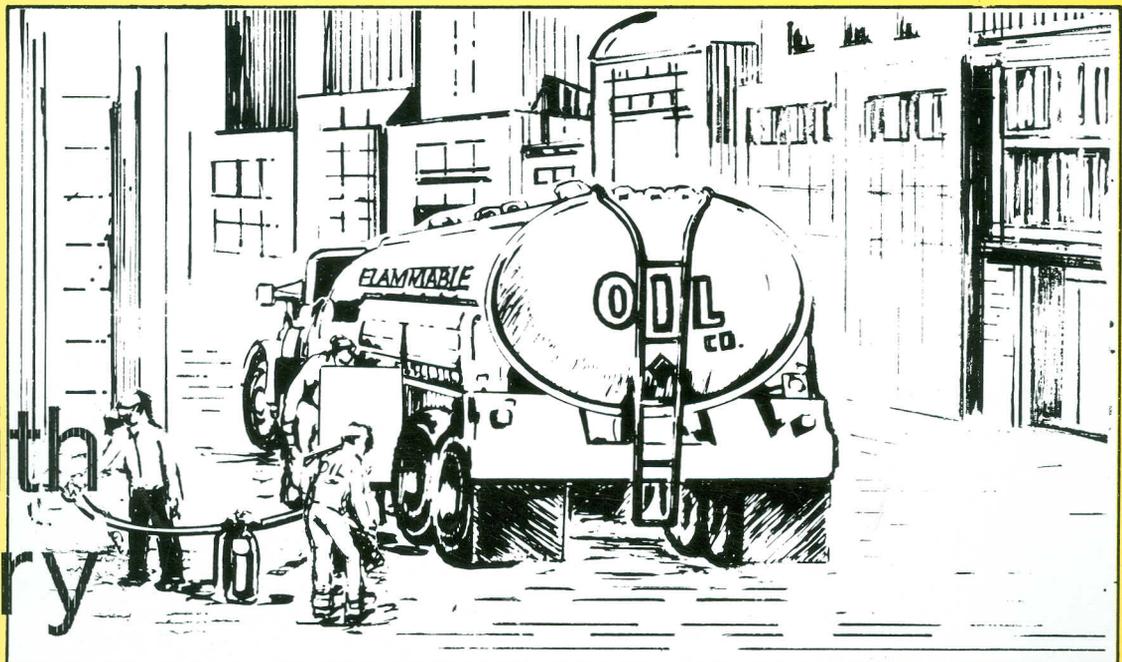
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Quartermaster

PROFESSIONAL BULLETIN
AUTUMN 1990 PB 10-90-3



TRAINING



... with
Industry



U.S. ARMY QUARTERMASTER CORPS



Sustainer of Armies Since 1775

THE QUARTERMASTER GENERAL

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This medium is approved for the official dissemination of material designed to keep individuals within the Quartermaster Corps knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

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QUARTERMASTER HOTLINE

The Directorate of Standardization and Evaluation (DOES) at the U.S. Army Quartermaster Center and School, Fort Lee, VA, has changed its name to the Office of Evaluation and Analysis (OEA). However, the 24-hour HOTLINE for collecting feedback from the field is the same. The numbers are:

AUTOVON 687-3767
COMMERCIAL (804) 734-3767

A safety program is being designed to provide systematic, objective evaluation of safety-related problems to Quartermaster organizations and proponent units in the field. Anyone with safety problems or shortfalls in Quartermaster training, doctrine, or equipment is encouraged to use the HOTLINE to relay any questions or comments directly to the U.S. Army Quartermaster Center and School.



FLEXIBILITY IS KEY TO SUCCESS

Brigadier General Paul J. Vanderploog

In the last edition of this periodical, I shared some thoughts on "Sustaining Through Change" and our Army of the future. At that point we were all looking at the potential impacts of emerging fiscal constraints and working hard to make the tough calls to further the reshaping of our Army to meet the challenges of the 1990s. That has not stopped, mind you, but since then many things have changed. In the world that continues to emerge after the demise of the Warsaw Pact and a reshaped threat in Europe, the unfolding events in Southwest Asia are beginning to clarify and impact upon our base case requirements. Clearly, threat drives what you do in the allocation process. Again, with less force and reduced resource levels, we are clearly seeing that logistical considerations are paramount to the successful projection of U.S. military power abroad.

Lessons learned during the deployment and buildup stages of Operation Desert Shield in Southwest Asia reinforce the fact that our Army must be prepared to operate in remote areas distant from an established sustaining base. However, it would be imprudent to use Desert Shield exclusively as the base case to develop our force structure for the future. The more appropriate challenge is to maintain an adequate mix of capability in the force structure to respond to contingencies regardless of location. This is easy to say, but when the realities of the budget and other competing priorities are factored in we do not have many degrees of freedom.

As the dust settles, we need to ensure we have the flexibility to respond rapidly to Corps-level contingencies and, when necessary, expand operations to support a larger force with Total Army capabilities. We will never be able to maintain an adequate combat service support force structure in the Active

Component to support every potential scenario. Both Operation Just Cause in Panama and Operation Desert Shield have pointed out some of the real shortfalls in our current active structure. For example, we have a very limited capability to purify, store and distribute water. Pipeline, graves registration and field services units are also small in number. Conversely, our Reserve Component units have some of these unique capabilities, but their ability to respond rapidly would be subject to call-up by higher command.

As the Army is reshaped we must keep pace with projected military challenges. I believe we should have sufficient capability in the Active Component to support a Corps. Certainly, more resources for combat service support would be better, but realistically a Corps is what our share will be.

We will soon begin to see the shape of a new Quartermaster Corps as we respond to the tremendous challenges of the day. Opportunities to improve the responsiveness of our Corps are at hand. Now is the time to act. Maintaining our present high standards with a smaller force will require all soldiers and leaders to be trained to standard and some force structure adjustments. I am counting on all Quartermasters to join the effort to bring the Corps on line with the requirements of this decade. Status quo is not an option. Change is fundamental and ongoing. We must keep pace or suffer the consequences. The future of the Corps is in our hands. Give your best and we will continue the long, proud traditions of the Sustainer of Armies since 1775. Our Army's soldiers deserve your best efforts.

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

OVERVIEW:

UNIQUE QUARTERMASTER TRAINING OPPORTUNITIES

Many officers who have become branch qualified in the Quartermasters Corps and are nearing the end of an assignment often wonder "what next?" Those officers who are two to four years from promotion and have completed every staff job possible, wonder what kind of job they can do now. For hard-charging officers seeking to further their professional development, the Quartermaster Corps has some unique opportunities available. These opportunities include Training With Industry (TWI), The Logistics Executive Development Course (LEDC), Advanced Civil Schooling (ACS), and teaching at the United States Military Academy.

Army officers wishing to learn more about civilian industry should consider participating in the TWI program. The one-year program offers qualified officers an opportunity to work with civilian companies to gain professional experience to enhance their performance in future military assignments. The program teaches participants how major corporations do business. It also allows them to develop high-level managerial techniques. In exchange for the opportunity to work in civilian industry, participating officers agree to a three-year utilization tour following 10-12 months of training.

In addition to benefiting the soldier, TWI serves an important need for the Army. TWI provides experience in industrial procedures and management practices not normally available in military and civilian schools. After completing the program, participants introduce state-of-the-art management techniques used by civilian industry to military units. The goal of the program is to use these techniques to enhance overall efficiency in the Army.

TWI is currently offered to branch-qualified officers in the Quartermaster, Transportation, Ordnance, and Aviation Branches through the Office of the Deputy Chief of Staff for Logistics (ODCSLOG). The Quartermaster Corps has programs with Marriott Corporation, Sun Refining and Marketing Company, Hertling Industries, WAL-MART Stores, Inc., McDonnell Douglas, The Procter and Gamble Distributing Company, and Super Valu Stores, Inc.

The selection process for the program is very competitive. The

'In addition to benefiting the soldier, Training With Industry (TWI) serves an important need for the Army. TWI provides experience in industrial procedures and management practices not normally available.'

program requires that the participant be either a senior captain or a major. They must be nominated and have good performance records. Only 26 officers will be able to participate in FY 90/91, and selection for the program is more difficult due to the quotas placed on each of the participating branches. This year the Quartermaster Corps was only allocated six positions. Three of these positions are related to general supply (92B), two are related to subsistence (92G), and one is related to petroleum (92F).

Although it is difficult to be selected for the program, those who are selected receive tremendous rewards. In addition to personal rewards (most participants find the program very enjoyable), the skills that participants gain from the program make them more competitive for promotions. Five captains in the program in FY 89/90 were selected for promotion to major, and four were selected for promotion in FY 90/91. Some participants use their time to earn master's degrees by taking classes at local colleges in the evenings.

Although officers in the program live and work in a civilian atmosphere during the course of the program, they are assigned to the Student Detachment at Fort Benjamin Harrison, IN. They are required to submit three reports during the course of the program to update their progress. Officers are allocated temporary duty (TDY) funds for company-directed travel.

TWI's success will continue to be marked as it expands overseas in the years ahead. In FY 90/91, transportation management training will be provided by Deutsches

Bundesbahn. Petroleum management training will be provided by Central Europe Operating Agency in FY 91/92. Regardless of the location of the assignment, all future participants in the program can be assured that their experience will be an asset to their careers!

Army Regulation 621-1 (Training of Military Personnel at Civilian Institutions) outlines the application process. Applications should be submitted by September of the year before an officer intends to participate. Quotas are released in October, applications screened, and successful applicants start work the following summer. Additional information can be obtained by calling the Future Readiness Officer at the Quartermaster Branch, U.S. Total Army Personnel Command, Alexandria, VA, AUTOVON 221-8119.

The Logistics Executive Development Course (LEDC), Advanced Civil Schooling (ACS), and the opportunity to instruct at the United States Military Academy are detailed at the end of this issue in the CAREER NOTES section. 

TRAINING WITH INDUSTRY— 'DIVERSITY AT ITS BEST'

CPT Marshall J. Jones

Well-organized, disciplined military units require well-defined, practical, enforced standards. These model units thrive because of personnel who are knowledgeable and technically and tactically proficient. When these units are put to the test, they perform and sustain.

The same scenario exists in civilian industry. Those businesses with well-defined, practical, enforced policies and standards are successful. Better yet, when these businesses have knowledgeable and technically proficient personnel who take the initiative, these businesses usually are more competitive and viable.

Sun Refining and Marketing Company is no exception. For over 100 years, Sun has been an eminent player in the petroleum industry. Sun continues to thrive because of sound business practices and well-defined, enforced standards.

Firsthand Experience

Beginning August 1989, I experienced firsthand those basic fundamentals and qualities exhibited by the civilian petroleum industry as practiced by the Sun Refining and Marketing Company. I am the most recent of 16 Quartermaster Officers who have participated annually in the Training With Industry (TWI) Program with Sun since 1975. Of the approximately 120 U.S.-based corporations that participate in the TWI program, Sun is the only petroleum company.

Sun Refining and Marketing Company, headquartered at Philadelphia, PA, is one of this country's leading petroleum refiners and distributors. Sun prides itself on quality and customer satis-

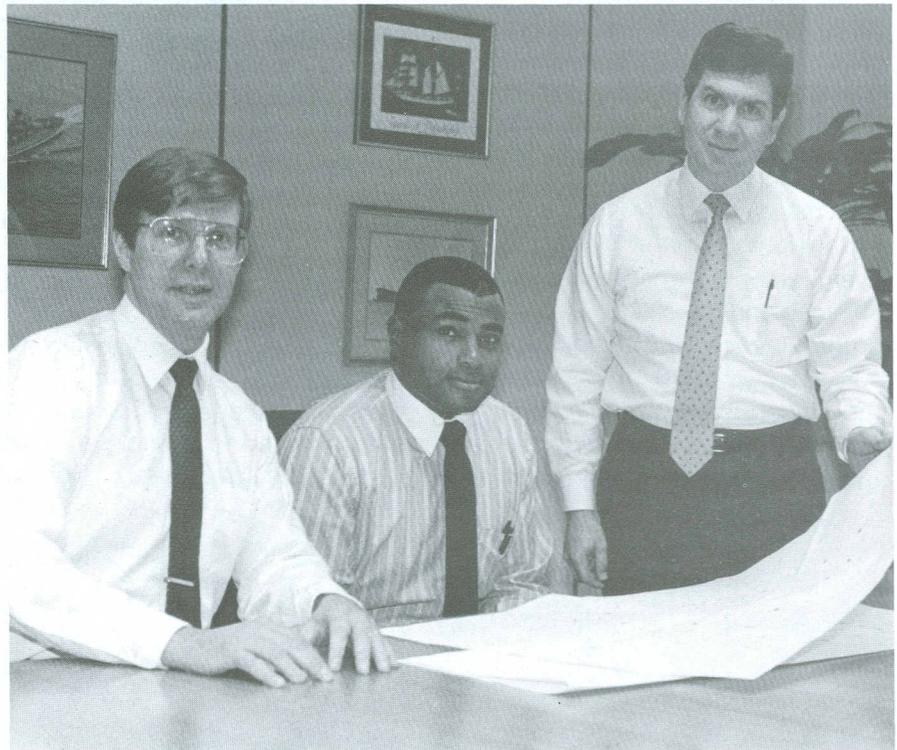
faction. The company owns and operates five geographically dispersed petroleum refineries which provide the capabilities to handle both domestic and foreign crude oils. The primary mission of Sun is to process crude oil into merchantable commodities ranging from various types of fuels to numerous types of lubricants and petrochemicals. The purchasers of these diversified commodities include commercial, industrial, and U.S. military customers. Sun's wholesale and retail distribution systems ensure timely distribution of petroleum refined products through pipelines, waterborne vessels, rail and highway vehicles and facilities. Retail sales of gasoline, primarily under the "SUNOCO" and "ATLANTIC" brands, are sold through service station outlets and

automotive centers operated by independent dealers in a marketing area east of the Rocky Mountains (eastern half of the United States).

Wholesale Fuels

After undergoing a two-week orientation with SUN, I began training with the company's Wholesale Fuels Supply and Distribution Division in Philadelphia. While training with the fuels division, I experienced firsthand both realistic and challenging project assignments.

My initial project assignment was assisting with the review and redistribution of the company's existing "Fuel Exchange Agreements." The nature of these agreements is similar to the military's "Replacement in Kind"



CPT Marshall J. Jones receives instruction from Dave Torpey (left) and Tony DiEgidio of Sun Refining and Marketing Company's Crude Oil Supply and Distribution Division during his Training With Industry assignment.

(RIK) fuel agreements used primarily at locations outside the continental United States (OCONUS). My second project was assisting with a "Reid Vapor Pressure (RVP) Rollout" study. This project was very complex. In order for Sun, as well as other petroleum companies, to meet the new Reid Vapor Pressure regulations established by the state environmental protection agencies, a systematic study was conducted. The process consisted of using a LOTUS computer software program, a review of existing tankage inventory, and the scheduling of systematic tankage drawdown and quality changeover. Fuel inventories received careful attention throughout the entire process to ensure that customers did not run out of fuel.

Refinery Operations

After completing this training with wholesale fuels, I trained for seven weeks in refinery operations at the Marcus Hook Refinery, approximately 25 miles southeast of Philadelphia. The training included every factor of the operation, from shipping and transfer operations to crude oil processing and quality assurance. I was most impressed with the elaborate refinery safety program, the operator's training program, and the refinery's

maintenance program. I found that some key military priorities also hold true in the civilian industry sector, especially at Sun's Marcus Hook Refinery. The priorities follow:

- Overall job safety (operator and equipment),
- Training (operator and supervisory levels),
- Maintenance (operator and supervisory levels including contract maintenance), and
- Successful job/mission accomplishment.

I also trained for six weeks with the Sun Pipe Line Company. The training included scheduling and dispatch procedures, Sun's automated control room, various pipeline protection systems, pump station operation and maintenance, terminal operations, and budgeting.

Major Training

Other major areas of training included in the program are supply and distribution management for crude oils, fuels, lubricants and petrochemicals; risk management; marine chartering and contract administration; business planning and operating economics; and materials management. Upon completion of the tour with Sun, I will serve at the Directorate of Combat

Developments as the Petroleum Logistics Project Officer at the U.S. Army Quartermaster Center and School, Fort Lee, VA.

The various TWI programs available to Quartermaster officers provide excellent opportunities to experience firsthand some of the best managerial skills and technological advances in existence. Sun provides participants the opportunity to observe and learn about the overall petroleum industry from an inside perspective. As a Petroleum Logistics Project Officer at the Quartermaster School, I will be responsible for planning, testing, and fielding new and improved petroleum logistical support equipment, systems, and concepts. Maintaining liaisons between the military services and civilian industry is crucial. So there it is: "TWI - Diversity at Its Best." The training experience is invaluable both to the individual officer and the Quartermaster Corps. The end result is that the U.S. Army obtains an enhanced soldier who better meets the needs of a "lean, mean, diversified, fighting machine" - The Army of Excellence. 

CPT Marshall J. Jones is a Quartermaster Officer completing the Training With Industry program with Sun Refining and Marketing Company, Philadelphia, Pennsylvania.

SUPER VALU

CPT Roberto Rubet

Opportunities for promotion and future development will become very competitive based on current events. The Quartermaster Corps, despite these challenges, offers a variety of opportunities to excel and to become professionally competitive. Training With Industry (TWI) is one of these opportunities.

I was not aware that a company such as Super Valu Stores, Inc., existed until a year ago. Since then, I have been provided with the most exciting training experience of my military career.

Super Valu, a Fortune 100 diversified service organization, supplies wholesale food products to more than 3,000 independent retailers nationwide. Corporate headquarters is in Eden Prairie, MN, but Super Valu's retail support centers cover the country, from the West Coast to the Mid-Atlantic states, from the Midwest to the deep South.

Management Trainee

Working with Super Valu as an entry level management trainee contributes immensely to the development of an officer. Different from military schools, Super Valu offers a variety of courses that focus on the development of managerial as well as technical skills. In the Army system, many of these managerial skills are not fully developed until you reach certain seniority. Within Super Valu, it is a continuous process for many in management.

Most of the training that is not directly related to food operations can be easily used in any future military assignment. All of the training programs are designed to enhance skills such as public speaking, time management, and human behavior. Another advantage is that this training can be updated on a regular basis through the offices or departments at Super Valu.

This training is unique to each individual and gives an overall advantage to those not exposed to TWI. The focus of the TWI training and the skills certainly will make better officers.

Skill Awareness

Industry, as in the military, is very competitive. Similar to the Combined Arms and Service Staff School (CAS3), Super Valu instruction focuses on making participants aware of skills that they are good at and skills that need improvement. Classroom instruction requires total involvement and full commitment in order to assist in accomplishing personal goals.

I worked initially at Super Valu with a retail counselor from the Minneapolis Division (Super Valu's largest division) where I had an excellent opportunity to compare and analyze the operational differences between military stores and stores in private industry. Currently, Super Valu services military installations across the United States, forwarding or delivering products for many different vendors.

Labor Systems

Follow-on training placed me with a labor specialist, conducting presentations and providing assistance with current labor systems designed to facilitate labor scheduling at the stores. I then teamed up with a meat and a produce specialist, assisting with operational issues on a daily basis.

Super Valu offers a variety of courses to their personnel to improve critical skills. One is the Retail Counselor Training Program. During this seven-week course, retail counselors learn more about subjects such as financial analysis, presentation skills, merchandising, advertising, negotiating skills, and store analysis techniques. All are put into practice during the last 8 to

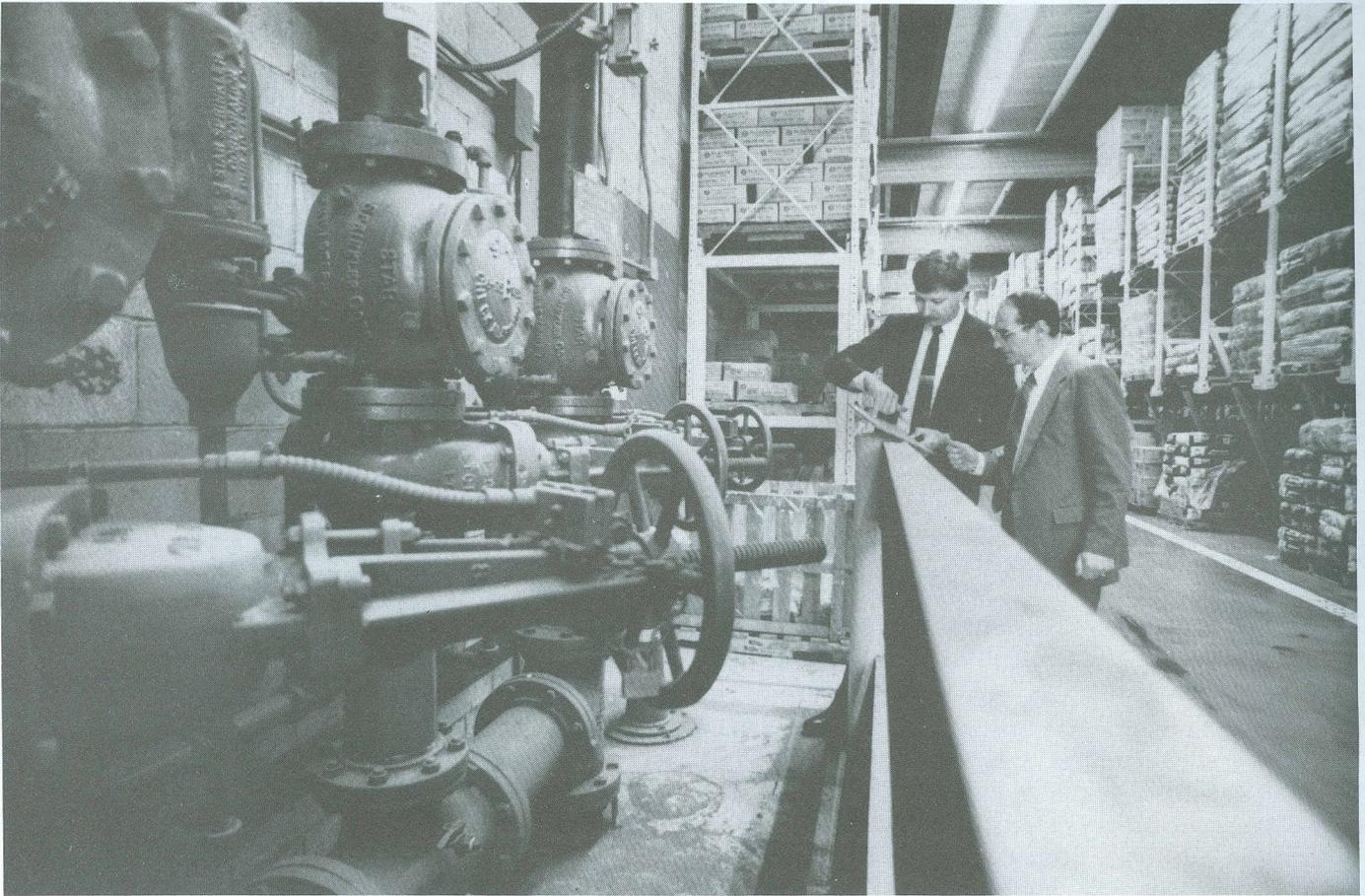
10 days of the course. The class is divided into smaller groups. Groups must analyze a store that is either in a net loss situation or not meeting the owner's expectations. The key to this exercise is that it is a real-life situation where the analysis will impact on a store's future. The group meets with the owner or store manager and explains the procedures and asks for store management assistance. The group analysis is based on observation, interviews, and a thorough financial study of current accounting documents. Other areas studied are competition and trade.

Action Plan

The group reviews and evaluates all data after the store analysis process. Later, the group develops a plan of action and recommends it to the owner with a target date of expected improvement. The group conducts a presentation for the store owner and key personnel. The presentations are recorded on videotape and evaluated by Super Valu's retail operations department.

After completing the Retail Counselor Training Program, I transferred to the industrial engineering department that specializes in facilities, warehouse systems, and work standards. This department's services are geared toward developing Super Valu facilities within their distribution centers.

My training focused on the distribution function of the wholesale grocery industry. I visited five divisions and observed the different methods used to support their customers. Similar to the military, the mission varies from division to division because of factors such as population, ethnic groups, and size. I participated in construction meetings and assisted with the implementation of work standards at the Indianola, MS, division. This



Personnel at Super Valu Stores, Inc., perform risk management assessments for a warehouse in the Minneapolis Division, the food corporation's largest.

division's general merchandise department has work standards. Employees must pick a specific number of pieces per order within a specific amount of time. Because of changes in the layout of the facility, I assisted an industrial engineer in demonstrating the proper techniques and use of equipment for the collection of data. This data was later used to develop and implement new work standards that were appropriate to the new layout.

One of the industrial engineers recommended that I attend the Distribution Management Training Program. This program, different from the Retail Counselor Training Program, concentrates on the supervisory skills of personnel currently working as supervisors at any of Super Valu's distribution centers.

Retail Counseling

The Retail Counselor Training program aims to create a broader perspective of the business — from

buying and merchandising to accounting and financing, to warehousing and transporting. The three-phase course develops beginning and experienced supervisors into more effective managers. The first phase is five weeks long, conducted at corporate headquarters. The second phase is four months long, self-paced at the place of duty. The third phase is a two-week follow-up where projects completed during phase two are discussed and evaluated.

The initial phase develops a number of skills through approaches such as focused interviewing, "negotiating to yes," group action, labor relations, contract interpretation, and ethics. In the case of focused interviewing, I was challenged with the task of interviewing real candidates applying for positions in the distribution system. Before the actual interviews, the instructor provided the necessary skills to conduct a successful inter-

view. Group action developed skills for time management and conducting effective meetings. "Negotiating to yes" provides skills to help become a better negotiator. Labor relations, as well as contract interpretation focused on dealing as a supervisor with union employees.

The Super Valu TWI program guided me toward the developing certain skills that will make me a better supervisor, thus increasing my potential for success. Overall, the Super Valu TWI program provided me excellent knowledge in retail operations and wholesale food distribution operations. Most important, it developed a number of skills that will make me a better officer, manager, and logistician. 

CPT Roberto Rubet, a Quartermaster Officer, is currently in the Training With Industry program with Super Valu Stores, Inc., whose corporate offices are in Minneapolis, Minnesota.



WAL-MART Stores, Inc., fully automated several distribution centers from receipt of merchandise to shipment to retail stores.

WAL-MART DECLARES WARS

CPT Carl S. McGlone

WAL-MART Stores, Inc., headquartered in Bentonville, AR, has declared WARS on the civilian wholesale distribution industry. WARS is the Warehouse Arrival and Receiving System that fully automated several WAL-MART distribution centers. WAL-MART accounts for freight (merchandise) from the time of receipt until shipment to the retail stores. WARS was initially implemented at Distribution Center (DC) IV in Bentonville on 1 April 1989.

WAL-MART's first year to participate in the Training With Industry (TWI) program was 1989. DC IV was selected as the training site largely because of WARS. WARS could provide essential training ultimately resulting in future innovations at depot level for the U.S. Army.

WARS Objectives

The objectives of WARS are to improve the accuracy for verifying, tracking, receiving, and maintaining quality control; increase slotting accuracy of freight; simplify data functions; provide the system a way to track vendor returns, problem freight, level of service, and unloading allowances; allow 24-hour trailer unloading; eliminate duplication of effort; and provide on-line tracking of trailers and freight.

The main computer system at DC IV is called the "host." RT, which stands for RISC (reduced instruction set computer) technology, is the model name for the computer systems processor and terminals. The RT allows certain functions of unloading, freight slotting, and in-

ventory control to continue when the host is not operable. The RT stores the accumulated information until communications resume with the host. Wireless terminals allow communication by means of radio waves between operators and the RT which transmits the information to the host.

