

ARMY LOGISTICIAN

JANUARY-FEBRUARY 1997



ARMY LOGISTICIAN

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ARTICLES

- 4 **Rail Support of Military Operations**
—Major John A. Watkins, USAR
- 6 **Falling In on War Reserves**—Captain Steven M. Leonard
- 12 **LSE Fly-Away Package**—Joyce Rudd
- 14 **Occupational Health at AMC Installations**
—Lieutenant Colonel Benjamin G. Withers, Colonel Eric T. Evenson, and Brigadier General Joseph W. Arbuckle
- 18 **'You Gonna Be a Greeter?'**—Captain Vernon L. Beatty, Jr.
- 21 **An Extra Christmas Present**
—Lieutenant Colonel Kenneth C. Keener, USAR
- 24 **Moving Live Ammo in Golden Cargo '96**
—Corporal Jeffery A. Adams
- 28 **Golden Cargo—The 'Louisiana Maneuvers' of Logistics**
—Lieutenant Colonel Bob Krause, USAR, and Specialist Mathew Witt, USAR
- 30 **Is Battlefield Distribution the Answer?**
—Captain Timothy W. Abel
- 32 **Developing a Base Defense in Korea**—Captain Robert Hatcher
- 34 **Warehouse Modernization at Fort Bliss**—Thomas C. Kozlowski
- 38 **Text, Lies, and Inspection Checklists**
—by Chief Warrant Officer (W4) Steve N. Kohn
- 40 **Warrants, Too, Train With Industry**
—by Chief Warrant Officer (W3) Charles R. Widdicombe, Jr.

DEPARTMENTS

- 1 **Emphasis** 3 **Log Notes** 42 **Systems** 44 **Digest**

Mission: *Army Logistician* (ISSN 0004-2528) is the Department of the Army's official bimonthly professional bulletin on logistics, prepared at the Army Logistics Management College and published by the Army Combined Arms Support Command, Fort Lee, Virginia. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.

Disclaimer: Articles express opinions of authors, not the Department of Defense or any of its agencies, and do not change or supersede official Army publications. The masculine pronoun may refer to both genders.

Submissions: Articles and information on all facets of logistics operations and functions are solicited. Direct communication is authorized and should be addressed to: EDITOR ARMY LOGISTICIAN/ALMC SUITE C300/2401 QUARTERS RD/FT LEE VA 23801-1705. Phone numbers are: (804) 765-4761 or DSN 539-4761; FAX (804) 765-4463 or DSN 539-4463; e-mail alog@lee-dns1.army.mil.

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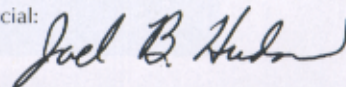
The Golden Cargo exercises bring together logisticians of the active and reserve components to train in peace as they would support in war. Stories and photos from Golden Cargo '96 appear in this issue, beginning on page 24. One focuses on the 70th Ordnance Battalion's movement of live ammunition. The cover photo shows an ordnance soldier moving a pod of bombs toward the entrance of a bunker. The second article relates experiences of the reserve's 19th Theater Army Area Command (CONUS Augmentation) in testing a satellite positioning system during the exercise.

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

By Order of the Secretary of the Army:

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02742

Coming in Future Issues—

- Ten Problems an LAO Can Solve
- Functional, Serviceable, and Reliable
- Don't Truck That Floppy
- 'Soldier-Supported' Computer Maintenance
- New Tools for Army Data
- Retrograding Equipment From Panama
- Evolving Transportation Data
- Depot Maintenance Workers—An Endangered Species
- Firefighting in Haiti
- Moving Toward the Logistics Future
- Battle Staff Drills for Logisticians
- Equipment Usage Reporting—Doing It the Right Way
- Transport Operations in the Balkans: The First 30 Days
- Critical Logistics Thinking Skills
- Warrant Officer Corps Report
- The SIMITAR Revolution
- Class IV for Forward Operating Bases
- Wargaming Strategic Logistics
- Risk Management

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PROPERTY ACCOUNTABILITY SYSTEM TO BE STANDARDIZED

The Department of Defense property accountability system (DPAS) soon will become the standard system for Department of the Army installations and nondeployable table of distribution and allowances activities. In preparation for final acceptance by the Army, DPAS underwent several system changes to meet Army property accountability requirements.

The principal enhancements are an interface with the standard Army retail supply system-objective (SARSS-O) and an equipment authorization interface with the Logistics Support Activity (LOGSA) I25 tape. Other changes of interest to Army logisticians include—

- Incorporating and using the logic of the property book identification code (PBIC) to separate property by type.
- Serialization reporting through unique item tracking (UIT).
- Automated lateral transfer of component items.
- Limited hand receipt holder access that provides the capability to add, change, or delete sub-hand receipt holders.

For more information, contact Chief Warrant Officer Tur-Rojas, Office of the Deputy Chief of Staff for Logistics, Supply Policy Division, at (703) 695-6913, DSN 225-6913, or e-mail—tur-rvr@hqda.army.mil.

ARMY STREAMLINES INFORMATION SERVICES FOR FORCE XXI

In a move to better support the warfighter, Force XXI doctrine, and the national military strategy, the Army has redesignated the Army Information Systems Command (ISC) at Fort Huachuca, Arizona, as the Army Signal Command (ASC), a major subcommand of the Army Forces Command. The ASC commander also will serve as the Forces Command G6 (Signal Officer) and Deputy Chief of Staff for Information Management. The Signal Command is designed to improve information service responsiveness to the warfighter and better align important

core competencies under single process owners. Establishment of the ASC resulted from a year-long information management functional area assessment, which incorporates recommendations from an earlier signal organization and mission alignment study.

ASC will retain command of ISC's continental United States units, as well as the 5th Signal Command in Germany, the 1st Signal Brigade in Korea, the 106th Signal Brigade in Panama, and the 516th Signal Brigade in Hawaii. This arrangement keeps all echelons-above-corps signal assets under one command and facilitates rapid, integrated responses to contingencies around the world.

Software and hardware engineering, along with procurement, will be placed under the Army Communications-Electronics Command (CECOM) at Fort Monmouth, New Jersey. Acquisition efforts will be reassigned to CECOM and the Program Executive Office, Standard Army Management Information Systems, Fort Belvoir, Virginia. Combat developments for all signal units will be combined at the Army Signal Center at Fort Gordon, Georgia. Several small, specialized units will also be realigned from ISC to other organizations as appropriate. The realignments will not result in any unit relocations.

OPERATIONAL ARCHITECTURE DEVELOPED

As a first step in developing the Army enterprise strategy, the Army Training and Doctrine Command (TRADOC) has drafted a disciplined command, control, communication, computers, and intelligence (C⁴I) operational architecture. The Army enterprise strategy is a document that unifies and integrates a wide range of C⁴I initiatives to support battlefield digitization. The enterprise strategy eventually will include all operational, technical, and systems architectures that will determine the requirements for supporting the Army of the 21st century.

TRADOC's draft of the operational architecture defines the required connectivity of force elements and the types of communications that will be necessary. It specifies the required information systems and locations where the systems will be needed.

The three-volume report includes standard operational architecture products such as an operational concept diagram; command relationship diagram; activity models; data models; connectivity requirements; and information requirements. Comments and questions concerning the draft may be sent to TPIO-ABCS, ATTN Tom Douthitt, Fort Leavenworth, KS 66027 (e-mail douthitt@leav-emh1.army.mil), or call (913) 684-4503.

SATELLITE SYSTEMS OVERHAULED

Satellite communications and maintenance support employees at Tobyhanna Army Depot, Pennsylvania, overhauled, aligned, and tested an OE-222/G satellite communication antenna system for Fort Monmouth, New Jersey, late last year. It was the fifth of seven systems Tobyhanna plans to overhaul.

An OE-222/G antenna is 42 feet tall and has a parabolic reflector dish that measures 38 feet across. Each system weighs 34 tons. Tobyhanna personnel dismantle the entire antenna system to perform checks and services before reassembling and testing it. The dish alone requires 368 adjustments to achieve the true parabolic shape required for optimum signal reception. It takes approximately 6 months to overhaul each antenna system.

Two of the overhauled systems will be used by the Army at Fort Buckner, Japan, and Coltano, Italy. One will be used by the Air Force at MacDill Air Force Base, Florida, and one will be used by the Harris Corporation, Melbourne, Florida, for research and development.



□ Tobyhanna Army Depot employees, assisted by Defense Distribution Depot-Tobyhanna's crane crew, attach an OE-222/G antenna dish reflector to reflector arms.

BIOLOGICAL DETECTION UNIT ESTABLISHED

The Army has designated a unit that will detect biological contamination on the battlefield. The 310th Chemical Company, an Army Reserve unit based at Fort McClellan, Alabama, has been changed from a motor smoke company to a biological integrated detection system company. This move was in response to Army leaders who identified a weakness in responding to biological threats during the Persian Gulf War. The new unit is assigned to the 81st Regional Support Command, Birmingham, Alabama.

Four company platoons have been trained to use new biological detection equipment and are ready to deploy. The 20th Chemical Detachment, a regular Army unit that is attached to the 84th Chemical Battalion at the Army Chemical School, Fort McClellan, will fill in as the fifth platoon.

Each of the five platoons will have seven biological detection systems that cost between \$800,000 and \$1 million each. The detection systems monitor, sample, detect, and identify biological warfare agents. A system consists of a shelter that houses equipment that is used to test particles for contamination. The shelters are mounted on high-mobility, multipurpose, wheeled vehicles (HMMWV's) for use in the field. Although Fort McClellan is scheduled to close in 1999, biological detection training of soldiers from the 310th will continue at that location.

ONE-STOP MAINTENANCE SHOP OPENS

The Electronic Sustainment Support Center (ESSC) is now open at Fort Hood, Texas. The center is a prototype Army Materiel Command "single face to the customer" help desk operation for electronic maintenance. The new center is an integrated repair activity that provides assistance to Forts Hood, Carson, Bliss, Riley, and Sill, as well as to Army National Guard and Reserve units, for selected electronic weapon systems and equipment.

The Fort Hood center is the first of at least four shops planned to provide the Army with an overall single approach to field support of electronic equipment. An evaluation of ESSC operating procedures is being conducted during the first 6 months of operation. Once these procedures have been proven to work, they will be used at other planned ESSC's at Fort Bragg, North Carolina, and in Europe and Korea.

The Fort Hood ESSC works in conjunction with the 190th Maintenance Company, 13th Corps Support Command; Intelligence Electronic Warfare (IEW) Regional Support Center; Mobile Subscriber Equip-

ment Regional Support Center; and Tobyhanna Army Depot Forward Repair Activity, all at Fort Hood. One of the most critical aspects of ESSC is its ability to deploy with III Corps when required.

The mission of the ESSC is to improve the Army's efficiency in maintaining selected tactical IEW equipment, nonembedded commercial off-the-shelf equipment, nondevelopmental items of automatic data processing equipment, and other equipment such as shop nontactical radios.

The ESSC also serves as the management organization for all electronic support performed by contractors in the region it serves. In addition, it provides limited replication, distribution, and installation of software upgrades and revisions and offers training for changes to software issued by the Software Engineering Directorate of the Army Communications-Electronics Command at Fort Monmouth, New Jersey.

Any unit may take advantage of ESSC services. "If a unit has something that they do not know how to fix, we'll fix it or we'll find the shop to send it to," said Dennis Foster, ESSC site manager at Fort Hood. "We show [them] the most efficient way to get the job done. We are essentially a one-stop shop."

For more information call Dennis Foster at (817) 618-7650.

UNIFORM COSTS INCREASE

This year's clothing bag will cost a little more than last year's, but enlisted soldiers will receive increased clothing replacement allowances that will cover rising costs. The initial allowance, or clothing bag, usually provided in the form of free uniforms given to recruits, is \$15 more for male soldiers and nearly \$6 higher for women in 1997 than in 1996.

The standard clothing replacement allowance, which is the annual payment to soldiers with more than 3 years of service, is up by \$51 for males and nearly \$116 for females. This year's basic replacement allowance for soldiers with less than 3 years of service is \$36 higher for men and \$81 higher for women. The reason for the greater increases for women is that their uniform items generally cost more than men's.

The large increases in replacement allowances are largely due to establishing shorter "wear life" estimates for uniform items. In the past, the Army's estimates were long compared to the other services.

This year women have several new and redesigned uniform items that will look better and fit better. A new tuck-in green shirt will be standard issue for class A and B uniforms. A redesigned green overblouse was moved from standard issue to optional

TASK FORCE XXI TO TEST DIGITIZED COMMUNICATIONS



□ This high-mobility, multipurpose, wheeled vehicle (HMMWV) is outfitted with a digital communications computer system. To the right of the computer is a precision lightweight global positioning receiver in a mount that was fabricated by Tobyhanna Army De-

pot, Pennsylvania. This system, and other digital linking systems, will be tested in the Task Force XXI advanced warfighting experiment (AWE) scheduled for fiscal year 1997 at the National Training Center, Fort Irwin, California. Tobyhanna is installing digital communications systems in the vehicles that will participate in the exercise.

Task Force XXI is a brigade-level experiment that will utilize elements of the 4th Infantry Division to demonstrate operational changes that will occur as a result of digitally linking the command and control, combat, and combat service support elements on the battlefield. Task Force XXI also will be the first op-

status. Slacks were redesigned for better fit, and a new black belt will be issued to wear with them. Black oxford shoes were redesigned for better appearance and comfort. Perhaps the biggest news for female soldiers is that their uniform items now come in three size ranges (juniors, misses, and women's) and three height ranges (petite, regular, and tall). The size labels will be more accurate, and this will result in most women requiring smaller sizes.

RETROEUR NEAR CLOSING

The retrograde of materiel from Europe (RETROEUR) program is drawing to a close. The automated RETROEUR information system (RIS) that lists all available excess nonrolling stock for customer viewing and ordering will close on 31 January 1997. Organizations with requirements for items on the list can use the RIS to place orders, and the items will be "free issue" to the final claimants.

Since 1993, the RETROEUR nonrolling stock program has processed 1,431 containers of materiel valued at more than \$400 million. The last containers filled with excess stocks for processing arrived at Bluegrass Station, Lexington, Kentucky, in August 1996. Ranging from uniforms and personal supplies

erational test of the Army's nonlinear operations, which is the ability to fight in different directions and quickly maneuver on the battlefield.

Tobyhanna Army Depot is developing, fabricating, and installing vehicular installation kits for the precision lightweight global positioning receiver system (PLGRS) and enhanced position location reporting system (EPLRS). The PLGRS is part of the global positioning system, a space-based radio navigation system that provides accurate position, velocity, and time information. The EPLRS is a data communications system that also provides unit position information. These systems will enable artillery units to accurately direct fire at enemy targets.

Nearly 900 vehicles will be equipped with digital communications capabilities. In addition to being mounted in HMMWV's, digital communications systems will be installed in vehicles such as Abrams main battle tanks; Bradley fighting vehicles; armored personnel carriers; Avenger missile systems; and Paladin 155-millimeter, self-propelled howitzers.

to tools and heavy equipment, these items were cataloged, reclassified, and then advertised for redistribution to other military agencies worldwide. The RETROEUR program has saved \$12 for every \$1 spent. The program provided equipment to Bosnia, Kuwait, Cuba, the Olympic Village in Atlanta, and other locations. Over 1,100 passwords and user identification numbers were issued for the RIS so that orders could be placed.

For more information on the RETROEUR program, call the RETROEUR team at the Army Aviation and Troop Command, St. Louis, Missouri, at (314) 263-5271/-5276 or DSN 693-5271/-5276.

PORTABLE SHOWERS BOOST MORALE

A portable shower facility is making duty a little more tolerable for soldiers deployed to Bosnia than it was for front-line troops during earlier operations in Saudia Arabia, Somalia, and Haiti. The off-the-shelf shower system should boost soldier morale as well as help prevent disease.

The small-unit shower was developed by U.S. Thermal, Inc., in West Chester, Ohio, and is designed to provide showers for company-sized elements. It can be transported in two bags weighing 75 pounds each and operates with a water heater that weighs another 75 pounds. The shower includes four enclosed stalls inside a tent-like structure. The structure is supported by air-filled beams that can be inflated using a hand pump. Two people can have the shower operational within 15 minutes after unloading.

The water heater runs on virtually any fuel. Five gallons of fuel will heat enough water to run the shower continuously for 20 hours at a rate of 24 showers per hour. While the average shower at home uses up to 20 gallons of water, a push-button shower head on the portable unit reduces the amount of water used to 2 1/2 gallons.

The Army has purchased more than 20 showers, 14 of which are deployed to Bosnia and other sites in the Balkans. Plans call for the Army to contract for another 60 shower systems, with options to buy 50 more each year for the next 2 years. Ten of the units will probably remain at the Soldier Systems Command at Natick, Massachusetts. The other 50 units are slated to be distributed among the Army's "first to fight" units: the 82d Airborne Division and XVIII Airborne Corps headquarters at Fort Bragg, North Carolina; 3d Infantry Division (Mechanized), Fort Stewart, Georgia; 101st Airborne Division (Air Assault), Fort Campbell, Kentucky; and 1st Cavalry Division, Fort Hood, Texas. When purchased in a large quantity, each shower unit costs approximately \$12,500.

VM GUIDE TO THE RESCUE

For those of you logisticians who are charged with implementing velocity management (VM) but are not exactly sure how to proceed, you will be happy to know that help is readily available. A velocity management guide for installations, "How to Reduce Order and Ship Times from Wholesale Supply," was developed by the Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia, and the RAND Corporation. The guide describes the initiatives, processes, and techniques you need to understand and use, beginning with the establishment of a site improvement team. The guide is a "living" document that will change as the Army moves into this new approach to supply management. To get your copy of the guide, call Captain Pagonis or Chief Warrant Officer Navarro at (804) 734-0584/0603 or DSN 687-0584/0603, send e-mail to—navarror@lee-dns1.army.mil, or download a copy from CASCOM's homepage (<http://www.cascom.army.mil>).

NEW TROOPS IN BOSNIA

As 15,000 Implementation Force (IFOR) personnel began to withdraw from Bosnia, more than 5,000 Army troops were on hand to ensure their safety and maintain a safe environment for Balkan residents. The first soldiers to serve as part of the "covering force" were from the 1st Infantry Division (Mechanized). They crossed the Sava River into Bosnia on 15 October. Armaments for the covering force include 30 M1A1 Abrams tanks, 200 M2 Bradley fighting vehicles, and 40 helicopters. The covering force is expected to withdraw by March, although Army forces may be needed to provide security during local elections that have been postponed indefinitely. The municipal elections are an important step in stabilizing Bosnia, since they will reintegrate ethnic groups and reestablish the democratic process.

BALLISTIC MATS SAVE LIVES

Ballistic protection mats are offering some defense against antipersonnel mines to soldiers riding in nonarmored vehicles in Bosnia. The Kevlar® covers fit over the seat backs and floorboards of high-mobility, multipurpose, wheeled vehicles; 2 1/2- and 5-ton trucks; and heavy, expanded mobility, tactical trucks that are not equipped with armor kits. Each mat weighs over 300 pounds and requires no tools, only muscle, to install.

(Continued on page 2)

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LSE GUIDE PUBLISHED

FM 63-11, Logistics Support Element Tactics, Techniques, and Procedures, published 8 October 1996, describes the mission and functions of the logistics support element (LSE). The LSE is primarily a civilian organization that deploys to perform missions of the Army Materiel Command such as supply, maintenance, and related functions. It also can provide or augment command and control in the theater. FM 63-11 is designed as a handbook for LSE personnel and serves as a guide for commanders and logisticians in providing logistics support in joint, multinational, and interagency environments. The logistics civil augmentation program, or LOGCAP, is summarized in appendix E. Initial distribution of FM 63-11 has been made, and copies can be requested from the Army Publications Distribution Center. It also is accessible from the Army Training Digital Library on the Internet (http://www.atsc-army.org/atd/browse/doc_type.htm, then select "field manuals"). (See related article on pages 12 and 13 of this issue.)