LEAP Training

My TWI training started with the Learning Enrichment Accelerated Program (LEAP). LEAP, an intense 12 weeks, provides basic understanding of wholesale distribution management with the emphasis on receiving, filling orders, and shipping operations.

Training in receiving involved scheduling and manifesting

appointments, claims, returns to vendors, problem freight, stocking freight (pallet), and purchase order control. Filling orders involved orders from retail stores. Orders are either filled by the full case or in quantities less than a case, commonly referred to as a "pick." One of the most interesting aspects of filling orders is replenishment by using wireless computer terminals mounted on forklifts. The wireless terminal displays the next replenishment move by batch and areas, or the prime slot may be scanned to locate the next move for a specific prime item. During the batch and area replenishment, the lift driver enters the batch number and prime slot on the wireless terminal. The oldest move for replenishment is then displayed. The forklift driver scans the bar-coded reserve slot and pallet bar code upon arrival at the reserve slot. The pallet of freight is then transported to the prime slot where the prime slot is scanned to complete the replenishment process. To locate the next move for a specific prime, the prime slot must be scanned and the next move for the prime slot is scanned on the wireless computer terminal. This feature is extremely beneficial if the prime slot empties before completing replenishment.

Shipping Critical

One of the most critical areas within any distribution center is shipping. At DC IV, several different conveyor lines merge into two lines before freight proceeds through a Rapiscan Encode system. The freight is then sorted by means of bar code along one of 15 shipping lanes. The freight is scanned for billing purposes before loading onto a WAL-MART tractor trailer. The freight's final

destination is one of 160 retail stores supported by DC IV covering a four-state geographical area.

Another vital area in DC IV is the quality assurance section. Its mission is to maintain accurate inventory levels, establish prime slots for new items, research quantity errors, conduct cycle (random inventory) counts, troubleshoot replenishment problems, and monitor the many reports produced by WARS.

On-the-Job Training

Several projects were assigned to me by the DC IV general manager upon LEAP completion. During one project, I was realignment coordinator. Every DC undergoes a realignment each April and October. Realignment is necessary as new DCs and retail stores are opened. Retail stores are realigned with the DC that can provide the best support based on geographical considerations. The April 1990 realignment resulted in the loss of 40 retail stores and the addition of 9. This four-to-six-week process requires close coordination with both retail stores and WAL-MART's dispatch operation to ensure timely, uninterrupted support. Timely deliveries are vital to the successful operation, and effective communication is of the essence.

A second project was performing temporarily as shipping operations manager. This unique experience provided additional hands-on training and also the opportunity to display leadership and managerial skills with both management and hourly associates.

DC IV is currently undergoing a major renovation resulting in additional on-line conveyor modules and expansion of existing modules. Estimates were provided on the

number of prime and reserve slots before and after the renovation. Estimates were also provided on the number of rack bar and rack support leg requirements.

TWI Highlight

One of the major TWI highlights was visiting the Brookhaven, MI, distribution center. This dual-sort facility has over one million square feet and the capacity to ship 225,000 cases of freight daily. It currently supports 180 retail stores.

The final phase of TWI training involved an overview of warehouse administration at the general office. This training enabled me to observe both short- and long-term planning at the executive level.

The WAL-MART TWI program provides a solid foundation in wholesale distribution management. This experience will be extremely beneficial at my future assignment to the New Cumberland (PA) Army Depot.

Sound Logistics

Logistically sound, WAL-MART has its own assets to deliver freight to retail stores as well as state-of-the-art automation. LEAP is an excellent junior executive manager trainee program. WAL-MART is a people-oriented company recently selected as "Retailer of the 80s" by a discount store news publication. WAL-MART, like the Quartermaster Corps, prides itself on professionalism, integrity, and values. 

CPT Carl S. McGlone, a Quartermaster Officer, left his Training With Industry assignment with WAL-MART Stores, Inc., after selection for Command and General Staff College (CGSC), Fort Leavenworth, Kansas.

CLOTHING: MORE THAN JUST A NEEDLE AND THREAD

CPT Daniel H. Stafford

Often, in this compulsive world we live in, we seldom have time to stop and appreciate the very many things we have. Unfortunately, we also seem to take some of our possessions for granted. For example: our clothing, both civilian and military.

For 11 months, I worked with Hertling Industries Inc., an apparel manufacturer in Brooklyn, NY. My assignment was part of the Training With Industry (TWI) program in the clothing and textile industry. To the Quartermaster Officer, the TWI program offers experience and training in the civilian industry unmatched by any type of formal classroom education. Thus, I learned a great deal — one aspect of which is to respect the effort put forth in manufacturing clothing.

'IT FITS!'

Before my experience in the clothing industry, I, like most of us, would look at a garment, with a "three-dimensional mind." First, I looked at the appealing aspect of the model and color or style of the fabric. Secondly, I thought, "well what do you know about that, it fits!" And lastly, I looked with great anticipation at the price tag. Even now, since concluding my training in the apparel industry, I still use that "three-dimensional mind," but with a greater appreciation for what it takes to make clothing — specifically a well-tailored, high-quality suit.

Unfortunately for generations to come, a finely crafted hand-tailored suit will become increasingly more difficult to find. The professional "master-tailors" who have dedicated most of their lives to perfecting quality clothes are retiring from the trade and are not being

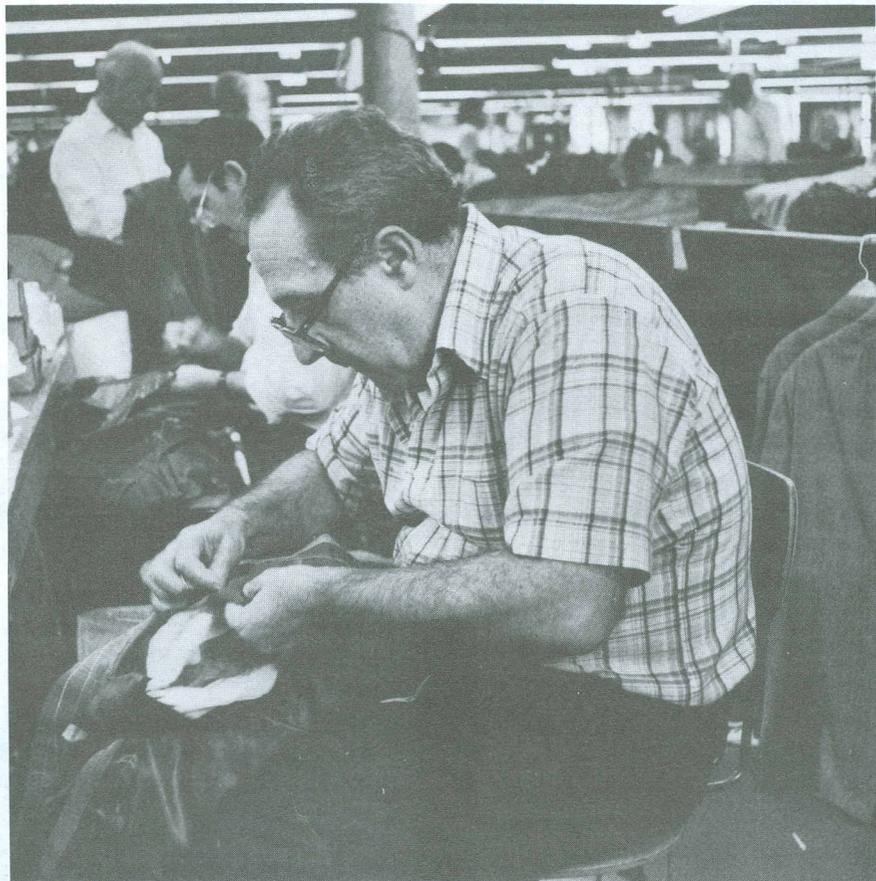
replaced. As a result, the apparel industry has turned to automation, such as the Gerber Cutting Machine, to accommodate the desires of the consumer who, in the long run, will pay higher prices for fine suits.

EXCLUSIVELY WOOL

The apparel company that sponsored my TWI assignment devoted much of its efforts to manufacturing garments made exclusively of wool. It is fitting to know a company that places so much pride in fine-crafted suiting uses a product (wool) that has figured on the loom of civilization as an integral part of human life.

According to the May 1988 issue of *National Geographic* magazine, "For 12,000 years, since man realized that with sheep he could roam and prosper on the windswept mountains and plains of southwest Asia, wool has been a civilizing force. Man almost certainly discovered the food value of sheep before wool, but when he began to fashion garments to protect his body from hot or freezing temperatures, he learned that sheep could be worth more alive than dead."

Today, most wool is produced in the Southern Hemisphere and shipped to the Northern Hemisphere. Australia leads in world production, Japan in imports.



A garment worker closes the sleeve on a hand-tailored suit jacket at Hertling Industries Inc. in Brooklyn, New York.

'The second most crucial aspect in the garment industry is the manufacturing process...the basic consumer generally has no appreciation for what it takes to make high-quality garments.'

Domestically, most wool in the United States is produced in the West. In contrast, sheep in Australia are raised for their wool, while in the United States, sheep are raised for their food value.

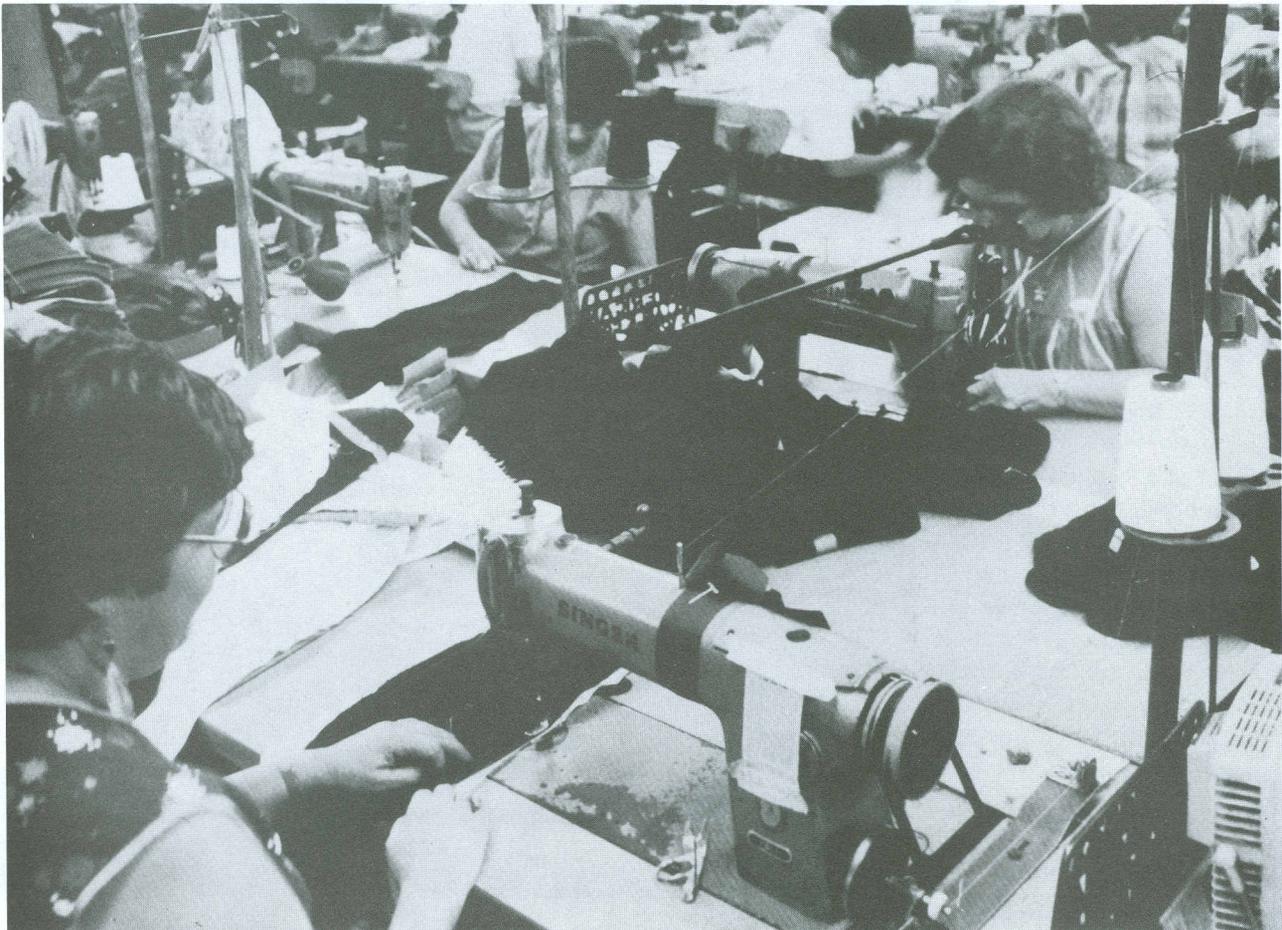
Yet, when I think of the value of sheep, nothing is generally wasted. Several products are derived from sheep: meat, long wool fibers, spinning yarn for clothes and suiting, short wool fibers for manufacturing products such as gloves and scarves, and "wool grease." Wool grease, in its unrefined form, contains lanolin collected during the cleaning process of raw wool. Secreted by the sheep's glands, lanolin is used in many cosmetics because it is easily absorbed by the skin.

CRITICAL ASPECTS

The selection of styles or colors of fabric is probably the most crucial aspect of the garment manufacturing industry. This selection process normally begins 10 to 12 months before the selling season. Selection of fabrics is the responsibility of the merchandiser, and the success of the company's sales for that season depends greatly upon the merchandiser's skill to predict what styles will be popular.

The second most crucial aspect in the garment industry is the manufacturing process. Here, the basic consumer generally has no appreciation for what it takes to make high-quality garments.

The process begins with cutting the fabric according to the cutting ticket and "marker," a term used in the industry to represent the pattern. Great precision and accuracy are required in this step, because the cutter gets but one chance to make the cut. An error in this step will generally require the piece of cloth to be discarded — an extremely costly step. To remain current and competitive in the industry, the company I trained with, as well as the U.S. government facility in Philadelphia, PA, cuts fabric with a computer-driven cutting machine. This computerized cutting apparatus can cut through approximately 3 inches of fabric — about 75 garments — within a



Constructing fine-crafted suiting requires an eye for detail at the sewing machine.



Apparel industry workers check the seams on men's suit jackets.

matter of minutes. After completing this operation, assembly of the garment begins. Depending upon the number of operations required, assembling a suit can take over 150 steps and pass through 25 different operators. Thus, great care is taken in quality control.

'PIECE RATE PAY'

One final note worth mentioning is the process which compensates garment manufacturing operators. Here, I gained more respect for the blue-collar work force. Most operators are paid by the "piece rate," the time devoted to and difficulty of the operation established by the textile workers union and

approved by management. Piece rates differ from company to company, but it is not unusual for an operator to be paid pennies per operation.

As I completed my training, I became convinced that the clothing manufacturing business rates among one of the most unappreciated industries in this country today. Unfortunately, most of us take for granted one of our basic needs: clothing. Take pride in what you wear and the way you represent yourself, for the labor and effort involved in manufacturing your clothes and uniforms is almost incomprehensible.

As mentioned earlier, the experience I gained from the TWI program provided me a greater insight and knowledge of the clothing manufacturing industry when compared with any opportunity to formally study the process. I strongly encourage all who are eligible to investigate the opportunities available in the TWI program. The experience is very worthwhile. 

CPT Daniel H. Stafford was assigned through the Training With Industry program to Hertling Industries Inc. in Brooklyn, New York. He currently is Factory Operations Officer, Defense Personnel Support Center, Defense Logistics Agency, Philadelphia, Pennsylvania.

DISTRIBUTION AND INVENTORY CONTROL AT THE PROCTER AND GAMBLE DISTRIBUTING COMPANY

CPT Donna L. Shaw

One of the benefits to Quartermaster Officers is the variety of Training With Industry (TWI) positions available. In fact, the Quartermaster Corps offers such a wide range of TWI assignments that it's difficult to select the industry that best suits the officer. I trained at The Procter and Gamble Distributing Company in Cincinnati, OH, in distribution and inventory control.

Since Procter and Gamble is a large and diverse corporation, each successive TWI officer has the unique opportunity to select the area of the company to work in and the aspects of distribution or inventory control to concentrate on. This could be an overwhelming task if the industry didn't provide some assistance. An industry coordinator assisted my transition to civilian industry. He introduced me to managers that I would be working with and helped me to define my objectives and identify potential training areas.

I trained in a variety of areas, from health and beauty aids distribution to plant warehousing and sales. Although training in skills that may not be used in military service may not make sense initially, I had to understand what each part of the product supply system was responsible for and how each part contributed to the overall distribution process before I could effectively train in the distribution or inventory control areas. Distribution means more than getting a truck from point A to point B: it means getting the right product in the correct quantity to the destination on time without damage. Each part of the order and delivery process must be understood before the effect of the distribution system on the customer and the consumer is understood.

To learn as many business concepts and management theories as possible, I trained in, or was exposed to, a wide range of functions. These included the production of Crisco shortening, from the manufacturing process to packing to the warehouse. I learned how quality control is performed to guarantee the customer and the consumer a quality product. I participated in the carrier selection process and dock scheduling.

I went on a sales call, inventoried products, and met with store managers and warehouse foremen. I was exposed to new methods of packaging that reduce damage and to the industrial robotics that reduce damage and increase productivity. (With robotics, computer-controlled robots perform manipulative tasks, as on an assembly line.) I attended the annual corporate meeting and listened to success stories and new company initiatives. It was a fascinating opportunity to be a part of the business world and to understand what happens when an acquisition is made, how decisions affect the customer, and how policy and procedure changes must be invisible to the consumer except as improved service.

Although I am learning new skills and receiving a valuable business education, the most beneficial product from the TWI program at Procter and Gamble is the exposure to new management theories and business philosophies. I am included in discussions of everything from the high-commitment work force to the benefits of public warehouses to the company policy on maternity and child care leave.

It was interesting to observe how junior managers are coached and trained to perform in the work force

and the value placed on leadership skills. Continued education and training are strongly encouraged. Mandatory classes for all employees, including TWI Officers, include "total quality" and "diversity training." Self-improvement classes are available too. Some classes are targeted at managers, some at technicians, and still others teach work teams or groups how to work together and build on each other's strengths. It's this dedication to education and quality that allowed Procter and Gamble to successfully create a positive work environment for women and minorities.

In an effort to include the TWI program in the focus of customer service, partnership, and commitment to quality, Procter and Gamble hosted a seminar for TWI Officers and their industry coordinators who work in industries that Procter and Gamble does business with. The purposes of the seminar were to share experiences and investigate the possibility of developing a relationship among invited companies. This relationship would allow the TWI program to expand from a single officer/single company experience to one where officers could work on joint projects affecting the business relationships of a number of companies.

The seminar was held at the Procter and Gamble headquarters in Cincinnati. TWI Officers and their coordinators from Procter and Gamble, CSX Transportation, Inc., Carolina Freight, Sea Land Corporation, Super Valu Stores, Inc., and WAL-MART Stores, Inc., as well as representatives from the Office of the Deputy Chief of Staff for Logistics, Officer Personnel Management Directorate, U.S. Total Army Personnel Command (PERSCOM), Alexandria, VA, and

the Office of the Quartermaster General, Fort Lee, VA, attended the seminar. The 19 seminar attendees were divided into four work groups or teams.

We employed a number of "total quality techniques" to arrive at an action plan for developing joint projects. These techniques are part of Procter and Gamble's total quality training. The principle objective of total quality is to help personnel and organizations define the right things to do and then to align their processes in a continually improving pursuit of their mission. Total quality is a way for all personnel to think about managing and organizing all work processes.

As we worked on the problem the group facilitator illustrated how each of us is a customer and supplier to each other. We applied total

quality techniques and completed a force field diagram listing forces driving the process toward entering into joint ventures and forces restraining us from attaining that goal. After we briefed and discussed our force field diagrams, we used a Pareto diagram to identify the most important restraining forces. A Pareto diagram is a form of a bar graph which helped us to determine which problems to solve in what order. It guided us in separating the "critical few" problems from the "trivial many."

The next step required us to use a systemic cause and effect diagram or "fishbone" to help direct and prioritize our efforts. After some intensive brain storming sessions, we presented and discussed our fishbones. We finished up this portion of the seminar by having each

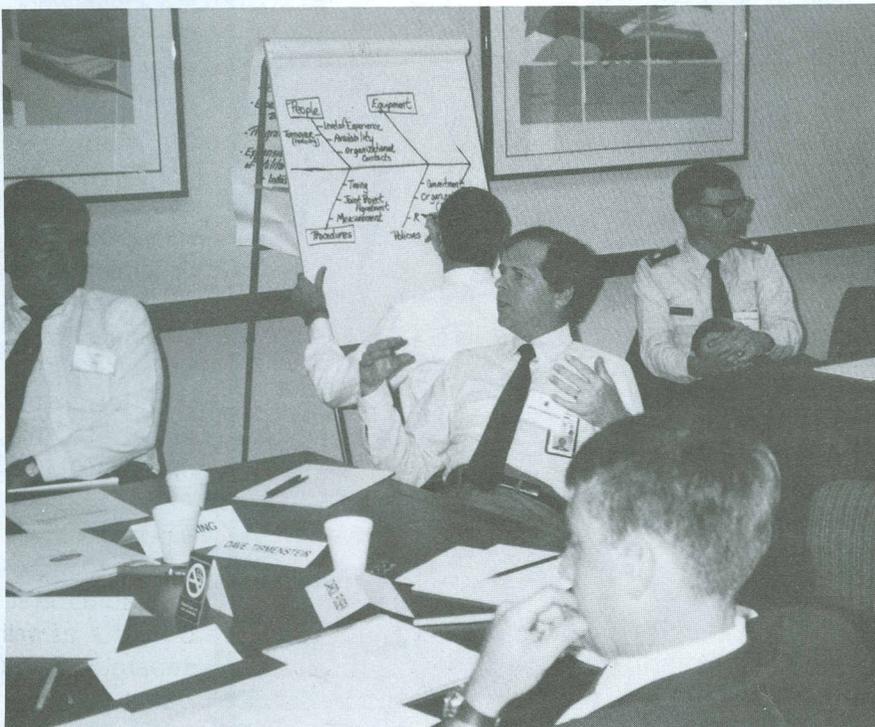
team complete a responsibility chart that will help assure us that plans made at the seminar are carried out completely.

The rest of the seminar provided the TWI Officers, their coordinators, and the U.S. Army representatives time to discuss TWI experiences, suggest program improvements, and review follow-on assignments. The seminar identified several opportunities for joint projects. The current TWI Officers will research these areas to determine if the proposed projects align with the TWI program objectives and the business objectives of all concerned. The joint project proposals will remain with the industry coordinators and the industry employee responsible for that area of the business. A copy of the project will remain in the TWI continuity file.

Training at Procter and Gamble was a very valuable experience and could not be duplicated at a business school. I participated in programs that are changing the direction and focus of a multinational corporation. I saw how military payment and shipping policies affect the business of a civilian industry and also gained an insight into how civilian industry perceives the military.

Exposure to the processes of manufacturing, storing, selling, and distributing so many different products is priceless. I am fortunate that I was selected to participate in the TWI program at Procter and Gamble.

CPT Donna L. Shaw, a Quartermaster Officer, continues her Training With Industry (TWI) assignment with The Procter and Gamble Distributing Company, Cincinnati, Ohio.



Training With Industry officers and their industry coordinators developed joint projects at a seminar held at The Procter and Gamble Distributing Company's corporate headquarters in Cincinnati, Ohio.

SINGLE SUPPLY SYSTEM

Albert P. Bell

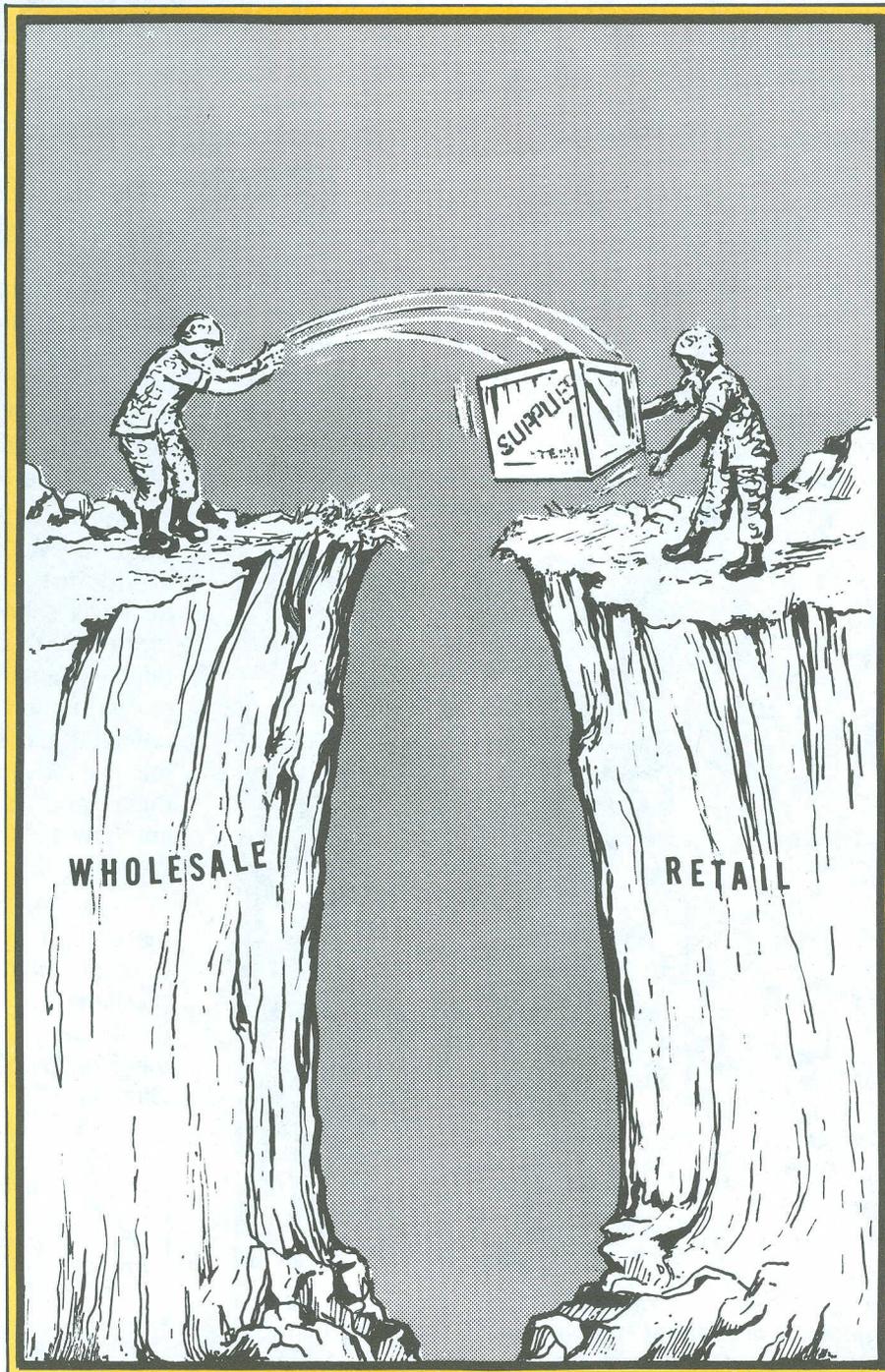
When soldiers hear the words "Supply System," many different images are conjured up. People who "grew up," with the manual system often think of two cliffs, on opposite sides of a deep gorge. One side is wholesale and the other, retail. People on the wholesale side are trying to throw boxes of supplies over the canyon to the folks in retail. These boxes sometimes do not make it and fall to the bottom or make a hard landing and wind up damaged. Soldiers down in the foxholes often wonder why sometimes supplies do not arrive or arrive damaged.

On the other hand, people who "grew up" with the current automated system often view the supply system as a cut-up worm. Each segment of the worm is one of the systems we now use. Examples are the Unit Level Logistics System (ULLS), the Standard Army Retail Supply System (SARSS) I and II, the Standard Army Intermediate Level Supply System (SAILS), and the list goes on. Just

like a cut-up worm, each segment continues to live on its own with no connection to the others.

Although both images may be valid depending on the viewpoint, the first one is probably closer to the truth.

Even with all its automation, the Army uses two separate and distinct logistics systems: one for wholesale and one for retail. These two separate supply systems seem to be at opposite ends of the spectrum. Most soldiers in retail do not thoroughly understand the inner workings of the wholesale community and are perhaps not concerned about the functions that are performed at that level. General William G. T. Tuttle, Jr., Commander, Army Materiel Command (AMC), Alexandria, VA, has said: "If you talk about wholesale and retail logistics separately they can become such, and they really have been in many respects." The



This article is a broad overview. Watch for the Winter 1990 *Quartermaster Professional Bulletin* for greater detail on the Strategic Logistics Agency's initiatives.

truth of the matter is these two systems are very similar because managers at both levels perform the basic functions of requirements determination, receipt, storage, issue, and accounting. The biggest stumbling block is that both systems have separate automation structures and separate single commodity systems that hinder economic, sustainment, and readiness decisions in determining trade-offs between repair, redistribution, and procurement of assets. The Deputy Chief of Staff for Logistics (DCSLOG) realized the twofold need to integrate these two systems to meet requirements within evolving Army logistics for the AirLand Battle Future doctrine and also to improve systems that are operating on dated technology. DCSLOG created the Strategic Logistics Agency (SLA) to unite the two systems.

Although the Army has developed standard information management systems for logistic applications, much of the logistical technical and functional data is spread among all the different systems that the Army has. While these systems communicate somewhat, the link is less than adequate. That weak communication link results in substandard performance and degrades logistics functions. To solve this problem, the SLA is spearheading an effort which will support Army logistics into the 21st century. General Tuttle summarized the concept when he said that AMC, U.S. Army Training and Doctrine Command (TRADOC), and DCSLOG are trying to build "a seamless logistics system, the parts of which are invisible to the soldier. All he sees is that he needs a part, he puts a request in on a little computer, and the part gets to him."

The focal point of the seamless logistics system, or Single Supply System (SSS) as it is now called, is asset visibility. The focus is "on developing the systems that we've started, like the objective supply system and the ammunition system, which is very close to being 'seamless.' With a few changes over the next couple of years, I think we essentially will have AMC visibility of logistics assets and have the ability to anticipate . . . We have to fully understand how to anticipate requirements—what the needs are—so one can do the 'pushing' in an intelligent way, because there simply won't be time to react to the demands should we go to war . . . We all ought to be able to click on our little computers and call up, for instance, the Copperhead status—from the AMC commodity manager down to the corps and theater materiel system." The idea is to try to make the system one continuous flow, from manufacturer to user, with no gorge to cross.

SSS will address three areas. The first area is how the soldiers in the foxholes view the system. The end goal is to see no gap or gorge between wholesale and retail systems and to have one, single, whole "worm" in which all the parts work together and information flows quickly and easily from one end to the other. When the view

from the foxhole is correct, then the system should be operating as a single functional area.

The second SSS area falls under the broad terms of automation. Soldiers need to be able to access the same data at all levels, able to operate at all levels, and able to talk in real-time at all levels. Apache helicopters are an example: "We have to understand the operational status of the Apaches in the corps and divisions and be able to anticipate requirements . . . all in near-real time. Then we have to be able to react by facilitating the supplying of serviceable components, perhaps between commands."

The third area is shortcuts. SSS would encourage those shortcuts which supplement the system, not circumvent it. Any method which helps improve the service, reduces delivery time and paperwork, and ultimately costs less is a valuable asset and should be utilized. This is similar to throughput. Throughput avoids stops at each level, trans-loading, and extra cost for storage and transportation, as well as accounting. Those methods, however, which short circuit the system and use trading, bartering, or the "good-old-boy" method of obtaining supplies have no place in SSS. Ideally, SSS will eliminate the desire for any of these. As Quartermasters and supply experts, we need to strive to make the system work and break the vicious cycle of "good-old-boy" deals. We need to use all creative energies to find supplemental shortcuts to increase the efficiency of SSS.

Although SSS is still a fledgling, its impact will be far-reaching. All the major commands are involved through "ad hoc" work groups that take an issue and discuss use, implementation, and impacts; resolve any conflicts; and then send on recommendations and/or implement the decisions. Input is currently being gathered in the field, and changes are being added to the total SSS design.

The Army requires a single, operationally integrated, logistics system for the early decades of the 21st century to support long-range concepts of operation and to link with the Office of the Secretary of Defense's consolidation issues at the national level. Through the SLA, the Single Supply System will ultimately transform current logistic functions into one integrated system.

EDITOR'S NOTE: Comments by General William G. T. Tuttle, Jr., are reprinted with permission from the *Army Logistician*, January-February 1990. 

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MAKING THE MOVE—

CAREER PROGRESSION FROM MOS 76C TO 76Y

LT Sharon L. O'Hara

The transitional process a soldier follows from one military occupational specialty (MOS) to another requires training, planning, and program monitoring. It also requires strong soldier initiative to increase benefits with minimal resources as budget constraints tighten and force reductions increase. The Supply and Professional Development Department of the U.S. Army Quartermaster Center and School, Fort Lee, VA, experienced these requirements in the career transition of soldiers from MOS 76C (Equipment Records and Parts Specialist) to MOS 76Y (Unit Supply Specialist).

In 1980, MOS 76C was created. The 76C soldier performs duties involving the supply of repair parts and maintenance of equipment records. He also maintains vital records in support of unit readiness, maintenance control, and repair parts supply at direct and general support levels.

The 76C soldier receives more than 395 academic hours of instruction at advanced individual training (AIT), Fort Lee, VA, before graduation and assignment to a unit. The course is divided into two parts. Part I covers Prescribed Load List/The Army Maintenance Management System (PLL/TAMMS) manual procedures at the unit level. Soldiers must score 90 percent or better on a midterm examination to continue with instruction. During Part II, instruction focuses on the Unit Level Logistics System (ULLS II).

At Skill Levels I and II, the 76C soldier assumes immediate responsibility for requesting parts, managing stock lists, and reconciling critical readiness records. A motor sergeant in the motor pool serves as supervisor and mentor, providing technical expertise. The

76C soldier must quickly learn the job and become proficient in the area of repair parts management to meet the unit's needs.

After obtaining promotable status, the 76C soldier prepares to attend the Basic Noncommissioned Officer Course (BNCOC). At BNCOC he begins Skill Level III training and transition to a 76Y supply sergeant. This transition is not easy. Repair Parts Supply Specialists receive little training in unit supply rooms before promotion to staff sergeant.

This lack of training in the unit supply room became clear from 1984 comments from the field. Commanders stated that 76C soldiers were not qualified to assume duties of supply sergeants when promoted to staff sergeant. A Career Management Field 76 Supply and Service Study also showed training shortfalls in MOS 76C and MOS 76Y. The inspector general cited several contributing factors:

- The 76C MOS did not offer soldiers a logical career progression.
- Routine duties supported maintenance activities completed under the supervision of the motor sergeant rather than the supply sergeant.
- Skill deterioration was clear between the resident courses and unit assignment.
- Commanders were reluctant to release PLL/TAMMS clerks for an extended period, even though training is required as part of the PLL clerk's educational process.

The method to correct the problems with transition from MOS 76C to MOS 76Y consumed much time and effort by the Quartermaster School. Several possible options included:

Option I - Eliminate MOS 76C in its entirety. Transfer all 76C tasks to 76Y.

Option II - Eliminate MOS 76C. Transfer PLL/shop stock responsibilities to 76Y. Transfer TAMMS and shop clerk tasks to career management field (CMF) 63.

Option III - Eliminate MOS 76C and give PLL tasks to the 76P. Transfer TAMMS tasks to CMF 63.

Option IV - Retain MOS 76C as a PLL clerk feeding 76Y at Skill Level III and transfer TAMMS and shop clerk tasks to CMF 63.

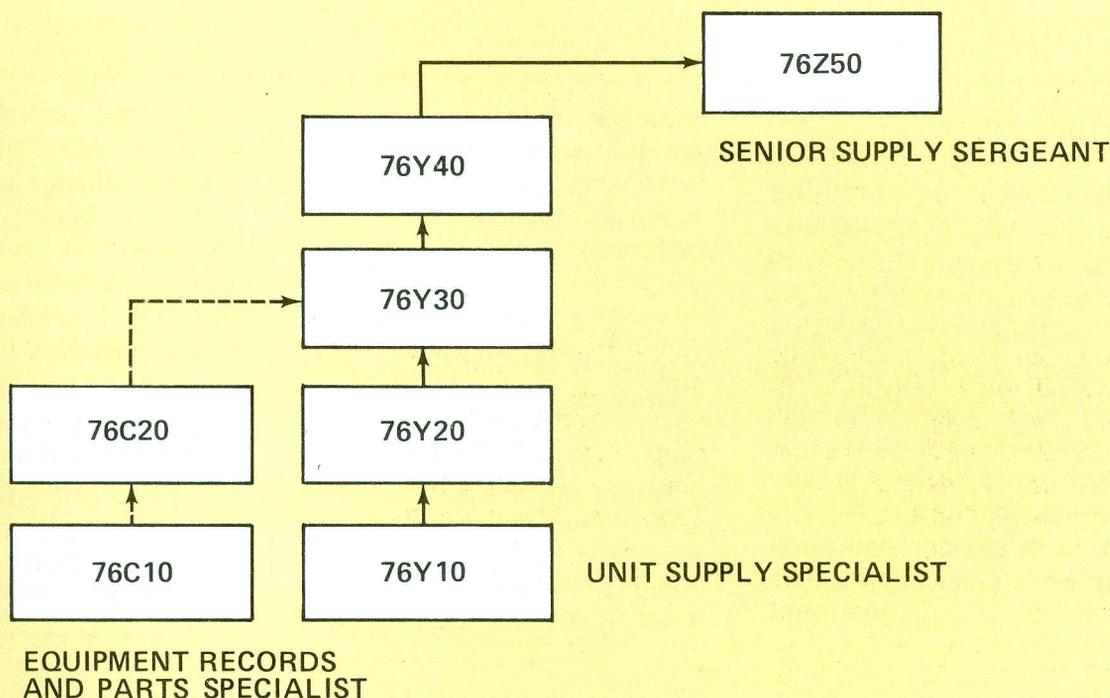
Option V - MOS 76C alignment to remain unchanged. Training improvements for 76C and 76Y soldiers.

After reviewing the many advantages and disadvantages of each option, Quartermaster School personnel selected Option V. It required no changes to doctrine, authorization documents, or CMF 76 alignment. MOS 76C personnel would continue to progress to MOS 76Y. Both MOS 76C and MOS 76Y soldiers would receive additional training. Option V also decreased personnel turbulence within the career management field, unlike the other options.

To ensure the best strategy for implementing Option V, a board of subject matter experts met to structure 76C soldiers' future training. They concentrated on developing hands-on training for the 76C soldiers with closer interaction and supervision by the supply sergeant. The board queried field commanders and inspector general teams, and made training management visits to develop the current program of instruction.

The original program of instruction for 76C soldiers changed from a self-paced method to group-

CAREER PATH OF 76C TO 76Y



paced method. Group instruction encouraged participation and produced a more proficient graduate. In 1988, an integrated training exercise for AIT students created the first interaction between MOS 76C and MOS 76Y soldiers. A simulated motor pool allowed 76C AIT students to test their PLL/TAMMS skills, while 76Y supply sergeants supervised and provided technical assistance. The exercise increased the 76C and 76Y soldier's awareness of the diversified roles of the supply management field.

As the Army's demand for automation in Class IX (repair parts) increased, the Quartermaster School introduced the 76C soldier to several data processing programs. The Unit Level Logistics System I (ULLS I) provided initial training for 76C soldiers by automating Class IX at the unit level. The U.S. Army Logistics Center at Fort Lee, VA, enhanced the system and created ULLS II. In 1989, all 76C graduates received over 60 hours of instruc-

tion in the ULLS II. A newer system was introduced, the Tactical Army Combat Service Support Computer System/Standard Army Maintenance System (TACCS/SAMS) which supports Class IX supply and maintenance functions at direct support maintenance activities. TACCS/SAMS automated the stock and shop clerk functions. Instruction in TACCS/SAMS challenges students. MOS 76C soldiers must hold a skill technical score of at least 100. In addition, soldiers must assume duties in a unit equipped with or scheduled to receive TACCS/SAMS.

Despite training by the Quartermaster School to the soldier who must transition from MOS 76C to MOS 76Y, a soldier's personal initiative can ensure the smoothest career progression. A 76C soldier knows early in the MOS career path that he will transition to a supply specialist. With this knowledge in mind, he can aggressively pursue

several avenues to prepare for the future.

The best and easiest option available for additional training is through the Army Correspondence Course Program (ACCP). According to the Institute of Professional Development, there are 1,884 MOS 76C soldiers enrolled in the BNCOC ACCP, which equals 5 percent of 76C soldiers on active duty. The ACCP introduces a soldier to the supply system by providing supply management information and practical exercises in each booklet to test comprehensive knowledge. Interested soldiers can write the following address to enroll in the ACCP:

Chief
Institute of Professional
Development
U.S. Army Training Support
Center
Newport News, VA 23628-9989

After obtaining promotable status, the 76C soldier needs to prepare for BNCOC. A 76Y Skills

Qualification Manual offers a 76C soldier valuable insights. The Quartermaster School gives a diagnostic exam to all BNCOC students. The test measures a 76Y soldier's ability to perform critical tasks of lower skill levels. Although the test is designed to identify strengths and weaknesses, a subject background is helpful. The results of the test help instructors determine how much knowledge of supply procedures each student possesses, where special emphasis should be placed throughout the course of in-

struction, and the retention of material taught.

MOS 76C soldiers must receive computer training to remain current with the automation changes in the 76Y MOS. A 76C soldier using initiative and innovation can receive computer training through a unit's command or education center. Learning the basics of one computer system enables easy understanding of other computers. Finally, commanders must be convinced that their future supply specialists need additional supply room training. The Supply Management Review Board expects a 30

percent reduction of MOS 76C soldiers in 1991 and 1992. The problems associated with the 76C soldier making the move to supply sergeant lies with the soldier's awareness, preparation, and initiative toward the future. As the Army plans to reduce its force, only those soldiers who manage their careers, demonstrate strong initiative, and accept responsibility for themselves will survive. 

LT Sharon L. O'Hara is a graduate of the Quartermaster Advanced Course at Fort Lee, Virginia.

THE LOG BIRD: FORWARD SUPPORT BATTALION EXPLORES USES FOR UH-60 BLACKHAWK

CPT Kevin A. Leonard

The 1st Brigade, 1st Infantry Division, Fort Riley, KS, recently returned from a successful rotation at the National Training Center (NTC), Fort Irwin, CA, where the brigade's strength centered around two armored task forces comprised of 88 M-1 tanks. Keeping the 88 tanks operational and moving on the battlefield was no easy task. However, despite the challenge, the brigade maintained its M-1s at an acceptable level and defeated the opposing forces (OPFOR) in all operations.

A cornerstone of this maintenance effort was a UH-60 Blackhawk helicopter, known as the "Log Bird," under the operational control of the 101st Support Battalion. Marching orders from the 1st Brigade's commander were twofold: 1) keep

M-1s running and 2) make maximum use of the Log Bird to resupply major assemblies, priority (03) Class IX (repair parts), and other commodities on an emergency basis. To execute the brigade commander's guidance, the forward support battalion's support operations officer had complete operational control of the UH-60 and its crew. A proposed daily schedule for the Log Bird was developed, staffed through the brigade, and approved to ensure maximum usage. Using the Log Bird allowed the forward support battalion (FSB) to reduce turnaround time for major assemblies and priority (03) parts to as little as two hours. This represented a time savings of 10 to 12 hours in the

repair process, which had a direct impact on the number of combat vehicles ready for combat.

Several key points must be recognized before a "heavy" unit uses the Log Bird. First, extensive training must be conducted before the main deployment. Pilots, air crews, and sling load crews on the ground must be intimately familiar with the procedures outlined in Field Manual (FM) 55-450-1 (Army Helicopter External Load Operations). While the ability and training required to sling load are commonplace in air assault and light infantry divisions, such resources normally do not exist in a heavy division. Additionally, many of the loads for sling loading in a heavy division are substantially heavier



“The Log Bird,” A UH-60 Blackhawk Helicopter

than a pallet of meals, ready to eat (MREs). For example, an M-1 engine weighs close to 5,000 pounds, nearly a full load for a UH-60. At least the UH-60 has the capability; the UH-1 helicopter (Huey) does not.

Adding the UH-60 in the division then represents a completely new opportunity for resupply, as well as a training dilemma. LTC Edwin Bufington, Commander of the 101st Support Battalion, recognized the training problem facing the FSB. Before the brigade's deployment, he scheduled several intense sling load training sessions for the 101st's supply, maintenance, and medical companies. Soldiers from each platoon attended the training led by the support operations section and the aviation brigade's lift company.

Training was conducted under both day and night conditions. Ground crews practiced rigging various loads and lifting them with the 7.5-ton crane in the unit motor pool when aircraft were not available. Each task force in the supported element had to be able to rig and receive sling loads. In a “heavy” brigade, qualified soldiers can be designated within the maintenance support team assigned to the task force (TF) from the FSB maintenance company. The FSB's supply company can train these individuals as well as provide the slings required to conduct resupply operations.

Units must recognize that safety constraints such as high winds can prevent the aircraft from flying. Backup ground transportation (the

normal operational mode) must be readily available and kept on standby. Some major assemblies will regularly exceed the weight limitations of a UH-60 helicopter. An M-1 transmission, for instance, weighs 6,200 pounds and generally will be too heavy for a UH-60 to safely lift under summertime, desert conditions. A final lift problem for units involves rebuilt major assemblies that normally come in cans missing the required number of bolts. The units must reconfigure the can before sling load operations. This means either obtaining a new can for the assembly or coming up with the number of bolts to make the rebuilt can safe for lift.

The presence and the FSB's use of the Log Bird during NTC Rotation

89-13 provided that extra edge necessary for a successful resupply and maintenance effort. The Quartermaster community led the way by providing the equipment, personnel, and training required to introduce "sling load" operations to the division. While complications arise from using helicopters in resupply in a mechanized division, the benefits are readily apparent.

The potential uses of the UH-60 for resupply are endless. Emergency Class I (rations), water, Class II (general supplies), packaged Class III (petroleum, oils, and lubricants), Class IV (construction and barrier materiel), and Class V (ammunition) could all be supplied rapidly with this asset. The 101st Support Battalion completed 14 sling load missions and 17 air load

missions in support of "America's Team" throughout its NTC rotation. The reduced turnaround time for major assemblies, 03 parts, and supplies proved the worth of the workhorse known as the "Log Bird."



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PLANNING DEFENSE OF THE BRIGADE SUPPORT AREA

CPT Thomas J. Siegworth

During the 1989 Branch Liaison Team visits by the U.S. Army Quartermaster Center and School, Fort Lee, VA, numerous battalion commanders cited the need for lessons learned and information about what successful commanders have done to prepare for the rear battle. The following article is the third that will address the rear battle and provide commanders with ideas for both training and integration into their tactical standing operating procedures (SOPs).

Logistics activities in the brigade support area (BSA) are extremely vulnerable to threat forces. The BSA's ability to conduct support activities and survive on today's battlefield is absolutely necessary to the success of the supported brigade. The base cluster, often burdened by a lack of defined perimeters, remains vulnerable to threat activity. The BSA must be prepared for its two primary missions: defending itself against level I, II, and III threats (Figure 1) and surviving to provide constant logistics support.

Defending the BSA includes both active and passive measures. Active defense focuses on weapon systems emplacement and a plan to

fight the battle. Key elements include military police, the ready reaction force, and a good fire support plan. The active defense can prevent level I threat activity from disrupting support operations. A level II threat, depending on its composition, might be defeated by a good defense. The military police possess the most potent weapons in the BSA, but cannot defeat a level III threat. Level III threats with the ability engage the BSA beyond the range of the BSA's organic weapon systems are best countered with a good fire support plan. Passive defense includes concealment, frequent displacement, signal and heat deception, and intelligence information of enemy activity. Avoiding detection provides the highest probability of surviving a level III threat. Availability of weapon systems and limitations hinder an active defense, while the mission requirements of the BSA constantly change passive defense measures.

Finding the right way to defend the BSA while continuing to provide support is not easy. A successful defense requires knowledge of fundamental planning considerations. This planning is second nature to armor and infantry units. Maneuver units in the defense dedicate all

resources and planning in their effort. Knowing the six fundamental planning steps for the defense, found in FM 71-1 and FM 71-2, makes it much easier. These six fundamental planning steps used for the defense of tank and mechanized infantry companies and battalion task forces, can be applied to base defense (Figure 2).

First, analyze enemy avenues of approach and probable courses of action. This information should influence base site selection. Avenues of approach differ between level I and level III threats. A level I avenue of approach could originate in a nearby village. Level II or III threats include high speed avenues of approach or open areas that support airborne or air assault operations. The brigade S-2 is responsible for information regarding threat activity and probable enemy courses of action.

Second, select tentative positions and orientations based on both the threat information gathered from step one and the support mission requirements. These requirements most often must dictate the location of units within the BSA. For example, class I, III, and V operations require a significant amount of space and

LEVEL OF THREAT

Level I

- Activity of enemy-controlled agents.
- Sabotage by enemy sympathizers.
- Terrorism.

Level II

- Diversionary and sabotage operations conducted by unconventional forces.
- Raid, ambush, and reconnaissance operations conducted by combat units.
- Special missions or unconventional warfare missions.

Level III

- Air assault operations.
- Airborne operations.
- Amphibious operations.

These threat activities will not occur in a specific order. Also, there is not necessarily an interrelationship between threat levels.

Figure 1.

SIX-STEP PLANNING PROCESS

1. Analyze enemy avenues of approach.

- Consider the three levels of threat.
- Examine both mounted and dismounted avenues of approach.
- Talk to brigade S2 (Intelligence Officer).
- Identify which avenues give enemy aircraft good observation.

2. Select tentative positions and orientations.

- Select covered and concealed positions.
- Establish target reference points (TRPs) and orient weapons systems to cover them.
- Use mutually supporting and flanking fires.
- Consider how much support is needed to prepare positions.

3. Allocate space and organize tasks.

- Do not overextend units.
- Remember the brigade support area (BSA) must support and defend.
- Use a time matrix.

4. Integrate fires and obstacles.

- Use TRPs as planned artillery targets.
- Target dead space, final protective fires (FPFs), and obstacles.
- Demand artillery support from brigade commander.
- Coordinate with brigade fire support officer and brigade engineer.

5. Plan logistical support for the BSA.

- Prepare casualty evacuation plan.
- Plan for nuclear, biological, chemical (NBC) casualties and hasty decontamination.
- Ensure internal Class IV (construction and barrier materiel) to support obstacle plan.
- Ensure Class V (ammunition) for defensive positions.

6. Complete the plan.

- Put plan to paper.
- Refer to troop-leading procedures.

Figure 2.

TROOP LEADING PROCEDURES

1. *Receive/analyze the mission.*
 - Operation order (OPORD).
 - Fragmentary order (FRAGO).
 - Warning Order.
 2. *Issue a warning order.*
 - Addressee(s).
 - Time and nature of the operation.
 - Earliest time of movement, to include quartering party and main body.
 - Time and place OPOORD will be issued.
 - Specific/coordinating instructions as needed.
 3. *Make a tentative plan.*
 - Map reconnaissance.
 - Estimate of the situation utilizing the SIX-STEP PLANNING PROCESS.
 - Analysis of mission, enemy, terrain, troops and time available (METT-T) and both enemy and friendly possible courses of action.
 4. *Start necessary movement.*
 - Quartering party.
 - Reconnaissance party, to include key members of orders group.
 - Security force.
 5. *Reconnoiter.*
 - Physical reconnaissance.
 - Revise estimate of the situation, using the SIX-STEP PLANNING PROCESS.
 - Revise METT-T analysis.
 - Confirm enemy avenues of approach/threat analysis.
 - Confirm feasibility of two primary missions.
 - Support.
 - Defend.
 - Reallocate space and task organization as necessary.
 - Confirm tentative unit locations/fighting positions listening posts and observation posts.
 - Confirm indirect fire and obstacle planning.
 - Adjust graphics.
6. *Complete the plan.*
 - Prepare OPOORD.
 - Execution matrix (include an evacuation or "bug-out" plan).
 - Graphics.
 - Visual aids (terrain models).
 7. *Issue orders.*
 - OPOORD.
 - FRAGO.
 - Back brief from commanders/leaders.
 8. *Supervise.*
 - Preparation/occupation of positions.
 - Support.
 - Defend.
 - Coordination.
 - Engineers.
 - Fire support.
 - Air defense.
 - Rehearsals.

Figure 3.

BATTLEFIELD OPERATING SYSTEMS

1. *Intelligence.*
 - Continuously update with the brigade S2 (Intelligence Office).
 - Establish local security.
 - Aggressively patrol (counter-reconnaissance).
 - Track the battle.
 2. *Communications, Command, and Control.*
 - Use Wire.
 - Commanders must monitor and fight battle from command posts (CPs).
 - Brigade S3 (Operations and Training Officer) must plan rear battle.
 - Develop and use a battle board.
 - CPs in brigade support area (BSA) must track the battle.
 3. *Maneuver.*
 - For the BSA, maneuver is the reaction force.
 - Train an internal force.
 - Train and rehearse as a unit.
 - Organize into squad- and platoon-sized units.
 - Use mobility, firepower, and economy of force.
 - Utilize combat troops in the BSA with damaged vehicles.
 - Military police.
 - Most firepower in the BSA.
 - Do not overextend them. Apply them to most critical duties where their firepower and training is best used.
 4. *Fire support.*
 - Demand it, demand targets, and coordinate with brigade fire support officer (FSO).
 - Best active defense against level II or level III threats.
 - Assign sectors/engagement areas supported by fire.
 - Support obstacles.
 - Use target reference points (TRPs).
 - Train leaders and soldiers to call for fire.
 - Coordinate for close air support (CAS) through Air Force liaison.
5. *Air defense artillery.*
 - Camouflage positions as passive defense against air threat.
 - Consult air defense representative in BSA.
 6. *Mobility/Counter-mobility/Survivability.*
 - Consider support mission mobility requirements.
 - Cover obstacles, likely enemy threat, and avenues of approach by fire, direct and indirect.
 - Properly prepare fighting positions.
 - Demand support from brigade engineer.
 - Prepare fighting positions for combat vehicles in the BSA deadlined for maintenance, but with operational weapons systems.
 7. *Combat Service Support.*
 - Get adequate Class IV (construction and barrier materiel) and Class V (ammunition) to support defense.
 - Practice internal casualty treatment and evacuation systems.
 8. *Nuclear, Biological, Chemical (NBC).*
 - Rehearse hasty and deliberate decontamination.
 - Rehearse NBC reaction procedures.
 - Designate unit NBC teams.

Figure 4.

good trafficability. The primary planner of the base defense must consider how each unit within the BSA is tied into and supports adjacent units. Each commander responsible for a portion of the perimeter selects recognizable terrain features upon which his weapon systems can orient as target reference points (TRPs). These TRPs are used to designate sectors of fire. They also serve as reference points for sending spot reports and calling for indirect fire. Selection of tentative positions based upon good map reconnaissance and proper threat analysis saves time when the units actually occupy the site.