MEAL COSTS STANDARDIZED

The cost of eating in Army dining facilities changed in October when the Department of Defense directed that a single standard rate of \$7 a day be set for most personnel. Previously, the cost of meals was determined by the diner's rank, duty status, position, and other factors. Meal rates ranged from \$2.40 for children under age 12 to \$18.15 per day for personnel paying the surcharge. The standard rate is designed to reduce confusion and administrative burden by charging everyone, with few exceptions, the same meal rate. Enlisted personnel who receive the basic allowance for subsistence (BAS) will pay \$7 for three meals a day, an increase of \$2.25 from last fiscal year; however, the cost still is less than the BAS rate of \$7.15 per day they receive.

SEAPORT INFO AVAILABLE

The Military Traffic Management Command Transportation Engineering Agency recently published the third volume of Ports for National Defense (PND). The 335-page East Coast PND publication uses more than 200 color maps, photos, and charts to describe 8 militarily useful Atlantic ports. Hard copies of individual port reports can be requested by calling (800) 722-0727. The reports soon will be available in CD-ROM format and eventually on the Internet. PND publications are popular among defense agencies and contractors because they describe in detail the characteristics and capabilities of seaports in the United States. The PND reports currently are published in three volumes: Gulf Coast, West Coast, and East Coast.

ARMY TESTS MISSILE SYSTEM

The Army is testing an acoustic and infrared, terminally guided submunition that searches for, tracks, and destroys tanks and armored personnel carriers. The brilliant antiarmor submunition, or BAT, is a 3-foot-long, 44-pound submunition. If approved by the Army, fielding could occur as early as the year 2000. For more information, contact the BAT project office, Redstone Arsenal, Alabama, by calling (205) 955-7783, or send e-mail to—fwallace@redstone.army.mil.

(Continued on page 48)

Index of Army Logistician Articles—1996

JANUARY-FEBRUARY

- **Joint Base Development**—MAJ Thomas G. Roxberry, p. 2.
- **Battlefield Distribution**—MAJ George G. Akin, p. 6.
- **Logistics Decisionmaking Model**—MAJ Kenneth W. Carroll, p. 8.
- **Deploying a Contingency Support Team**—Mike Kelley, p. 12.
- **Logistics Situational Awareness**—COL Larry D. Harman, p. 14.
- **Keeping MIA's in Action**—CPT Jeffrey P. Kelley, p. 16.
- **Prep Ashore**—MSG Debra D. Arden, p. 19.
- **Fielding a Team of IMA's**—MG Robert L. Ruth and MAJ Kathy J. Perry, p. 20.
- **CSS Automation in a Heavy Division**—MAJ Charles A. Radke, p. 22.
- **Logistics in Haiti**—MAJ Gerald A. Dolin-ish, p. 24.
- **Reengineering Maintenance Management**—A. Michael Richardson, p. 29.
- **SAMS Man-Hour Data: How Accurate Are They?**—CPT George C. Martz, Jr., p. 32.
- **Army Rail: Highballing to Logistics Success**—COL Lawrence M. Curtin, p. 35.
- **Logisticians Execute Peace Operations**—LTC Calvin Pilgrim, p. 38.
- **Reader Survey Results**—Staff Feature, p. 40.

MARCH-APRIL

- **Logistics: Spearhead for Operation Joint Endeavor**—Staff Feature, p. 2.
- **Velocity Management: A Status Report**—MG Thomas W. Robison, p. 4.
- **Log Internet**—COL Merle D. Russ, p. 6.
- **AHC Passes 'Smart Card' Test**—Glenn R. Maravillas and Herbert R. Andresen, p. 9.
- **Logistics—Sometimes the Main Effort in MOOTW**—LTC Christopher R. Paparone, p. 12.
- **ULLS Aids Materiel Readiness Reporting**—Nicholas L. Flaim, p. 14.
- **Live-Fire Convoy Training in Hawaii**—CPT Geoffrey C. DeTingo, p. 16.
- **Automating Aerial Resupply Schedules**—CPT Mark A. Blodgett, p. 19.
- **Central Management of Army War Reserves**—Stephen D. Abney, p. 22.
- **Warrior Brigade Bullets: From Sea to Shore**—MAJ William H. Smith, p. 24.
- **Crisis in Strategic Sealift**—LT Stephen P. Ferris, USNR, p. 28.
- **A Logistician's Command Vision**—COL Larry D. Harman, p. 31.
- **Supporting Nondivisional Engineer Forces**—MAJ Christopher J. Toomey, p. 32.
- **Objective Supply Capability**—MAJ James C. Bates and Gregory W. Kropp, p. 36.
- **Pareto Principle**—CPT Vincent R. Lindenmeyer, p. 38.
- **Union Logistics in the Peninsula Campaign**—Bruce P. Schoch, p. 40.

MAY-JUNE

- **The New NATO**—COL Charles A. Seland, p. 4.
- **Automation for Split-Based Operations**—Donald W. Parr, Jr., p. 8.
- **Where's My Stuff?**—Thomas Manzagol and Eleni Brown, p. 10.
- **'Summer Surge '96'—Service Members on the Move**—CPT George Thomas, Jr., p. 12.
- **Eliminating Ozone-Depleting Chemicals**—Daniel P. Verdonik, D.Eng.Sc., and Thomas A. Bush, p. 14.
- **LRU's: Where's the Problem?**—CWO4 Placidus O. D'Agrella, USA (Ret.), p. 17.
- **LRU's: The Success Story**—Douglas N. Watters, p. 18.
- **Civil Affairs and Logistics in Haiti**—CPT Nancy C. Henderson, p. 20.
- **Medical Mission to Russia**—SP Alex V. Bonafice, p. 24.
- **Strategic Mobility**—MAJ Angela R. Phelps, p. 26.
- **Do You Have a Contracting Support Plan?**—MAJ Thad A. Gassman, p. 29.
- **The Lieutenant—Jack of All Trades**—1LT William G. Rothe, Jr., p. 32.
- **Modern ASL Management Tools**—CPT T. Patrick Flanders, p. 34.
- **Combined Water Purification Unit Training**—CPT Daniel S. Kravitz, p. 36.
- **Beyond Synchronization**—CPT Stephen E. Reynolds, USMC, p. 38.
- **Logistics Planning Success Story**—Chester L. Hannah, p. 41.
- **Logistics Leadership Changing**—Staff Feature, p. 44.

JULY-AUGUST

- **National Guard Succeeds With Maintenance Initiatives**—The Honorable Robert M. (Mike) Walker, p. 4.
- **MQS and Company-Grade Officers**—COL Paul D. Bransford, p. 8.
- **Reorganizing Movement Control**—Kathryn M. O'Neill, p. 12.
- **Combat Health Support Planning**—CPT Stephen D. Sobczak, p. 14.
- **Redeploying From Haiti**—CPT G. Todd Spencer, p. 18.
- **Changes in Light Infantry Logistics**—LTC Andrew T. Chmar, p. 21.
- **Finding a Needle in a Haystack**—Randall McClure and Thomas J. Kershaw, p. 24.
- **Hints for Survey Officers**—CWO2 Michael J. Long, p. 29.
- **SSA Run By—Transporters?**—1LT Jason K. Graaf, p. 30.
- **Barging Ahead**—COL Jimmy S. Martin, p. 32.
- **Mortuary Affairs in the Theater**—MAJ James C. Bates, p. 34.
- **Support With Forward Logistics Elements**—CPT Edward F. Cole, Jr., p. 36.
- **ODCSLOG and CASCOM Get New Leaders**—Staff Feature, p. 38.
- **Operation Quick Lift**—Corenthia V. Libby, p. 40.
- **Army Logisticians at Work**—Staff Feature, p. 42.

SEPTEMBER-OCTOBER

- **Army Assault From a Navy Carrier**—CPT Sean C. McGovern, p. 4.
- **Aviation Maintenance From the Trenches**—CWO3 Ronald W. Durant, p. 9.
- **BSA Defense in Cap-Haitien**—CPT Robert A. Elmore, p. 12.
- **Palletized Loading System: Not Just Another Truck**—CPT Peter M. Haas, p. 14.
- **Accountability for PLS Flatracks**—CPT Kathryn A. Katz, p. 18.
- **Determining Truck Unit Capability**—Joe A. Fortner and Michael F. Byrd, p. 21.
- **Users' Guide to ITV**—Larry D. Johnson, p. 24.
- **Convoy Lane Training**—CPT John P. Lawson, p. 26.
- **DPAS—DOD's Property Accountability System**—Bradley E. Carson, p. 30.
- **Systems and Skills: What Do You Do When the Computer Crashes?**—CPT Stephen E. Reynolds, USMC, p. 32.
- **Using CO2 for Maintenance Cleaning**—MAJ Darrel A. Williamson, p. 35.
- **Hiring Local Labor**—CPT Leonard E. Verhaeg, p. 38.
- **CSS Training in a Split-Based Brigade**—COL Bob Ross and COL Jim Tatum, p. 40.

NOVEMBER-DECEMBER

- **A Logistics Task Force Mentality**—COL Larry D. Harman, p. 4.
- **Designing Systems the TED Way**—MAJ Mark C. Malham, p. 6.
- **Improving the Environment Through HAZMIN**—MAJ James E. Sisk, p. 9.
- **Pollution Prevention in Logistics Units**—Peter Kushnir, p. 12.
- **Multilinear Warfare**—LTC Christopher R. Paparone, p. 14.
- **Maximizing MEDEVAC**—LTC Terry Carroll, p. 17.
- **Special Section—Logistics Support in Bosnia**, p. 20.
- **Multinational Deployments in Operation Joint Endeavor**—LTC Nicholas J. Anderson, p. 21.
- **Supply Pipeline to Bosnia**—Philip D. Lucius, p. 24.
- **Up Front: DLA in Bosnia**—CPT Nicolas Herrera, p. 29.
- **Task Organization for Bosnia**—CPT Steven A. Shapiro, p. 34.
- **Food for Operation Joint Endeavor**—LTC Anthony H. Kral and CPT Drefus Lane, p. 36.
- **Ghostbusters—Then and Now**—Douglas N. Watters, p. 41.
- **Bridging the Data Gap in Bosnia**—LTC Carl J. Cartwright and MAJ Jeffrey K. McGee, p. 42.

EDITOR'S OPEN LETTER

Dear Reader:

For every beginning there must come an end. January 1970 marked my beginning with *Army Logistician*. January 1997 marks the end. After 27 years in the most challenging, rewarding, and satisfying journalism job of my professional life, I shall join the ranks of the retired.

No other job in the Army that I can think of could have given me the great opportunities to work with so many of you who comprise our Defense Establishment—both military and civilian. The working relationships with authors, contributors, information sources, proponents, supporters, and—more especially—readers have given to me the highest degree of job satisfaction. I shall truly miss those associations.

Certainly there have been many challenges to meet and obstacles to overcome during these past 27 years. Memories of the difficult times fade quickly, however, when so many of you would call or write and say, "Hey, that was a great article on—," "I actually learned some things from the new issue that I can use on the job," or, "Who can I talk to find out more about—." When you get comments and queries like these, you know that the tough, tense, stressful times have been worth it. You know that your work and effort is worthwhile because it is making a difference; it is contributing to a greater understanding of logistics; it is helping logisticians do a better job; and it is educating the warfighter on what it takes to sustain the force.

As you read this, I will have concluded my work on 162 of *Army Logistician's* 165 consecutive issues. My hope is that the next 165 issues will be equally as useful, informative, and helpful.

Terry Speights
Dinwiddie, VA

DO AS I SAY. . .NOT AS I DO

The article, "Hiring Local Labor" (*Army Logistician*, September-October 1996), correctly advised, "Civilian workers must be provided with the same safety gear and tools that would be issued to a soldier to accomplish the same task." On the same page was a photograph showing a soldier sawing a board with an electric hand-saw and wearing safety goggles to protect his eyes from flying wood chips. Great! But standing directly adjacent to him (apparently helping hold the board being sawed), were three civilians not wearing any of the important "safety gear."

The advice was good, but the photo showed that putting that advice into practice was lacking. As a surety analyst for the Army Materiel Command's Surety Field Activity at Aberdeen Proving Ground, I hope your readers will follow the written advice and not the pictorial example.

Henry Hoffman
Aberdeen Proving Ground, MD

NEWER NOT ALWAYS BETTER

I just read CWO Ronald Durant's article, "Aviation Maintenance From the Trenches," in the September-October issue of *Army Logistician*. It is sad but true that the Army's promotion system and modified tables of organization and equipment do not produce leaders with the ability to adequately lead and train their soldiers.

Time the Army gives soldiers to get a college degree takes them away from aircraft they are responsible for maintaining. The Army then promotes those with a degree and what you end up with is a phase-team leader and platoon sergeant who neither know or care about the aircraft on which they are to supervise and train their soldiers. In Vietnam, Hueys flew 8 to 10 hours a day, required a "phase"

every 150 hours, and Army phase-teams turned them around in 24 hours. In Operation Desert Storm, I was turning around phase in 72 hours. In the Sinai, with the Multinational Force and Observers, our average turnaround was 117 hours (at the end of a very long supply line).

A few weeks ago, a two-man depot team came to work on our T-53 aircraft engines. The team and our maintenance platoon repaired 13 engines, pulled and reinstalled 10 of them in 7 days, while maintaining two MEDEVAC standby aircraft at locations 225 miles apart.

The \$23 million spent rebuilding new UH-60's could have been spent more wisely on rotor systems and GE T-700 engines for the Huey fleet. With just \$3,000 for replacement tools or \$100,000 for a second-hand tool room and a couple pieces of equipment, our engine shop could turn out many more phases than our current 17 in 11 months. By the way, Mr. Durant was also right about civilian contractors. I didn't see many in Iraq.

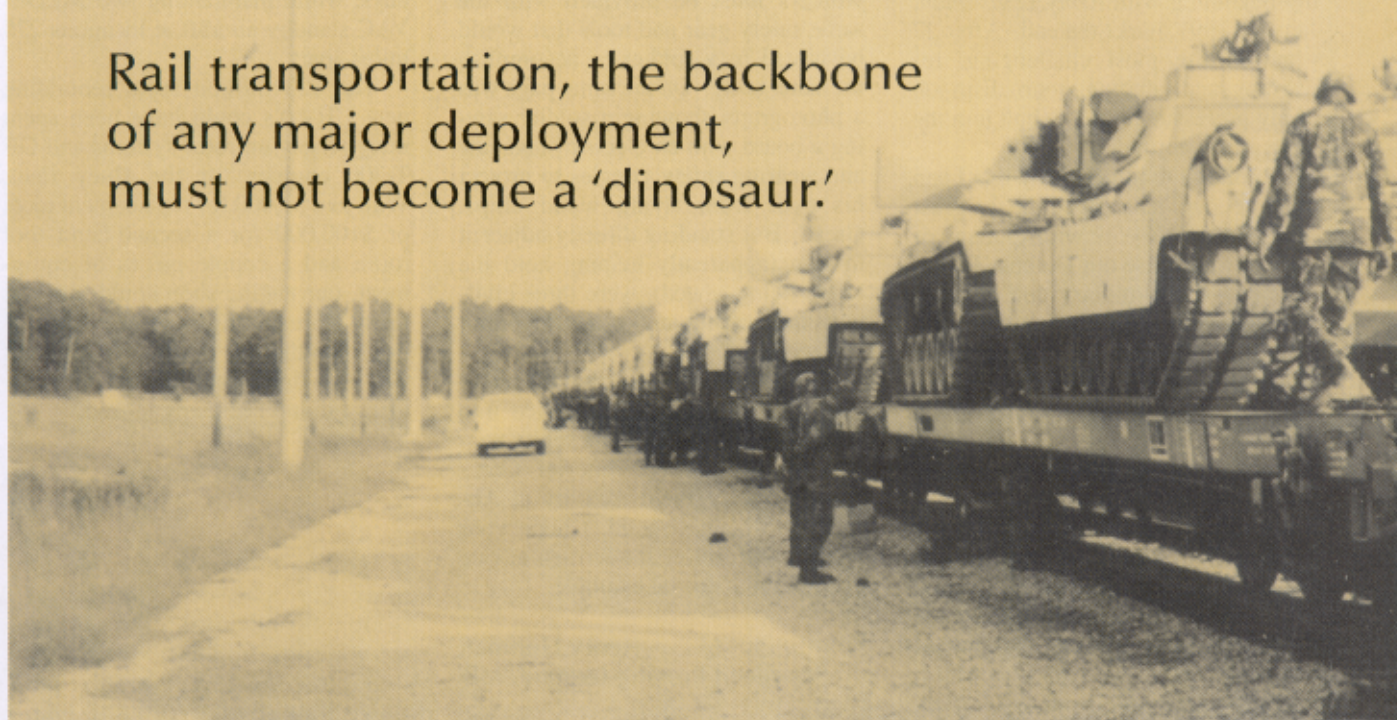
Sergeant James A. Green
APO AE

Log Notes is your column—a way for you to share your thoughts and ideas on a variety of logistics subjects. You may want to comment on articles we have published, take issue with something we've published or with something happening in the logistics arena, or just share a creative, innovative idea on a better way to do things. Your "note to the editor" is welcomed and offers valuable feedback. Your log note will be edited only to meet style and space constraints. All log notes must be signed and include a return address; but, if you request, your name will not be published. Mail log notes to EDITOR ARMY LOGISTICIAN, ALMC SUITE C300, 2401 QUARTERS ROAD, FT LEE VA 23801-1705; send them by FAX to (804) 765-4463 or DSN 539-4463; or e-mail them to alog@lee-dsn1.army.mil.

Rail Support of Military Operations

by Major John A. Watkins, USAR

Rail transportation, the backbone of any major deployment, must not become a 'dinosaur.'



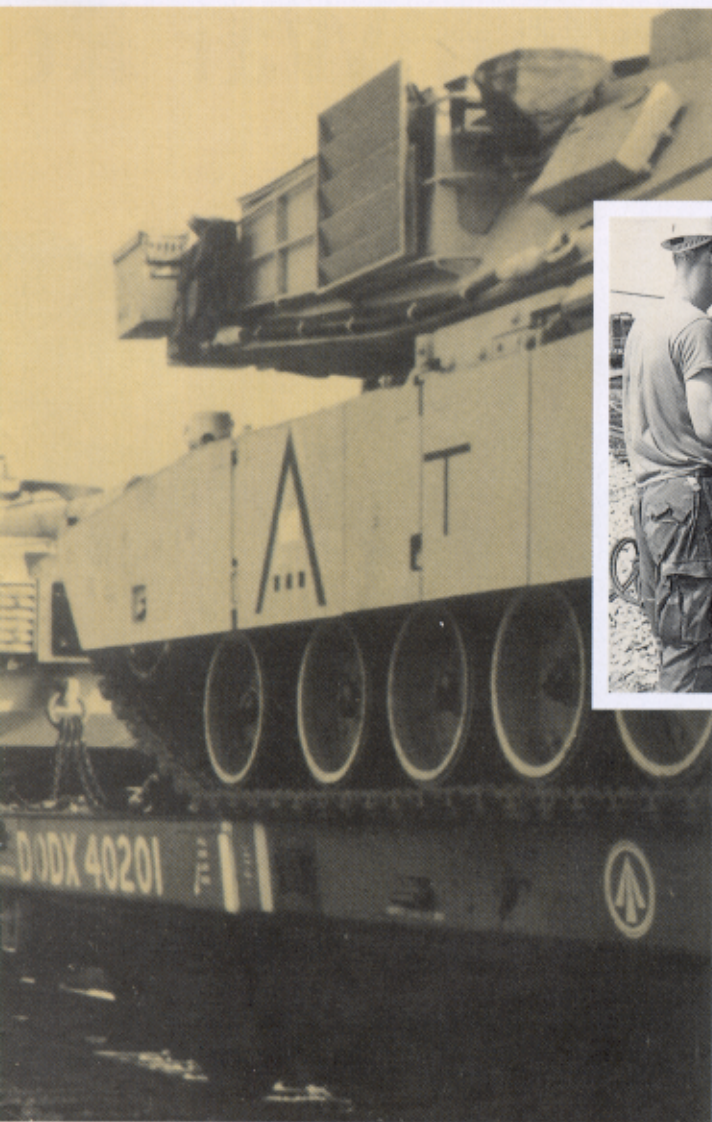
Military railroad service has played a major role in transportation history. Formed in 1862 as part of the Union Army, the Military Railroad Service quickly became an important transportation resource in the Civil War. In World War I, more than 69,000 troops were dedicated to providing railroad transportation, and more than 43,000 personnel worked in the railroad service in World War II. The Korean War was the first conflict in which the host nation provided military rail transportation.