Other criteria for position selection include locations for listening and observation posts. Where is the enemy likely to employ indirect fires? How does the terrain mask positions from enemy ground and air observation? Terrain masking provides nuclear, indirect, and direct fire protection.

Third, allocate space and task organize. Two missions must occur simultaneously: provide support and prepare the defense. When the responsibility for portions of the perimeter is delegated, the commander or S-3 should consider manpower and equipment available. For the purpose of defense, some units could come under the command and control of others.

Fourth, integrate indirect fires and obstacles. The direct fire TRPs are planned as artillery targets. Plan artillery targets on dead space and plan final protective fires if allocated. Indirect fire planning requires greater precision and consideration than in maneuver units. Poorly planned fire support can result in fratricide. Obstacle planning requires consideration of both friendly movement and enemy threat. Support requirements cannot be hindered by the friendly obstacle plan. Is close air support available? How can air defense assets be positioned? What engineer support is available? The assets are only available if requested.

Fifth, plan logistical support required for base defense. The BSA must support both the brigade and itself. The simultaneous mission requirement necessitates that a level I fight does not disrupt or halt support activities. How will the defensive positions be resupplied? What are the class IV and V requirements for the defense? The many different elements in the BSA during a battle complicate both the supply requirements and the casualty evacuation plans.

Finally, complete the plan. The commander puts the plan down on paper. Good, clear graphic control measures at battalion and company level, supported with an execution matrix, begin the process of actively employing the defense. Fill-in-the-blank operation orders greatly assist the orders process. Use every graphic aid available. The six step planning process works simultaneously with the troop leading procedures (Figure 3). The eight battlefield operating systems further assist the commander in planning the rear area defense (Figure 4).

Deficiencies in defense planning are highlighted during unit deployments to the National Training Center (NTC), Fort Irwin, CA, and the Joint Readiness Training Center (JRTC), Fort Chaffee, AR. These deployments provide valuable information about rear area survivability. BSAs are not winning the counter-reconnaissance battle. Unit leadership does not follow the fundamental troop leading procedures (Figure 3).

Orders are not properly developed or issued. Briefing aids are not used; graphics and overlays do not get to the soldiers who need them. Rehearsals rarely occur and graphic control measures are inadequate. Poorly planned fire support often results in friendly casualties. Security is poor. Fighting positions are not adequate. Poorly rehearsed internal casualty evacuation systems fail. Reaction to conventional artillery and to nuclear, biological, and chemical (NBC) attacks often completely dis-

rupt support operations. Soldiers and leaders often do not know the overall friendly and enemy situation. These problems fall on the shoulders of key leaders. Commanders in the BSA must understand key elements of defense. The planning process should include elements from the maneuver battalions, the field artillery, air defense artillery, military police, and engineers. Rear area units should plan the defense, understanding troop leading procedures, fire planning, and battlefield operating systems. Proper planning and maximum use of all resources available will help the BSA survive. Many units take well-written standing operating procedures (SOPs) to the field, but do not use them.

Support soldiers must know and practice basic soldier skills continually. Commanders must understand, develop, and train the reaction force. A well-trained reaction force can defeat a level I threat. The base cluster offers the benefit of interior lines but units must tie into the units on their flanks. A good fire support plan must also be developed. Level II and level III threats will easily defeat the BSA if a proper fire support plan is not in place.

In conclusion, proper planning and maximum use of all resources available will help the BSA survive. Active defense can defeat level I threats, and passive defense can prevent unnecessary confrontation with level II and III threats. An evacuation or "bug-out" plan, if well-rehearsed, works. Significant institutional knowledge exists in the BSA. Development of a planning guide for base defense, comparable to the doctrine developed for maneuver units, would greatly reduce the difficulties facing rear area leadership. 

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FIRE SUPPORT IN THE BRIGADE SUPPORT AREA

CPT Peter C. Barclay

SCENARIO

A supply company commander is walking through the brigade support area (BSA) to check operations at the Class III (petroleum, oil, and lubricants) point and notices eight enemy helicopters preparing to land about 2 kilometers away. Plotting the location on a map, the commander calls and notifies support operations, requesting artillery. The perimeter goes on alert. Minutes pass and nothing happens. The company commander calls support operations and again requests artillery.

Suddenly havoc erupts as the BSA starts to take small arms, grenade, and rocket fire. Within minutes, the BSA has suffered 75 percent casualties and been overrun. The support battalion's tactical operations center (TOC) has been destroyed and 45,000 gallons of fuel along with numerous supplies captured. A combat brigade is now without its vital support.

Questions on how to prevent this plague logisticians as well as fire support personnel while the U.S. Army struggles with its rear battle doctrine. Although everything is situationally dependent based on mission, enemy, terrain, troops and time available (METT-T), this should be the starting point for discussions of fire support from a logisticians point of view.

U.S. ARMY DOCTRINE

Current U.S. Army doctrine states that rear battle must be integrated with deep and close battle. The S3 (Operations and Training Officer) at every level is responsible for this integration. Combat support and combat service support units will establish bases with a defined perimeter and under the control of a rear area operations center (RAOC). The base will use a reac-

tion force and military police (MPs) unless the threat is great enough to have a tactical combat force (TCF) assigned. When artillery is used specifically for rear battle, it may be direct support (DS) to a RAOC, the MPs, or a TCF.

The fire support element (FSE) of the RAOC will provide overlays and locations to artillery units. The brigade FSE is responsible for preparing and executing all fires in the rear area. The brigade may also request close air support. The U.S. Air Force may provide tactical air control parties (TACPs) for coordination and control. Fire support coordination measures permit or restrict fires. Several manuals differ on what measures should be established, but the need for control measures is clear.

ASSETS AVAILABLE

Field artillery units use a one-third, two-thirds rule as a rough estimate for positions. (This rule puts two-thirds of the range beyond the forward line of troops (FLOT).) Using this rule, the 155-millimeter (mm) howitzers are positioned approximately 6 kilometers back from the FLOT, and 203mm (8-inch) howitzers are positioned 8 kilometers back from the FLOT. With the gun tubes pointed to the rear, 155mm howitzers could shoot 24 kilometers, and 203mm howitzers could shoot 32 kilometers behind the FLOT. Brigade support areas are doctrinally within this range. The 1st Cavalry Division Artillery has used reinforcing artillery units to support the BSA. When reinforcing artillery was not within range, the division used rockets to support rear areas.

One uncommon method that is a possibility is dedicated support to the rear area. Artillery is never in reserve, but a mission of rear area

support is not reserve. The maneuver commander can position some assets rearward and make the primary mission direct support for the RAOC or BSA. The commander may decide to make the rear area a priority — it has been done. During return of forces to Germany (REFORGER) 1986, the 1st Armored Division had a "Rear Area Battery" strictly to support rear battle in the division sector. This battery was staffed from tables of distribution and allowances (TDA) positions and fielded with rebuilt "display" howitzers. On more than one Team Spirit Exercise, the 25th Infantry Division put a battery in the middle of the division rear to support the rear fight. It was set up to fire in any direction.

Another option is to lay one platoon of the DS battalion backwards, pointing to the rear, with a priority target on the BSA's most likely avenue of attack. It could fire over the FLOT into the enemy, but when not actively shooting a mission would be pointing rearward and able to respond the fastest.

Another possible asset is the mortar platoon in the battalion that is the brigade reserve. The RAOC must be willing to spend some time on coordination before deploying and upon deployment. The battalion may have to be convinced or be tasked through the brigade to position the mortar platoon in range and ready to fire on targets in the BSA. Overlays and discussion of priority targets are needed. With this planning, mortars can be the fastest reaction to a rear area threat.

Still another asset that may be available to the RAOC is air support. Most divisions have an attack helicopter brigade and a cavalry squadron with air assets. These are usually organized with attack and observation capability combined

'The key to countering threats in the rear area is a comprehensive plan understood by all and incorporating fire support...'

into teams. Attack helicopter battalions can destroy armor, personnel, and material targets. They also possess a significant on-station time. Aerial observers could well be the first friendly forces on the scene and can locate, identify, maintain surveillance, coordinate fires, and engage. Attack helicopters may be the division commander's planned response to a level III attack.

In addition to rotary-wing assets, fixed-wing aircraft may be available. Many different types may be used, but some, such as the AC-130 gunship are especially suited for rear support. The U.S. Air Force may divert close air support (CAS) sorties or use preplanned missions to deal with substantial rear threats. Although flexible, rear area CAS is affected by certain characteristics of rear operations. These include a reduced probability of air-to-air combat, reduced enemy air defense threat, intermingling of non-combatants, and the difficulty in identifying level I and II threats from the air.

PLANNING FOR GROUND FIRE SUPPORT

Planning is probably the single most important key to having effective fire support in the BSA. The assets available will vary depending on the situation and the commander's estimate of threat and acceptable risk. The BSA does not have its own fire support element (FSE). Where then, does the RAOC get personnel for the coordination? Most BSAs have the field trains from the DS artillery battalion. The artillery S1 (Adjutant), S4 or the service battery or headquarters battery commander/executive officer has invaluable knowledge about fire planning and unit standing operating procedures (SOPs),

as well as needed radio nets. These officers can help coordinate with the brigade fire support officer (FSO) to ensure incorporation of a fire plan for the rear into the overall plan.

Fire plans should be verified on a daily basis with the brigade FSO or the artillery battalion. This ensures they are not removed from the artillery's fire direction computer. Fire plans do not need to be elaborate, but they need some key elements. The RAOC should consider the following:

- Likely landing zones (LZs) and drop zones (DZs) near its base.
- Avenues of approach from such zones to the base.
- Critical terrain features.
- Artificial or natural obstacles.
- Support of the perimeter.
- Locations of critical supplies for emergency destruction plans.

In addition to what should be targeted, the RAOC needs to consider what fire support coordination measures should be used.

- Restricted Fire Areas (RFAs) around bases allowing only the base to request fire within its perimeter. This eliminates the need for additional coordination or authority for supporting fires. The type of munitions can also be restricted.
- No Fire Areas (NFAs) around large civilian population centers or critical facilities. This prevents fires into the area except when the establishing authority authorizes self defense.
- Free Fire Areas (FFAs) around known enemy loca-

tions or possible LZs and DZs. This allows immediate response to enemy actions.

Rear area commanders must be given the authority to establish fire support measures. Because a rear area commander does not have a zone of action, the rear area commander does not have the authority to establish coordination measures unless given by the brigade commander. All coordination measures should be worked out with the brigade fire support officer.

Regardless of the detail of the actual plan, the plan given to the soldiers should be simple. All soldiers can understand a simple plan. Cooks, mechanics, fuel handlers, and others do not need six-digit target numbers. Alpha through Juliet (A-J) or 1-10 will work fine. The RAOC can convert to the six-digit artillery target number or to a grid, if it has planned ahead. If a soldier only has to know that the lone tree is A, the hill is B, and the road intersection is C, the soldier is much more likely to retain and use that knowledge. A perimeter guard can report: "Enemy squad 500 meters east of target C." The RAOC or the artillery unit can convert the information if prior coordination has been made. Artillery units practice working with untrained observers. The artillery unit will adapt. However, all fires in the rear must be observed. The important points are to coordinate and to know how to contact the artillery.

PLANNING FOR AERIAL SUPPORT

If the BSA wants to use close air support (CAS) or attack helicopters, a few minutes spent in planning can go a long way toward improving reaction time. Tactical air

control parties (TACPs) at maneuver battalions through division handle the requesting and coordinating of CAS. Unless the RAOC has a TACP, the RAOC will have to call the brigade main command post to transmit CAS requests. If a brigade has one of these U.S. Air Force liaisons, find out how to get in touch with the liaison, and find out how to divert CAS for an immediate request. Preplanned requests are forwarded through Army channels to corps for approval. Requests are then allocated from the corps sorties. Immediate requests will be processed by the brigade S3, FSO, and Air Force liaison officer. They will determine whether CAS is appropriate for that target. The liaison officer will then submit an immediate request on the Air Force air request net to the air support operations center. If approved, aircraft will be diverted. Ground forward air controllers are in each TACP, and fire support officers can control CAS if no one else is available. Airborne forward air controllers may be assigned in rear areas. Airborne controllers are better suited than their ground counterparts due to increased observation, greater communication range, and faster response times, but may not be as aware of the ground situation. Ground-to-air communication is vital in these cases.

What about attack helicopters? The division commander may have some attack helicopters specifically as a reactionary force for rear battle. Who is called and on what net? Time spent finding out brigade's or division's specific methods can pay great dividends. What about the

aerial observers with the aviation brigade or the air cavalry? Their speed and mobility could well make these aerial observers the first on the scene. They will be able to locate and identify the threat, coordinate fires, or actually engage.

POINTS TO REMEMBER

- Prior planning both for ground and air support can be the key factor in whether or not fire support is successful.
- The fire plan for the BSA needs to be as simple as possible so that all soldiers can remember it and be more likely to use the plan.
- Combat support and combat service support personnel must plan, coordinate, and direct fire support. They will not normally have fire support coordinators available.
- The DS artillery battalion field trains may be located in the BSA with the S1, S4, or service battery or headquarters battery commander/executive officer available as an impromptu fire support coordinator.
- Many assets may be available depending on the situation. These include the direct support artillery battalion, the mortars in the brigade reserve battalion, attack helicopters, and close air support.
- Due to their mobility, firepower, and reaction time, attack helicopters are an excellent initial response to a level III threat.

- Fire plans must be verified on a daily basis.

CONCLUSION

A supply commander is walking through the BSA to check operations at the Class III point and notices eight enemy helicopters preparing to land about 2 kilometers away. Plotting the location on the map, the commander calls and notifies support operations. Within minutes, the perimeter is on alert and artillery starts to impact on the enemy. As soon as the artillery ceases, a squad of MPs moves in to mop up. A level III threat has just been defeated through the use of fire support.

The key to countering threats in the rear area is a comprehensive plan understood by all and incorporating fire support as an integral part. The maneuver commander makes the final decision based on threat level and acceptable risk. The tactics and weapons used will vary, but a little planning can eliminate most of the confusion and delays. However, combat service support personnel need to voice these ideas as well as the need to have a responsive fire support for the BSA.



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505TH QUARTERMASTER BATTALION, OKINAWA, JAPAN

LTC Michael A. Silverman

Okinawa, an island located midway between the main islands of Japan and the Philippines, is often called the Keystone of the Pacific because of its strategic location. The forces stationed on Okinawa have a critical mission to maintain and protect the interests of the United States in this region of the world.

The last great battle of World War II was fought on Okinawa from April to June 1945. Since that time, the military has been operating a petroleum distribution system which is now one of the most modern pipeline systems operated in the world by U.S. armed forces.

The 505th Quartermaster Battalion (Petroleum Pipeline, Terminal Operating), formerly the Petroleum Distribution System Okinawa, provides bulk fuel and quality surveillance to all U.S. government agencies on Okinawa. (The 505th Quartermaster Battalion is a subordinate organization of the Area Support Group, U.S. Army, Japan.) Major customers include the Third Marine Expeditionary Force (with a Marine Air Station) and the U.S. Air Force's Kadena Air Base, largest in the Pacific. The total military population, not including family members, consists of nearly 40,000 personnel. The battalion performs this wholesale mission with military personnel, Department of the Army civilians, and local Japanese personnel.

Although the basic mission of the battalion has not changed over the years, the facilities have undergone tremendous renovation. The genesis of the present system was in the 1950s, consisting of 8 tank farms with a total fuel storage capacity of more than 42 million gallons along 140 miles of newly con-

structed pipelines. Gasoline, diesel fuel, and aviation fuel were pumped through the system from the southwestern port city of Naha to Kin Bay on the east central coast. In the early 1980s a portion of the original pipeline running from Naha, along with all the Naha port facilities, were returned to the Japanese. Additionally, the Japanese requested relocating the original route of the line running through predominately civilian property to U.S. military-controlled land.

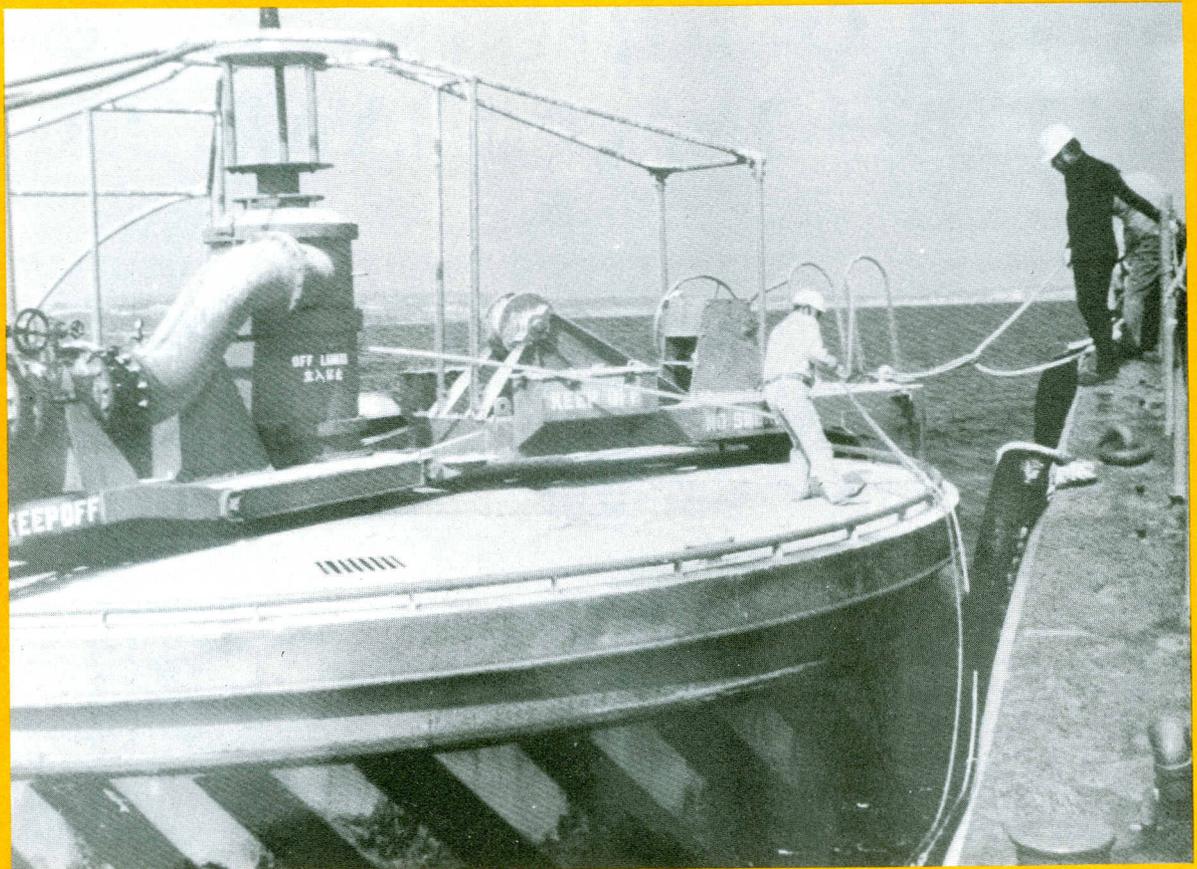
The impact of these requests resulted in two ocean off-loading facilities in Kin Bay on the east central coast, a new pipeline across the width of Okinawa, and construction of new tankage. The ocean off-load facilities consist of a monobuoy, one mile offshore in 80 feet of water, which is capable of discharging tankers up to 50,000 deadweight tons in winds up to 60 knots and sea swells of 14 feet. The second off-load point is a conventional three-leg mooring system in 40 feet of water, located 1/2 mile offshore.

For the ship discharge mission, the battalion is assigned a diving and watercraft section with four offshore watercraft that include a landing craft, mechanized-8 (LCM-8). The offshore division assists in mooring operations, maintains the mooring systems and underwater facilities, and deploys the required spill control equipment.

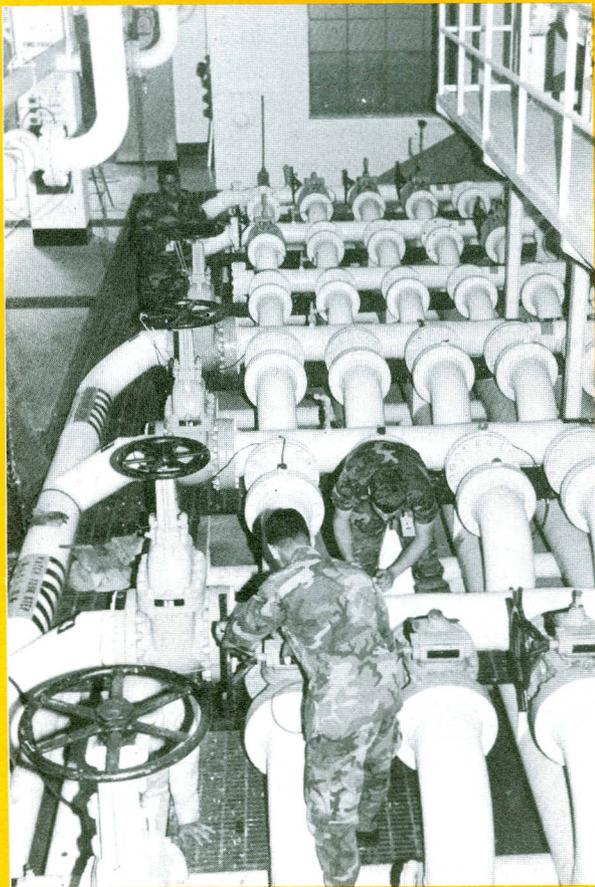
From the ocean facilities, fuel is pumped ashore and initially stored in one of three tank farms in the Chimu Wan district. The three tank farms have the capability to store 920,000 barrels of fuel in 15 underground "cut and cover" tanks ranging in capacity from 20,000 to 100,000 barrels. Currently, these

tanks store motor gasoline (MOGAS) and jet fuels JP4, JP5, and JP7. Fuel is then pumped across the island in one of three 8-inch pipelines to the two tank farms in the Kuwae district or directly to primary customers at Kadena Air Base and the Marine Corps Air Station at Futenma. The Kuwae district consists of two tank farms comprised of seven, "cut and cover" tanks storing 200,000 barrels of JP4 and MOGAS. An additional isolated facility at White Beach is located approximately 10 kilometers south of the Chimu Wan district on the Katsuren Peninsula. It has a storage capacity of 136,000 barrels in three "cut and cover" tanks. At this facility, the battalion operates a newly renovated, deep water pier which off-loads fuel tankers and provides refueling support for U.S. Navy ships of the Seventh Fleet. Scattered through the various facilities are six truck filling stands that dispense MOGAS and diesel fuel to battalion-administered, contractor-operated trucks. The contractor delivers fuel to heating facilities, engineer equipment, and all mobility equipment operated by U.S. government agencies on the island to include gasoline for all the Army and Air Force Exchange Service (AAFES) gasoline stations.

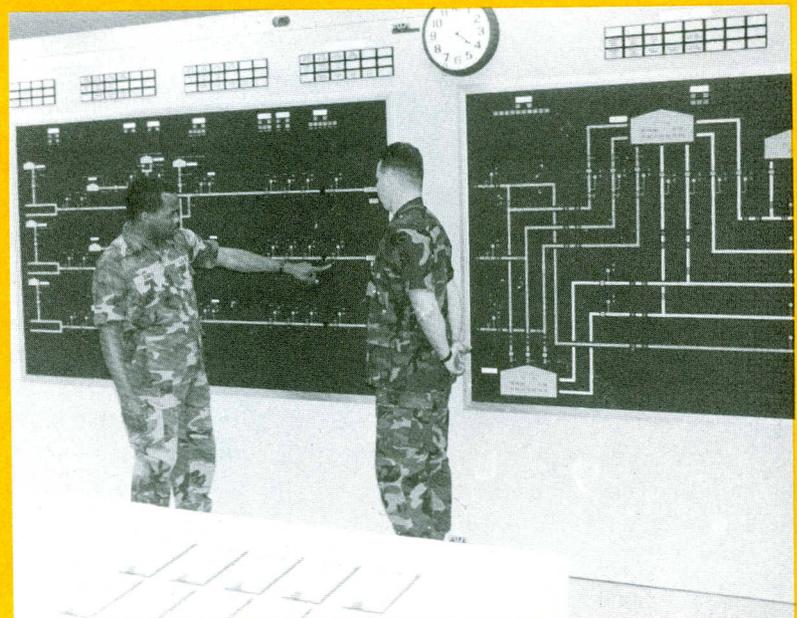
Unique to the 505th Quartermaster Battalion are automatic fire fighting systems at the tank farms at Chimu Wan and White Beach. Video cameras, mounted at strategic locations on the tank farms, can rotate, elevate, and zoom for close-up views. These video cameras, along with fire fighting cannons that dispense a foam and water mixture, are remotely controlled by fire department personnel who monitor the system from a central control room 24



Japanese employees secure a landing craft, mechanized-8 (LCM-8) to an offshore monobuoy used for mooring tankers in Kin Bay, Okinawa, Japan.



Soldiers of the 505th Quartermaster Battalion, Okinawa, Japan, work on the pump station's manifold system at Chimu Wan Tank Farm 1.

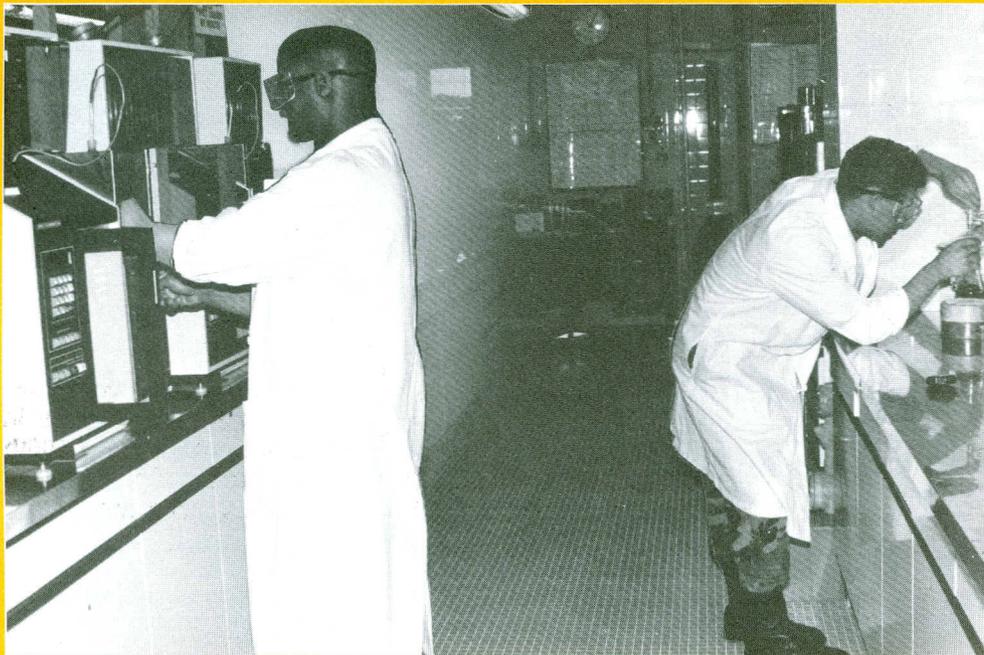
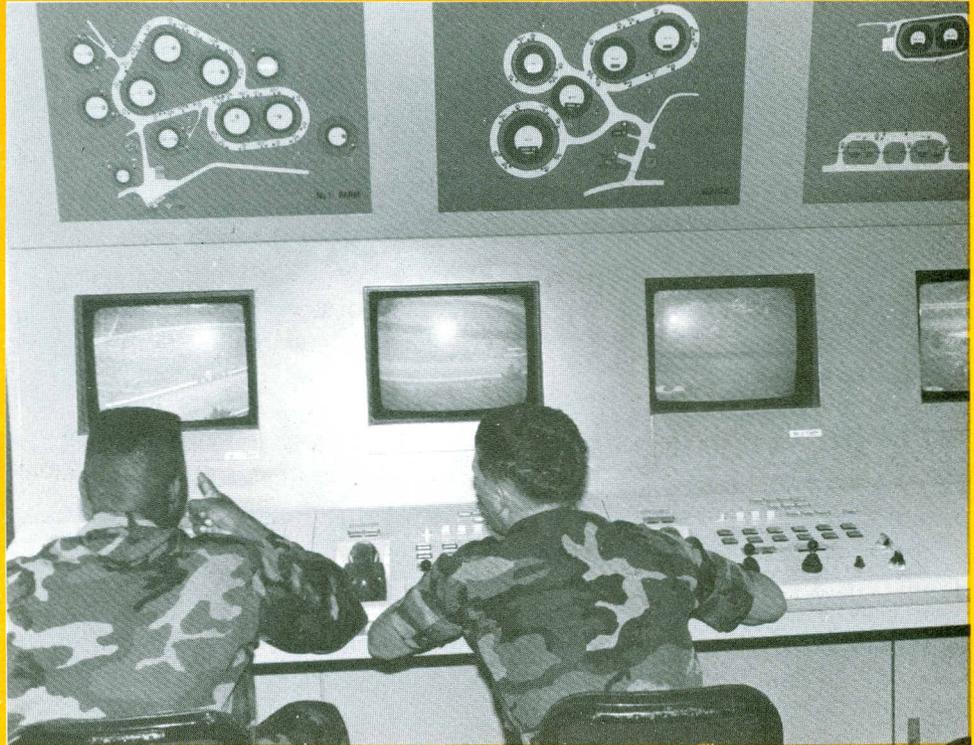


Quartermaster soldiers track petroleum pressure and flow data from remote locations on a computer display panel in the pipeline operations room at headquarters for the 505th Quartermaster Battalion, Chibana, Okinawa. Operators can operate emergency shutdown valves along the pipeline from this location.



The automatic fire fighting system at Chimu Wan Tank Farm 1 includes water cannons and remote television surveillance towers at the 100,000-barrel petroleum tanks.

Fire department personnel in the remote fire fighting control center at Chimu Wan Tank Farm 3 monitor the petroleum system 24 hours a day.



Technicians check the automatic distillation apparatus in the 505th Quartermaster Battalion's modern laboratory at Chibana headquarters, Okinawa.

hours a day. Additionally, the battalion monitors a major section of the pipeline system from its headquarters located in the center of the island at Chibana. The remote, computer-assisted system continuously monitors and compares the flow of fuel in and out of the pipeline and also monitors the pressure within the pipeline at 12 different substations. In the unlikely event of an abnormality such as a pressure drop, an alarm system is activated and 27 motor-operated valves can be closed from the headquarters or may be automatically activated. This system is monitored 24 hours a day by battalion personnel.

The battalion also operates a modern laboratory at its Chibana headquarters which is equipped to perform surveillance testing of fuel and package products. This laboratory is involved in the Commander in Chief, Pacific (CINCPAC) Correlation Program and is consistently rated at 100 per cent, the highest rating in the Pacific.

Finally, the battalion has an organic maintenance division responsible for repair of the organization's equipment and pipeline at the organizational level. It is supported with additional heavy equipment and personnel from the 10th Area Support Group, Directorate of Engineering for Direct Support maintenance. Contractors normally perform depot-level maintenance.

The organization's petroleum support mission gives soldiers many day-to-day opportunities to train in the full scope of technical military occupational specialty (MOS) skills. However, training opportunities for individual and collective tactical skills require creative

planning because of mission constraints, current lack of tactical equipment, and other training resources. A training relationship exists with the First Bulk Fuel Company, 9th Engineers, 3rd Marine Expeditionary Force on Okinawa that supports the battalion with the necessary tactical petroleum equipment, while the battalion provides the fuel and the area to conduct the training. At least once each year a large, joint Army-Marine exercise is conducted at the training facilities at White Beach. The battalion personnel also have the opportunity to receive joint training in fixed wing and helicopter hot refueling at the Marine Corps Air Station at Futenma.

In addition to the joint petroleum exercise, the battalion conducts two tactical field training exercises each year. These training opportunities normally run for five days and exercise tactical petroleum operations, unit defense, security operations, and nuclear, biological, chemical (NBC) warfare defensive skills. During these collective training events, the unit deploys to the Central Training Area on Okinawa, sets up a tactical field site, and establishes a small unit perimeter defense. The unit is subjected to squad-level opposing forces (OPFOR) activity (normally provided by U.S. Marines) to include probing attacks and infiltration. Soldiers conduct realistic defensive operations with blank ammunition using Multiple Integrated Laser Equipment System (MILES) and barrier materiel. Personnel are placed in a simulated chemical environment requiring them to operate at various levels of mission-oriented protection pos-

ture (MOPP). Scenarios are developed for small groups to train in land navigation, an area that continues to require practice.

The battalion also supports the annual training of a deployed Reserve Component company from the U.S. to participate in Exercise Habu Sakusen (Snake Exercise). Funded by U.S. Army, Japan, this exercise permits the deployed unit to train with and pump fuel using both tactical equipment and a fixed pipeline system. Training is also provided in spill recovery, pipeline break repair, fire suppression, and tanker off-load operations. With the increase in soldiers, the battalion can train more realistically on the command and control tasks required during a contingency, fully exercise its defense plans, and conduct all military fuel-pumping operations for extended periods.

In addition to periodic collective training, the organization has scheduled one afternoon a week for conducting individual training in common tasks, skill qualification training, NBC training, and mandatory subjects.

The 505th Quartermaster Battalion (Petroleum Pipeline, Terminal Operating) with its motto "Proud to Pump," has a demanding daily mission that provides an opportunity to train its soldiers on many of their wartime skills. Being located on the semitropical island of Okinawa proves an ideal climate for training and working as well as numerous recreational opportunities which also provide a high quality of living for families and single soldiers. 

LTC Michael A. Silverman is the Battalion Commander of the 505th Quartermaster Battalion (Petroleum Pipeline, Terminal Operating), Okinawa, Japan.

LOGISTICS RELEASE POINT OPERATIONS

LTC William L. Hand

CPT Richard C. Staats

SGT Jones stares at the opposing ridge line as the first rays of the sunrise stream dazzling from the east. First, one silhouette appears, then another and another. Soon the previously empty ridge line is clamoring with enemy tanks, personnel carriers, and command and control vehicles. SGT Jones and his crew scramble to action...

The purpose of Army logistics is to sustain the combat power of the force. The realities of modern warfare have changed that already difficult task into something which strains support units' capabilities under the best of conditions.

The sheer volume of support such as petroleum, ammunition, and chemical defensive equipment that must be pushed forward on a continual basis is staggering. It is estimated that a typical armored brigade consumes nearly 1,200 short tons of supplies per day during combat. At the same time, the supply trains for the brigade have only the capability to carry some 500 short tons, requiring an average of two to three round trips per day. Logistics trains make excellent targets of opportunity for direct and indirect weapons systems alike. Close enemy air support would be remiss if it did not take advantage of a logistics package. In heavily wooded areas, vegetation can serve as cover for logistical operations. In developed theaters of operation, some of the logistics burden will be shouldered by host nation support. Under either of these circumstances, the exposure for logistical units lessens; but what alternatives are available to combat service support units operating in arid, nondeveloped areas? This is the challenge that faced the 201st Support Battalion (Forward), 1st Infantry Division (Mechanized), Fort

Riley, KS, before its deployment to the National Training Center (NTC), Fort Irwin, CA, in January 1990.

The problem was twofold. First, what was the best way to ensure timely delivery of the tremendous volume of supplies required for the 2d "Dagger" Brigade? Second, how could the support battalion best protect its assets while performing the support mission? The answers to both questions were interrelated.

The key to determining the best use of limited transportation and distribution assets is setting priorities. There are two major considerations in determining support priorities. The first consideration is which task force has priority of support. The second consideration is more subtle: which types of supplies have priority for distribution.

The support battalion commander must be included in the brigade commander's decision cycle. Using forward distribution points and throughput for the priority maneuver elements is an absolute necessity. Doctrine modified by mission, enemy, terrain, troops and time available (METT-T) will dictate the priority of supplies.

Offensive operations generally require more petroleum. Defensive planning, on the other hand, implies more ammunition and barrier material. When working in a chemical environment, both chemical defense equipment (CDE) and water resupply must be considered. In an arid environment, potable water will probably be the only alternative for decontamination operations because water-carrying assets will be at a premium. Maneuver commanders will not have the luxury of hauling non-potable water in "clean" vehicles.

Additionally, petroleum assets will be critical. Although dry goods can be freely transferred to any vehicle, wet products, specifically petroleum and water, must be transported and stored in special containers or vehicles. The requirement for critically short vehicles can be lessened by reducing their travel times and decreasing download times.

Using forward supply points and throughput reduces the round trip travel times for vehicles from the maneuver unit's combat and field trains by lessening the distances between the supply points and consuming units. Sites selected for supply distribution operations must be coordinated in advance, well marked, and familiar to both the supply and receiving units. The use and enforcement of very specific time frames for routine resupply requirements will reduce the exposure time for logistics support vehicles.

Passive defensive measures are the primary means for protecting combat service support operations. Dispersion and the use of darkness for concealment are two extremely effective methods for defending logistics elements.

The solution for the 201st Support Battalion was the logistics release point (LRP) concept. The LRP integrates the ideas of forward supply points; fixed, routine resupply times; known resupply locations; and dispersion and darkness for concealment. The LRP was an integrated effort involving staff coordination between the maneuver brigade, the brigade support area (BSA), and the division support area (DSA). Once in operation, the beauty of the concept was that it worked entirely by

standing operating procedure (SOP).

The brigade S4 (Supply Officer) identifies potential LRP locations in coordination with the support battalion's support operations section during the planning phase of an operation. LRP operations take place during fixed hours of darkness; so, the sites selected must be recognizable at night as well as during the day. Additionally, the brigade S4 selects assembly areas for the maneuver battalion's logistics packages (LOGPACs). The LRP is located outside the BSA to reduce congestion. It is placed along the main supply route (MSR) to aid in route security. Military police (MP) assets in the brigade rear area are always in short supply. The LRP location shifts nightly to thwart enemy reconnaissance efforts. The BSA and DSA send representatives for ground reconnaissance of the proposed sites, if possible.

The LRP is designed to refill unit LOGPACs on the way back from the combat trains to the field trains' locations.

The LRP contains high volume, high demand items (such as bulk fuel, rations, and water) which are placed in a "filling station" arrangement to speed resupply operations. Additionally, the LRP is used as a trash collection and turn-in point. Unit LOGPACs are divided by company/battery elements when they leave the BSA. The assembly area gives the unit LOGPACs a chance to reorganize by commodity.

The LRP uses throughput of high demand from the DSA directly to the LRP. The BSA sends out a quartering team to secure the area and to establish commodity lanes before beginning evening nautical twilight (BENT). The DSA sends a convoy forward to the LRP to link up with the commodity counterparts from the BSA. The LRP is established no later than ending evening nautical twilight (EENT). Guides are emplaced, and commodity lanes are marked.

A military police (MP) team establishes the assembly area (AA). As unit LOGPACs enter the AA, they reorganize and notify the LRP officer in charge (OIC), the supply company platoon leader, when they are ready to proceed. The LRP OIC calls the LOGPACs forward as the previous unit clears the LRP. The last customer through the LRP is the BSA which "tops off" the assets used to resupply unit LOGPACs.

Effective communication is essential to a successful LRP operation. The 201st Support Battalion used the battalion (BN) administrative/logistics (A/L) frequency for LRP operations. Specifically, the A/L net was used to call elements forward from the AA, and the A/L net doubled as the defense cluster control net when the LRP was probed one evening. The support operations section transmitted LRP resupply requirements to the DSA 10 to 12 hours before execution with the standard report format. Communications-Electronics

Operation Instructions (CEOI) data was exchanged within the BSA during daily meetings. The LRP locations were published in the brigade order.

Security actions and procedures at the LRP must follow the SOP and should be rehearsed before execution. For example, the 201st Support Battalion's SOP requires using the next night's LRP site if the current night's site is not secure. The LRP OIC must be aware of which crew-served weapons and soldiers are available at the LRP for security operations. Most importantly, customer LOGPACs must understand their functions and responsibilities if the LRP comes under fire or hostile observation.

Using the LRP, the 201st Support Battalion resupplied the entire "Dagger" Brigade and slice elements in less than three hours. As both the lethality of the modern battlefield increases and the logistics requirements increase, Army logisticians must find more innovative methods to accomplish the mission. The LRP is a proven method of improving resupply efficiency in an underdeveloped area. 

LTC William L. Hand is the Battalion Commander for the 201st Support Battalion, 1st Infantry Division (Mechanized), Fort Riley, Kansas.

CPT Richard C. Staats is the Support Operations Maintenance Officer for the 201st Support Battalion, 1st Infantry Division (Mechanized), Fort Riley, Kansas.

A WINTER SHOWER DURING REFORGER 90

LT James R. Ryan

During return of forces to Germany (REFORGER) 90, the 26th Supply and Service Company, Field Service Platoon, Hanau, West Germany, learned several lessons in setting up an automated portable bath unit in temperatures as low as 16 degrees Fahrenheit. The most important lesson learned was how to keep the cold weather from freezing the water in the cotton and rubber hoses while providing bath services to soldiers in the field. Maintaining soldier morale was a great challenge as we prepared to give showers.

The first source of water was from a fire hydrant 2,500 meters from the site. This source did not work because the water froze by the time it reached the shower point. To solve this problem, we placed water tanks inside a tent with

a liner. We submerged the intake hose under water to keep the line from freezing.

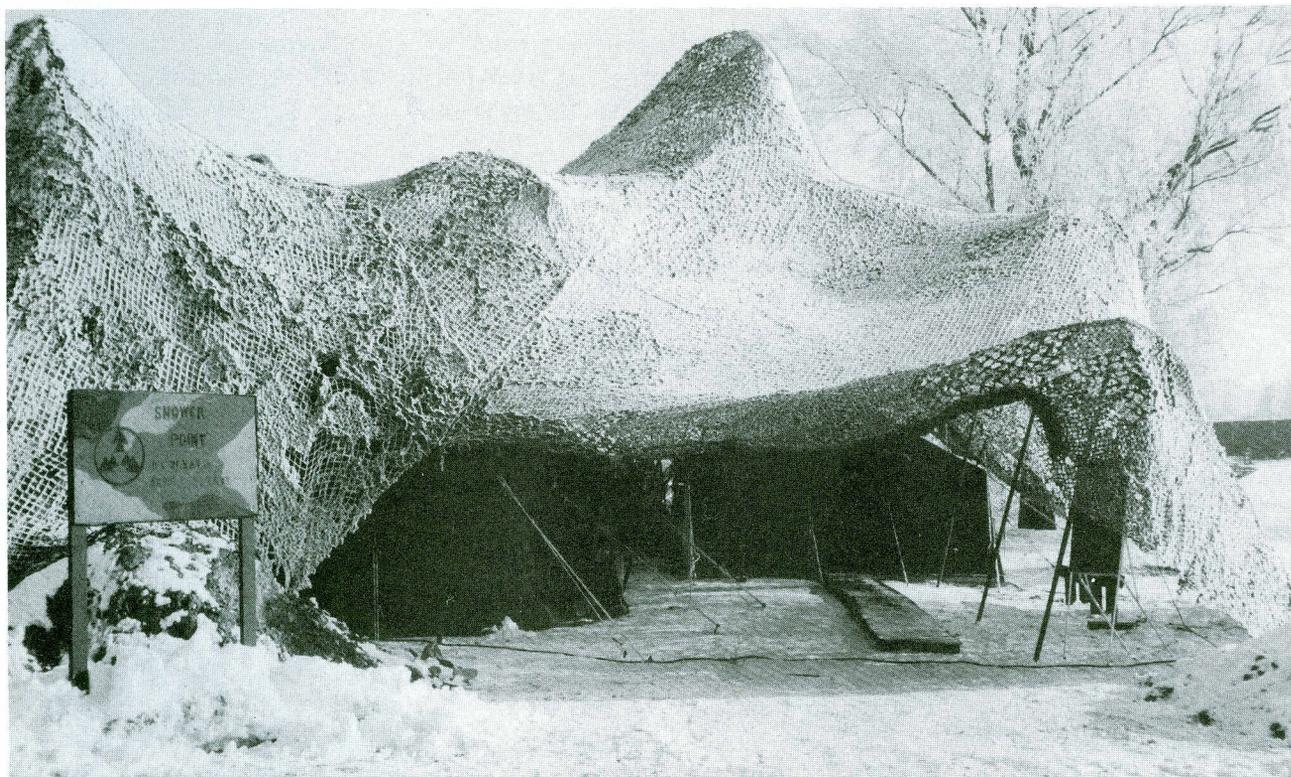
Proper preventive maintenance was a must during the extreme cold weather conditions. The first step was to drain the 18-gallon per minute (GPM) pump after each use before placement inside the tent. We rolled up all hoses after shower hours to ensure excess water was squeezed out. Then we suspended the hoses inside the tent to prevent them from freezing together. If water hoses cannot be rolled up, hang them up to allow drainage. A helpful hint is to use an air compressor to blow excess water out of the hoses.

Leave all shower heads in the open position to prevent freezing. If shower heads do freeze, do not force the handle. Just turn on the

boiler and run hot water over the shower heads from the discharge hose.

For safety, put all electrical cables on water distribution stands so they will not freeze in the ground. This also makes the setup look better. Finally, be sure of proper drainage so water will not freeze and cause a flood. Sweep all matting free of excess water so no one will slip and fall. Hay works well around all work areas if kept away from fuel and heaters. All heaters must run 24 hours to prevent dampness that may cause freezing. As the temperature drops, more heaters can be provided to all tents except the shower tent. 

LT James R. Ryan is a Field Service Platoon Leader, 26th Supply and Service Company, Hanau, West Germany.



Shower Point at REFORGER 90

102D QUARtermaster COMPANY (POL), FORT CAMPBELL, KENTUCKY

CPT James M. Campbell, Jr.

One of four petroleum supply companies in the active component of the U.S. Army is the 102d Quartermaster Company (petroleum, oils, and lubricants (POL)), 561st Supply and Service Battalion, Fort Campbell, KY. The unit's table of organization and equipment (TOE) mission is to provide bulk storage of fuel in a theater of operations. The company also can conduct retail fuel operations and can install, operate and recover 15 miles of assault hoseline. On a daily basis, the 102d Quartermaster Company operates two helicopter rapid refuel points (RRPs) and a ground equipment refuel point and also conducts refuel/defuel operations for helicopters undergoing maintenance.

Helicopters provide the firepower and mobility for the 101st Airborne Division (Air Assault). Prompt, safe refueling of aircraft is a paramount concern to the 102d Quartermaster Company, whose soldiers operate the two "hot" RRP's: Woodlawn RRP at Sabre

Army Heliport and Oasis RRP at Campbell Army Airfield.

The Oasis RRP is the larger and more active of the two. It provides direct support to over 400 aircraft of the 101st Airborne Division (Air Assault). The aircraft supported include OH-58 (Kiowa) light observation helicopters, UH-1 (Huey) and UH-60 (Blackhawk) utility helicopters, AH-1 (Cobra) and AH-64 (Apache) attack helicopters, and CH-47 (Chinook) cargo helicopters. The Oasis RRP operates on a 24-hour schedule during major field exercises and Monday through Friday on normal duty days. It has reduced operational hours during weekends.

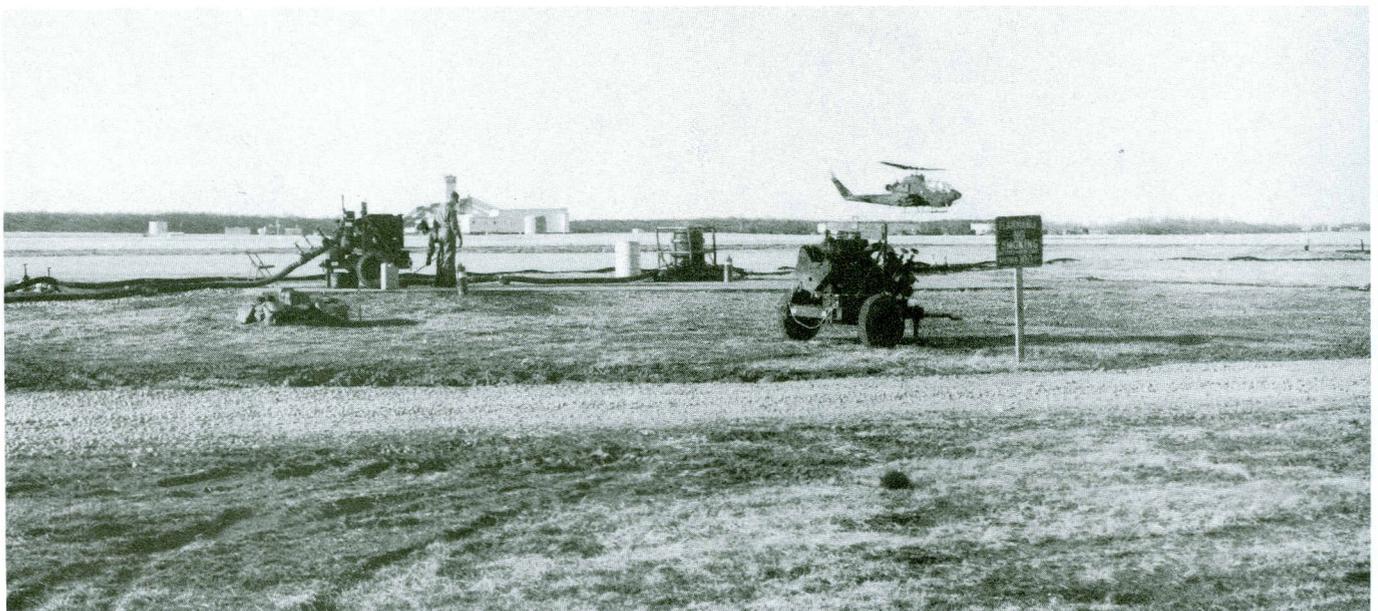
When the Oasis RRP was established, the company installed three 50,000-gallon collapsible tanks (bags) as the means for storage. Using the components of the fuel system supply point (FSSP), eight refuel points or "pads" were established. Six pads are used to refuel light aircraft ranging from the OH-58 (Kiowa) to the AH-64

(Apache). The remaining two pads are used to refuel heavy aircraft such as the CH-47 (Chinook). Using a 350-gallon-per-minute (GPM) pump, the soldiers operating the refuel point can service eight aircraft simultaneously.

Shifts ensure top quality service, safe operating procedures, and quality surveillance of fuel. The shifts are divided into eight-hour rotations staffed by one section leader, one pump operator, and eight qualified 77F (Petroleum Supply Specialist) soldiers.

To provide the best support possible, the section leader has telephonic communication with the air traffic controllers of the airfield. This allows pilots to proceed immediately to a point where a petroleum supply specialist is ready to refuel the aircraft. The section leader also makes hourly checks of the entire system for leaks and serviceability of equipment.

To maintain quality surveillance, Aqua-Glo tests are conducted. The Aqua-Glo test uses a water-reactive



Specialists from the 102d Quartermaster Company perform maintenance on the area surrounding the 350-gallons per minute pump while an AH-1 Cobra approaches the Oasis Rapid Refuel Point at Campbell Army Airfield.

pad and a meter to determine the amount of water in the fuel. The test breaks down the amount of water in the fuel to parts per million (ppm). Any 77F soldier can conduct this test. To further maintain its purity, fuel is recirculated through the system periodically. A Millipore test is conducted every 30 days to test for contaminants in the fuel. The Millipore test indicates the amount of sediment and dirt in the fuel. The test breaks down the amount to milligrams per liter (mg/l). Any 77F soldier can draw the fuel for the test. However, the actual test must be conducted in a laboratory by a petroleum laboratory specialist (77L).

During daily operations, 12,500 gallons of JP4 (jet fuel) are issued to over 150 aircraft. The Oasis RRP fuel stocks are replenished by 5,000-gallon tankers. Although the site only has 150,000 gallons of storage capability, the average yearly issue exceeds 6.5 million gallons.

Presently a permanent facility is being constructed to replace Oasis. Consisting of six pads (four light/two heavy), the new facility will provide the soldiers with more state-of-the-art equipment including panographic arms to move hoses, meters to enhance accountability, and a floating pan roof storage tank to increase the safety level. The storage tank will hold 125,000 gallons of fuel. The new permanent facility will be operated the same as the temporary site.

The 102d Quartermaster Company accomplishes numerous support missions daily. Safe operations with petroleum products is a necessity. As far back as records indicate, every aircraft has received good quality fuel from any system



A soldier from the 102d Quartermaster Company, Fort Campbell, Kentucky, hot refuels an AH-1 Cobra while the crew chief performs fire watch.

operated by the company's soldiers. The soldiers of the 102d Quartermaster Company provide the best support possible and truly emulate the battalion motto: "THE BEST SERVING THE BEST.... AIR ASSAULT"!!! 

CPT James M. Campbell, Jr. commands the 102d Quartermaster Company, 561st Supply and Service Battalion, 101st Corps Support Group (Provisional), Fort Campbell, Kentucky.



Soldiers of the 102d Quartermaster Company hot refuel a UH-60 Blackhawk from the 101st Aviation Brigade.

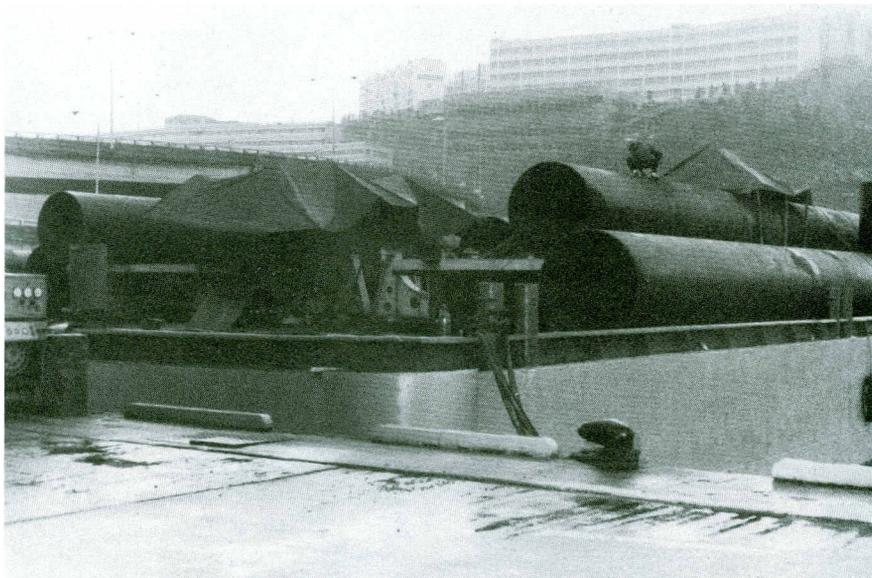
DELONG PIERS

CPT Daniel M. Shea

August 1965, Cam Rahn Bay, The Republic of South Vietnam; almost 100 cargo ships are anchored in the bay waiting to unload supplies. Only one stone pier and amphibious landing ships, tanks (LST) are available to off-load critical supplies. To service the tremendous logistical needs, a rapid solution to increase the unloading of supplies and reduce the shipping backlog was an absolute necessity. Additional piers would solve the problem. However, a permanent pier would take a 400-worker crew more than 16 months to construct. The answer? Delong Piers.