Over the years, economics has played the role of "the revolving door" in both military and civilian railroad communities. The Army inactivated its last active rail component in 1974. The U.S. Army Reserve's (USAR's) 757th Transportation Railway Battalion in West Allis, Wisconsin, and the 1205th Railway Operating Battalion in Middletown, Connecticut (which has a detachment in Sunny Point,

North Carolina), are the only railroad units remaining in service.

During the 1970's and 1980's, the civilian railroad industry downsized and suffered heavy personnel layoffs. Many major carriers sold their low-profit, underused rail lines. Fortunately, civilian rail transportation experienced substantial economic growth in the 1990's. Much of this recovery is attributed to changes in Federal Railroad Administration regulation and certification, purchases of new equipment, and research and development in modernizing rail systems.

At the onset of Operation Desert Storm, the Army discovered that the commercial rail transportation industry lacked sufficient manpower and equipment to meet military requirements in the United States. The 757th Transportation Railway Battalion and the Sunny Point detachment of the 1205th Railway Operating



□ Members of the Army Reserve's 1205th Transportation Railway Services Unit (now Detachment 1 of the 1205th Railway Operating Battalion) (below) repair a rail line at the Military Ocean Terminal, Sunny Point, North Carolina, during Operation Desert Storm.



Battalion (known then as the 1205th Transportation Railway Services Unit) were activated during the first phase of Operation Desert Storm to support railroad operations at military installations and depots, and they remained on active duty until all units in the Persian Gulf were redeployed to their home stations. After Desert Storm, many installations and depots expressed concern about the effectiveness of rail support of any future conflicts.

No doubt influenced by lessons learned in Operation Desert Storm, the Army has experienced a renewed recognition of the importance of military railroad service. In 1995, railroad proponent offices were established in the Army Combined Arms Support Command (CASCOM) at Fort Lee, Virginia, and in the Army Transportation School at Fort Eustis, Virginia, to oversee certification, training, and licensing of civilian and military railroad personnel.

Requirements for effective worldwide railroad operations have been included in the Total Army Analysis. The importance of a viable military railroad service was validated again last summer when some members of the 757th Transportation Railway Battalion deployed to Bosnia to support Operation Joint Endeavor.

Transportation is the core of strategic mobility, and rail operations are the backbone of any major deployment. Throughout history, the railroad system has been a reliable and cost-effective transportation service. When we contemplate the "rightsizing" of the military that is taking place and the Army's critical dependence on strategic mobility to deploy its forces, we must not forget the importance and reliability of rail support of military operations, both in the United States and abroad. The success of future military deployments depends heavily on the Army's ability to retain and support transportation. As experience in Operations Desert Storm and Joint Endeavor indicates, the military railroad system is an important resource for providing that support. We must not let this valuable service become a dinosaur. **ALOG**

Major John A. Watkins, USAR, is an Active Guard Reserve transportation officer assigned to the Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army, Washington, D.C. He received a bachelor's degree in liberal arts from New York University. He is a graduate of the Army Command and General Staff College and a member of the Army Acquisition Corps.

Falling In on War Re

To support units coming from the United States for Operation Joint Endeavor, Combat Equipment Group-Europe issued Army war reserve unit sets in a contingency for the first time.

Few events test the mettle of the military more than the deployment of forces into a theater of operations. Preparing forces for deployment requires an unprecedented degree of insight and forethought, and actually deploying them raises a wide array of logistics issues that often are left unaddressed in peacetime operations.

As the Dayton Accord brought a tenuous end to 3 1/2 years of civil war in the former Yugoslavia, logisticians began to focus on supporting the 32,000 American troops who would bolster the fragile peace. While transportation planners coordinated the assets required to move units into the theater, troops were outfitted with the equipment they would need for the Bosnian winter. Shipments of rations, repair parts, and fuel into the area were expedited to support the peacekeeping effort. And for the first time, continental United States (CONUS) units fell in on Army war reserve equipment configured to unit sets for a contingency operation.

Combat Equipment Group-Europe (CEG-E), established in 1964 and only recently reflagged as a subordinate element of the Army War Reserve Support Command (Provisional), had long maintained a presence in the European theater. Now, after 30 years of supporting Return of Forces to Germany (Reforger) exercises and many equipment issues, CEG-E would help test the viability of maintaining unit sets in storage.

On 28 November 1995, CEG-E received electronic message traffic indicating a strong likelihood that deploying CONUS units would be tasked to draw sets



□ The Belgian National Training Center at Leopoldsburg served as the railhead for shipping equipment to Hungary.

from war reserve stocks in Europe. Within a week, the first of three liaison parties from CONUS units arrived at the 16th Combat Equipment Company (CEC) in Zutendaal, Belgium, to begin a process that had never before been executed outside the boundaries of a training environment: the contingency issue of pre-positioned unit sets.

Deployments and Drawdown

During the years following the fall of the Berlin Wall and the end of the cold war, CEG-E provided equipment for nearly every regional conflict or contingency mission involving U.S. troops. From the Persian Gulf War to operations in Somalia, Rwanda, Macedonia, and Haiti, CEG-E supported Army deployments worldwide. Projecting forces across the globe can be costly, however. CEG-E's increased operational support resulted in a slow but steady depletion of the unit sets in storage and a corresponding decline in readiness.



Preparation

Under the standard, Reforger-style procedures for issuing unit sets, a drawing unit installs batteries in vehicles, conducts inventories, performs equipment maintenance, and proceeds as an organization to the marshaling area. In this scenario, a combat equipment company, with assistance from the drawing unit, can issue fully mission capable sets from storage in hours. However, with unit sets in various states of readiness and completeness as Operation Joint Endeavor began, Reforger issue timelines were, at best, optimistic.

Because of the time-sensitive nature and size of an operation like a multiple-set issue, logisticians must anticipate logistics requirements early to ensure successful execution of the mission. Within hours of the first indications of a potential equipment draw, the 16th CEC put into effect a draft plan for preparing the unit sets for issue that balanced available resources with known requirements and projected the issue across three separate and distinct timelines—one for each deploying company. From that point on, as the situation developed and additional information became available, the 16th CEC was able to maintain a certain degree of flexibility without sacrificing its ability to respond to unforeseen requirements.

Before the sun crested the Belgian horizon on the morning of 29 November, the first vehicles of an assault float bridge (AFB) company set passed through the doors of a controlled-humidity warehouse en route to maintenance facilities for servicing and any necessary repairs. Activation of the entire unit set required 3 days; within a week, 163 pieces of rolling stock were processed through maintenance and staged for deployment with the remaining equipment. Supply personnel organized basic issue items, additional authorized items, components of end items, and sets, kits, and outfits for ease of inventory and a smooth transition to the receiving unit.

In short succession, this process was repeated for a medium girder bridge (MGB) company set and a combat support equipment (CSE) company set, as an additional 442 heavy vehicles and trailers passed through maintenance and into staging areas. Once the equipment was staged, 16th CEC personnel began laying out thousands of components to be inventoried upon arrival of the deploying units. In total, the preparation effort involved servicing, repairing, and inventorying nearly 3,500 pieces of equipment from the 3 engineer unit sets.

Coordination

Early in the preparation process, on 2 December, a team from the 82d Engineer Battalion—the sponsor

The process of filling equipment shortages was linked closely with the drawdown of U.S. Army, Europe (USAREUR), as inactivating units shipped much of their equipment to CEG-E sites. At the same time, equipment issued in support of Operation Desert Storm began to filter back to CEG-E. But the readiness of both equipment receipts and returns fell far short of the high standard commonly associated with war reserves. So, in early 1995, logisticians in the Army War Reserve Support Command began assessing the condition of the unit sets to determine what resources—in both manpower and money—were required to bring CEG-E stocks to technical manual -10/-20 standards.

After completing technical inspections on every major end item in storage and identifying component shortages through a detailed inventory process, CEG-E moved forward with a comprehensive program to repair each Army war reserve unit set and provide readiness data to the Army Materiel Command and, ultimately, the Department of the Army. Less than 2 months into this program, the Dayton Accord signaled the first major test of the readiness of those war reserves.

for all three deploying CONUS units—traveled from Bamberg, Germany, to the 16th CEC's headquarters in Zutendaal to establish a link that would prove invaluable as deploying personnel and equipment began arriving in Europe. [The 82d Engineer Battalion is part of the 3rd Infantry Division (Mechanized).] During its meeting with the battalion, as in those that followed with other organizations involved in the deployment, the 16th CEC developed a clear delineation of responsibilities so all parties could focus their resources effectively without unnecessarily duplicating each others' efforts.

Two days after the arrival of the team from the 82d Engineer Battalion, a liaison party representing the 586th Engineer Company (Assault Float Bridge) at Fort Benning, Georgia, arrived, followed by groups from the 55th Engineer Company (Medium Girder Bridge) at Fort Riley, Kansas, and the 362d Engineer Company (Combat Support Equipment) at Fort Bragg, North Carolina. After receiving an inbrief and welcome from key staff at the CEC, each group began working with the site's work force of soldiers and local nationals to execute specific tasks that would facilitate the issue of its unit sets.

The tasks for the liaison party from the 586th AFB Company included inventorying, uploading, and assuming responsibility for a unit set consisting of more than 1,400 pieces of equipment. Understanding the critical nature of their mission—establishing the return bridge crossing on the Sava River dividing Croatia from northern Bosnia, which was the main artery into theater for American forces—only served to highlight the importance of expediting the unit set issue. Time was a very precious commodity. Within 10 hours, the liaison party completed the equivalent of a change-of-command inventory and signed the unit set hand receipt.

The party from the 55th MGB Company concentrated its efforts on configuring and palletizing the multitude of components that comprise a medium girder bridge set. With the assistance of a team of 11 soldiers from the 82d Engineer Battalion, the company began work on the available components, while shortages identified during the component-level inventory completed 2 months earlier were shipped in from the 24th CEC in Livorno, Italy, and from CONUS depots. Work continued through January. Additional resources, including 19 more people, were used so that the inventory and hand-over of the bridge set could be completed before the main body of the company arrived from predeployment training at the Combined Maneuver Training Center (CMTC) at Hohenfels, Germany; this training was a USAREUR prerequisite for personnel bound for peacekeeping duty in the Balkans.



□ The 16th CEC provided accelerated driver training to deploying soldiers of the 362d Engineer Company.

Execution

At 2000 on 20 December, buses carrying the 586th AFB Company arrived in Zutendaal from their pre-deployment training at Hohenfels. The troops turned in their weapons and night-vision devices, while key leaders discussed the following day's activities. Two hours later, the buses departed for the Hengelhof, the Belgian recreation center that would serve as the unit's home for the next several days.

The following morning brought a flurry of activity as organizational logistics personnel from the 586th AFB Company descended upon their new equipment. Supply personnel updated inventories and sub-hand-receipted equipment, while maintainers performed preventive maintenance checks and services (PMCS) and exercised equipment. Despite 2 consecutive weeks of subfreezing temperatures, maintenance problems were minimal, thanks to a simple yet innovative plan that circumvented the harshest effects of an early winter: each morning, 16th CEC personnel started all pieces of equipment and allowed their engines to achieve operating temperature, which helped ensure that potential maintenance problems were identified early and resolved.

Communications specialists from both units worked through the night installing single-channel

ground and airborne radio system equipment into vehicles, while final preparations were completed for convoy operations scheduled for the following day. On the morning of 22 December, the 586th AFB Company arrived en masse to begin the first contingency deployment of a unit set in the history of Army war reserves.

After completing PMCS, the first of four march serials of the 586th AFB Company departed for the railhead at the Belgian National Training Center in nearby Leopoldsburg. With escort and route clearance provided by four host-nation military police companies, the serials closed on the staging area without incident 30 minutes later.

Rail loading commenced on 23 December, with the first train departing for Hungary on Christmas Eve. Operations continued through the Christmas holidays, and the last of four trains left the railhead late on 27 December. In total, the 16th CEC deployed 163 heavy vehicles and trailers and another 1,252 various pieces and types of equipment with the 586th AFB Company—a complete unit set fully capable of accomplishing the tasks awaiting the company in Bosnia.

Before the tracks could cool, the main body of the 362d CSE Company arrived on 10 January from Fort Bragg to begin inventorying its equipment. The largest of the three unit sets, the combat support equipment company set comprises more than 1,500 end items, nearly 160 of which are prime movers and associated rolling stock. In fact, due to the high density of heavy equipment present in the combat support equipment set, the issue was performed as a joint op-

eration with the 16th CEC's sister company, the 23rd CEC in Bettembourg, Luxembourg. A highly professional unit with exceptional leadership, the 362d CSE Company executed a textbook component-level inventory in just 21 hours—an accomplishment that inspired the CEG-E commander, Colonel Charles R. Golla, to comment to the soldiers, "That's why you wear the maroon beret!"

During this process, the 362d CSE Company received concurrent training from the 16th CEC on the heavier equipment it would receive for its deployment to Bosnia. An XVIII Airborne Corps unit, the 362d CSE Company trains with equipment tailored to its role as a light combat support equipment company. For Operation Joint Endeavor, the company's mission required a heavier equipment configuration, most notably 20-ton dump trucks instead of the 5-ton trucks issued to it at Fort Bragg.

Commencing on 12 January, the 16th CEC conducted 3 days of accelerated driver training on the C-5 transport-capable airfield that straddles the site. This training was capped with a hands-on test that would challenge even the most experienced operators. With deployment considerations influencing the nature and scope of the training, the CEC modeled the final test after similar examinations used to prepare military personnel for operating heavy emergency response equipment, where weeks of preparation training are often a necessity. In all, 41 soldiers received training on the equipment with which they would deploy into Bosnia; the fact that each operator successfully completed that level of training within the allotted 72 hours only confirmed the CEG-E



□ Host nation military police escorted convoys, directed traffic, and provided route security for serials moving to the railhead at Leopoldsburg.

commander's earlier assessment of the unit's quality.

When the 362d CSE Company departed for its predeployment training at Hohenfels on the morning of 17 January, the 55th MGB Company had already begun rail-loading operations at Leopoldsborg. After returning from CMTC on 14 January, the 55th Engineer Company had only 24 hours to inventory its complete unit set before convoying to the railhead staging area. While simultaneously conducting driver testing and preparing the 362d CSE Company for deployment, the 16th CEC focused its remaining resources on the task at hand. Working late into an unseasonably cold Sunday night in Belgium, the MGB company was inventoried, loaded, and staged in march serials for the following day's convoy.

The ability of the 16th CEC to concurrently perform such a vast array of missions (the company also was tasked to prepare and ship more than 700 additional end items for other Operation Joint Endeavor units) served as testimony to the high degree of competence and the uncommon work ethic of the Belgian work force. But the true test of their motivation and commitment to the success of the mission would come with the final stage of the deployment of the 362d CSE Company.

Delayed in Hohenfels and unable to meet its rail-loading schedule, the company's options were limited by circumstances beyond its control. With railcars en route from each of the four countries bordering Belgium, the costs associated with delaying or canceling the rail movement were prohibitive. Always prepared to face off against a new challenge, the 16th CEC attacked the situation with the same spirit and go-to-war mentality that earned the unit its motto, "We Fight Tonight!"

On 25 January, after it had been reorganized to accomplish the mission ahead, the 16th CEC began moving equipment to Leopoldsborg for rail operations scheduled to begin the next morning. By early afternoon, the entire 362d CSE Company set was staged at the railhead. Friday, 26 January, marked another first in the unit's history: before that day, the 16th CEC had never conducted rail-loading operations. A highly motivated and diverse crew—including mechanics, drivers, storage specialists, and even secretaries—arrived at Leopoldsborg to ensure that the 362d CSE Company would meet its deployment schedule.

Working throughout a day marked by constant snow and bitter winds that dropped the wind chill factor to -7 degrees Fahrenheit, the novice team finished loading the first train within 5 hours—faster than either of the two previous units had been loaded. As weather conditions grew worse, personnel continued to press on, and most of the second train was



□ Belgian local nationals of the 16th Combat Equipment Company helped to inventory unit sets with soldiers from the three units deployed from CONUS (above). At the Leopoldsborg railhead, a medium girder bridge pallet is moved into position for loading on a railcar (right).

loaded when dusk brought an end to the day's work. The following morning, the 362d CSE Company returned to finish rail loading its equipment, completing the task a full day ahead of schedule. Thanks in no small part to the efforts of the 16th CEC, the soldiers of the 362d CSE Company enjoyed their first break in nearly 2 months, earning valuable time to rest and an opportunity to watch Super Bowl XXX before departing on the final leg of their journey on 29 January.

Lessons Learned

During Operation Joint Endeavor, the 16th CEC issued three of the largest and most diverse unit sets in the Army war reserves. In accomplishing the contingency release of the unit sets, the CEC tested procedures in effect since the height of the cold war. For this operation, however, the equipment was destined to maintain a fragile peace in the Balkans rather than halt an onslaught through the Fulda Gap.

After deploying the 586th AFB Company, the CEC conducted an open-forum after-action review (AAR) to assess and critique the initial phase of the operation. Many tasks were well executed, but some areas called for improvement. Critical lessons learned were noted and emphasized with subsequent unit set issues; another AAR following the departure of the 55th MGB Company set the stage for a smooth, seemingly effortless issue with the 362d CSE Company.

Not surprisingly, the lessons learned were logistics oriented and consistent with conventional wisdom for any contingency operation—

- Anticipate logistics requirements early; this is



the key to maintaining flexibility as the mission evolves and matures.

- Establish a clear, focused understanding of the commander's intent and an equally clear delineation of specific responsibilities.

- Develop mission plans across several timelines to allow for those inevitable changes beyond the logistician's control.

- Accurately assess internal capabilities and available resources; this is vital to cross-leveling the work load and meeting mission timelines.

- Take every opportunity to complete mission requirements ahead of schedule; timelines will change, so be prepared to test surge capabilities.

- Maintain a positive, customer-oriented approach to every aspect of the mission. Customer satisfaction is the final and most enduring measure of success.

In retrospect, the true key to the success of the 16th CEC's mission was the human element behind the operation. Civilian personnel accustomed to a more structured work schedule responded remarkably well to unprogrammed overtime requirements, often working late into the night to ensure mission continuity. Through the holiday season, on weekends, and during some of the wettest, coldest weather imaginable, the local Belgian nationals displayed a work ethic admirable by any standard.