Delong Piers are mobile piers that can be towed worldwide and erected by a trained 12-worker crew in two weeks. After World War II, COLL. B. Delong recognized that a mobile barge invulnerable to wave and weather was an extremely critical asset for ship-to-shore operations. In August 1967 a Delong Pier in Charleston Harbor, SC, was taken out of mothballs, overhauled, and towed to South Vietnam. By December 1967, the Delong Pier was operational, able to off-load four ships simultaneously, and discharge over 800 short tons of cargo per day. Soon 11 more were built in Japan and transferred by ocean tug for erection in numerous ports in both South Vietnam and Thailand.

The major components of a Delong Pier are the floating barge, caissons, and air jacks. There are two types of Delong Piers, Type A and B. The barge is a welded steel honeycomb-like structure. The Type A barge is 300 feet long, 80 feet wide, with a 13-foot draft. The Type B barge is 150 feet long, 60 feet wide with a 10-foot draft. The caissons are made of steel an inch and a half thick, 140 feet long, and 6 feet in diameter, weighing 75 short



Delong Pier in war reserve at Pusan Storage Facility, Korea

tons. To erect a Type A Delong Pier takes 10 caissons.

The air jack, a barrel-shaped cylinder approximately 10 1/2 feet high and 10 feet in diameter, can raise 500 short tons at a nominal rate of 12 feet per hour. The caissons lace into the wells of the barge and are lowered to the bay. The air jacks wrap around the caissons, and the barge is jacked out of the water. The pier is fully operational for docking operations after placement of a steel ramp linking the Delong Pier to shore.

All 11 Delong Piers were recovered from the Republic of South Vietnam and Thailand in the mid 1970s. The U.S. Army Pusan Storage Facility, Pusan, Korea, maintains the highest density with five. The others are located at Fort Eustis, VA, and England.

At the Pusan Storage Facility, two Delong Piers are on Department of the Army approved, temporary loan to the Military Traffic Management Command, Pusan. One Delong Pier was shipped in June 1989 to Hiroshima, Japan, for long-term use. The two remaining Delong Piers are in war reserve

storage at the Pusan Storage Facility. The Pusan Storage Facility's Marine Maintenance Division performs all routine maintenance, cyclical overhaul, and wet storage. The Pusan Storage Facility's mission is large and diverse: provide the receipt; wet and dry storage; and direct, general, and contract depot-level maintenance and issuance of all Eighth U.S. Army watercraft.

"If it floats or is used in the water, we maintain it" said LTC William Huff, Commander of the Pusan Storage Facility. "Because of the mobility of the Delong Pier, it is an extremely critical asset for ship-to-shore operations here in support of U.S. Forces Korea." 

CPT Daniel M. Shea is the Assistant Adjutant, Infantry Training Center, Fort Benning, Georgia. A 1984 graduate of the United States Military Academy, he is also a graduate of the Infantry Officer Basic, Quartermaster Officer Advanced, and Ranger courses. He is a winner of the General Douglas MacArthur Leadership Award and the former commander of the Pusan Storage Facility, Korea.

Keeping The Army Moving

LT Colin H. Itagaki

History has proven that exhausted supply channels disrupt tactics and hinder campaigns. During Operation Overlord in World War II, General George S. Patton's highly mobile Third Army faced critical gasoline shortages and had to alter plans before rescue by the Red Ball Express — a long-distance, one-way highway loop. The Red Ball Express bridged the gap between the growing stockpiles at the beachhead in Normandy and customer units in the front. The fuel system supply point (FSSP) is a system that could bridge that same gap on today's modern combined arms battlefield. The system can store 60,000 gallons of bulk petroleum and can receive petroleum product via tankers, railway cars, pipelines, hoses, aircraft, and even ocean tankers for beachhead operations.

The petroleum, oils, lubricants (POL) platoon from the 40th Supply and Service (S&S) Company, 124th Transportation Battalion, 45th Support Group, on 5-9 March 1990 erected an operational FSSP at Dillingham Air Force Base, Oahu, Hawaii. This is the second time in a year that the 40th S&S Company operated the system on the Island of Oahu. The previous operation in February 1989 was the first time the FSSP had been erected for operational use on Oahu since 1986.

Detailed external and internal planning and coordination went into the FSSP site preparation. Externally, the 40th S&S Company coordinated first with the Range Control, 25th Infantry Division (Light), to reserve an area. Once the area was confirmed, Environmental Protection Agency approval was needed from the Directorate of Facilities Engineers, Environmental Branch, to operate the FSSP, be-

cause of the potential hazard. After this approval, the company ordered 5,000 gallons of diesel fuel and 75 tons of Hawaiian red dirt for the berms. It is imperative that berm construction material have poor drainage characteristics and compact easily to contain a possible fuel spill. Final external coordination was with the 84th Engineer and 25th Transportation Company to provide lowboy transportation for a 10,000-pound forklift, MW24C scooploader, and a stake and platform trailer to haul the FSSP equipment.

Internally, equipment preparation required the most planning. The system initially was set up in the motor pool to ensure serviceability. The 10,000-gallon collapsible tanks were filled with air to check for leaks. After all preventive maintenance checks, the POL platoon of the 40th S&S Company "Outlaws" were once again "on the move."

The May date soon approached, and the POL platoon anxiously awaited to erect the system. Instead of requesting external engineer support, the platoon used organic personnel to train on the MW24C scooploader and the 10,000-pound forklift. The platoon cleared the FSSP site of all shrubbery and overhanging branches, and then leveled off the site with the scooploader. While FSSP equipment was offloaded, berms were constructed. The POL platoon then laid canvas (to substitute for berm liners) under the bags to protect the bags from sharp objects and to protect the ground from possible fuel contamination. Two 10,000-gallon bags were set up to train Petroleum Supply Specialists (77Fs) on military occupational specialty (MOS) skills and prepare them for

the upcoming Skill Qualification Test (SQT). Additional elements of the 124th Transportation Company added realism to the training exercise by conducting refueling operations from the FSSP. Coordination is now underway for setting up the FSSP at Pohakuloa Training Area on the Island of Hawaii for a future 124th Transportation Battalion field training exercise (FTX). 

LT Colin H. Itagaki, a Quartermaster Officer, is petroleum, oils, lubricants (POL) and water Platoon Leader for the 40th Supply and Service Company, 124th Transportation Battalion, 45th Support Group, Schofield Barracks, Hawaii.

The 40th S&S Company is a direct support supply and service company that provides support for the 25th Infantry Division (Light) and other nondivisional units in the Western Command. The company has deployed to Thailand, Korea, Japan, and the Island of Hawaii providing POL, laundry and bath, water purification, Class I (rations), and bakery services.

The graves registration section has deployed twice to Papua, New Guinea, and five times to Vietnam, on repatriation missions recovering over 100 remains. They recently deployed to Western Samoa in February 1990 for emergency relief after a hurricane. The 87th Quartermaster Detachment (Rigger), which provides personnel parachute and aerial resupply support to the Western Command and other sister services, provided mission support to units deployed to the Philippines, Panama, Guam, Thailand, Korea, Fort Lewis, WA, and Fort Chaffee, AR.

BASE DEPOT MANPOWER IN THE EUROPEAN THEATER OF WORLD WAR II

LT Christopher Wanat

The success or failure of combat units depends heavily on one common denominator: base depots and the soldiers who control these operations. The Quartermaster Corps met a great challenge during World War II when the Corps effectively staffed the depots of the European Theater. The responsibilities of the Quartermaster Corps in World War II expanded from the World War I level. During World War I, the European Theater consumed 8.34 million tons of supplies. This amount increased almost 600 percent to 47.64 million tons during World War II. The strength of military personnel levels grew almost 1,300 percent from 621,000 before the war to over 8 million in 1945. Prior to World War II such quantities of soldiers and equipment had never been massed and employed militarily. It is unlikely that an event of such magnitude will ever repeat itself.

The depots of World War II faced a familiar problem. Depots have an enormous amount of work to accomplish and not enough manpower. Accordingly, the Quartermaster Corps combined improvisation with ingenuity. Quartermasters used indigenous personnel for logistic activities, mainly in the physical handling of supplies. The following table illustrates the average proportion of personnel employed at European depots:

CATEGORY	PROPORTION
U.S. Military	21%
Enemy Prisoners of War (POW)	46%
Civilian Labor	26%
Italian/Slav Service Units	6%
Liberated Manpower	1%
TOTAL	100%

U.S. military personnel clearly formed a small percentage of total manpower engaged in supply operations at the depots. The low proportion of U.S. military personnel in depots was a necessity. This allowed adequate supply personnel in more forward areas where security and the need for flexibility eliminated anyone other than U.S. military personnel.

Forward deployment of Quartermaster units was not the only reason for maximum use of indigenous personnel at depots. There was a general shortage of Quartermaster units, particularly labor units. Quartermaster responsibilities extended to furnishing supplies and services to personnel other than U.S. military. Finally, many Quartermaster soldiers were required to guard prisoners of war and various installations.

Indigenous personnel were employed for supply labor as well as administration of the depots. This resulted in an undesirable but unavoidable situation. The U.S. property was being handled and administered by civilians in a wartime environment. These civilians were not subject to military discipline and not aware of proper military supply procedure. Standard methods were developed and personnel trained accordingly. The U.S. military supervisor personnel were used efficiently and effectively to accomplish goals.

PRISONERS OF WAR

Enemy POWs were not used immediately as a source of labor. Army commanders did not want prisoners operating in a shallow rear area, and waited until forward lines moved adequately inland. After this, it also became necessary

to supplement civilian labor with POW labor because Quartermaster companies were in short supply. The POWs initially worked in graves registration companies in forward areas. Their use progressed into salvage and laundry activities, solid fuel operations, and finally depots. Quartermaster supervisors realized the requirement for job classification of POWs experience and skills. Job classification ensured prisoner labor was used to maximum potential. Depot salvage repair companies, bakery companies, laundry companies, and others were formed according to the prisoner's individual skills. One such company manufactured POW uniforms.

Headquarters and Headquarters Detachments of the Quartermaster Groups provided the supervision, coordination, and control of the POW companies performing Quartermaster services. The POWs were organized into companies of approximately 250 men each. They were directly administered by one U.S. officer and three enlisted soldiers.

One Quartermaster Service Company was responsible for guarding approximately 1,500 POWs. This ratio was adjusted, depending on distance from front lines and dispersal and type of operations the POWs were performing. Economy of force was realized where prisoners worked in consolidated areas. This allowed perimeter guards to maintain the necessary security.

The Quartermaster Corps realized the benefit of this labor force through redeployment. Technical POW units were organized and trained before the war ended. Their purpose was to replace losses of U.S. military units during the first

phases of redeployment. When Victory in Europe (VE) Day arrived, these units were on hand, trained, and put into operation. In fact, redeployment ran ahead of schedule. The success of these units made organizing and training additional units necessary.

At the end of the war, U.S. military service units rapidly left the field. Experimentation proved that POWs could be administratively self-sufficient on the job. The best-qualified POWs were trained as administrators such as foremen and checkers. This program was developed extensively and used after the war in France and Belgium. Its success can be measured by some depots operating almost entirely by POWs with a minimum of one U.S. officer and a few enlisted soldiers as supervisors.

Quartermaster supervision of POW units ensured maximum performance. A petroleum point typically consisted of seven U.S. soldiers from a gasoline supply company and 150 POWs. One such unit set a record on 25 June 1945 by servicing a convoy of 677 vehicles in one three-hour period. The vehicles were served at a rate of three each minute for a record total issued of approximately 11,000 gallons of gasoline.

Heavy concentrations of POWs were also in salvage units. These units handled 43,357 tons of salvage amounting to a savings of \$163,481,495 to the U.S. government.

Several disadvantages were evident in the use of POWs. Guarding and close supervision were necessary. The Geneva convention put limitations on their employment. Their performance and reliability dropped drastically in large groups. However, the advantages of using

POW labor clearly outweighed the disadvantages. The benefit to depots was definitely proven.

CIVILIAN LABOR

Depots employed approximately 58,000 civilians in the European Theater. Civilians were employed as clerks, interpreters, technicians, and guards. They were also employed as general laborers and repairers in depots. These were two broad categories of civilian labor: static labor and mobile labor. Static labor resided in the locality before establishment of the depot. Additionally, U.S. Forces assumed no responsibility or limited responsibility for clothing, feeding, or sheltering these civilians. Static labor was further categorized into regular and emergency labor. Regular labor was employed continuously and paid at regular intervals. Emergency labor was employed under an oral agreement. These laborers were used for a particular task and paid after completion of the task.

Mobile labor was organized into units under military command. They moved from place to place and U.S. Forces assumed responsibility for their clothing, feeding, and shelter. Mobile labor worked at various jobs and moved among depots and sub-depots as required. Depots initially configured a mobile labor company with 5 officers, 23 enlisted soldiers, and 300 laborers. The company was divided into three platoons or 12 sections, each capable of independent action. Their versatility was a considerable advantage in depot functions. Later, mobile laborers were organized into companies of approximately 250 men commanded by one U.S. officer with four enlisted soldiers.

The main source of mobile labor was displaced persons. Units often

consisted of several nationalities. Greatly reduced efficiency of these units often resulted from different languages, temperaments, and opposing political and national views.

Civilian labor offered some advantages over POW labor. Civilian labor could be used on projects where provisions of the Geneva convention excluded prisoners of war. They could be used when conditions of a project required only a few workers. The small number of workers made using POWs impractical. Finally, civilian labor required no armed guard. One disadvantage of civilian labor was the inefficiency when compared to POWs. Another was that civilian labor resulted in a high rate of pilferage.

ITALIAN/SLAV SERVICE UNITS

The Quartermaster Corps employed a maximum of approximately 12,500 Italians and Slavs organized into 50 companies and equipped under Quartermaster tables of organization and equipment of the time. These companies included depot service, gasoline supply, bakery, laundry, sterilization, salvage collection, railhead, supply, salvage repair, and fumigation and bath.

Records now show these units performed best at receipt, storage, and issue of gasoline, laundry, and salvage operations. However, performance records show their capability was almost half of comparable U.S. military units.

LIBERATED MANPOWER

The smallest portion of manpower used by the Quartermaster Corps was "Liberated Manpower," consisting of French, Dutch, and Belgium light infantry battalions of

approximately 800 each. Supreme Headquarters, Allied expeditionary forces allocated these units to Army Groups as they were activated. Army Groups decided to further allocate them to depot activities where their primary purpose became installation security. Such units were rare, and the Quartermaster Corps used them to a limited extent in the European Theater.

CONCLUSION

The European Theater of World War II proved to be the Quartermaster Corps' greatest challenge. This war involved new conditions and did not allow the luxury of past experience. World War II was the first mechanized war. Nothing could more clearly emphasize the contrast between the previous slow warfare of World War I and the swift tempo provided by armor and

aircraft in World War II. The European Theater of World War I contained a total of 49,034 vehicles. This amount increased almost 15 times in World War II to 710,650 vehicles creating a high speed environment. The striking power and speed of combat forces were completely regulated by the ability of supply forces to cope with unprecedented challenges.

The Quartermaster Corps encountered numerous problems during these times. Staffing depots was one of the most important. The depots provided combat forces with the materiel required to win the war. The combat force effectiveness would have been greatly reduced if Quartermaster units did not meet the depot staffing challenge with effective solutions. Ingenuity and innovative ideas allowed the Corps to fulfill necessary supply requirements. As a result, combat units received the

fundamental materiel to operate as designed.

Why is it important to be aware of these facts? If it is true that a war of such magnitude is unlikely to repeat itself, what application does this information have today?

An awareness of the approach to solutions of such problems will greatly affect the outcome of our next test. Field Marshall Erwin Rommel's view that battles today are fought and decided by the Quartermasters before the actual fighting begins is a point of argument. It cannot be argued that adequate logistical support constitutes a far more critical ingredient of victory on the battlefield than ever before. Failure to provide such support, for whatever reason, is certainly an invitation to defeat. 

LT Christopher Wanat is a graduate of the Quartermaster Officer Advanced Course at Fort Lee, Virginia.

NATIONAL GUARD BUREAU'S LOGISTICS SUPPORT CENTERS

MAJ Jerry L. Howse

MAJ Larry M. Lee

Two Army National Guard Logistics Support Centers (LSCs), subordinate to the Logistics Systems Branch of the Army Logistics Division, operate within the continental United States. Designated LSC1 and LSC3, the LSCs provide logistical automatic data processing equipment (ADPE) and software to Army National Guard (ARNG) and U.S. Army Reserve (USAR) units. The LSCs also provide classroom training to Reserve Component soldiers. (Four regional

LSCs—LSC1, LSC2, and LSC3, and LSC4—were planned initially.)

Currently, the two LSCs are fielding the Decentralized Automated Service Support System (DAS3) and the Tactical Army Combat Service Support Computer System (TACCS). These systems are being fielded to units according to the Department of the Army Master Priority List (DAMPL). Since the LSCs were established in 1986, more than 1,280 TACCS have been fielded to modified tables of organization and equipment

(MTO&E) ARNG and USAR units throughout the country.

The software applications currently being fielded with the TACCS include the Standard Property Book System-Redesign (SPBS-R), the Standard Army Retail Supply System (SARSS), the Standard Army Maintenance System Levels 1 and 2 (SAMS-1/SAMS-2), the Standard Army Ammunition System Level 4 (SAAS-4), and the Standard Installation/Division Personnel System (SIDPERS). Fielding for the 10 ARNG divisions, separate

brigades, armored cavalry regiments, special forces groups, and infantry groups were completed for the logistics applications in FY 88 and FY 89.

LSC1, located at Fort Indiantown Gap, PA, has 10 classrooms with up to 80 computers for personnel to use during a one- to three-week training cycle. LSC1 fields tactical ADPE to ARNG and USAR units in First, Second, and Fourth Army areas—an area of 22 states and territories.

LSC3 is located at the Oklahoma National Guard Whitaker Education and Training Center, Pryor, OK. The center has 12 classrooms with up to 120 computers available for training. An additional nine classrooms are available for other training activities. LSC3 fields tactical ADPE to Fifth and Sixth Army areas.

The LSCs are also available to the ARNG and USAR for conferences, meetings, and training activities. Organizations desiring to use or visit these facilities should contact the

Manager, LSC1, AUTOVON 238-8419/8420, Commercial (717) 865-8419/8420, or Manager, LSC3, AUTOVON 956-5395, Commercial TOLL FREE 1-800-NGB-LSC3. 

MAJ Jerry L. Howse is the Manager of Army National Guard Logistics Support Center 3 at the Oklahoma National Guard, Pryor, Oklahoma.

MAJ Larry M. Lee is the Manager of Army National Guard Logistics Support Center 1 at Fort Indiantown Gap, Pennsylvania.

KEVLAR HELMET CREDITED WITH SAVING LIVES

The Kevlar helmet was recently credited with saving the lives of two paratroopers during combat in Panama. SFC Robert Padin and SSG Louis Olivera spoke at the U.S. Army Natick Research, Development and Engineering Center, Natick, MA, which developed the helmets.

SFC Padin explained what happened to him. SFC Padin was to secure a particular building in Panama and was completing his mission when ambushed. He was shot and hit on the helmet twice. The second shot hit his helmet so close to the first that the bullets followed the same path as they tore through the outer layers of the Kevlar, just missing his head. He sustained minor neck injuries from the force of the bullets and had a severe ringing in his ears, but otherwise was unhurt.

SSG Olivera's story began the moment he had to parachute into enemy territory. He parachuted into a high tension wire that burned his hair. Dropping to the grounds, he realized he was in the middle of an enemy compound. As SSG Olivera moved from one position to another, he was ambushed by two Panamanian Defense Force soldiers. The first two rounds hit him in the chest, punctured his lung, shattered several ribs, severed a nerve in his right arm, and knocked him to the ground.

One Panamanian soldier shot him in the head at point-blank range. "They came to finish me off." SSG Olivera said. "The bullet went through the Kevlar helmet." He had a fractured skull and multiple injuries to his head, but the severity of his wounds was significantly reduced because of the helmet

slowing the bullet. Fortunately, the shot to his head was a tracer round which cauterized the wound.

The Kevlar helmet and vest were used in Grenada and Lebanon. Based on data from these experiences, casualty reduction data analysis showed a reduction in the number of head and neck wounds sustained. Field tests indicated that soldiers universally accept the helmet because of increased comfort and stability compared to the steel helmet introduced in 1941.

The Hotline number for the U.S. Army Natick Research, Development and Engineering Center is AUTOVON 256-5341 or Commercial (508) 651-5341. The center encourages soldiers to call and comment about Natick-developed items.

ANOTHER EARLY LESSON IN REPAIR PARTS

CPT Kevin M. Born, a Quartermaster Officer who commands the 53rd Heavy Materiel Supply Company, Hanau, Germany, wrote the following response to an article in the Winter 1989 issue of the Quartermaster Professional Bulletin. The article, entitled "An Early Lesson in Repair Parts," is by Dr. Steven E. Anders, the Quartermaster Corps Historian, U. S. Army Quartermaster Center and School, Fort Lee, VA. CPT Born commented that Dr. Anders' article "sheds light on the immense importance that General Pershings' Punitive Expedition into Mexico had in the shaping of modern logistics." It was 1916 and just one year before our entry into World War I. Our Army, containing antiquated equipment, was ill prepared to fight a modern war. The harsh and unforgiving terrain of northern Mexico provided an excellent proving ground for new equipment. This campaign saw the first practical application of the truck, automobile, motorcycle, airplane, and radio in American use.

The emergence of the truck as a mode of transportation was born of logistic necessity. More than 500 horse and wagon teams alone were required to haul forage for the 6,000 horses that the expedition had in the field. These horses required 60,000 pounds of grain and 84,000 pounds of hay a day. Due to over-extended lines of supply, limited rail transport, and the almost universal hostile attitude of natives, horses rarely received this requirement. As a result, many were hungry almost to the point of death. Trucks filled this gap. They were faster, and could carry a heavier load longer than horse-drawn wagons. They provided a more efficient means of logistical sustainment.

In the early months of the expedition there were only 162 trucks driving between Columbus, NM, and forward bases in Mexico. The Army Chief of Staff, General Scott, put his neck on the line. He allowed the Quartermaster General to spend \$450,000 for more trucks, out of funds that were not appropriated by Congress. Army Quartermasters bought almost 600 trucks in the next month. Some were literally

stolen from New Jersey Docks, where they awaited shipment to England.

Driver inexperience was the main reason for breakdown in the first few months. Spare parts were scarce at first. Breakdowns were so common that a very large number of spare parts were carried, taking the place of valuable supplies. The large number of vehicles required to transport fuel to forward depots also decreased the amounts of supplies that could be hauled.

But through trial and error, planning and innovation, the truck prevailed. One of the most important lessons learned was that of standardization. Trucks, spares, and repair equipment were standardized so that repair could be conducted more quickly.

For those who are interested in more information on this subject, I suggest the following books: Pershing's Mission in Mexico, by Haldeen Braddy, 1966. The Great Pursuit, by Herbert M. Mason, 1970. Guerrilla Warrior by Donald Smythe, 1973. Black Jack, the Life and Times of John J. Pershing by Frank E. Vandevier, 1977.

CORRECTION

The "For Your Information" section of the Summer 1990 edition of the Quartermaster Professional Bulletin contained an incorrect reference for field water supply. Field Manual (FM) 10-52 (Water Supply in Theaters of Operations) has information for the planner/officer/commander responsible for a reliable supply of potable water on the battlefield. Also, FM 10-52-1 (Water Supply Point Equipment), a publication now in production, will contain information on field water supply for the supervisor and section leader.

An example of the type of problem that will delay the fielding dates of the 3,000-gallon per hour (GPH) Reverse Osmosis Water Purification Units (ROWPUs) was inaccurate. Initial fielding may be delayed until the 3rd Quarter of FY 91 to allow correction of problems during the testing of the initial production units. For example, changing the type of electrical connectors to obtain a more watertight seal prior to the control box or control panel is being reevaluated. The Army must continue to rely on existing fresh water filtration systems and the operational project stocks of the 150,000-gallon per day commercial ROWPUs for water purification and desalination at the corps and echelons above corps.

THE SECOND COLLISION

LTC George C. Knapp, Jr.

For many years, experts and specialists have been studying automobile crashes to determine exactly what happens to both vehicles and victims. The data is collected by simulating crashes under laboratory conditions and by carefully investigating crashes that occur in the real world.

By studying automobile accidents, experts have found it is usually the second collision that injures and kills people. The first collision occurs when one car hits another car or object. The second collision occurs when unbelted occupants are thrown into the car's windshield, steering wheel, doors, dashboard, or other hard interior surfaces. A car's interior is filled with hard surfaces. These surfaces become instruments of death.

Figure 1. (Second Collision Fatalities Inside Automobiles) shows the percentage of unbelted occupants who are fatally injured in second collisions with various hard surfaces inside a car. Statistics come from the U.S. Department of Transportation.

In FY 88 and 89, 259 accidents in privately owned vehicles (POV) accounted for 15 percent of all Quartermaster accidents and 56 percent of our fatalities (42 soldiers). Of the 42 fatalities, 24 soldiers or 57 percent of the fatalities might have lived if they had been wearing their seat belts. Thus far in FY90 (through 14 September 90), 23 Quartermaster soldiers died while driving or riding as passengers in POVs. Sixty-one percent were not wearing seat belts.

In a recent comprehensive study by the U.S. Department of Transportation of more than 15,000 tow-away accidents, the results showed that lap belts are 31 percent effective and lap/shoulder belts are 57 percent effective in preventing moderate to fatal injuries in real-world accidents. This means that if you are involved in a crash in which you are wearing a lap/shoulder belt, you are 57 percent less likely to be injured or killed than if you are not wearing a safety belt. Fastened safety belts are highly effective in preventing injuries and deaths in real-world POV crashes.

Fatalities in Privately Owned Vehicles.)

Changing attitudes and behavior toward safety is not easy. A simple "paper policy" mandating seat belt use, a few scattered posters, or a one-shot promotion is unlikely to achieve improved or lasting safety belt use among our soldiers. Successful programs require careful planning and coordination, backed by long-term command commitment.

There should be no question about the Army's intent in establishing and enforcing its seat belt policy. Commanders must assume full responsibility for the policy and

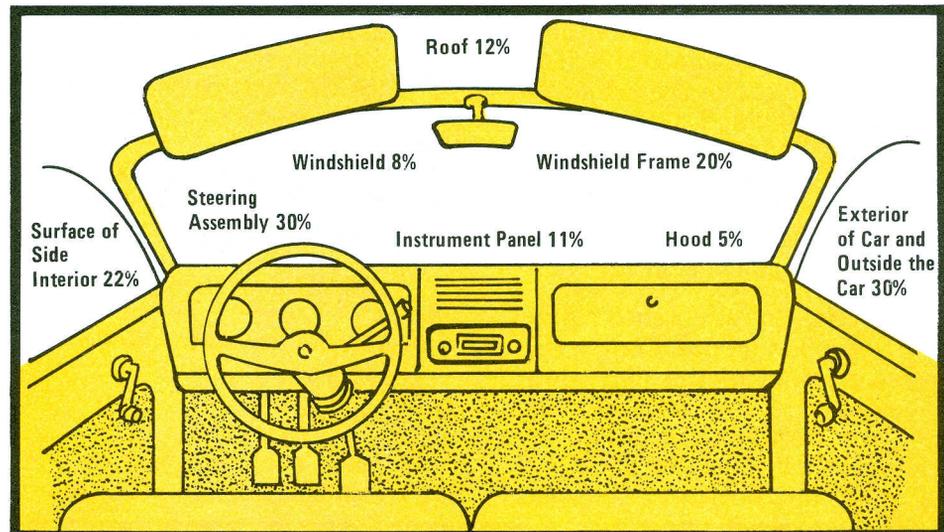


FIGURE 1.
Second Collision Fatalities Inside Automobiles

Although the wearing of seat belts by all military personnel is mandatory, compliance is a problem. Figure 2. (Safety Belt Effectiveness) portrays the problem. If the current trend in POV accidents continues, we can expect three more Quartermaster soldiers to die this fiscal year. More than half will die simply because they are not wearing a seat belt. (See Figure 3.

its implementation. Some areas for consideration include:

- How will the policy be monitored?
- What sanctions will be imposed for noncompliance?