During the deployment phase of Operation Joint Endeavor, the work force of the 16th CEC repaired and serviced 272 wheeled vehicles, 229 trailers, 164 pieces of heavy engineer equipment, and 117 pieces of ground support equipment. With the deployment of the three CONUS units through Zutendaal, the

CEC issued 3,457 end items and more than 92,000 components. Performance of unit set inventories averaged just over 13 hours, at a rate of over 2,200 components per hour.

Through the combined efforts of the seven combat equipment companies within CEG-E, the group's contribution during the initial weeks of Operation Joint Endeavor was significant. Military and local nationals from Belgium, Italy, Luxembourg, and the Netherlands orchestrated the smooth transition of Army war reserve equipment to the American forces deploying into the Balkans.

On 29 January, the last trainload of equipment departed Leopoldsborg for Zupanja, Croatia, marking the successful completion of the first contingency test of Army war reserve stocks configured to unit sets. With Operation Joint Endeavor, the Army demonstrated its ability to use those stocks to project forces globally and quickly react to any crisis worldwide with the necessary troops and equipment. A vital component to the success of the Army's force projection strategy, Combat Equipment Group-Europe stands ready to answer the call—whatever the mission, wherever the destination. "We Fight Tonight!"

Captain Steven M. Leonard commands the 16th Combat Equipment Company, Combat Equipment Group-Europe. He graduated from the University of Idaho in Moscow and holds a master's degree from Murray State University in Kentucky. He is a distinguished graduate of the Ordnance Officer Advanced Course and a graduate of the Air Assault School.



The logistics package is small, tailor-

Being a Department of the Army civilian no longer means remaining safely on the home front supporting only continental United States (CONUS)-based military missions. As the Force XXI Army evolves, so does the Army's need for civilians and contractors who have the technical skills to use and maintain continuously evolving technology on the battlefield. In recent years, many Army Materiel Command (AMC) civilians have been deployed to Saudia Arabia, Somalia, Rwanda, Haiti, and Bosnia to support the missions, the soldiers, and the equipment. Lessons learned during Operations Desert Shield and Desert Storm highlighted the Army's need for a single element to centralize command and control of AMC personnel in a deployment theater. The result was the concept for the logistics support element (LSE).

As the LSE concept evolved during humanitarian operations in Florida following Hurricane Andrew and in Somalia for Operation Restore Hope, it became obvious that the deployed LSE needed a communications link with the support base. The LSE fly-away package was developed to meet the automation and communications requirements of the deployed LSE.

Linking CONUS to the Field

The LSE provides technical assistance to units in a theater of operations to enhance supply, maintenance, and readiness. It is tailored to the needs and desires of the supported command and bridges the strategic and tactical levels of logistics in the theater. Regardless of its location, it is the link between the industrial bases and the operational logistics units in the theater. It enables CONUS-based and theater logistics elements to work with tactical units as a seamless logistics system.

To accomplish its mission, the LSE needed a reliable, real-time communications and automation link between CONUS-based systems and the deployed forces. The AMC Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama, and the Army Communications-Electronics Command (CECOM) at Fort Monmouth, New Jersey, joined together to find a solution. Lessons learned from past deployments stressed the critical need for a deploy-

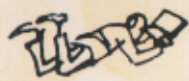
able communications package that was small, tailorable, interactive, self-sufficient, and easily deployed.

No less critical was the need for deployable automation support. A forward projection force of fewer people and resources requires real-time answers to logistics problems and the capability to obtain information immediately. The nature of the mission requires connectivity to be as effortless as possible and response time to be quick. In past operations, forward-deployed forces often were frustrated in their attempts to communicate with CONUS.

LOGSA and CECOM designed a basic package that combines both desktop and cellular telephone service, data transmission, and video capabilities with a computer network link-up for the forward area. The package simply "flies away" with the deploying element and equipment (thus the designation "LSE fly-away" package). The LSE fly-away package uses the latest off-the-shelf, integrated automation and communications equipment to send information anywhere in the world.

The first test of the LSE fly-away package concept occurred when the AMC LSE deployed to Haiti in support of Operation Uphold Democracy. For this operation, the fly-away package exceeded all expectations. For the first time, all AMC employees in the forward area had full-time access to a comprehensive communications system that was tailored to meet their needs. Using the fly-away package, the LSE tapped into various local area networks (LAN's) for direct connections to many logistics data bases worldwide, such as the logistics intelligence file, commodity command standard system, standard Army retail supply system, total asset visibility, and global transportation network. The CECOM host provided all network management for the users in Haiti. The fly-away package systems interfaced directly with the theater tactical networks and the CECOM host. LSE personnel placed mobile subscriber equipment and triservice tactical communications system calls from their desktop or cellular phones.

The CECOM electronic mail system connected with other LAN-based e-mail systems such as the Defense Logistics Agency's (DLA's) "e-z mail." This connection provided a gateway to hundreds of other valuable information sources. As a collateral benefit,



LSE Fly-Away Package

by Joyce Rudd

support element's deployable communications and automation capable, interactive, self-sufficient, and adaptable to any scenario.

XVIII Airborne Corps units also were able to connect with CONUS-based automation resources.

The communications equipment in the package enables the LSE to support deployed soldiers and civilians with faster, superior quality, multiple-location connections and to use voice and data media simultaneously. The fly-away package provides real-time access to various logistics data bases and remotely based support personnel. This real-time access greatly simplifies many tasks for LSE personnel. For example—

- The status of stocks is immediately obtainable from AMC major subordinate commands, DLA supply centers, or other service managers. High-priority requisitions can be called directly into the wholesale system, and their status obtained within 8 hours.
- Worldwide retail asset visibility is at the user's fingertips. Cross-leveling stocks within the theater is simplified by this consolidated visibility.
- Materiel shipment information expedites tracing shipments in transit.
- Statistical data from the theater are accessible for reports and analyses.
- Theater-wide visibility of requisition processing helps identify systemic problems.
- Access to LAN and CD-ROM data bases provides logistics assistance representatives with information resources to solve technical problems.

Ma Bell on Wheels

Lessons learned in the deployment to Haiti for Operation Uphold Democracy suggested the need for modifications and improvements to the basic fly-away package. The improved package can be deployed in less than 2 hours and can be operational in less than 1 hour after arrival in the forward area. The package is adaptable to any scenario. In a modular configuration, it can be set up in a tent, a warehouse, or on the top floor of a building. It also can be delivered prepackaged and mounted in a modified commercial pop-up trailer or in a specially designed high-mobility, multipurpose, wheeled vehicle (HMMWV) S250 shelter. The internal configuration of the pop-up trailer provides secure space for equipment storage and a small operations center for network personnel. Once locked down, the trailer can

be airlifted easily; when off-loaded, it is immediately mobile. The HMMWV configuration comes with a power generator and easily moves from one location to another. In either configuration, the LSE fly-away package is a welcome sight for deployed personnel, who often refer to it as "Ma Bell on wheels."

The logistics community is challenged constantly to reduce the cost and "footprint" of logistics support and infrastructure without reducing readiness and to trim the duration and cost of the research, development, and analysis cycle to increase logistics capabilities and efficiency. The fly-away package meets both of those challenges.

Although the fly-away package was designed to meet an evolving LSE mission, it also can meet the Force XXI challenge for reengineering the Army's functional processes. The Force XXI architecture calls for paradigm-bursting solutions, methods, and processes that effectively "change the way we do business." This architecture opens the door for experimentation and innovation and paves the way for development of "field fixes for field needs" such as the LSE fly-away package.

Information is useless unless it can be accessed, used, and shared in any scenario, whether it is an in-house Army exercise, a joint or multinational endeavor, or a humanitarian relief effort involving local, state, Federal, or international civilian agencies. Effective information management is critical to the success of Force XXI initiatives. The fly-away package meets the communications and automation needs of the LSE and supported forward-area activities as nothing else has. It has answered the 21st century requirement for reliable communications and information management technology that can go anywhere anytime. With the fly-away package, the AMC LSE can support the needs of deployed soldiers and civilians, both now and in the 21st century. **ALOG**

Joyce Rudd is a logistics management specialist for the Army's logistics assistance program at the AMC Logistics Support Activity, Redstone Arsenal, Alabama. She is a graduate of the Army Materiel Command School of Engineering and Logistics in Texarkana, Texas, and previously was a supply management representative at Fort Lewis, Washington.

Occupational Health at AM

by Lieutenant Colonel Benjamin G. Withers, Colo

The Army Materiel Command (AMC) and the Army Medical Co to improve occupational he

Why should logisticians be interested in a partnership involving occupational health (OH)? There are three basic reasons. First, the people who work with and for us are frequently exposed to occupational and environmental health hazards, ranging from poor air quality to radiation to heavy metals. While such hazards are more often found in heavy industrial operations at depots or ammunition plants, they also are present in installation logistics operations and in combat service support operations in tactical units. Just consider what occurs in motor pools, maintenance shops, arms rooms, and paint booths, where soldiers and Army civilians can be exposed to solvents, heavy metals, and physical hazards. Our job is to recognize, assess, and mitigate these risks.

Second, Occupational Safety and Health Administration (OSHA) standards have become more stringent, demanding more of our time and attention. And third, civilian worker compensation costs have risen steadily for years. The total Army Materiel Command (AMC) workers' compensation bill for fiscal year (FY) 1995 was \$58.9 million. It is clear that all of us should pay attention to occupational health.

The real OH challenge lies in the fact that correcting potentially dangerous situations requires additional funds. In austere times, it is difficult to make expenditures—even economically justifiable ones—that are designed to prevent problems that may not develop for years.

The occupational health partnership program (OHPP) was established by a 1992 agreement between AMC and the Army Health Services Command (HSC) [now known as the Army Medical Command (MEDCOM)] to meet the challenge of improving OH services at AMC installations. Through "the partnership," commanders of AMC Government-owned, Government-operated (GOGO) installations have gained a role in determining the OH services to be

provided but have to share the costs. [Commanders of Government-owned, contractor-operated (GOCO) installations already controlled health care through the contracting process.]

Logisticians should be familiar with the history, goals, tenets, status, and future of the OHPP so they will be better able to use the partnership to manage OH services and ultimately control costs at AMC GOGO installations.

Creating an OH Partnership

Traditionally, the Army Medical Department provided or managed all medical support at Army GOGO installations using its own appropriated resources. While primary care requirements varied at AMC installations, the principal medical support mission was usually OH, which includes industrial hygiene (monitoring the workplace for potential health hazards), preplacement examinations of personnel, medical surveillance (limited physical evaluations of personnel based on potential exposure), periodic physical evaluations, and treatment of occupational injuries and illnesses.

By 1992, several factors had made the OH mission increasingly difficult for medical commanders to accomplish. These included inadequate funding, declining populations at installations (resulting in higher per capita costs), heightened expectations of medical care by beneficiaries, and proliferation of regulations promulgated by OSHA, the Department of Defense (DOD), and the Department of the Army (DA). By 1991, OH services at AMC installations were strained to the breaking point.

Caught between waxing regulation and compensation costs and waning support, commanders of AMC GOGO installations looked for solutions and were willing to pay reasonable costs for them. Some had even hired their own industrial hygienists, independ-

C Installations

nel Eric T. Evenson, and Brigadier General Joseph W. Arbuckle

Command have formed a partnership health services for AMC's work force.

ent of the supporting medical clinic, thereby creating fragmented, inefficient industrial hygiene programs.

In December 1991, General William G.T. Tuttle, the AMC commander, and Major General Alcide LaNoue, the HSC commander, met to discuss the situation and search for a solution. The two commanders signed a memorandum of agreement (MOA) creating the OHPP in January 1992.

The Partnership Program

The OHPP describes how AMC and MEDCOM will share control, responsibility, and costs for OH services at AMC GOGO installations. Its stated purpose is to improve OH support to AMC. The partnership sets three major goals—

- Protect the health of the military and civilian work force.
- Ensure compliance with OSHA and other applicable standards.
- Manage workers' compensation costs.

The AMC-MEDCOM agreement has four basic tenets—

- MEDCOM retains control of medical missions and personnel at AMC GOGO installations. AMC installation commanders may not hire and manage their own separate medical assets.
- AMC, in partnership with MEDCOM, determines the OH services (personnel or equipment) required at each GOGO installation and pays for those services above an established baseline. If the AMC installation commander wants additional medical resources, he or she transfers funds to the supporting Army hospital commander, who obtains and manages the resources. This concept of "enhancement" is the heart of the OHPP and was a significant departure from the historical paradigm under which MEDCOM paid all costs.
- Industrial hygiene remains a medical mission



under the control of the installation director of health services. This arrangement prevents AMC installation commanders from hiring industrial hygienists to do workplace surveys, but allows them to employ hygienists in support of the acquisition mission.

- MEDCOM employs coordinated care program principles, including negotiated agreements with local health care providers, in providing ambulatory care at AMC installations. MEDCOM may provide required support through arrangements with off-post health care providers.

The original MOA directed phased implementation

of the partnership over 3 years. This occurred during FY's 1992 through 1994 with a substantial commitment of human and fiscal resources by both major Army commands (MACOM's). FY 1992 was used to evaluate existing OH programs, develop indicators for measuring OH program performance, determine funding levels, and market the partnership concept within both MACOM's. In actuality, these processes continued beyond FY 1992.

Multidisciplinary teams, including OH and management experts, began visiting AMC installations to assess the existing OH programs. They provided both medical and installation commanders with current OH program assessments and recommendations for program enhancements. To manage quality and ensure that resources were well spent, the AMC surgeon and management analysts from the AMC Management Engineering Activity developed approximately 30 program indicators. Using outcome measures, the indicators evaluate clinic utilization, worker compensation costs, and health hazard monitoring programs.

The partnership was field tested during FY 1993. Four AMC installations—Corpus Christi Army Depot, Texas; Red River Army Depot, Texas; McAlester Army Ammunition Plant, Oklahoma; and Pine Bluff Arsenal, Arkansas—were selected as prototype sites. All four installations are within the Brooke Army Medical Center Health Service Region.

The program was expanded during FY 1994 using information gained earlier. OH program evaluation teams visited most of the 29 AMC GOGO installations to provide input and facilitate implementation. The AMC Management Engineering Activity's facilitating role ended; its data collection and reporting responsibilities were passed to the Army Center for Health Promotion and Preventive Medicine (formerly the Army Environmental Hygiene Agency).

Program development continued beyond the envisioned 3-year period. During FY 1995, the AMC surgeon revised the indicator system to enhance the collectibility, accuracy, and usefulness of OH program performance data to installation commanders. The new system took effect in FY 1996, with data collection and reporting responsibilities passing to the AMC surgeon. In August 1995, a new partnership MOA was signed by the AMC and MEDCOM commanders. The updated MOA incorporated the new status of MEDCOM and an agreement to use FY 1993 medical support levels as MEDCOM's baseline resource obligation unless another mutually agreeable level is negotiated.

Current Status of the Partnership

The purpose of the partnership was worthy, but execution has been slow and uneven. Some AMC installation commanders are actively managing their OH programs, resulting in significant savings and risk avoidance. Their programs are characterized by good data collection and utilization, active Safety and Occupational Health Advisory Councils (SOHAC's) and Federal Employee Compensation Act (FECA) committees, and strong command support. Other installations, however, are deriving little benefit from the OHPP. Indeed, both the OHPP and OH services at many AMC GOGO installations can still be improved. Several areas deserve the continued attention of both commands—

- *Indicators.* The indicators are simple and readily collectible. Commanders who review them will find them useful in managing their OH programs.

- *Medical officer rating chain.* To foster teamwork and loyalty, the AMC installation commander should be in the rating chain of the supporting clinic chief. MEDCOM policy supports this notion; installation commanders should insist on it.

- *Medical officer training.* MEDCOM and AMC should make every effort to put well-trained and motivated physicians, whether military or civilian, at AMC installations as OH program managers. Strong leadership in this position is of paramount importance.

- *Agreement on support.* AMC installation commanders and supporting Army hospital commanders must periodically update their interservice support agreements (ISA's) so they remain current and meaningful. At GOGO chemical surety installations, the tenant chemical activity commander is a uniquely large stakeholder who may desire to participate in the partnership. He or she may either do nothing (if satisfied with current support), enter into the existing ISA as a third signatory (the preferred solution), or write a separate ISA with the supporting Army hospital commander. In any case, the chemical activity commander should discuss the matter with the installation commander.

At the MACOM level, AMC and MEDCOM should develop a mechanism to address the greater issue of changing mission and support requirements over time. The concept of using FY 1993 as MEDCOM's baseline obligation was already unsatisfactory in FY 1993 at many installations and gets further out of date with the passage of time. Nonetheless, installation commanders must work within this parameter for now. MEDCOM is currently studying

objective allocation of OH resources by capitation.

- *Personnel enhancements.* During FY 1995, personnel ceilings imposed by DOD on MEDCOM stalled the efforts of many AMC installation commanders to enhance their OH programs with civil servants. In an era of smaller Government, both commands should consider contracting for future personnel enhancements.

- *Primary care.* While OH is their primary concern, AMC installation commanders naturally are concerned with primary care for eligible beneficiaries, which is often a more politically sensitive and pressing issue. At remote installations, where demand for primary care is usually increased, MEDCOM is hard pressed to deliver what is expected. There is no easy solution, but MEDCOM hopes that TRICARE, the new DOD health care program, will help. Guard and reserve support—especially dental—may be obtainable and helpful.

Future Directions

The OHPP is not status quo. It is an evolving, dynamic program intended to meet the OH needs of AMC. The future of the OHPP depends on the continued commitment of each AMC GOGO installation commander and the supporting Army hospital commander. The program must be responsive to changing fiscal resources, missions, and OH regulations.

Increased funding of the Army's OH program would reduce the need for AMC to spend nonmedical operating dollars for OH care. However, shared funding of OH is a continuing reality. Another solution would be to distribute all OH dollars directly to AMC, which then could purchase OH services. This would ease friction between the two commands but would require substantial contract management by AMC and is generally unpopular.

If the OHPP is unsuccessful in enabling installation commanders to control their OH programs, reduce their FECA costs, and mitigate their noncompliance risks, then alternatives to the present program must be sought. Contracting of OH services is one option. Virtually all Army ammunition plants are GOCO installations with contracted medical services. Under contracting, a medical services statement of work would detail the OH services the contractor must provide, and medical overhead would simply be another cost of doing business for AMC. Admittedly, this system is disadvantageous for installations under the Defense business operations fund because all costs, including medical, go into customer rates. Another alternative would be for the OHPP to be incorporated

into a proposed DOD occupational health program.

The past 4 years have seen many changes in the planning and delivery of OH services at AMC installations. The significant problems that loomed in 1991 and led to the development of the OHPP have been addressed. While problems persist at some locations, most installation commanders, managers, and workers are satisfied with their OH support.

Admittedly, the partnership has not delivered all that was intended—yet. However, it has established a workable mechanism for improving OH services at AMC installations. Installation commanders are now empowered to manage their local OH programs. If they are already satisfied, they can leave things alone; if not, they can make a change. In either case, the choice is appropriately theirs, for it is they who are responsible for the welfare of their personnel and the competitiveness of their business posture.

The OHPP must be allowed time to mature. Working through the partnership, AMC and MEDCOM leaders can accomplish much more. The partnership's success could herald a new way of resourcing and managing OH care, which could serve as a model for future Army and DOD OH programs.

Lieutenant Colonel Benjamin G. Withers is Chief of Occupational Medicine, Army Materiel Command. He formerly served as the Chief of Preventive Medicine, 97th General Hospital, Frankfurt, Germany. He holds a B.S. degree from the United States Military Academy and an M.D. degree from the Uniformed Services University of the Health Sciences. He is a graduate of the Army Command and General Staff College.