Commanders must ensure the entire chain of command gets involved and takes an active approach to ensure compliance.

Soldiers need to know the facts about seat belts before they will wear them, but the facts alone are not enough. Some suggested approaches follow:

- Establish positive incentives for seat belt use. Soldiers can be rewarded for individual seat belt use. However, peer pressure to achieve company or battalion usage rate goals is also a powerful motivator.
- Work with the Provost Marshal (PM) to monitor compliance. In order to determine whether or not a seat belt program is working, use some means of evaluation. The most effective evaluation is conducting unannounced audits. Effective places for unannounced audits are distinct exit or entrance points used by most soldiers – front gates, unit parking lots, or major intersections with either a traffic light or stop sign.
- Use your established family support groups. Convincing parents of the lifesaving value of seat belts or child restraints for their children is often the first step in getting them to buckle up. Consider

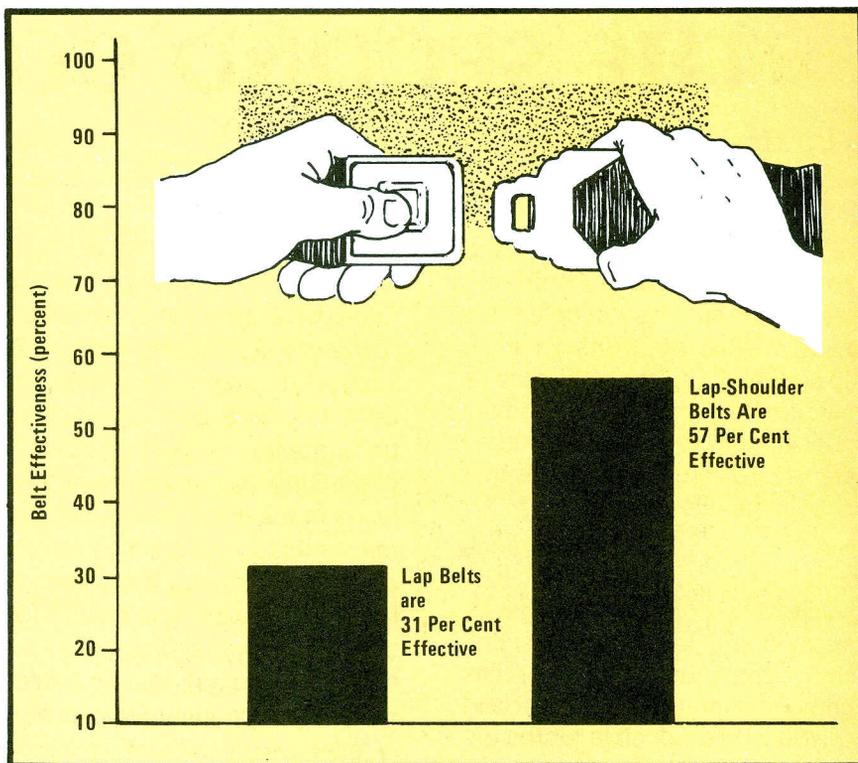


FIGURE 2.
Safety Belt Effectiveness

using the officer and the non-commissioned officer (NCO) wives clubs to help sponsor seat belt programs.

- Establish a child safety seat loaner program for soldiers with newborn children (infants) and for soldiers with children age 5 and under.
- Publish "saved by the belt" stories.

In summary ...

- Make a commitment to a seat belt program.

- Set goals for achievement.
- Develop an implementation plan.
- Build in a method of evaluation.
- Implement-evaluate-modify, if necessary.

LTC George C. Knapp, Jr., is the Director, Directorate of Evaluation and Standardization, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

POV FATALITIES			
SEAT BELTS	FY 88	FY 89	FY 90*
YES	6	0	5
NO	13	11	14
UNKNOWN	8	4	4
SOLDIERS	27	15	23

*As of 14 September 1990

FIGURE 3. Fatalities in Privately Owned Vehicles

THE HURT THAT NEEDS TO HEAL

Tom Bourlier

Most of our lives are spent avoiding death or avoiding things which might hurt us. Very early in life, we learn to avoid things which -hurt- and to enjoy things which feel or taste good. We wear warm clothing so we don't get cold. We learn to avoid sharp objects which may cut. We learn that when we fall down and scrape our knee, we bleed. As we mature, we go to great extremes to work safely and prevent physical injury. But what about the "hurt that doesn't bleed," MENTAL INJURY.

As commanders and leaders, you are responsible for the welfare of your soldiers. You are responsible to ensure a safe working environment and to see that they are cared for properly when injured.

Many soldiers in the mortuary affairs field have at one time or another had to deal "close and personal" with death over an extended period of time. Whether it was the Vietnam era, the Jonestown civilian tragedy in 1978, or the military charter airplane crash in Gander, Newfoundland, 1985, the faces changed, but the results were the same—dead men, women, and children.

When handling the dead, mortuary affairs soldiers are taught to protect themselves by wearing surgical gloves, smocks, boot covers and masks. They are taught about the dangers of acquired immune deficiency syndrome (AIDS), hepatitis, and other contagious diseases and the measures to take to avoid becoming infected. They learn how to handle booby-trapped remains, and remains which may be chemically contaminated. What

they don't learn about is how to cope with the mental stress associated with working with the dead. It affects each soldier differently, but it definitely affects all to some degree. Some handle it well; others do not. This mental injury may not bleed, but it can incapacitate the soldier just the same.

Mental injury is called "Post Traumatic Stress Syndrome." It is often found in personnel who work day-to-day with death and dying. LTC (Dr.) Ed McCarroll of the Walter Reed Institute of Medical Research has just completed a study in this area. He interviewed many mortuary affairs soldiers who have had varying degrees of exposure to human remains.

His research has brought out the following misconceptions that some members of your commands may have: "Its unmanly to show emotion when handling the dead." "My buddies will think I'm a wimp if I talk to them about how I feel." "If I can't cut it, the guys will think I'm just another emotional woman." His research also brought out the fact that soldiers tend to withdraw emotionally, do not talk to anyone, and do not vent their feelings. This is where the problems begin.

If they were to talk about how they feel, they would find, for the most part, that the other soldiers feel some of the same things that they do and that they are bothered also. Anyone who sees a dead child and does not feel something needs more help than a person who is bothered by such a sight. Sensitivity is a very important aspect of the job that mortuary affairs person-

nel perform. It helps them to render the dignity and respect that is due each remains. As commanders and leaders you have a responsibility for the safety of those you command and lead. For those soldiers who are exposed to high-trauma situations, we must be ever-mindful of the injury that doesn't bleed. Look for symptoms of withdrawal, heavy drinking, and behavior that is not normal for the individual. Periodic counseling is a good preventative measure as are frequent breaks and periods where the soldier can get away from the stress.

In closing, I quote directly from an interview that was conducted after the Gander, Newfoundland, air crash. The person being interviewed worked directly with the preparation of remains from that disaster. The names are not important. He said: "Right from the beginning I asked the chaplains to be on the floor with my people, and they did. They were two of the most dynamic chaplains I have ever met. When a body part fell on the floor, they picked it up. The fact that they were there helped the men identify with them. They would bring donuts to my people and participate in many of the decision-making sessions. They were part of our team. If we had to do one of these again, I would certainly bring a person from mental health. This would help ensure fewer long-term casualties. Talking with you today is my therapy. I think it will help me." 

Tom Bourlier is Deputy Director of the Graves Registration Center, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

SAFETY IN ARMY FOOD SERVICE

Who will cook when the cook gets hurt? We take it for granted that Army cooks will have meals ready and on time for all occasions. We also take safety for granted, which is a big mistake. According to the U.S. Army Safety Center, Fort Rucker, AL, 67 serious accidents involved cooks in fiscal years 1988 and 1989.

Army cooks don't handle gun powder or dynamite, but they do work in an environment that is just as volatile. Army cooks are exposed to many explosive, hazardous, or

potentially dangerous situations on a daily basis. The equipment they use such as meat slicers, knives, mixers, or shredding machines have the potential to remove fingers or hands. The Army cook, by the nature of the work, is exposed to potentially life-threatening items such as gasoline, electricity, hot water, steam, natural gas, and cleaning agents. Everyone connected with food service must practice safety on a daily basis to make the work environment safe, so the

cook can cook and meals will be served on time with a smile.

Safety must be everyone's business, from the cook to the commander. Safety must be practiced in everything we do. Whether at work or play, the potential for disaster is always prevalent.

The next time you eat a meal in one of the Army's fine garrison dining facilities or an outstanding field mess, just remember that safety was one of the very important steps taken to make this possible.

CAN YOU DO YOUR JOB SMARTer?

Fred D. Choice, Jr.

Have you ever considered the impact you could make on the Army if you found a way to do your job easily, safely, in less time, at a lower cost to the Army...and got paid for your idea? What would happen if that specific task were not performed at all or if that particular form were not filled out or if you had a better piece of equipment to perform the job? Could the time you use to perform tasks which have questionable utility be better used doing something more productive and meaningful?

The Army has a streamlined and simplified program that allows this type of creativity to emerge. It cuts through normal bureaucratic procedures for implementing changes and substitutes a method designed to produce results in the shortest possible time. This program provides a means for you to challenge the system and be rewarded for your initiative. Supply and services functions of the Quartermaster Corps create numerous targets for change.

The program that can change the system is titled Supply and Maintenance Assessment and Review Team (SMART). The

SMART program, approximately 10 years old, has saved the Army over \$132 million through the efforts of thousands of Army military and civilian employees. The Army has awarded nearly \$400,000 to approximately 1,100 personnel for their suggestions for change. You too can participate in this awards program by sending in your suggestion for doing something SMART. Your suggested changes should have Armywide application and focus on removal, replacement, or improvement of existing doctrine, methods, procedures, and equipment. The appropriate proponent agency as determined by the U.S. Army Logistics Center and Fort Lee, VA, will evaluate and implement your suggestions.

The U.S. Army Quartermaster General has recently been appointed a member of the SMART Council and is lending his influence to infuse new interest and participation in the program.

In keeping with SMART's simplistic philosophy, you may use any format to submit your suggestion. Make submissions as specific as possible and indicate the benefits of adopting the suggestion. Include

pictures, drawings, diagrams, and samples so your suggestion receives the quality evaluation that it deserves. It is important that the individual submitting the suggestion include name, address, and telephone number and forwards the suggestion package directly to: Commander, U.S. Army Logistics Center and Fort Lee, ATTN: ATCL-CFI-S, Fort Lee, VA 23801-6000.

The suggestion does not go through command channels. This "throughput" approach allows you an opportunity to make a significant impact on how the Army does business. Take advantage of this opportunity with the assurance that approved suggestions will result in proper recognition and, possibly, a monetary award.

As we enter the 1990s in the face of dwindling resources, our need to be more cost conscious and efficient has never been more acute. You can contribute to the effort by participating in the SMART program.

Fred D. Choice, Jr., is a Senior Military Analyst, Directorate of Combat Developments, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

ARTEP/MTP DEVELOPMENT

The Army Training and Evaluation Program (ARTEP) Mission Training Plan (MTP) is the basic document for training a unit's missions. It guides the units in preparing, conducting, and evaluating training.

Continuing ARTEP/MTP development for unit training, the U.S. Army Quartermaster Center and School (USAQMC&S) has developed and fielded the following MTPs:

ARTEP 42-004-30-MTP, SUP CO, FWD SPT BN, HVY DIV

42004L100 - SUP CO, FWD SPT BN, HVY DIV

42004L200 - SUP CO, FWD SPT BN, HVY/LT DIV

42004L300 - SUP CO, FWD SPT BN, ID, NG

ARTEP 42-007-30-MTP, S&S CO, MSB, HVY DIV

42007L100 - S&S CO, MSB, HVY DIV

42007L200 - S&S CO, MSB, HVY/LT DIV

42007L300 - S&S CO, MSB, ID, NG

The following MTPs currently under development are scheduled for fielding in FY 91:

ARTEP 42-026-30-MTP, SUP CO, S&T BN, LID, AASLT DIV

42026L000 - HQ & SUP CO, S&T BN, LID

42056L000 - HQ & SUP CO, S&T BN, ABN DIV

42055L000 - HQ & SUP CO, S&T BN, AASLT DIV

ARTEP 42-027-30-MTP, FWD SUP CO, S&T BN LID, AASLT DIV

42027L000 - FWD SUP CO, S&T BN, LID

42057L000 - FWD SUP CO, S&T BN, ABN DIV

42067L000 - FWD SUP CO, S&T BN, AASLT DIV

ARTEP 10-337-30-MTP, QM AID EQUIP SPT CO, S&T BN, ABN DIV

ARTEP 10-466-MTP, HQ QM BN (WTR SUP)

ARTEP 10-466-30-MTP, HQ DET, QM BN (WTR SUP)

ARTEP 10-468-30-MTP, QM CO (WTR SUP) DS/GS TAC WTR DIST TM (HOSELINE)

10468L000 - WTR SUP CO

10570LA00 - QM WTR TM BGE MTD (ROWPU)

10570LG00 - QM TAC WTR DIST (HOSELINE)

ARTEP 10-469-30-MTP, QM WTR PUR DET (GS) & QM WTR PUR TM (12,000 GPH)

10469L000 - WTR PUR DET

1057LC00 - QM WTR PUR TM (12,000 GPH)

ARTEP 42-077-30-MTP, S&T CO, SPT BN, HVY SEP BDE or SEP INF BDE OR THEATER DEF BDE (BERLIN) and S&T TRP, SPT SQDN, ACR

42077L000 - S&T TRP, SPT SQDN, ACR

42084L000 - S&T CO, SPT BN, SEP HVY BDE

42877L100 - S&T CO, SPT BN, SEP INF BDE

42877L200 - S&T CO, SPT BN, THEATER DEF BDE (BERLIN)

EVALUATION AND ANALYSIS

SHARING LESSONS LEARNED

Anyone encountering safety problems, shortfalls, or success in Quartermaster training, doctrine, unit operations, or equipment is encouraged to use the Quartermaster "Hotline" to relay any questions or feedback directly to the U.S. Army Quartermaster Center and School. The Quartermaster "Hotline" number is AUTOVON 687-3767 or Commercial (804) 734-3767. Two 1-800 numbers have been established for Fort Lee, VA. These numbers connect you with the Fort Lee operator. The numbers are 1-800-554-4570 for callers outside Virginia and 1-800-552-4820 for callers inside Virginia. Collect calls will not be accepted. Units or individuals unable to call should send their comments or information to:

Commander
U.S. Army Quartermaster Center and School
ATTN: ATSM-EV
Fort Lee, VA 23801-5034

Think Safety before an accident happens.

SAFETY INTEGRATION AND READINESS

The Quartermaster Corps has experienced a favorable downtrend in the number of accidents involving Quartermaster soldiers and equipment between FY 88 and FY 89. There was an overall reduction of 18 percent or 182 accidents. This trend has continued into FY 90. These reductions have provided a safer environment for all personnel, but analysis still shows that most accidents were preventable. Every accident has a negative impact on unit readiness, whether in terms of personnel or equipment, and should not be seen as "the cost of doing business."

The prevention of these accidents and the overall improvement of readiness require the active involvement of all leaders (officer and enlisted) and require holding soldiers accountable for knowing standards and performing to them. Safety is a predictable result of a disciplined unit environment and quality training. Leader emphasis is essential to instill an appreciation of the importance of safety, both on and off duty.

Leaders are in the best position to integrate safety into all aspects of their unit's operations. One tool that should be used is the U.S. Army's Risk Management process. It allows leaders to recognize, evaluate, and manage all the sources of risk and assist them in the inclusion of safety considerations into operational planning. Through its use they can become more aware of safety hazards in their own areas and see that accident prevention plays a vital part in unit readiness.

Remember, every accident loss detracts from the combat capability of your unit, the Quartermaster Corps, and the U.S. Army.

Safety and readiness go hand in hand.

COMBAT DEVELOPMENTS

RATION SUSTAINMENT TESTING

Operational Ration Sustainment Testing is being scheduled for second quarter FY 91. The key component of this testing is the Temperate 30-Day Test which will be used to assess the Army's wartime feeding plan and the T-Ration - Meal, Ready To Eat -T-Ration (T-MRE-T) ration cycle. Also, testing the New Army Field Menu concept is being planned. This concept, said to provide the commander the greatest flexibility in support of the soldier, aims to get the right meal to the right place at the right time on the battlefield. These tests are part of a Quartermaster School program to maintain the excellence of the Army Field Feeding System by continually revalidating and updating field ration concepts, menus, and recipes.

3,000-GALLON PER HOUR (GPH) ROWPU

Initial production models of the 3,000-gallon per hour (GPH) reverse osmosis water purification unit (ROWPU) are scheduled for testing from September 1990 to January 1991. Tests will focus on maintainability and reliability, water production capability, transportability, cold weather operations, and electromagnetic interference/pulse effects. These tests will ensure that deficiencies identified in previous evaluations of the initial production units have been eliminated and that corrective actions have not created new problems. Fielding of the 3,000-GPH ROWPU will begin in 2d quarter fiscal year 92. In the interim, the Army must continue to rely on the 150,000-GPH ROWPUs and the Engineer Research Development Laboratories (ERDLATORS) water purification at corps and echelons above corps.

ALL-TERRAIN LIFTER, ARTICULATED SYSTEM (ATLAS)

The Universal Self-Deployable Cargo Handler (USDCH) has officially been renamed the All-Terrain Lifter, Articulated System (ATLAS). The ATLAS is a rough-terrain fork truck, with up to 10,000-pound lift capacity capable of being self-propelled at convoy speeds for highway transport and air deployable by C130 and larger aircraft. The ATLAS is scheduled to replace all 4,000-pound and 6,000-pound variable reach and all 10,000-pound rough-terrain forklifts currently in the Army.

INTERNAL/EXTERNAL HELICOPTER TRANSPORTABLE CARGO PALLET

The U.S. Army Quartermaster Center and School, Fort Lee, VA, is developing an improved aviation ammunition and general cargo pallet known as the Internal/External (INTEX) Pallet. The INTEX Pallet provides handling flexibility that the current aviation pallet (463L) does not offer: it will have four-way entry fork lift channels and be externally air transportable. Like the current 463L pallet, it will be compatible with U.S. Army/U.S. Air Force cargo handling systems. The INTEX Pallet is a variant of the Mobility Container (MOBCON) System. The MOBCON is a "family" of multipurpose, intermodal, aviation-compatible containers and pallets used for storage and transport of all classes of supply. The final phase of the Airworthiness Qualification Test (AQT) to qualify the INTEX for external lift by the CH-47 Chinook helicopter was successfully completed at Fort Rucker, AL, on 26 June 1990. The AQT requirements for the UH-60 Blackhawk helicopter were met 22-24 May 1990. This milestone paved the way for a user demonstration with the 101st Airborne Division (Air Assault) at Fort Campbell, KY, in August 1990. A prototype INTEX Pallet has been loaned to the 3-101st Aviation Regiment. It will be used to demonstrate transporting a Forward Area Refueling Point (FARP) externally from a UH-60L helicopter. The U.S. Army Quartermaster Center and School's point of contact for the INTEX Pallet is Dave Fleming, AUTOVON 687-5466, Commercial (804) 734-5466/3746.

WATER SUPPORT CONCEPT

A water support concept statement is being developed to reflect the changes introduced into the new Army warfighting concept, AirLand Battle Future. Under the new support concept, the elimination of the main support battalion (MSB) will result in adding water assets to the field service company. This company will perform water production, storage, and distribution for both divisional and non-divisional units. The distribution scheme will also move from supply point to unit distribution. As a result of these concept changes, a system for packaging water is being researched for future development. This concept will result in changes at all levels of water support and a greater emphasis on successful water support operations.

COMBAT SERVICE SUPPORT CONTROL SYSTEM (CSSCS)

The Combat Service Support Control System (CSSCS) is one of the five battlefield functional area (BFA) control systems which constitute the integrated Army tactical command and control systems (ATCCS). CSSCS provides timely, reliable combat service support (CSS) command and control (C2) information to the force level commander (FLC). CSSCS provides the CSS commander an improved view of the tactical situation through information provided by the other ATCCS BFAs. CSSCS provides the CSS commander with an improved ability to manage and execute the CSS mission. The CSSCS will be employed within echelons above corps, corps, division, maneuver brigades, separate brigades, and armored cavalry regiments.

GENERAL SUPPORT SUPPLY OF MAPS

The Army supply system will soon take over the mission of general support supply of standard maps and map products from the engineers. Standard map products are those maps available, by catalog number, from the Defense Mapping Agency (DMA). The U.S. Army Quartermaster Center and School, Fort Lee, VA has forwarded an Interim Operational Concept (IOC) for map supply through U.S. Army Logistics Center (LOGC) to the U.S. Army Training and Doctrine Command (TRADOC). The concept envisions modular map storage and supply platoons attached to selected Quartermaster proponent general support companies, most likely on the basis of one platoon per corps or Theater Army Area Command (TAACOM). Existing DMA catalog numbers will be used as manufacturer's part numbers, allowing maps to be ordered as other items of supply. The aim is to make map supply as much like other supply actions as possible.

AIRBORNE AND FIELD SERVICES

AIRDROP RIGGING MANUALS

The Publications Branch of the Airborne and Field Services Department will be reviewing or changing the following field manuals (FMs) and technical manual (TM) for FY 91:

FM 10-550	Rigging Stinger Weapon System and Missiles
FM 10-519	Rigging 105-mm Howitzers
FM 10-526	Rigging 5-Ton Trucks
FM 10-528	Rigging Road Rollers
FM 10-520	Rigging 2 1/2-Ton Trucks
FM 10-517	Rigging 1 1/4-Ton Utility Vehicles (High Mobility Multipurpose Wheeled Vehicle) (HMMWV)
FM 10-527	Rigging 155-mm Howitzers
FM 10-512	Rigging Typical Supply Loads
FM 10-501	Rigging Containers
TM 10-500-7	Airdrop Recovery Procedures.

Effective 4 June 1990, the Aerial Delivery and Materiel Officer Course was reduced from 11 weeks and 2 days to 5 weeks and 3 days.

ARMY CENTER OF EXCELLENCE, SUBSISTENCE

SUBSISTENCE OFFICER COURSE

Beginning 1 October 1990, the Subsistence Officer Course at Fort Lee, VA, will be scheduled only twice a year. In recent years, a Subsistence Officer Course had been scheduled immediately following each graduating Officer Advanced Course. Quartermaster officers wishing to obtain the Advanced Subsistence Management Course (92G) identifier should coordinate with their assignment officer to attend an Officer Advanced Course that will graduate just before the start of a Subsistence Officer Course.

PREVENTION OF FOODBORNE ILLNESS

Temperature abuse is the number one cause of foodborne illnesses. Foodborne disease outbreaks confirm that holding food at room temperature makes people sick. Bacteria grow best at temperatures between 45° Fahrenheit and 140° Fahrenheit; this is known as the temperature danger zone. One bacterium can grow to over 65,000 bacteria in four hours when kept in the temperature danger zone.

There is no quick, effective way to identify bacterial growth in food. Keep food out of the temperature danger zone. Check product temperatures frequently. Discard food that has been in the temperature danger zone for more than three hours.

Keep hot foods hot. Keep cold foods cold.

TACTICAL FIELD FOOD SERVICE TRAINING

The Field Operations Training Branch, Food Management Training Division, Army Center of Excellence, Subsistence, U.S. Army Quartermaster Center and School, Fort Lee, VA, has increased the realism of its field training. Soldiers now tear down, move, and set up field kitchen equipment in a tactical setting. Field training for food service personnel is integrated with training for other military occupational specialties (MOSSs) within the U.S. Army Quartermaster Center and School.

18TH SEMIANNUAL FOOD SERVICE INSTRUCTOR TRAINING WORKSHOP

The 18th Semiannual Food Service Instructor Training Workshop, hosted by the Army Center of Excellence, Subsistence, U.S. Army Quartermaster Center and School, Fort Lee, VA, was held 9-10 May 1990 at Fort Lee. This workshop included representatives from United States Army Training and Doctrine Command (TRADOC), United States Army Forces Command (FORSCOM), U.S. Army Natick Research & Development Command, Foreign Science Technology Center, Second, Third, Fourth, and Fifth Armies. During the workshop, information included recent changes in the food service field such as changes to the Army Field Feeding System (AFFS), including the shortage of operational rations; changes to regulations and their expected dates of publication; and changes to advanced individual training for 94B (Food Service Specialists), Basic Noncommissioned Officer, Advanced Noncommissioned Officer, and Food Service Management courses. These semiannual meetings have proven to be significantly important to improving training and maintaining standardization of the advanced individual training (94B10) Course.

GRAVES REGISTRATION

JCS, J4 MORTUARY AFFAIRS CONFERENCE

On 22-23 May 1990, the U.S. Army Quartermaster Center and School Graves Registration Center, Fort Lee, VA, hosted the second Joint Chiefs of Staff (JCS), J4 (Logistics Directorate) Mortuary Affairs Conference. Approximately 65 representatives of various major commands, other services, and the Armed Forces Institute of Pathology attended. The major conference subject was Operation Just Cause in Panama and the lessons learned about handling fatalities as a result of that operation. A "new technology" equipment display featured such items as Computer Assisted Postmortem Identification (CAPMI), ORAL SCAN, Phototelesis (remote imagery device), and the X-Ray System Dental Miniature.

UPDATE ON NEW GRAVES REGISTRATION OFFICER COURSE (8B-SI-4V)

The next Graves Registration Officer Course is scheduled for 3-14 December 1990. Personnel interested in enrolling in the course must submit requests for attendance through established training channels. This course prepares officers for command and staff positions requiring graves registration knowledge, to assume responsibilities of a Joint Mortuary Affairs Office of a unified command, and to supervise collection point operations. Graduates of this course are awarded the additional skill identifier of 4V. Before the course in February 1990, it had been approximately 20 years since officers received extensive training in graves registration.

PETROLEUM AND WATER

CERTIFICATION OF PETROLEUM SUPPLY SPECIALIST

Army regulations do not require commanders to certify Petroleum Supply Specialists (military occupational speciality 77F) as fuel handlers although AR 710-2 (Supply Policy Below the Wholesale Level), paragraph 2-34, states that "unit commanders responsible for receiving fuels for storage and issue will establish, maintain, and provide a standard operating procedure (SOP) to operating personnel for handling and accounting for bulk fuels by the particular organization." To ensure compliance with AR 710-2, most post/community commanders have a bulk fuels SOP which requires fuel handlers to attend a fuel handlers certification course before they handle any bulk fuel. Most fuel handler certifications are centralized at Post or Military Community Directorate of Logistics. However, the local commander is responsible for outlining the petroleum fuel handlers certification program and instruction.

All graduates of the Petroleum Officer Course (POC) and the Petroleum Supply Specialist Advanced Noncommissioned Officer Course (ANCOC) receive a Certificate of Qualification card. The bearer of this card has been certified by the U.S. Army Quartermaster Center and School (USAQMC&S), Fort Lee, VA, as a "Petroleum Operations Certifier" and is certified by the Petroleum and Water Department as a petroleum operations trainer who has the skills to develop, train, and certify soldiers as fuel handlers. Numerous equipment variances found in the field, local geographic environmental law, unit SOPs, and unit mission peculiarities prevent the USAQMC&S from certifying graduates of Army petroleum courses as fuel handlers. Also, the USAQMC&S does not currently certify Basic Noncommissioned Officer Course (BNCOC) graduates as petroleum operations trainers or fuel handlers.

The certification of fuel handlers (like the certification of licensed Army vehicle drivers upon permanent change of station (PCS) to a new unit) is the responsibility of local commanders. The intent of the USAQMC&S certification is to provide and identify for local commanders, the qualified petroleum, oils, and lubricants (POL) trainers who can plan, manage, execute, and advise commanders on petroleum operations and the fuel handlers certification program.