Colonel Eric T. Evenson is the Command Surgeon, Army Materiel Command. He formerly served as the Occupational Health Consultant to The Surgeon General, Department of the Army. He holds a B.A. degree from Luther College, Decorah, Iowa, and an M.D. degree from the Mayo Medical School, Rochester, Minnesota.

Brigadier General Joseph W. Arbuckle is Deputy Chief of Staff for Ammunition, Army Materiel Command. He formerly served as the commander of Letterkenny Army Depot, Pennsylvania. He holds a B.A. degree from Western State College of Colorado at Gunnison and an M.S. degree from the University of Southern California. He is also a graduate of the Army War College.

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'You Gonna Be a Greeter?'



Tell a fellow soldier that you, a quartermaster officer, are going to work for Wal★Mart™ for the next year in the Department of Defense training with industry program, and certain questions are sure to follow. "Oh, are you gonna be a greeter? Aren't you a little young for that?" And, "What on earth can Wal★Mart teach the Army about logistics?" Before I answer that last question, let me give you a little information on how the largest retailer in the world operates.

Over 2,000 Retail Stores

Wal★Mart employs over 600,000 "associates" (slightly more than the current Army strength). The logistics arm of the company is the 30,000-associate Division 7 in Bentonville, Arkansas. This small part of the company (less than 6 percent of the total employees) is nothing short of miraculous.

Division 7 manages the warehousing and transporting of everything the company sells in over 2,000 Wal★Mart and Sam's Club™ stores in the United States, Canada, Mexico, and Hong Kong. In 1995,

that was nearly 2 billion cases of freight worth over \$85 billion. Wal★Mart distributes the freight through a network of 20 regional distribution centers (DC's) across the country.

Each DC employs nearly 2,000 associates and is organized like a small, self-contained battalion. Separate functional elements provide transportation, maintenance, supply, training, data processing, and personnel administration services. There is even a dining facility at each DC.

A visit to the maintenance section of a DC is a lot like a visit to a company maintenance shop. Wal★Mart's maintenance program, like the Army's, includes a well-organized, automated "prescribed load list" and scheduled preventive maintenance checks and services.

Each DC accomplishes an incredible amount of work every day. A single DC can unload and load over 200 tractor-trailers with merchandise daily. A sophisticated transportation control system in Bentonville, Arkansas, routes tractor-trailers of merchandise from vendors to the regional DC's. A dis-

by Captain Vernon L. Beatty, Jr.



Supply chain management is moving the right items to the right customer at the right time by the most efficient means. The author talks about his experience in the training with industry program and Wal★Mart's supply methods.

patch office collocated with each DC controls Wal★Mart's private fleet of trucks that transport the merchandise from the DC's to the retail stores. On a big day in the fall season, the DC network may process 8 million cases of freight.

Point-of-Sale Distribution Technology

Technology plays a significant role in Wal★Mart's success. When you buy a tube of toothpaste from the local Wal★Mart store, its bar code is scanned at the checkout counter. A Wal★Mart-owned and -operated satellite communications network passes the scanned information to the Bentonville data base. The system subtracts your purchase from the total inventory in the supply chain and automatically directs both store replenishment and supplier purchase transactions. The following day, a bar-coded label printed at the DC tells the order clerk to pull that product from the storage bin and place it on the conveyor. A bar-code reader automatically routes the product along the conveyor to a truck that will deliver it to the appropriate store. The toothpaste you buy at

4 p.m. today will be restocked in the store by 10 p.m. tomorrow. This point-of-sale (POS) system is state-of-the-art distribution technology.

The POS system enables Wal★Mart to plan strategically and execute operationally. Information from the POS system alerts buyers (counterparts to our Acquisition Corps) when to adjust distribution plans. For example, each store can monitor the actual sale of soccer balls. If they begin to sell in a particular region before the soccer season, perhaps because of favorable weather or interest inspired by the World Cup, the Wal★Mart buyer can react quickly by moving up the planned distribution schedule. Managers at the DC level can estimate freight flow and adjust manpower forecasts to ensure the best use of available associates.

Wal★Mart and the Army

Now let's answer the question, "What on earth can Wal★Mart teach the Army about logistics?" Force XXI has fostered an acute awareness of the value of distributed information technology on the modern

battlefield. Integral to this information network is a system that will provide logisticians the timely status of supplies needed to support the battle and automate resupply of critical items. Such a system will provide logisticians along the entire supply chain with an onhand inventory and projected demand for supplies within their areas of responsibility.

What if, when the supply company of a forward support battalion issues 105-millimeter high-explosive rounds to an artillery battalion, this information is recorded digitally and immediately sent up a supply chain that stretches halfway around the globe? Would that kind of information be useful to the logistician trying to replenish the stocks of 105-millimeter high-explosive rounds in a theater of operations? You bet it would! Just think what total and instantaneous asset visibility would be worth to the combat forces!

Immediate asset visibility could increase exponentially the accuracy and quickness of resupply to combat forces. For example, with a laptop computer, a support operations officer in a main support battalion could monitor the number of artillery rounds on hand in each forward support battalion and watch those numbers decrease with every issue to the artillery batteries. Likewise, the manager of the ammunition plant supplying the rounds would be able to watch on his desktop computer as forecasted requirements for 105-millimeter high-explosive rounds were adjusted based on actual consumption.

With consumption data at their fingertips, suppliers would be able to schedule production runs to meet the anticipated demand of each type of supply used in the theater. This would prevent out-of-stock situations involving such important commodities as ammunition, repair parts, and medical supplies.

Imagine a system tied to the battlefield distribution system (being developed by the Combat Service Support Battle Lab at Fort Lee, Virginia) that could provide up-to-the-minute visibility of stocks of whole blood on the battlefield. As bar-coded units of blood were used, the onhand status and projected requirements for blood would be transmitted automatically by communications link back up the supply channel. Shortages would be displayed graphically on a geographic grid to show where replenishment was needed most. Resupply instructions would be directed instantaneously, again by communications link, to the supporting supply unit. Considering the perishability of blood and many other medical supplies, rapid and exact replenishment would conserve and accurately distribute life-saving supplies.

Reducing 'Big Pile Logistics'

All too often, the quantity of supplies on hand is

driven as much by uncertainty about the prospects for resupply as it is by the science of requirements planning. When a commander is unable to see what is coming through the supply pipeline, his natural reaction is to keep more supplies on hand. The "big pile logistics" solution, although effective in some situations, can bog down logistics support channels with mountains of stocks and deprive other units in the theater of badly needed supplies.

Ask yourself, as a professional logistician, "How much could I streamline supply stocks if I knew with certainty the quantity on hand in the supported units and how much I will receive in the next 24, 48, 72, or 96 hours?" With reliable information on the status of supplies inbound from the sustaining base and in supported units, stocks could be based on requirements alone. Logisticians wouldn't need to keep additional stocks on hand to hedge against the uncertainty of resupply. Arguably, no other organization in the world has a better framework upon which to build a large-scale automated logistics response system than Wal★Mart.

'Getting Out of the Box'

In the Army we often hear the expression, "Get out of the box." That expression refers to the need to break the "that's the way we've always done it" mindset. Well, that is exactly what training with industry is all about. It gives career logisticians an opportunity to become acquainted with a new paradigm—one of profit and loss versus budgets and stewardship. They may discover that the most cost-efficient methods for industry also could be the most cost-efficient for the Army.

The Army could learn a lot from Wal★Mart. Supply chain management is moving the right items to the right customer at the right time by the most efficient means. No one does that better than Wal★Mart. Whether it is compact disk players or global positioning devices, the logistics concepts remain constant. Although the worlds of military and corporate America are vastly different, the logisticians from each operate on a common distribution management playing field.

ALOG

Captain Vernon L. Beatty, Jr., is aide-de-camp to the commander, Defense Supply Center, Columbus, Ohio. A quartermaster officer, he holds a bachelor of science degree in transportation and logistics management from Ohio State University in Columbus.

An Extra Christmas Present

by Lieutenant Colonel Kenneth C. Keener, USAR

Reservists from the United States
augment active-duty logisticians in Germany
to support Operation Joint Endeavor.



"They were a blessing." Appropriate words for the holiday season, certainly, but Colonel Larry Harmon wasn't talking about holiday events, even though it was Christmas Day. Instead, he was praising the reservists from the 21st Theater Army Area Command (TAACOM) Continental United States (CONUS) Augmentation (AUG) at Indianapolis, Indiana. They were among the first reservists mobilized by President Clinton's Presidential selected reserve callup (PSRC) in support of peacekeeping operations in Bosnia, and they arrived in Germany on Christmas Day 1995—just in time to help an overburdened 21st TAACOM.

Though most of the reservists mobilized for Operation Joint Endeavor served in familiar U.S. Army Reserve (USAR) configurations—in Reserve units or as individual mobilization augmentees—this PSRC featured the first implementation of CONUS augmentation. Three months after the mobilization, Army officials were able to call the use of CONUS AUG a success. Though originally regarded as a money-saving initiative, the CONUS AUG program proved itself operationally as well.

CONUS AUG to the Rescue

Colonel Harmon, the 21st TAACOM's assistant chief of staff for security, plans, and operations in Kaiserslautern, Germany, runs the command's logistics operations center (LOC). Looking back at the end of 1995, when the deployment of forces into Bosnia began and the 21st TAACOM's work load began to grow, he recalled, "The officers and NCO's [noncommissioned officers] operating the LOC were exhausted . . . there were tasks we could not perform because we didn't have enough people. When the CONUS AUG came in on Christmas Day, we shook hands, and then they immediately began helping us." The TAACOM commander, Major General James M. Wright, observed of the reservists' arrival: "They displayed the same attitude that my soldiers here displayed: 'Let's get on with the mission. Let's go down there and get the job done.'"

Reservists are accustomed to seeing Germany. Most serve 2- to 3-week training tours there with

their active component counterparts. Even during Operation Joint Endeavor, some reservists arrived in Germany for customary oversea deployment training. But the soldiers called up under the PSRC weren't in Germany for training. They were plugged in as full players in Operation Joint Endeavor.

By late March 1996, approximately 3,200 Army reservists had deployed to Europe under the PSRC. About 900 reservists moved to Bosnia, Croatia, and Hungary to serve with active component forces, while 2,300 remained in Germany. The job specialties of these soldiers reflected the Reserve support that was most sorely needed. Military police were strongly represented, with 664 individuals, followed by civil affairs and psychological operations, logistics, medical, adjutant general and postal, military intelligence, finance, and legal specialties.

Birth of CONUS AUG

When soldiers in the very first CONUS AUG unit, the 21st TAACOM, put on their new patches in 1986, they became the first reservists to wear an active-duty patch. The CONUS AUG concept was born because of the disparity found in the required ("REQ") and authorized ("AUTH") columns on the 21st TAACOM's modification table of organization and equipment. Downsizing pressure permitted the TAACOM to fund only its authorized duty assignments—those positions deemed sufficient for performing peacetime functions. The required slots—necessary for achieving full operational capacity—sat empty. It was those vacant slots (over 200) that were filled by the 21st TAACOM CONUS AUG; they were bona fide active-component assignments, filled by reservists. CONUS AUG was "a perfect solution," said Colonel Richard Sackett, senior USAR advisor for the 21st TAACOM. "It's a cost-effective method of rounding out a unit. The unit can call up as much [help] as it needs."

According to Sackett, the CONUS AUG concept saw an early application in Operations Desert Shield and Desert Storm, when the 21st TAACOM was mobilized to help constitute the 22d Support Command, which was commanded by Lieutenant General

William G. Pagonis. After the Persian Gulf War, General Pagonis assumed command of the 21st TAACOM, where he was pleased to find himself re-affiliated with the same team of reservists he had known in Southwest Asia. Though the AUG had been in place for several years, "that's when the relationship was really cemented, when General Pagonis came on board after the desert," said Lieutenant Colonel Keith King, the assistant chief of staff for the 21st TAACOM CONUS AUG.

Since then, the concept has expanded to include four additional CONUS augmentations. Two deployed with the 21st TAACOM CONUS AUG in response to the current PSRC, while two others would deploy to Korea if mobilized. The 3d COSCOM CONUS AUG was born in 1993, along with a subordinate unit, the 19th Materiel Management Center (MMC) CONUS AUG; these were the units that deployed with the 21st TAACOM CONUS AUG. Both units, and the units slotted for Korea, evolved from complete USAR units, the 103d COSCOM and the 56th MMC. According to Major Mike DeGroat, the senior USAR advisor at the 3d Corps Support Command (COSCOM), "When downsizing came, USARC [U.S. Army Reserve Command] proposed making four augmentation units out of those. It's been a success story."

Getting Down to Work

The success of the CONUS AUG concept may be measured by the speed and efficiency with which the AUG soldiers manned the jobs for which they had trained. The first Operation Joint Endeavor PSRC soldiers to step off the plane in Germany were from the three mobilized CONUS AUG units: 95 from the 21st TAACOM, 76 from the 3d COSCOM, and 116 from the 19th MMC.

The 3d COSCOM augmentees demonstrated their value immediately, moving into offices and positions that had been vacated 1 to 3 weeks earlier when active-duty COSCOM soldiers deployed to Kaposvar and Taszar, Hungary. Reservists filled the empty seats in the 3d COSCOM, oriented themselves quickly since they had worked closely with their active-duty counterparts throughout the year, and in effect "became" the 3d COSCOM, from the commander on down. With the active-component commanding general deployed as the commander of the 21st TAACOM Forward, the AUG commanding general, Brigadier General Thomas J. Bruner, assumed command of the 3d COSCOM.

A True 'Joint Endeavor'

Organizations heavily engaged in Operation Joint Endeavor experienced an extra source of strain be-

cause their customary support missions continued while they also supported the deployment into Bosnia. According to DeGroat, the augmented 3d COSCOM was able to conduct business as usual. "We're still supporting an exercise for the 1st Infantry Division and the Nijmegen marches in the Netherlands. A lot of the COSCOM maintenance assets went forward, but we're still keeping maintenance up, still keeping the unit capable of meeting COSCOM standards."

Harmon was equally impressed with the performance of the CONUS AUG units. Speaking of the 21st TAACOM LOC, he noted, "We were running 24 hours a day. Yet because of force structure ceilings, we don't have the requisite personnel assets to run 24 hours a day. Once the CONUS AUG started to work here, it allowed us to go from a single shift [working] until we were exhausted, to three co-equal shifts, equivalent in talent."

General Wright was pleased with the quality of the reservists as well. "I couldn't be more pleased with the performance of the folks who came in here. Dave Kaucke is a great American who did a tremendous job for me. I just turned over my whole LOG/OPS Center to him. He's been running it ever since January 2d, when I went down to Hungary."

"Dave" Kaucke is Brigadier General David J. Kaucke, the commanding general of the 21st TAACOM CONUS AUG, who became deputy commanding general for operations for the 21st TAACOM. He asserted, "Bottom line: 24 hours after arrival, no one could differentiate a CONUS AUG soldier from an AC [active component] soldier, either by uniform or competence."

Another powerful application of the AUG concept occurred in the performance of split-based operations, in which an organization must operate and staff two active headquarters simultaneously. Harmon believes, "If we did not have the CONUS AUG, we would not be able to fulfill our commitments in split-based operations. Therefore, the entire operation would be in jeopardy."

Training: Key to Success

Much of the success of the CONUS AUG concept derives from what takes place in CONUS and unit overseas deployment training; this training sets the CONUS AUG apart from other Reserve units. "The CONUS AUG is available for immediate deployment without additional training because of its closely integrated operational and command structure," said General Kaucke. General Wright observed, "When they're not training with us, they're training against the METL [mission-essential task list] that I have prescribed as the CG, 21st TAACOM." Adds King,

"Once you've done your 2 weeks as an individual mobilization augmentee, you can be Mr. Civilian the rest of the year. But with us [the 21st TAACOM CONUS AUG], you're working on plans involving the active unit. The things we do all year are in concert with what they do here [in Germany]."

The close and continuous training paid off, according to Harmon. "We were keeping them informed as the operation was beginning to unfold. Consequently, the break-in period was hours rather than days."

An unexpected advantage to the CONUS AUG concept is continuity. King noted, "The AC soldiers rotate continually. The continuity and history stay in the CONUS AUG. We've got people who have been coming over here for the last 6 or 7 years."

Mobilization Problems

Of course, any new system is bound to have some bugs. One positive outcome of the PSRC has been the opportunity to take a look at the way components of the force actually perform. Relatively few problems surfaced with the Reserve units. Instead, it was the mobilization process that seemed to need some adjustments.

Command Sergeant Major Lloyd Janovec of the 3d COSCOM CONUS AUG explained that the augmentees lost about a week at Fort Dix, New Jersey, when they underwent training that they had already completed back in Des Moines, Iowa. "In the AUG, we already have to meet all of the training standards of USAREUR [U.S. Army, Europe]. But in the mobilization process, our concept hasn't filtered down, so that they don't know how we fit in. We keep running into roadblocks."

Harmon saw the same problems from his perspective. The CONUS AUG "actually wanted to come over here before the PSRC. We had 3 1/2 weeks of high adventure before [they] arrived. We were rooting for them to get here. We were on our third wind. [Our] counterparts must be accessible to us. The PSRC must either be called up very early in the planning process, or we must have some system so that they can get to us even before the PSRC."

General Kaucke believes that "the CONUS AUG should deploy based on the requirements of the 21st [TAACOM] commander and not be required to wait for the PSRC."

The response gap for mobilization represents a concern about the PSRC process that, for some observers, goes beyond the CONUS AUG. In one example of the impact of this problem, a partial Reserve unit on oversea deployment training in Germany struggled to perform critical missions until PSRC-deployed units could get in country to relieve the

burden with their more robust resources.

Solving the Mobilization Gap

Also providing critical assistance to plug the mobilization gap were 7th Army Reserve Command (ARCOM) units. The 330th Rear Tactical Operations Center and the 317th Rear Area Operations Command, as well as seven-soldier movement control teams, were part of the "all ready, already here" forces stationed in Europe. According to Sackett, "This is the ultimate in Reserve response. They were here and involved from the start, as volunteers, in drill status, annual training, and eventually PSRC. They were trained and in the starting blocks, ready to deploy when the PSRC was signed."

European-based, highly responsive cells like these 7th ARCOM units may be the prototype of what the Army needs to bridge the mobilization gap. According to Sackett, even before the PSRC, plans were unfolding for establishing a forward-deployed element of the 21st TAACOM CONUS AUG staffed by reservists and based in Germany.

Mobilization concerns notwithstanding, since reservists have arrived in Germany, rough edges have been few and praise high. Harmon believes, "The concept is very appropriate . . . It will be mandatory that we will have those kinds of relationships with a CONUS AUG." General Kaucke agrees: "The concept should be expanded to other units such as the 37th Transportation Command or the 1st TMCA [Theater Movement Control Agency], where like associations would provide an immediate plus-up of mission capabilities."

General Wright, however, is not so anxious to tamper with how the AUG system now works. "Could I have used some help a little earlier? Yes. Was it a war stopper that I didn't have it? No. Did they arrive on time? Yes. If your position is that we should have brought these folks forward in anticipation of an agreement [at Dayton], I don't necessarily agree with that. To commit forces from the reserve component is very critical. The real story is that we did what we organized and trained to do. That's the strength of the way we do business. So we shouldn't be surprised that it worked. It's not a surprise to me. Being a soldier is an affair of the heart, and they [the reservists] were really a Christmas present for us."

Lieutenant Colonel Kenneth C. Keener, USAR, serves as a public affairs officer in the U.S. Army Reserve's individual mobilization augmentee program. He wrote this article while assigned to the 21st Theater Army Area Command in Kaiserslautern, Germany. He resides in Cincinnati, Ohio.