HIGH MOBILITY MATERIAL HANDLER (HMMH)

The Quartermaster Center and School, Fort Lee, VA, has identified a requirement for a forklift and crane which was built on the Small Emplacement Excavator (SEE) chassis. This new piece of equipment is the High Mobility Material Handler (HMMH). The proponent for this vehicle is the U.S. Army Engineer School, Fort Leonard Wood, MO.

The Petroleum Supply Company table of organization and equipment (TOE) 10424L00 is authorized six each HMMHs. The Pipeline and Terminal Operating Company TOE 10417L00 is authorized one each. Currently, the petroleum supply companies that have received these vehicles are the 53d, Fort Hood, TX, 102d at Fort Campbell, KY, 1175th and 1176th Army National Guard units of TN, and the 941st in Puerto Rico. The pipeline and terminal operating companies have not received the HMMH.

The HMMH forklift is capable of lifting 4,000 pounds and the crane of lifting 6,000 pounds. The vehicle combines 45-miles per hour (MPH) highway convoy speeds with full, four-wheel drive, rough-terrain capability. The development of the HMMH reduced the present deficiency of current materials handling equipment (MHE) which does not have the ability to convoy. Rapid self-deployment equipment would reduce the requirement for transportation assets.

SUPPLY AND PROFESSIONAL DEVELOPMENT

REMOTE TERMINAL AMDF INQUIRY SYSTEM

During June 1990, students attending courses at the U.S. Army Quartermaster Center and School, Fort Lee, VA, began receiving instruction on how to access the U.S. Army Remote Terminal Army Master Data File (AMDF) Inquiry System (RTAIS), a service provided by the U.S. Army Materiel Command (USAMC) Catalog Data Activity, New Cumberland Army Depot, PA. Students receive this training if they are attending any functional or professional development course which normally teaches AMDF. This training gives students at all levels (advanced individual training through Officer Advanced Course) the capability to log on to the RTAIS using either Tactical Army Combat Service Support Computer System (TACCS) or Zenith systems. The RTAIS provides on-line access to the Army Central Logistics Data Bank (ACLDB), and the Defense Integrated Data System Total Item Record (DIDS TIR) to obtain logistics data for Army users. Inquiries can be made by national item identification number (NIIN), line item number (LIN), Commercial and Government Entity Code (CAGEC), manufacturer name, and reference number. Users are provided with AMDF, component items, equivalent items, packaging, freight, national stock number (NSN) history, related reference number, item characteristics, Supply Bulletin (SB) 700-20 (Army Adopted/Other Items Selected for Authorization/List of Reportable Items) data, and manufacturer name and address. There is also an on-line HELP file that provides instructions on how to use the system, names and definitions of logistics codes, and points of contact for additional assistance. RTAIS training at the U.S. Army Quartermaster Center and School is an initiative funded by the Strategic Logistics Program. By Autumn 1990, the school plans to have 34 computer-equipped classrooms enhanced with dedicated telephone lines and modems (for Zenith computers) to access RTAIS.

QUARTERMASTER OFFICER ADVANCED COURSE (QMOAC)

The Quartermaster Officer Advanced Course (QMOAC) prepares Quartermaster officers for company command, battalion/brigade staff positions, and multifunctional logistics assignments. Emphasizing leadership, combined arms, multifunctional logistics, and professional development, the course trains captains and first lieutenants to be logisticians. QMOAC features small group instruction, with each class broken into four seminar groups and a team leader assigned to each group. Additional features include physical training, oral presentations, written requirements, and a capstone Command Post Exercise (CPX).

QUARTERMASTER OFFICER ADVANCED COURSE (QMOAC) – continued

In 20 weeks, QMOAC covers 805 hours of instruction. There are 310 hours of common core subjects, 75 hours of multifunctional logistics, 152 hours of supply support activity management and standard property book operations, 30 hours of subsistence, 18 hours of graves registration, and 35 hours of petroleum, water, and field services. In order to graduate, QMOAC students must maintain a 70 percent course average, prepare an in-depth written decision paper, prepare a battle analysis, pass an English diagnostic and writing examination, pass a map reading exam, pass the Army physical fitness test, and maintain height/weight standards.

Six or seven classes are conducted each fiscal year. A typical class will have approximately 60 students, including both male and female officers. Demographically, the class is composed of 50 percent branch-transferred (to Quartermaster) officers, 15 percent U.S. Army Reserve and Army National Guard officers, about 15 percent international officers (during 1989, 52 countries were represented), and 30 percent "Quartermaster since commissioning" officers.

Officers completing QMOAC are awarded area of concentration 92B (Supply and Material Management). Some officers attend follow-on modules tied to their projected assignments. Others attend specialized courses relating to various Quartermaster areas of concentration such as 92D (Aerial Delivery and Materiel) (Rigger), 92F (Petroleum) or the 92G (Subsistence). Additionally, officers may have the opportunity to attend the Advanced Logistics Management Course.

QUARTERMASTER OFFICER BASIC COURSE (QMOBC)

The Quartermaster Officer Basic Course (QMOBC) prepares Quartermaster officers for their first assignment as platoon leaders. Emphasizing leadership, common soldier skills, Quartermaster-related functions, combined arms, communication skills, and development, the course trains lieutenants to be logisticians. Additional features include physical training, oral presentations, written requirements, and a Field Training Exercise (FTX).

In 17 weeks, QMOBC covers 769 hours of instruction. There are 402 hours of common core subjects, 183 hours of supply and services, 64 hours of subsistence, and 120 hours of petroleum, water, and field services. To graduate, QMOBC students must maintain a 70 percent course average, pass an English diagnostic and writing examination, pass a map reading exam, pass the Army Physical Fitness Test (APFT), and maintain height/weight standards.

Twelve to 14 classes are conducted each fiscal year. A typical class will have approximately 54 students, including both male and female officers. Demographically, the class is composed of 39 percent U.S. Army Reserve; 15 percent Army National Guard officers; 2 percent international officers; and 44 percent Active Army officers.

Officers completing QMOBC are awarded area of concentration 92A (Quartermaster General). Some officers attend follow-on modules tied to their projected assignments, while others attend specialized courses relating to various Quartermaster areas of concentration such as 92D (Aerial Delivery and Materiel) (Rigger).

SURVEY OFFICER'S GUIDE

A new guide for the Report of Survey Officer is being developed for projected publication in March 1991. It will be a Department of the Army (DA) pamphlet in pocket size. Although the exact title is not known, it will be in the DA Pamphlet 700 series. The pamphlet is being designed as an easy to read, step-by-step, instructional booklet with many helpful diagrams and examples. The target audience is the noncommissioned and junior officer conducting a first Report of Survey. The pamphlet will outline the correct procedures as stated in Army Regulation (AR) 735-5 (Policies and Procedures for Property Accountability) which will be contained in Supply Update 13. Current plans are to update the pamphlet every other year.

SUPPLY EXCELLENCE AWARD COMPETITION

As a result of the FY 90 Chief of Staff, Army, Supply Excellence Award Evaluation, 50 units from the Active Army, U.S. Army Reserve, and the U.S. Army National Guard were evaluated in either table of organization and equipment (TOE) or table of distribution and allowances (TDA) company and battalion unit supply operations, worldwide. Winning units in each of the categories will be announced separately by the Deputy Chief of Staff for Logistics (DCSLOG).

So you think that the supply operation in your unit is good. Would you like some recognition for your unit, your subordinates, and possibly even yourself? How good is your supply operation? Are you the best in the Army? You should compete for the Chief of Staff, Army Supply Excellence Award.

For the last five years (since FY 86), the Chief of Staff, Army, has recognized the best units in each of the categories for the Active Army and Reserve Components. Before you can compete at the Department of Army (DA) level, you have to be nominated as the best in your major Army command (MACOM) or state. The competition is fierce, and many good units do not survive the MACOM preliminaries. If you are really good and have the desire to excel, this competition will help provide the second look at your unit that may enable you to be selected as the best in the Army today. That will result in a visit from the Chief of Staff or Vice Chief of Staff to present the award for supply excellence to your unit.

The best way to prepare for the evaluation is to implement the Command Supply Discipline Program (CSDP) at your level and use the appropriate checklist in Tables B-1 through B-4, Appendix B of AR 710-2 (Supply Policy Below the Wholesale Level), in the current Supply Update. Along with meeting these regulatory requirements listed in the tables, pay attention to the minor details in the day-to-day operations.

The following list represents some overall observations of Supply Excellence Award (SEA) evaluation team members during this year's competition. These types of discrepancies were the difference between being the best supply operation in the Army today or just another competitor.

- Command Supply Discipline Program (CSDP) not implemented or documented appropriately.
- Standard operating procedures (SOPs) not updated, contained outdated regulatory guidance or policies. The SOPs don't actually reflect the way the unit operates.
- Year-round training program for Career Management Field (CMF) 76 series personnel not fully implemented. Senior 76Y (Unit Supply Specialist) in unit should control and include all 76Y and 76C (Equipment Records and Parts Specialist) personnel assigned or attached.
- Property book maintenance of automated systems lacking administrative data not automatically inserted by the system, such as missing or incorrect authorization data, missing publication data, and missing equipment category codes.
- Annual reconciliation of property books not performed or documented properly.
- Units maintaining basic loads without authorization from MACOMs.
- Inert training devices and training aids on hand in unit Arms Rooms not marked or stored properly.
- Clothing records missing required information or prepared incorrectly. Work-related clothing (cook's whites, coveralls, safety shoes) not provided to all eligible members of the unit.
- High priority abuse in expendable area.
- Excessive amounts of expendable or self-service supply center (SSSC) supplies on hand in units.
- Apparent unauthorized replenishment of hand tools.
- Cash sale of hand tools as a replacement method not being offered.
- Supply personnel (Supply Officer or unit supply) not involved with prescribed load list (PLL) operation.
- Excess Class IX (repair parts) on hand.
- Class IX (repair parts) on hand in Arms Rooms/Nuclear, Biological, Chemical (NBC) Rooms with no PLL records, or in addition to the quantities maintained in the PLL.
- Unit maintenance personnel maintaining unauthorized bench/service stock of Class IX (repair parts).
- Automated PLL records (direct support unit standard supply system (DS4) and unit level logistics system (ULLS)) not maintained correctly. Required printouts not on hand.
- Basic forms required for PLL not prepared correctly.

At the DA level, attention to detail proves to be the final discriminator among all the nominees and usually produces the winners.

**CAREER
NOTES**

THE LOGISTICS EXECUTIVE DEVELOPMENT COURSE

LT Christopher E. Tatham

The Logistics Executive Development Course (LEDC) at the Army Logistics Management College (ALMC), Fort Lee, VA, is the senior logistics course offered by the U.S. Army. The course is designed to teach multifunctional logistics to branch-qualified officers and the Department of the Army (DA) civilians in order to prepare them for assignments in key logistics positions within the Army and the Department of Defense.

LEDC began in 1970 as the offspring of the Army Supply Management Course. The current 19-week course exposes participants to a broad range of logistics functions by addressing every aspect of logistics. The civilian and military instructors have diverse backgrounds. Many are LEDC graduates themselves. Subjects taught in the course include acquisition management, materiel readiness, logistics and military history, organization and personnel management, managerial economics, computer literacy, and analytical techniques. During the course, participants are assigned independent projects that are intended to give them a well-rounded understanding of logistics.

The course is offered twice a year, and enrollment is limited to 80 students per course. Officers fill approximately half of the slots. The remaining slots are divided among civilians and international officers. A recent class from Autumn 1989 was composed of 45 Army officers, 12 Department of the Army (DA) civilians, and 17 international officers.

To participate in the course, Army officers and civilian employees must meet LEDC prerequisites. Army officers must be branch-qualified and must have at least eight years of commissioned service. Civilians must be General Schedule (GS) 12 or above. All participants must have at least five years experience in military logistics. Military rank in the classroom varies from captain to lieutenant colonel among military officers, mostly from combat service support branches, specifically Ordnance, Quartermaster, and Transportation. Civilians range

in pay grade from GS 12 through GS 14, most of whom are from the U.S. Army Materiel Command (AMC), Alexandria, VA, and Defense Logistics Agency (DLA).

Although the limited enrollment for the course has enhanced the quality of the program, it makes attendance competitive. Officers who meet the prerequisites and are interested in attending the course must discuss LEDC with the assignments and school officers at U.S. Army Total Personnel Command (PERSCOM), Alexandria, VA. LEDC is performed on temporary duty (TDY) enroute to another assignment. Civilians must work through their individual development plans (IDPs) and their supervisory channels.

Officials at LEDC emphasize that the course is not designed to train people for their next duty assignments. LTC William G. Ferguson, chairman of the Executive Development Department at the Army Logistics Management College, stresses that LEDC is an executive development course aiming to enhance an individual's future performance in logistics management positions.

"We want people to understand how Army logistics work," he said. "The course does not produce experts. It gives a clear understanding of all the interrelated logistics functions from factory to fox-hole." He added that participants in the program perform better than their counterparts who have not attended the course.

One unique benefit offered to participants in the program is the opportunity to receive a master's degree from the Florida Institute of Technology (FIT), Melbourne, FL. By enrolling in a cooperative program with FIT, participants who complete LEDC earn graduate credit toward one of three master's degrees offered by FIT. These degrees can be earned by completing an additional six months of schooling at Fort Lee at the end of the course. Some courses presented by certain military schools, plus the regular course of the U.S.

CAREER NOTES

Army Command and General Staff College, Fort Leavenworth, KS, the Defense Systems Management College, Fort Belvoir, VA, have been evaluated by FIT and specific ones found acceptable for transfer to designated degree programs without charge to the student. Up to a maximum of 18 such credit hours may be transferred provided at least a "B" or its equivalent was earned in each course. All course work applied toward the master's degree must be completed within a total elapsed time span of not more than seven years. For exact details, write FIT Graduate Center, U.S. Army Logistics Management College, ATTN: AMXMC-ET-FIT, Fort Lee, VA 23801 or call AUTOVON 687-2722.

LEDC recognizes the unique needs of U.S. Army Reserve and Army National Guard soldiers by offering correspondence and short-term residency programs exclusively for officers in the Reserve

Components. These officers can participate in LEDC by attending five, two-week resident courses or by completing a five-phase correspondence course. Enrollment is limited for the two-week resident courses. Reserve Component soldiers who participate in the program have three years to complete the course.

Regardless of how a logistics manager participates in LEDC, the participant is assured a better understanding of Army logistics and communicative skills. Graduates will be better prepared to accept challenging executive-level logistics management positions and may even earn a graduate degree to enhance professional credibility. 

LT Christopher E. Tatham is a student in the Officer Basic Course at Fort Lee, Virginia.

ADVANCED CIVIL SCHOOLING

CPT Peter C. Barclay

Army officers wishing to complete a postgraduate degree should consider the Advanced Civil Schooling (ACS) program. This one- to two-year program offers qualified officers an opportunity to complete their degrees in areas the Army is seeking and then apply what they have learned in future assignments. In exchange for degree completion, officers must serve a 36- to 48-month utilization tour and incur an overall Army obligation of three days for each day spent in school, to serve no more than six years total.

In addition to benefiting the officer, ACS serves Army needs. The Army gains an officer with the skills and knowledge needed for particular assignments or shortage areas.

ACS is currently offered to branch-qualified officers. The Leadership Development Branch at the U.S. Total Army Personnel Command distributes quotas to each branch. In FY 89, the Quartermaster Corps received 10 allocations. Six of these were for degrees in logistics management, two in petroleum engineering, one in pipeline management, and one in food technology. Occasionally, quotas are received for degrees in operations research and computer science. The selection is competitive. The program is open predominantly to branch-qualified captains, although majors are sometimes selected. Applicants should have an above average military performance file and good academic aptitude.

Aptitude is shown either by college transcripts, Graduate Record Examination (GRE) scores, or Graduate Management Admission Test (GMAT) scores. Applicants on an overseas tour must have completed 30 months, and officers in the continental United States (CONUS) must have completed 24 months of their tour.

Once selected for ACS, applicants will be sent a list of colleges they can apply to. The Army retains the right to dictate what postgraduate degree the officer will pursue and where the officer will pursue the degree based on Army needs and budget constraints.

Army Regulation 621-1 (Training of Military Personnel at Civilian Institutions) outlines the application process. Applications should be submitted no later than 1 October of the year before an officer intends to begin classes. Successful applicants will start classes the following August or September. Additional information can be obtained by calling the Future Readiness Officer at the Quartermaster Branch, U.S. Total Army Personnel Command, AUTOVON 221-8119/8123. 

CPT Peter C. Barclay is a graduate of the Quartermaster Officer Advanced Course at Fort Lee, Virginia.

**CAREER
NOTES**

INSTRUCTORSHIPS AT THE UNITED STATES MILITARY ACADEMY

CPT Peter C. Barclay

Many officers who are coming up for a branch-immaterial tour in one of the "Three Rs" – Recruiting, Reserve Officer Training Corps (ROTC), or U.S. Army Reserves – might consider teaching at the United States Military Academy (USMA) at West Point, NY. This five-year program offers qualified officers the opportunity to complete a postgraduate degree and then utilize that as an instructor of future officers. It also allows them to develop teaching and presentation techniques.

In addition to benefiting the officer, USMA instructorships serve an important need for the Army. USMA instructorships provide the best instruction and newest information to some of the Army's most promising cadets. It allows officers to observe firsthand how West Point cadets are molded into tomorrow's Army officers.

What determines "the USMA experience" tour length? Since most officers attend graduate school enroute to the USMA, the typical tour consists of 18 to 24 months in graduate school and 36 months teaching at USMA. If an officer spends 12 to 17 months in graduate school, that officer can expect to spend 48 months at USMA. Officers schooled up to 36 months for a doctorate degree (PhD) can expect a 36-month assignment unless they single track, and then a 40-month tour would be typical. Direct assignment officers should plan on staying 48 months at USMA. Officers assigned to the staff should expect a normal 48-month tour at USMA.

USMA instructorships are offered to branch-qualified officers through the Office of the Deputy Chief of Staff for Personnel (ODCSPER). The selection process is competitive. Participants must be branch-qualified captains or majors, and on occasion lieutenant colonels. They must have a good military performance file and a good academic aptitude. Good academic aptitude is shown by transcripts, Graduate Record Examination (GRE) scores, or Graduate Management Admissions Test (GMAT) scores. A background in a particular field may be helpful to an officer who applies.

Each USMA department has an annual quota which it sends to the Personnel Service Center (PSC) AT USMA. The PSC contacts the U.S. Total

Army Personnel Command with requests for officers. Departments at USMA often make requests by name. The Officer Management Section at USMA, which identifies and manages officer instructors, has developed a departmental brief containing a description of each department and the areas its instructors teach. The Officer Management Section will send a departmental brief to interested officers. A method that might benefit applicants is to call the desired department at USMA or call USMA's Officer Management Section at AUTOVON 608-3125/2118.

Army Regulation 621-1 (Training of Military Personnel at Civilian Institutions) outlines the application process. To apply, officers must submit complete applications by 31 January of the year before they want to begin postgraduate degree programs. For example, applications submitted by 31 January 1991 would be for studies beginning August 1992. Applications are screened for suitability and availability and then matched against quotas from USMA. Successful applicants begin to work directly with USMA to determine what postgraduate degrees to pursue and what colleges have the appropriate programs for pursuing the degrees. The Quartermaster Branch receives three to five quotas per year. For additional information, call the USMA liaison officer at AUTOVON 221-5166 or Quartermaster Branch, U.S. Total Army Personnel Command at AUTOVON 221-8119/8123.

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CPT Peter C. Barclay is a graduate of the Quartermaster Officer Advanced Course at Fort Lee, Virginia.

WARRANT OFFICERS' EDUCATION UPDATE

MW4 J. W. Davis

EDITOR'S NOTE: An article titled "So You Want To Go To College?" provided warrant officers alternatives to meet that goal in the Spring 1990 edition of the *Quartermaster Professional Bulletin*.

To be competitive, two years (60 semester hours) of college is needed by your eighth year of warrant officer service. A majority of warrant officers want to obtain the college education they need as full-time students. Obviously, that is the method which requires the least amount of pain. However, its also the least available method. The facts are that the great majority of us obtain our college educations on our own time.

Promotion boards tell us that an officer's civilian education level (CEL) is often a key discriminator during the selection process. As our Army becomes smaller, boards will be even more selective in choosing who will and will not be selected.

By all means, apply for full-time civil schooling in accordance with AR 621-1 (Training of Military Personnel at Civilian Institutions). But in the meantime, do everything you can to help yourself. Use your off duty time wisely. Balance your personal

and your professional considerations so you have some time for both.

Self development is the key for most of us. As a matter of fact, the Army is developing a formal Self Development Program which will be announced soon. Meanwhile, if you are not taking off duty courses, start as soon as you can. Almost all of us can make time in our busy schedules to take at least one college level course during our free time. After you get used to it, it becomes a habit; a little like a savings program. The more you do it the less difficult it becomes and the dividends are the real payback. Start at your local Army Education Center (AEC). They can help you design a program that will achieve your goals in a reasonable time based on the off duty time you have available. The AEC can also advise you on how to obtain credits for your previous military and civilian training, education and experience. Tuition Assistance funds may also be available from your AEC. 

MW4 J. W. Davis is the Chief, Professional Development, Warrant Officer Division, U.S. Total Army Personnel Command, Alexandria, Virginia.

CAREER
NOTES

SENIOR WARRANT OFFICER TRAINING IS MANDATORY

CW4 Robert Letendre

Did you know completion of Senior Warrant Officer Training (SWOT) is mandatory for all officers in the grade of chief warrant (CW) 3 and above? This requirement, which is contained in DA Pamphlet 600-11 (Warrant Officer Professional Development), is a direct result of implementation of the Total Warrant Officer System (TWOS). Under TWOS, warrant officer positions are coded and managed by rank groups — warrant officer/senior warrant officer/master warrant officer (WO/SWO/MWO) — and incumbents are trained and certified at each level. Accordingly, SWO positions are filled by officers in the grade of CW3 or CW4, who are trained at the level commensurate with that position. Alignment of the existing senior warrant officer population with the TWOS professional development training requirements is a major priority of the Warrant Officer Division, U.S. Total Army Personnel Command, Alexandria, VA. A concerted effort has been made to identify, schedule, and fund SWOT for all eligible officers in the grade CW2 (Promotable (P)) and above. This training is accomplished either by temporary duty (TDY) and return to the parent unit or in conjunction with permanent change of station (PCS). Completion of SWOT results in entry of a military education level (MEL) B on the Officer Record Brief (ORB). A MEL B is not only required for SWO-

coded positions, but also serves as the gateway for future master warrant officer consideration.

Officers selected for SWOT are notified by letter and are provided with travel orders from the U.S. Total Army Personnel Command. Any postponement of SWOT for officers selected to attend, impacts adversely on the Army's ability to complete implementation of TWOS and results in the loss of valuable training spaces. Therefore, requests for training deferments are normally disapproved. Warrant officers and their commanders need to be aware of the importance of this military training and professional development for satisfying Army requirements and for individual career advancement.

Scheduling for SWOT is automatic for officers in the grade of CW2(P) and above who do not have a MEL B. If you are in this category and have not been notified of a training date, you should check with your career manager to find out when you will be scheduled to attend. Facing the prospect of a smaller Army in the future, it is more important than ever that each officer seriously consider personal career needs and take advantage of every opportunity to remain competitive. 

CW4 Robert Letendre is the Professional Development Officer, Warrant Officer Division, U.S. Total Army Personnel Command, Alexandria, Virginia.

SUBMISSION GUIDELINES FOR *QUARTERMASTER PROFESSIONAL BULLETIN*

TO ASSIST YOU IN PLANNING YOUR ARTICLES, WE OFFER THE FOLLOWING GUIDELINES:

- Submit articles in the form of typewritten, double-spaced drafts, consisting of no more than 10 pages to :

COMMANDER
U.S. ARMY QUARTERMASTER CENTER AND SCHOOL
ATTN: ATSM-ACZ-PB (EDITOR, QMPB)
FORT LEE, VA 23801-5032

- Ensure that all articles relate to and support the mission of the Quartermaster Corps. Articles should address technological developments, tactics, techniques and procedures, "how to," practical exercises, training methods, historical perspectives, and viewpoints.
- Per U.S. Army Training and Doctrine Command (TRADOC) guidance, the Quartermaster Professional Bulletin (QMPB) cannot publish personal notices (to include routine notices of promotions, assignments, and graduations); personality oriented articles (except for those with historical significance); and routine news items.
- The target audience for the QMPB is Corpswide. It includes junior enlisted soldiers, noncommissioned officers, warrant officers, commissioned officers and Department of the Army (DA) civilians within the Quartermaster Corps. The reading level of articles submitted should reflect this. (The editorial staff will provide you with assistance if you have any questions).
- If graphics are desired to support your article, please let the staff of the QMPB know in advance of submission. They will then have the time to develop the artwork, allowing you to review it for accuracy before the final camera-ready mechanicals are sent to the printer.
- When submitting photos or art, please provide clear, original prints or negatives whenever possible. Black and white photos are preferred. All photos and artwork will be kept on file at this office unless otherwise requested.
- When preparing your articles, please recall that the QMPB is more interested in content than in style. Our staff is here to help you during the writing process, if you need it, and is responsible for editing your submissions for grammar, syntax, and format. Our basic requirement from you is information.
- Points of contact (POCs) for the Quartermaster Professional Bulletin are CPT Michael P. Gilroy and Linda B. Kines, AUTOVON 687-4382/4741, Commercial (804) 734-4382/4741.

The Quartermaster Professional Bulletin welcomes submissions by its readers on all topics pertinent to the past, present or future of the Quartermaster Corps. In order to provide us with the most complete information available on all materials submitted, we ask that you use the following form and enclose a copy of it when you send us any items intended for future publication. If you find that you require more space, use a piece of plain paper and follow the guidelines on the form to provide additional information.

Author's Name: _____
Last, First, M.I., Rank/Grade

Address: _____ Phone: _____

Organization/Activity: _____

Branch/MOS: _____ Duty Title: _____

Previous experience related to the topic:

Military Education: _____

Civilian Education: _____

Date the article was written/revised: _____

Approving Official: _____ Phone: _____
(If Command/Local Authority requires approval for submission.)
Note: Ensure material is unclassified.

If the article appeared in another publication
Date: _____ Name of Publication: _____

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Please label and provide the following information for each piece submitted:

Description of events or process: _____

Personnel (Name, Rank if known): _____

Equipment (Nomenclature): _____

Location: _____
Specific Site, Town or City, Country

Date: _____ Exercise: _____

Activity/Organization/Unit: _____

COMING UP IN THE QMPB

Winter 1990 -- The U.S. Army's New Single Supply System

Spring 1991 -- Quartermasters and the Future

Summer 1991

Autumn 1991

Deadline for Articles and Supporting Graphics	12 February 1991	10 May 1991
Highlight Subject	Supporting Contingency Operations	Supply Support at Brigade

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.

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THE QUARTERMASTER SCHOOL INSIGNIA

The insignia of the Quartermaster School was authorized by the Adjutant General on 7 May 1925. As originally designed, the insignia of the Quartermaster Corps surmounted a buff-colored shield bisected diagonally by an azure band bordered in silver. In the upper right section of the shield appears the Liberty Bell, whereas the lower left section is marked by the Lamp of Knowledge upon a closed book.

The buff background conforms to the Quartermaster Corps colors. The Liberty Bell is symbolic of the City of Philadelphia where the Quartermaster Corps School was first established. The Lamp of Knowledge upon the closed book is significant of the educational character of the School. At the base of the shield is placed the motto of the School, "*Famam Extendimus Factis*" – "We Spread Our Fame By Our Deeds."