Moving Live Ammo

For many soldiers of the 70th Ordnance Battalion, the exercise was their first opportunity to participate in a live ammunition transport operation.

Preparing a unit for its wartime mission is the top priority of any military commander. Military units train the way they intend to fight. As experience clearly shows, there is a direct correlation between realistic training and success on the battlefield. However, realistic wartime training exercises are few and far between, and soldiers tend to lose their fighting edge if they don't train in real-life, combat-like situations.

Such was the case for the soldiers of the 70th Ordnance Battalion, 11th Air Defense Artillery Brigade, Fort Bliss, Texas. It had been several years since they had actually commanded and controlled ammunition operations. So when Lieutenant Colonel John Hall took command of the battalion, he decided to remedy the situation immediately.

Colonel Hall understood the value of realistic training. He also knew that opportunities to move large quantities of live ammunition were rare. Finding an opportunity for his battalion headquarters to train for its wartime mission would be a challenge.

Battalion Organization

The 70th Ordnance Battalion has three companies under its command and control during peacetime. They are the 233d Heavy Truck, 286th Signal, and 699th Maintenance Companies. In wartime, these companies will fall under the command and control of other headquarters units. The 70th Ordnance

Battalion Headquarters will deploy to a theater of operations to integrate into its operations ammunition companies that are not assigned to it in peacetime. The companies that the battalion will receive are part of the war trace unit program. This program identifies the units that will be under the command and control of each battalion headquarters in the event of war.

Opportunity Knocks

The solution to Colonel Hall's training dilemma was Exercise Golden Cargo '96. This annual exercise started in 1991 as a result of the need to move live ammunition from storage sites that were closing or reducing their missions according to recommendations of the Defense Base Realignment and Closure (BRAC) Commissions. Participation in Golden Cargo has grown steadily over the years because the active Army, Army National Guard, Army Reserve, and other services have all recognized that it offers an



in Golden Cargo '96

by Corporal Jeffery A. Adams

important and unique training opportunity.

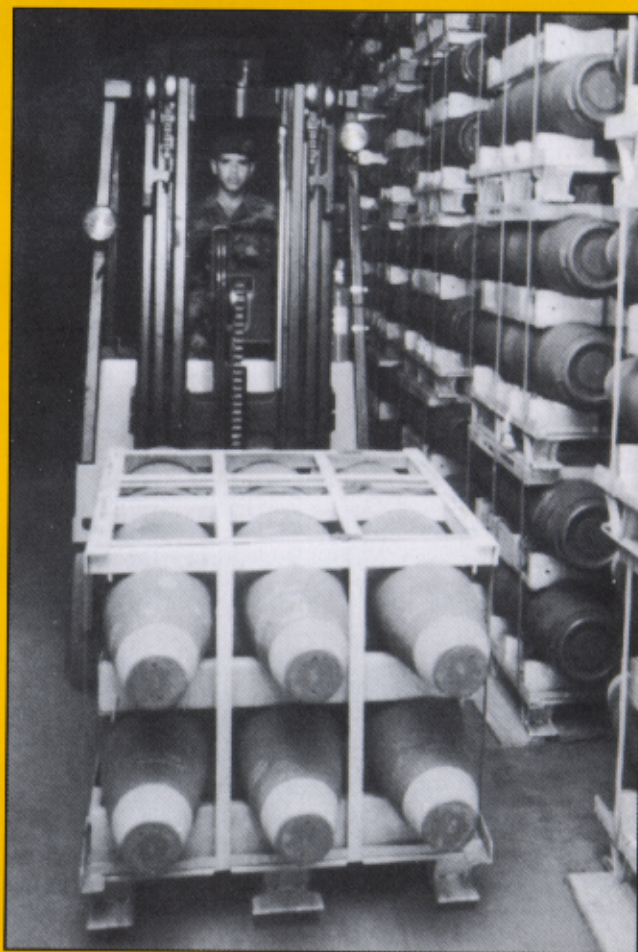
Approximately 131 units from around the country participated in Exercise Golden Cargo '96 during the period 18 May to 29 June. The exercise was conducted in three 2-week increments to accommodate the annual training times allotted for participating Army National Guard and Army Reserve units. These units rotated in and out of the exercise according to their annual training schedules. This constant turnover gave the 70th Ordnance Battalion an excellent opportunity to integrate new units every 2 weeks.

"The challenge for us was to get these new units integrated as soon as possible and continue on with the mission," said Major Andrew Smith from the battalion materiel office. "Our goal was to decrease the learning curve for the newly arriving units."

The exercise also provided soldiers a realistic scenario in which they could create a large logistics organization to move ammunition in a wartime theater of operations. To enhance the realism of the exercise,

theater ammunition storage areas and corps logistics bases were set up at Blue Grass Army Depot, Kentucky, Savanna Army Depot Activity, Illinois, and, in a separate operation, at Red River Army Depot, Texas, and McAlester Army Ammunition Plant, Oklahoma. However, the 70th Ordnance Battalion exercised command and control only of loading and shipping ammunition from Savanna Army Depot Activity to Blue Grass Army Depot.

The 19th Theater Army Area Command (TAA-COM), U.S. Army Reserve, Des Moines, Iowa, served as the higher headquarters for the entire exer-



□ Soldiers of the 70th Ordnance Battalion attach wooden blocking and bracing materials to the truck's flatbed trailer to stabilize the explosive cargo (left). Inside the ammo bunker, a soldier uses a forklift to move a pod of bombs to the entrance of the bunker (above).



□ A soldier on the outside of the bunker moves a pod of bombs into position on a waiting flatbed truck (above). Placards on each trailer warn the public that explosives are on board (at right). Trucks line up in the staging area before beginning their convoy from Savanna Army Depot Activity to Blue Grass Army Depot (above right).

cise. Eleven units commanded by 19th TAACOM acted as higher headquarters units for participating subordinate units. The 111th Ordnance Group from Opelika, Alabama, was the higher headquarters unit for the 70th Ordnance Battalion during the ammunition loading phase of the exercise at Savanna Army Depot Activity.

Getting Down to Business

The 70th Ordnance Battalion's mission was to break out, configure, and load 10,500 tons of 500-pound bombs onto large flatbed trailers. Trucks would haul the ammunition to Blue Grass Army Depot, where it would be received, unloaded, and stored in ammunition bunkers.

The battalion's first task was to prepare the flatbed trailers to haul the 500-pound bombs. Wooden side-rails were nailed onto the beds of the trailers, and wooden blocking and bracing materials were attached to stabilize the explosive cargo. Placards printed with the word "Explosives" and additional straps that would secure the cargo were loaded on the trucks before they made their way down range to the ammuni-



tion bunker at Savanna to pick up the bombs.

At the ammo bunker, a crew of six soldiers carefully loaded the flatbed trucks. One soldier used a forklift inside the bunker to move pods of six bombs each to the entrance of the bunker. From there, another soldier operating a forklift on the outside of the bunker lifted each pod and moved it into position on a waiting flatbed truck. At the same time, a third soldier on a forklift retrieved another pod of bombs that was waiting at the entrance of the bunker. This routine continued until the ammunition bunker was emptied.



Swap Meet

After the trucks were loaded and the bombs were strapped down, the trucks were driven to a staging area for a thorough safety inspection. Then they convoyed 210 miles to a refueling stop en route to Blue Grass Army Depot. At the refueling stop, drivers stretched their legs and prepared their trucks for the 206-mile journey to the overnight rest stop.

Drivers arriving at the rest stop from Savanna Army Depot Activity swapped their bomb-laden flatbed trailers with empty trailers that were staged there for pickup. The next morning, the drivers headed back to Savanna with empty trailers. Meanwhile, drivers from Blue Grass picked up the loaded flatbed trailers at the rest stop and headed back to Blue Grass Army Depot to unload their cargo. This operation was repeated on a daily basis throughout the exercise.

Backhaul Mission

Four soldiers from the 699th Maintenance Company carried out another mission that was vital to the exercise. Their job was to drive 587 miles from Savanna to Blue Grass to retrieve the anchors and straps used to secure the bombs to the flatbed trailers. Their operation was called the "backhaul mission." When the backhaul team reached Blue Grass, they inventoried and loaded approximately 1,700 straps and 2,500 tie-down anchors before they headed back to Savanna.

"Without straps and anchors, this exercise would have ceased," said Colonel Hall. "The soldiers who

participated in the backhaul mission played a critical role in keeping the exercise going."

Observations

"The magnitude of this exercise was incredible," said Major Smith. "It was a fantastic training event for all who participated."

"This was the first time many of the soldiers from the 70th Ordnance Battalion had worked in a live ammunition operation," said Chief Warrant Officer Herbert Lloyd of the battalion materiel office. "The lessons learned by working with Army National Guard and Army Reserve units were invaluable. This exercise has helped the battalion smooth out the transition process of integrating new units into our wartime mission."

"Golden Cargo '96 was a 'golden' opportunity for all of our soldiers," said Major Smith. "This experience has given me and the soldiers of the 70th Ordnance Battalion the utmost confidence in our ability to conduct our wartime mission. We look forward to participating in any and all exercises of this nature in the future."

ALOG

Corporal Jeffery A. Adams is the public affairs officer for the 11th Air Defense Artillery Brigade, Fort Bliss, Texas. He has a bachelor's degree in public relations-mass communications from Auburn University in Alabama and a master's degree in human resources management from Webster University, St. Louis, Missouri.

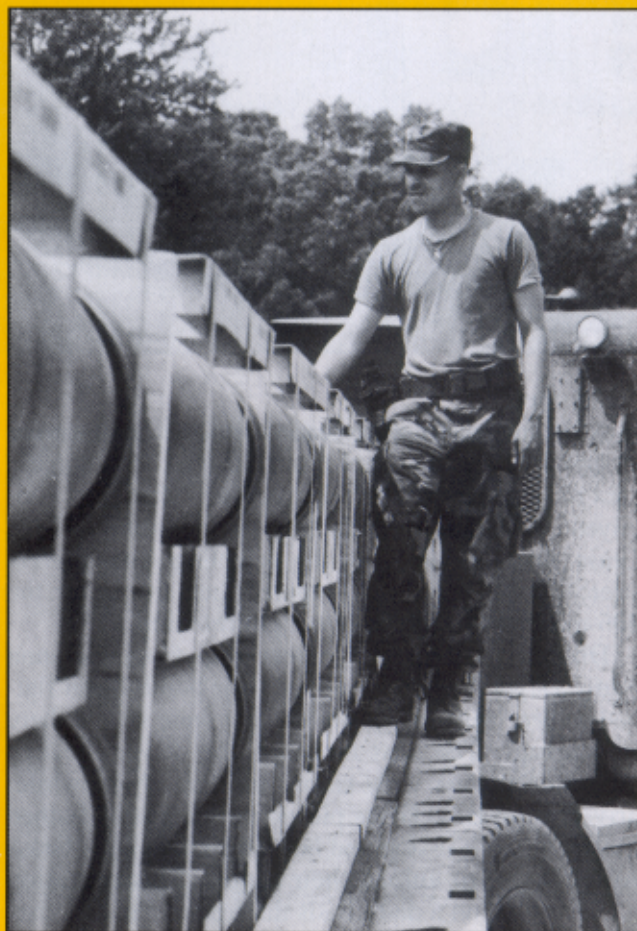
Golden Cargo—The ‘Lou

While a few battalions and other headquarters groups around the country have field-trained with a full span of subordinate units, the logistics structure had not been tested in peacetime until Exercise Golden Cargo began in 1991. This field training exercise tests the Army's logistics structure from theater down to company level. Training of this magnitude is unique for logistics, and its importance is similar to the Louisiana Maneuvers of 1940 that tested the Army structure and set the stage for America's success in World War II.

Creating this type of training experience is complex because most of the command and control structure for logistics is in the Army National Guard and Army Reserve. Units are widely scattered throughout the country, and it is difficult to find a realistic scenario that brings all of the units together. In addition, because of the vast capabilities of the complete theater logistics organization, it is nearly impossible to find a real-world mission that is both large and stimulating to the troops.

Golden Cargo provides large-scale training in coordination, communication, and fixing the daily glitches at long distance and gives the staff a taste of the real world. During Exercise Golden Cargo '96, more than 4,000 soldiers nationwide moved 23,000 tons of class V stocks and rewarehoused 50,000 tons. Vehicles traveled more than 1,071,000 miles, and vehicle-ton-miles totaled 7,886,000.

An exercise of this magnitude offers an opportunity to test equipment that could improve logistics readiness and efficiency. Qualcomm's OmniTracs system, which provides precise satellite positioning and two-way communications capability, was tested as a command and control system in this year's exercise. This is the same technology employed by the Defense transportation tracking system (DTTS) to monitor 45,000 shipments of Department of Defense arms, ammunition, and explosives transported within the continental United States annually. OmniTracs is currently being considered as a replacement for existing convoy communications systems. During Golden



Cargo, it was set to provide precise (within one-tenth of a mile) convoy locations at 20-second intervals.

Technology of this type could be very important in war situations. For example, if the battle shifts suddenly, cargoes of ammunition and other war stocks likewise need to be shifted quickly. It also can help mechanics get to a repair site faster by quickly identifying the exact location of the vehicle or equipment.

This exercise was the first time the digitally operated system was used for wide-scale military logistics in the continental United States. The commander of the Army National Guard's 740th Transportation

Louisiana Maneuvers' of Logistics

by Lieutenant Colonel Bob Krause, USAR, and Specialist Mathew Witt, USAR



□ (Left to right) An Army reservist ensures that 500-pound bombs are loaded properly on a flatbed trailer before the truck joins the convoy. Attached to the top of the convoy commander's vehicle is a satellite positioning system, OmniTracs, which monitors the location of cargoes and helps headquarters advise the commander about weather and road conditions. Mechanics repair a truck after its location was quickly identified by OmniTracs.

Company, Second Lieutenant Charles Schultz, said, "This system made our job a lot easier than when we didn't have it. For instance, we had a truck blow a head gasket. The mechanics were able to get to us faster, and they knew exactly where we were. I would like to have one of these in my vehicle permanently."

The Army must test new concepts continually to ensure that only the best are integrated into the system. The Army logistics structure also must be tested frequently for readiness, and Golden Cargo—the Louisiana Maneuvers of Logistics—proved that the current logistics systems are ready. **ALOG**

Lieutenant Colonel Robert Krause, USAR, is public affairs officer for the 19th TAACOM (CONUS Augmentation (CA)), Des Moines, Iowa. Colonel Krause also is senior regional planner for the Iowa Department of Transportation. He has more than 25 years of military and civilian experience in transportation and logistics.

Specialist Mathew Witt, USAR, is a public affairs specialist for the 19th TAACOM (CA) and is currently working on a master's degree in mechanical engineering. He and Specialist Michele A. Uitermarkt, also of the 19th TAACOM (CA), supplied the photographs for this article.

Is Battlefield Distribution the Answer?

by Captain Timothy W. Abel

The author believes that consolidating the heavy division's class IX in the main support battalion would make the Army's battlefield distribution concept even better.

Battlefield distribution is an exciting new concept that will use technology to change fundamentally the way the Army supplies class IX (repair parts and components) to the heavy division. The concept will streamline the class IX supply system and increase responsiveness by delivering repair parts directly to requesting supply support activities (SSA's).

Battlefield distribution will reduce redundancy in the main support battalion's (MSB's) authorized stockage list (ASL) by eliminating the requirement to "umbrella," or stock parts to resupply, the ASL's of the forward support battalions (FSB's). However, I believe consolidation of the division's class IX in the MSB would further reduce redundancy in supply, personnel, and equipment and give the division materiel management center (DMMC) more control over critical class IX stocks.

The Army has depended always on mass logistics to help defeat its enemies. The Army has compensated for its lack of logistics efficiency by stockpiling great quantities of materiel. Unfortunately, in past military operations, the wave of supplies pouring into ports of embarkation or debarkation quickly overwhelmed theater distribution systems. The vast quantities choked supply lines and made accountability a Herculean task. During Operations Desert Shield and Desert Storm, 22,000 of the 40,000 containers shipped to Southwest Asia had to be opened when they arrived to determine their contents. These delays hampered timely delivery of critical supplies to frontline troops and courted potential disaster.

How Battlefield Distribution Impacts Class IX

Battlefield distribution seeks to prevent history from repeating itself by combining lessons learned with the latest automated information systems. Some key class IX system changes proposed under the battlefield distribution concept are—

- Elimination of the MSB "umbrella" concept. The MSB will no longer stock parts to resupply the FSB's. It will only stock parts to support units in the division support area.

- Use of the hub-and-spoke distribution system. The distribution terminal (hub) will receive bulk cargo for sorting and direct delivery to the requesting SSA's (spokes). Direct delivery is accomplished by combining the Department of Defense activity address codes of the unit and the SSA, thus eliminating duplicate processing.

- Achievement of real-time visibility. Materiel management centers will have current visibility of quantity and location of repair parts and the ability to direct lateral transfers of repair parts among SSA's.

- Combination of the MSB's missile and ground ASL's into one.

- Creation of an aviation support battalion (ASB) with its own SSA.

Battlefield distribution will leave one aspect of class IX supply relatively unchanged. The division's ASL will remain echeloned in five locations: the MSB, the division ASB (DASB), and the three FSB's. By not consolidating the ASL, I believe battlefield distribution falls short of achieving its goal of reduced redundancy.

Going a Step Further

I have analyzed the current battlefield distribution concept and two proposed alternatives, MSB-FSB and MSB-DASB. I base my analysis of the class IX supply alternatives on responsiveness, transport capability, stock control, and personnel and equipment.

Responsiveness refers to the distance between the ASL and the requesting unit and whether the SSA delivers supplies or requires unit pickup. *Transport capability* pertains to the availability and modes of transportation. *Stock control* is the ability of the DMMC to redirect or laterally transfer repair parts among SSA's. *Personnel and equipment* includes the number of personnel and the amount of equipment required for an operation.

MSB-DASB-FSB Concept (Battlefield Distribution)

This is the current battlefield distribution concept. It creates a DASB to support the aviation brigade and

division cavalry (air and ground). The MSB supports all other units in the division support area, and the FSB's support units in the brigade support areas. The hub ships supplies to each SSA, and units pick them up.

Responsiveness. The battlefield distribution concept is very responsive, because each brigade-sized element has its own dedicated SSA. However, the cost of this responsiveness is continued redundancy of class IX supply in the division area of operations.

Transport capability. The FSB's have no transportation assets dedicated to class IX delivery. The FSB's need assistance from either the MSB or the DASB to carry out lateral transfers.

Stock control. Dispersion of the ASL may create heavy demands on the MSB and DASB to redirect class IX among units.

Personnel and equipment. Creation of the DASB absorbs the personnel and equipment savings generated by the hub's throughput of supplies and elimination of the MSB "umbrella" concept.

MSB-FSB Concept

This option consolidates the DASB ASL into the MSB and retains the FSB's ASL's. The hub ships supplies to the SSA's, and the units pick them up. The MSB transportation company delivers class IX to the DASB.

Responsiveness. The MSB-FSB concept enhances responsiveness by positioning ASL's forward. However, the FSB's are not equipped to transport class IX and require assistance from the MSB for lateral transfers of class IX directed by the DMMC. The MSB transportation company delivers class IX to the DASB.

Transport capability. Vehicles in the FSB's SSA's are used for mobile storage of class IX, not delivery. The FSB's depend on unit pickup of class IX, and lateral transfers require assistance from the MSB transportation company.

Stock control. Total asset visibility gives the DMMC real-time visibility over the ASL's, but the FSB's lack of vehicles may delay lateral transfers of repair parts.

Personnel and equipment. Although there are fewer SSA's in the MSB-FSB concept, there is no reduction of personnel or equipment since the MSB must handle class IX support for the DASB.

MSB-DASB Concept

This concept consolidates the FSB ASL's and the DASB ground ASL into the MSB. The DASB retains a separate aviation ASL. The hub ships supplies to the two SSA's, and the MSB's transportation company ships them directly to unit field trains. The

FSB's primary role in class IX supply is transmitting unit requisitions electronically to the MSB.

Responsiveness. Consolidation of the ground ASL in the MSB sacrifices the responsiveness inherent in forward positioning of repair parts. However, responsiveness is regained by direct shipment of class IX supplies to unit field trains from the MSB. With this option, class IX supplies are shipped by the MSB's transportation company or sling-loaded using aviation brigade equipment. A separate aviation ASL collocated with the DASB is essential to responsive support of critical aircraft.

Transport capability. The MSB has its own transportation company and access to aircraft from the aviation brigade. Class IX is transported by truck or sling-loaded directly to unit field trains, which relieves the FSB of storage and handling responsibility.

Stock Control. The MSB-DASB concept gives the DMMC the most control over the division's ASL, since all class IX is stored in the division support area. This option allows the DMMC to change immediately the flow of class IX based on mission priorities. This concept also eliminates the problems in lateral transfer of repair parts created by lack of vehicles in the FSB's.

Personnel and equipment. Relieving the FSB of responsibility for class IX storage and handling eliminates duplication of personnel and equipment. The MSB-DASB concept uses a consolidated class IX operation, which means fewer soldiers and less equipment are needed than by five separate operations performing the same functions.

Battlefield distribution helps logistics keep pace with today's force-projection doctrine. However, the Army can capitalize even further by adopting the MSB-DASB alternative and consolidating the division's ground ASL into the MSB. The MSB-DASB alternative enhances the current battlefield distribution concept by reducing redundancy in both class IX stockage points and personnel and equipment. It also gives the DMMC better control and flexibility in managing the division's ASL. The improved MSB access to air and ground transportation clearly establishes the MSB-DASB alternative as the best choice for managing the critical class IX assets of tomorrow's Army.

ALOG

Captain Timothy W. Abel is the company commander, Army Recruiting Command, San Diego, California. He graduated from San Diego State University in California and has a master's degree in logistics management from the Florida Institute of Technology, Melbourne, Florida. He is a graduate of the Ordnance Officer Advanced Course and the Army Logistics Management College's Logistics Executive Development Course.

Developing a Base Defense in Korea

by Captain Robert Hatcher

**A rear-area unit confronted
by the possibility of attack
by the special operations forces
of North Korea must work
with Republic of Korea forces
and tenant units
to implement successfully
a base defense plan.**

The ability to conduct joint and combined operations is becoming more important as the United States and its allies continue to downsize their armed forces. On the Korean peninsula, the task of keeping the armistice and demonstrating U.S. resolve requires cooperation between U.S. and Republic of Korea (ROK) forces. This cooperation is especially important for base defense of rear-area units like the one I formerly commanded.

I commanded an area support group headquarters company that is only authorized level of organization (ALO) 5. (An ALO 5 unit is authorized less than 70 percent of the personnel in its full table of organization and equipment.) This unit provides support over an area comprising 55 percent of the Republic of Korea. But in a war, it would become the target of attack by the largest special operations forces in the world, those of North Korea.

When I became a base defense commander in Korea, I found that there was a vast amount of information available on base defense. I understood my enemy and the threat he was capable of projecting far into the Republic of Korea, and I began to prepare my plans accordingly. I took the doctrinal principles found in sources such as joint publications, studied

articles in professional journals written by warfighting logisticians in forward and corps support battalions, and developed my own base defense plan. I learned that a successful base defense would require cooperation with ROK Army forces and with the tenant units on our installation.

Base Defense Forces

In Korea, the Second ROK Army serves as the combined rear area coordinator for the communications zone. However, the Second ROK Army is a reserve force that may not be available at the beginning of a contingency. U.S. Forces Korea publications clearly state that U.S. forces are solely responsible for their inner perimeter security. U.S. doctrine calls for three separate forces in a base defense: the perimeter defense, called the main defense force (MDF); the inner tenant units, which form the close defense force (CDF); and a mobile reserve, or quick reaction force (QRF), able to block enemy penetrations and defeat a level 1 threat. (A level 1 threat includes activity by enemy-controlled agents, sabotage by enemy sympathizers, and terrorism.) Armed with this information, I took a doctrinal template and forged a base defense situational template for myself.

The Second ROK Army acts as the MDF. They occupied the perimeter of our installation in a circled-wagon fashion and pointed outward with interlocking fire. In fact, two companies of a ROK homeland reserve battalion guarded our perimeter, which had a circumference of 1 mile.

The CDF was more challenging to organize because it was formed from our tenant units, and the performance of their daily missions usually overshadowed the seemingly low level of threat. To have the CDF duplicate a perimeter defense would have been a waste of assets. I coordinated with the CDF personnel to make sure that they understood their responsibility for guarding their own areas, the procedures for communicating with me as base defense commander, area damage control functions, the rules of engagement, and their need to provide personnel for my QRF.

The QRF was the single most important measure of defense for our installation. I owned the QRF in peace and war, whether or not the ROK Army mobilized, and its personnel were under my direct command and control. The QRF was to be used when the installation commander increased the threat condition for terrorist activity; at such times it would form a great deterrent option.

Using the QRF

With the cooperation of our installation's tenant units, I developed a QRF manning document that

called for a QRF composed of 4 squads of 12 soldiers each, with my executive officer serving as officer in charge. In a contingency, these squads would pull 6-hour shifts, which allowed them to go back to their units, and their units' missions, for 18 hours a day. QRF personnel can be essential to executing a unit's mission, especially for low ALO units.

All the squad leaders were staff sergeants and came from my company's supply room, motor pool, and orderly room. I faced the same situation as the tenant units from which the QRF personnel were drawn: I could not afford to lose those sergeants from their primary jobs for long periods of time.

The QRF personnel trained 1 day each month during sergeant's time, as well as during each major exercise in Korea. I only trained two squads full time; that was because most of the personnel for the third and fourth squads would be supplied by the upgrade to ALO 1 that each tenant unit and my company would receive in wartime. For terrorist threats and during the initial days of a war, those two squads were my QRF asset. I spent considerable time developing coordination measures and simplifying base-wide signals so that the tenants, ROK Army units, and I could operate smoothly.

Each QRF squad had a headquarters and three teams. The squad headquarters had a staff sergeant, two radio telephone operators (RTO's), and a driver. One RTO always manned the QRF assembly area, while the other headquarters personnel were prepared to move. The teams served on duty in 2-hour rotating increments. While a team was on duty, it manned an observation post at the water tower and patrolled the perimeter. The patrol checked in with tenant units, looked for suspicious activity, met the two ROK companies guarding the perimeter at two separate contact points (the installation gates), and exchanged a situation report with the ROK reserve battalion. The on-duty team also maintained radio contact with the assembly area and the base defense operation center and carried one M249 squad automatic weapon (SAW).

While one team was on duty, the remaining two teams in the squad were fully dressed and ready to roll out from the assembly area on 5 minutes' notice to support the patrol, the observation post, or a tenant unit. These squads were on a different recall status and were available if the squad on duty was overwhelmed by contact with an enemy force. They would roll out in a Ford armored car that was once used by a finance unit. Training was continuous during a squad's time in the assembly area, and the patrols were authorized to be mounted.

Our base defense capabilities included two MK19 40-millimeter grenade machineguns and eight

SAW's. The MK19's offered too much firepower to be used in protecting the inside of our installation. The installation is located in a military operations on urbanized terrain (MOUT) environment inside a city of 4 million Koreans. There was no fire support available from ROK or U.S. forces.

Base Defense Training

Training was a challenge. Using sergeant's time to train for 4 hours once a month was not enough. Units send soldiers home on leave during exercises, and tours are too short for any continuity. During Ulchi-Focus Lens, a ROK and U.S. combined exercise, an entirely new QRF spent 4 days training on Soldier's Manual of Common Tasks and basic military occupational specialty 11B individual and collective tasks. The QRF collective task list was developed from the area support group headquarters and light infantry platoon mission training plans. The primary focus of the QRF task list was to react to contact with the enemy and to ambush battle drills. Additionally, the QRF would assault while mounted, but, instead of using an M2 Bradley fighting vehicle, it would use the armored car.

The QRF underwent two overnight situational training exercise lanes and conducted after-action reviews on them. The training was resourced with the multiple integrated laser engagement system (MILES) and controlled by several staff captains, who were glad to support the training and enhance both the safety and the evaluation of the exercise.

Besides sergeant's time, the QRF came together for an overnight field training exercise only once more in the 2 months before we had to face the base defense formal external evaluation. I was confident in the willingness of our combat service support soldiers to learn and their desire to train under tough and realistic conditions.

This organization of base defense and training was my solution to make a workable and formidable base defense. We were able to defend our terrain in conjunction with the ROK Army and with the cooperation of tenant units. I hope our experience will help other officers who have to seek an innovative way to apply doctrine to their missions.

ALOG

Captain Robert Hatcher is a logistics management officer in the Office of the Deputy Chief of Staff for Logistics, Army Special Operations Command, Fort Bragg, North Carolina. He was commander of Headquarters and Headquarters Company, 20th Support Group, in the Republic of Korea. He is a graduate of the Army Logistics Management College's Combined Logistics Officer Advanced Course.

Warehouse Modernization

In today's environment of diminishing funds and manpower, Army supply organizations must review their operations to see where they can make improvements. One area warranting investigation at the installation level is warehouse operations. Modernization of warehouse operations can play a critical role in successfully accomplishing the supply mission under fiscal constraints and, at the same time, may provide substantial cost savings. One installation that has successfully modernized its warehouse operations and met the challenge of "doing more with less" is the Army Air Defense Artillery Center and Fort Bliss in Texas.

The Fort Bliss Directorate of Public Works and Logistics (DPWL) provides logistics support and services to all organizations on post. Under DPWL, the Supply and Services Division conducts complete supply operations, including receipt, storage, issue, shipment, turn-in, security, and distribution of all materiel at Fort Bliss. The hub of general supply operations is building 2527, which was built in 1958. In addition, several World War II-era warehouses—

buildings 1111, 1112, and 1117—store general supply materiel.

Help From LOGSA PSCC

When DPWL personnel began to review their existing warehouse operations and develop a storage modernization plan, they requested assistance from the Army Materiel Command Logistics Support Activity Packaging, Storage, and Containerization Center (LOGSA PSCC). The center is located at Tobyhanna, Pennsylvania. The combined efforts of DPWL and LOGSA PSCC produced a strategy for consolidating general supply materiel and modernizing supply operations in building 2527 (the 1958 structure). The storage modernization plan developed by LOGSA PSCC was accepted by DPWL management as the most cost-effective way to perform current and future supply missions at Fort Bliss.

Storage Modernization Planning

Developing the storage modernization plan was a step-by-step process that required teamwork among



One of the two types of materials-handling vehicles obtained for the modernized warehouse, the stock selector truck moves between bins and lifts the operator to the bin level he wants.

at Fort Bliss

by Thomas C. Kozlowski

DPWL; the Fort Bliss Directorate of Resource Management (DRM), which obtained funding for the project; the Directorate of Contracting (DOC), which awarded the project contracts; and LOGSA PSCC, which provided engineering expertise in designing and implementing the plan.

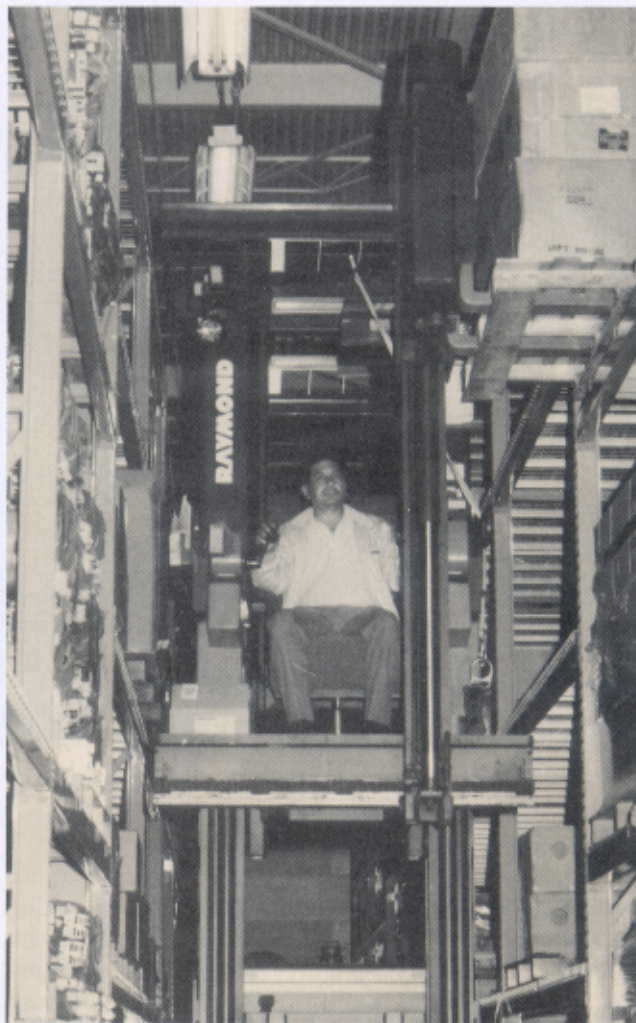
The first task of the planning process was to determine the most cost-effective methods of achieving two objectives: expanding the capabilities of an existing storage facility (building 2527) to meet current and future work loads, and consolidating general supply operations. These objectives were accomplished by maximizing the storage capacity of building 2527 and improving the productivity of its operations through the use of state-of-the-art materials-handling equipment (MHE).

During the design phase of the project, LOGSA PSCC personnel visited Fort Bliss to perform an in-depth distribution, storage, and materials-handling improvement study of DPWL's supply operations. They also evaluated current and planned methods of operation and developed alternatives that would make the best use of storage space, manpower, MHE, and storage aids.

The LOGSA PSCC experts used the determination of storage space requirements (DOSSR) method to calculate the storage space needed to consolidate supply operations in building 2527 and to quantify space requirements for storing general supply materiel. The step-by-step DOSSR approach has been approved by the Office of the Secretary of Defense for Department of Defense use. The results obtained by using the DOSSR method indicated that the proposed consolidation of general supply materiel was feasible and that the existing storage facility (building 2527) could accommodate storage of that materiel using very-narrow-aisle bin shelving and pallet rack storage areas. The very-narrow-aisle design uses a 5 1/2-foot-wide storage aisle versus a conventional 12-foot-wide storage aisle.

Armed with this information, LOGSA PSCC personnel developed a configuration of storage aids (bin shelving, pallet storage racks, and vertical storage carousels) that would accommodate the consolidation of the general supply materiel. The LOGSA PSCC experts developed several proposals for the operations layout of building 2527 for DPWL's review, using computer-aided design to ensure a cost-effective solution.

From the proposed operations layouts, DPWL selected the materials-handling system designed to sup-



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The warehouse modernization project was funded through the Army Training and Doctrine Command's productivity capital investment program. Subsequently, LOGSA PSCC developed a final layout design and purchase descriptions for the required equipment; DOC advertised and awarded contracts; and LOGSA PSCC provided onsite assistance during the contractors' implementation of MHE and storage aids to ensure DPWL a successfully completed project.



□ Vertical storage carousels give the operator quick and convenient access to small parts.

Storage Areas and MHE

The selected storage layout was designed to increase storage capabilities in two ways: by making maximum use of the warehouse's cubic space by installing a very-narrow-aisle storage configuration, and by mechanizing materials handling to increase efficiency and economy.

The MHE installed under the modernization plan includes man-up turret trucks, stock-selector trucks, vertical storage carousels, and various pieces of dock equipment. The three main storage areas installed in building 2527 are bin, pallet, and miscellaneous small parts—

Bin storage area. Building 2527's capacity to store small, loose-issue materiel was increased by using 19-foot-high bin shelving units in a very-narrow-aisle storage configuration; this combination makes the most efficient use of the warehouse's cubic space. Stock-selector trucks were obtained to service this storage area. These operator-friendly trucks travel between the bins and raise the operator to the level of the desired bin storage location. Stock-selector trucks are versatile and are engineered for efficient loose-issue operations; they also can be used for loose-issue operations in the pallet storage area.

Pallet storage area. A typical pallet storage rack with 17-foot-high uprights allows materiel to be stored up to 21 feet in height. State-of-the-art turret trucks were obtained to service this area. The use of these very-narrow-aisle trucks, along with the installation of the pallet storage racks, offered DPWL the potential to expand storage both vertically and horizontally and to increase pallet storage capacity by approximately 250 percent over the conventional layout previously used in building 2527.

The turret trucks are designed to handle both pallets and loose-issue items. The turret design lets the operator work both sides of the pallet storage aisles without turning the truck around. The man-up design allows more accurate placing of a pallet load onto the storage rack and picking of orders at elevated heights from the operator's platform. These versatile trucks are used primarily in the pallet storage area for pallet handling and loose-issue operations, but they also can be used in the bin storage area for loose-issue operations.

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Both types of materials-handling vehicles (man-up turret trucks and stock-selector trucks) are able to service either bin shelving or pallet rack storage areas, thus offering versatility and flexibility to DPWL's storage operation. The trucks use a wire guidance system that relieves the operator of steering responsibilities in guided storage aisles; this reduces operator tension and fatigue and allows operators to concentrate on their supply jobs.

In addition, the modernization plan called for upgrading dock equipment to improve efficiency and safety in loading and offloading carriers. The state-of-the-practice dock equipment includes a full-sized mechanical dock leveler and several edge-of-dock plates. Both types of equipment compensate for the height differential between carriers and dock and provide a strong, secure bridge from the dock to the carrier in the receiving and shipping areas. DPWL also installed safety restraints with the dock equipment. These safety restraints are designed to hold the

carrier at the dock during loading and offloading operations; they feature an audible alarm and flashing light that warn dock personnel if a trailer is not properly secured.

Storage Modernization Pays Dividends

The modernization project blended storage aids, manpower, MHE, and system controls into a complete storage and distribution process, resulting in significant space, time, and manpower savings. DRM has estimated that savings resulting from improved space utilization are \$285,000 annually and projects that an estimated annual savings of \$204,000 in manpower requirements will be realized. In addition, benefits not quantified in DRM's analysis include—

- Improved distribution. The selected MHE provides better accuracy, precision, and speed for materiel handling, which improves customer order rates and service levels.

- Improved ergonomics. The materials-handling system provides safer working conditions, reduces employee fatigue, and improves the comfort of personnel, all of which contribute to increased productivity.

- Improved operations flexibility. The MHE trucks were selected for pallet-handling and loose-issue operations based on their ability to service either the bin storage or pallet storage areas. This versatility improved the ability of the warehouse to support backup and contingency operations and reduced the project's capital costs.

Warehouse modernization should be viewed as not only making Army supply operations more responsive and efficient but also as providing cost benefits that help supply managers meet the challenge of "doing more with less."

LOGSA PSCC provides worldwide engineering consultant services to assist Army and other Department of Defense installations in modernizing their distribution, storage, and materials-handling operations. The purpose of this modernization assistance is to provide the most beneficial system so that installations operate more economically, respond to customer demands more effectively, and, above all, are fully prepared to meet emergency requirements in a responsive manner. This purpose was achieved at Fort Bliss.

ALOG

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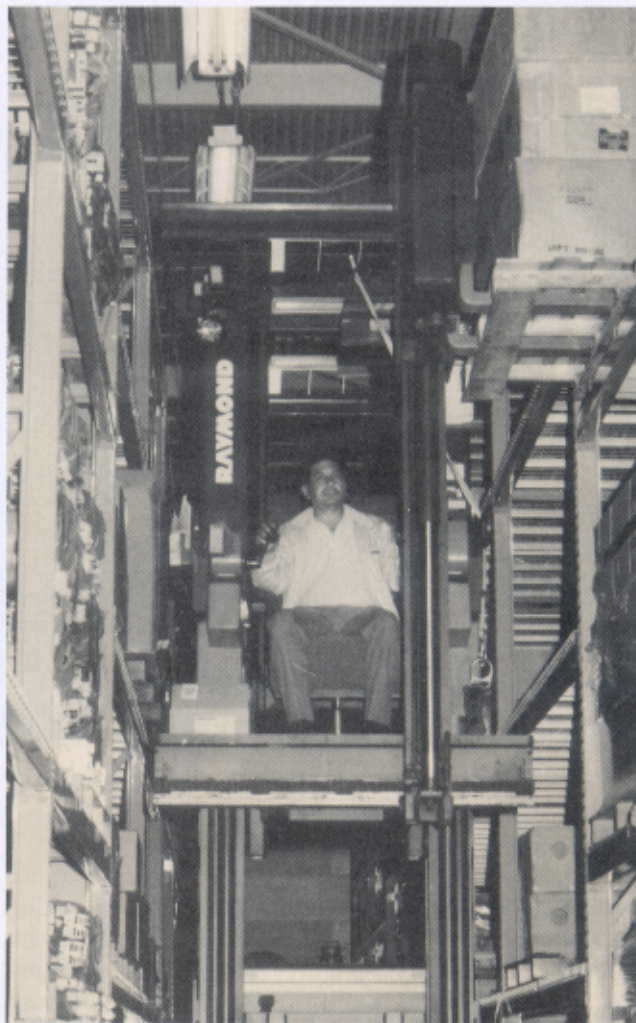
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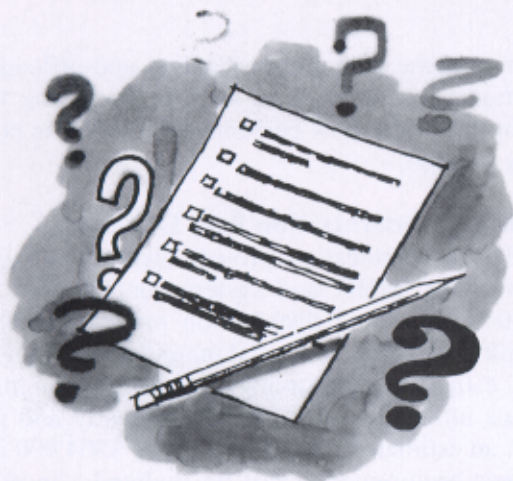
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Text, Lies, and Inspection Checklists

by Chief Warrant Officer (W4) Steve N. Kohn

A checklist
is only as good
as its questions
are specific.

Like many of you, I've been on both sides of the inspection process—both inspector and inspectee. As a result, I am convinced that nothing is more important to the success of an inspection than the quality of the checklist. You probably think this should be self-evident. But in the real world, the inspection checklist sometimes reads as if it were written an hour before it was due to the boss.

For example, look at the following questions from an actual checklist that was used to inspect a division direct support maintenance battalion—

Does the shop have an internal standing operating procedure (SOP)?

Are all job packets accounted for?

Are receipts from the warehouse processed within 48 hours?

Do all locations have bin labels?

Are signature cards for the direct support unit correct?

Are repair parts being ordered in a timely manner?

Are all required technical manuals (TM's) and updates available?

Are workable jobs being worked?

Are soldiers happy in the workplace? (No, I didn't make that one up.)

If you see nothing wrong with these questions, you need to look at them again. Would you be comfortable if this checklist was used to inspect your unit? Does the word "all" in some of the questions make you wonder how the inspector possibly can check *all* items in an inspected area? Of course he can't check all of the items. So how many does he check? One? Two? Five? And what if he finds a discrepancy? Does your unit fail that area?

Most of us know that a lot of work goes into preparing for an inspection when we are on the receiving end. Many of us fail to recognize, however, that a lot of work should go into preparing for a successful inspection.

Three Principles of a Good Checklist

I've condensed into three sentences what I think is the formula for a good checklist. If you're writing a checklist from scratch, revising one you inherited, or fixing a bad one you wrote yourself, this information may be helpful to you.

Break down areas of inspection whenever possible. If you were in charge of an inspected maintenance shop, would you be comfortable with a question such as, "Does the unit have a good safety program?" This question covers too much; it treats a subject with many components—training, safety equipment, and shop hazards, for example—as one broad question.

The same problem exists with the question, "Does

the shop have an internal SOP?" Maybe it does have some papers under a cover called "Internal SOP," but what's in it? Could a young soldier read it and know what to do or whom to call if the noncommissioned officer in charge wasn't around? The checklist should make you look in the SOP to see if it covers specific areas such as tool inventories, section security, duties and responsibilities, counseling requirements, and training.

Assign points based on importance. Here's where your experience, judgment, and competence enter the picture. As the inspector, decide what's important to you. Make each of your concerns a separate item on the checklist to be sure none is overlooked. Then recognize that, while everything is important, some things are more important than others. Those of us entrusted with writing an inspection checklist should know what's really worth checking, and we can convey our values to the inspected unit by the number of points we assign to each question. An item worth five points will get more attention than an item worth one point.

The checklist works best if the points add up to 100. Your drafts can be adjusted up or down to make that happen. At the same time, you can rethink the relative importance of some questions in order to total exactly 100 points. Using 100 points also allows reasonably valid comparisons to be made. Not only can similar units be compared (for example, the three forward support battalions in a division support command), but how each unit fares in the current inspection can be compared to how well it did in the last.

Quantify whenever possible. If you don't quantify your inspection, the results are merely your opinion. Your evaluation will be subjective and may be appealed as unfair by the inspected unit. "Are all required TM's with updates available?" requires a look at all essential TM's. Realistically, no inspector does that.

If you're checking publications, the checklist should state clearly how many documents you're actually going to check. The checklist also should state the percentage of publications that must be on hand or on order for the unit to receive all or a portion of the points assigned to that question. For example, your checklist may state that you will "choose 24 publications at random." If the number of publications on hand or on order in the unit equals 21 or more, you award 12 points (or whatever total number of points you assign to that area). For less than 21, but more than 13, publications on hand or on order, you award 6 points; for 13 or fewer publications on hand or on order, the unit gets 0 points.

If you're looking at tools, the checklist should state

how many toolboxes you're going to check and how many tools can be missing or broken without having points deducted. For example, the checklist may read, "Choose two toolboxes at random," and go on to state that one point will be deducted for each broken or missing tool, each toolbox left unlocked, each instance of unsecured keys, and so on.

If you're looking at cardiopulmonary resuscitation (CPR) training, state what percentage of soldiers in the unit must be CPR-qualified to receive a certain number of points. For instance, if 50 percent or more of the assigned personnel are CPR-trained, you give the unit the total number of points for that area; for 25 to 49 percent of assigned personnel trained, you award half the assigned points; for less than 25 percent trained, you give no points.

If you're inspecting locations in a warehouse, state in the checklist how many areas will be checked. Compare, for example, the actual locations of five items to the locations listed in the SOP. If all locations are accurate, the unit gets two points; for less than 100 percent accuracy, it gets 0 points.

Lest We Forget

There are two other rules that should go without saying, but I'll say them anyway. First, each question on your checklist must cite a published directive, to include the paragraph and subparagraph. The checklist then becomes a useful reference for personnel in the inspected unit throughout the year, not just a sword hanging over their heads a few weeks before the inspection.

Second, you must avoid subjective questions—those that are open to multiple interpretations. There is a place for opinion in a checklist, but it's a small place. You could include a question such as, "Is the shop clean and organized?" But if more than 5 of 100 points fall in this category, your editing pencil needs some sharpening.

Your goal in preparing an inspection checklist should be to have your questions so detailed, specific, and objective that they have only one answer even for an inspector lacking your vast wisdom, experience, and insight. Then your checklist will be a valuable training guide. Otherwise, you're wasting the unit's time and giving the commander a deceptive evaluation of the go-to-war status of his unit. **ALOG**

Chief Warrant Officer (W4) Steve N. Kohn is assigned to the Warrant Officer Division of the Army Signal School, Fort Gordon, Georgia, as an instructor in the Basic and Advanced Warrant Officer Courses. He was previously assigned to the Division Materiel Management Center, 25th Infantry Division (Light), Schofield Barracks, Hawaii.

Warrants, Too, Train With

by Chief Warrant Officer (W3) Charles R. Widdicombe, Jr.

The author tells how training with industry was the most of his military career.

An opportunity of a lifetime, courtesy of the Army—those were my thoughts when I was given the opportunity to compete for a training-with-industry (TWI) assignment with Sears, Roebuck, and Company.

But exactly what was TWI? And why was I, a quartermaster warrant officer supply systems technician, being offered this opportunity? These were just two of many questions that came to mind as I decided whether or not to compete for the assignment.

I learned that the TWI program has been a part of the Army since the 1970's. It was developed to fill a need for training in certain fields in which the Army lacks expertise. The TWI program was limited to commissioned officers at first. Later, the Army realized it could benefit also by having technically trained warrant officers exposed to the latest technological and managerial innovations of industries that directly correspond to the warrant officers' areas of expertise.

But why Sears? What did Sears have in common with Army logistics? I learned that Sears is the nation's second largest retailer and has a vast worldwide logistics network that rivals the Army and the Department of Defense systems in its complexity and scope. Anyone who works for Sears gets a chance to observe and participate in the very latest in logistics technology.

I still wondered what I could do for Sears and how the assignment would benefit me personally. But I was confident that these questions would be answered after I reported to Sears, and I decided not to pass up the rare opportunity I was being offered.

A 'Regular Guy'

When I arrived at Sears' corporate headquarters near Chicago, Illinois, I was assigned to work for the Sears logistics group (and I stress the word "work") headed by Lieutenant General William G. (Gus) Pagonis (USA [Ret.]). I was appointed project manager for a logistics distribution network and tasked with managing several different projects. I was given unrestricted access to all areas of Sears' vast logistics

network and was expected to be an active participant in the corporation's daily logistics decisions. I assisted in the development of its future logistics structure just as if I were a regular logistics group employee. I traveled to various Sears sites to see the complex Sears distribution network; I worked with their multifaceted automated logistics systems and examined how Sears manages its inventory. In short, I became a member of the Sears logistics team.

A Win-Win Situation

My smooth integration into the logistics team was possible only because of the commitment of the Sears logistics group leadership team. This team, under the direction of General Pagonis, ensures that the Sears TWI program is a win-win situation for both the Army and Sears. For a year, the Army provides Sears, at no cost, the services of a well-trained, highly motivated individual who can contribute a valuable outside perspective to the Sears logistics group's decisionmaking processes. At the end of the TWI assignment, Sears returns to the Army a better trained, more versatile officer.

Bottom-Up Versus Top-Down

The TWI assignment gave me the opportunity to compare the Sears automated systems with those used by the Army. I discovered that Sears' automated replenishment systems are completely different from the Army's. The Sears network is centrally controlled by a mainframe computer. The Army system is personal computer (PC)-based and is essentially a bottom-up system rather than a top-down system. This means that in the Army the replenishment and distribution decisions are made at the local command level, while with the Sears systems all replenishment and distribution decisions are made at the corporate headquarters.

The Sears automated systems are also much more sophisticated and interconnected than any of the Army systems. The entire Sears network is tied together. Each Sears system performs a specialized function. One system deals with replenishment, an-

Industry

rewarding experience

other with warehouse management, another with transportation, another with customer orders, and so on. No one system does it all. Each system is connected to a central logistics network that provides a total picture of all logistics assets through a single data base. The data base allows the corporate headquarters to track each item from the time it is ordered until it is delivered to the customer.

There are many cost-control advantages to centrally managed replenishment, inventory control, distribution, and transportation systems. One big advantage is that separate system modernizations and enhancements can be made only to the particular data base concerned and do not have to be applied system wide. This holds network system programming costs to a minimum. A mainframe system accommodates this developmental philosophy; the Army's PC systems do not.

However, there are also disadvantages to a centrally controlled automated logistics system. A centrally controlled system limits the manager's ability to tailor his logistics requirements to the actual tactical situation. Accountability and asset management are also less efficient. But the most significant shortcoming of a centrally controlled system is its inability to respond quickly in contingency operations. Although Sears responds very quickly to regional contingency needs, the Army must be quicker; it does not have the luxury of waiting to see what assets need to be redistributed where. The Army must have the right supplies at the right location at the right time.

The Army operates many different logistics systems such as the standard Army maintenance system (SAMS), the standard Army intermediate level supply system (SAILS), the standard Army retail supply system (SARSS), the direct-support unit standard supply system (DS4), and the unit-level logistics system (ULLS). Each system modernization and enhancement must be implemented in a way that does not adversely impact the Army's other automated logistics systems.

Why compare the Sears automated replenishment systems to those of the Army? The Army must

modernize and improve its automated logistics systems continuously by using whatever it can learn from systems developed by corporations such as Sears. The Army must strive to develop a more user-friendly, on-line, real-time automated logistics replenishment system that provides access to information on all of the varied aspects of logistics such as replenishment, inventory management, distribution, and transportation. The Army must do this to conserve the limited resources it has available and, at the same time, maintain local command and control of the resources that are needed for contingency operations and local mission requirements.

The 'Softer Side of Sears'

The year I spent with Sears was the most educationally rewarding experience of my 20-year military career. I was exposed to a group of exceptional logisticians dedicated to the common goal of providing Sears the best state-of-the-art logistics services at the lowest possible cost. I had the good fortune to be re-introduced to a simple but effective leadership and managerial style that I first encountered while assigned to the 21st Theater Army Area Command in Germany. The concepts of centralized control, decentralized execution, and single point of contact, as well as an organizational structure that contains a logistics cell, are part of a leadership philosophy born in the Army but fast becoming a prototype for corporate logistics organizations. The concept is now fully developed at Sears under the leadership of General Pagonis. I was able to see first hand how these management techniques eliminate confusion, improve communications, cut corporate bureaucracy, save Sears time and money, and provide a better product to the Sears customer.

My year at Sears gave me an opportunity to examine myself, compare my skills to those of executives with proven corporate track records, and see just where I needed to improve those skills. I can think of no other job that offers as much opportunity for personal and professional growth as TWI. It was an experience I would not exchange for any other assignment. If you're looking for a challenge, seek a TWI assignment. You won't regret it. **ALOG**

Chief Warrant Officer (W3) Charles R. Widdicombe, Jr., is assigned to Headquarters and Headquarters Company, Army Combined Arms Support Command and Fort Lee, Virginia. He has a bachelor's degree in history from the State University of New York at Buffalo. He is a graduate of the Supply Systems Technicians Warrant Officer Advanced Course.

ALOG**SYSTEMS**

Army Logistician ushers in this new year by adding a standing news column—ALOG Systems. Many readers have asked for more information on existing and emerging automated logistics systems. The purpose of this new column is to provide that information.

Last October, the Logistics Automation Directorate of the Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia, was redesignated the Information Systems Directorate (ISD). This new column is a product of that directorate. The information presented is compiled, coordinated, and produced by ISD, under the direction of Lieutenant Colonel Shay Nyunt. Readers may direct questions, comments, or information requests to Colonel Nyunt by e-mail at nyuntt@lee-dns1.army.mil or phone (804) 734-1207 or DSN 687-1207.

—Editor

INFORMATION SYSTEMS DIRECTORATE ESTABLISHED AT CASCOM

Effective 1 October 1996, the Logistics Automation Directorate (LAD) was redesignated the Information Systems Directorate (ISD) at the Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia. The name change reflects not only the directorate's new missions under the CASCOM realignment but also reflects the dynamic nature of the Army's logistics information systems.

ISD serves as the Army's combat developer for logistics information systems and takes on projects for joint logistics systems, identifying merging technologies, integrating systems, and developing systems for the "Army After Next." The directorate has added the Office of Technology Modernization, which has the mission of identifying information and technology systems that provide the greatest capability for meeting CSS requirements. Additionally, ISD assumes leadership for CASCOM's logistics communications initiatives. The directorate's subject matter experts also will continue to support customers in the field. ISD key personnel and points of contact are—

- Colonel Stephen J. Marshman, Director.
- Brian E. Wood, Deputy Director.
- Robert Dienes, Chief, Office of Technology Modernization.
- Jesse Mason, Chief, Automated Systems Division.
- Forrest D. Malcomb, Chief, Information Systems Projects Division.

The ISD can be contacted by addressing mail to Director, Information Systems Directorate, 3901 A Avenue, Suite 120, Fort Lee, VA 23801-1807; by telephone at (804)734-1222 or DSN 687-1222; by fax at (804)734-1198 or DSN 687-1198; or by e-mail to atcls@lee-dns1.army.mil. Information on ISD is also available on CASCOM's World Wide Web site at <http://www.cascom.army.mil>.

DEVELOPING AN INTEGRATED COMBAT SERVICE SUPPORT SYSTEM

Combat service support (CSS) information systems must evolve toward meeting the Army's logistics information demands in the next century. CASCOM's ISD—the Army's combat developer for logistics information systems—is developing a strategy to meet that demand.

Since the advent of the electronic numerical integrator and computer (ENIAC), the Army's computers have morphed from room-sized behemoths providing specialized calculations to today's microcomputers that operate logistics "stovepipe" systems that support the worldwide functions and missions of CSS. We are now dependent on these systems and their data at every level, from property accountability to tracking an Abrams tank's systems status on the battlefield. With these systems now fully functional, where can we go next with CSS information systems? Improve existing log stovepipe systems? Provide a more user-friendly interface? What about a single system to perform all functions? Create one system that lets the supply sergeant use data from personnel files in the orderly room and allows the battalion maintenance officer to roll up equipment readiness from subordinate companies? Create a system that's seamless, real time, and provides users with a common interface? Why not integrate all these recommendations into a single system?

ISD combat developers have done just that—and more. Here is an overview of a system, now on the drawing board, called the integrated combat service support system (ICS³). ICS³ is under prototype development. It is a single system envisioned to perform all CSS functions. These are some of its features—

- **Shared data access.** It will be paperless to the maximum extent possible and provide transparent interface communications. There will be no need for users to get involved in passing data around. One-time input will update all files in the system. It will rely on transmission rather than transportation of data and information. All sites will have free text-messaging capability.

- **Functionality.** ICS³ will be designed around functions, with common functions embedded in common software code, usable at all locations performing that function. Over time, all current standard Army management information systems, new initiatives, automation of current manual tasks, and emerging technology will transition into ICS³. All resident data will be available to anyone with connectivity and permitted access, either through structured reports or ad hoc query.

- **Common look and feel.** The system will use a graphic user interface, point-and-click controls, and a common baseline and operating system to give it a common look and feel at all sites. Automatic linkage of movement requirements to movement managers will shorten administrative delays. Status and responses will be as automatic and immediate as requests and requisitions.

The ICS³ will be built around this triad of capabilities—

- **Modularity.** Software modules resident at ICS³ sites will be designed either functionally (such as supply, maintenance, administration, and other functions) or by echelon (for example, unit level, brigade level, or materiel management center level). Special subsets of these basic modules will perform functions unique to a particular location when necessary. This table shows some current CSS automated systems that

CASCOM proposes to have migrate to ICS³.

In most cases, the actual fielding of modules and submodules will vary among locations and echelons. For example, both a unit supply room and a corps materiel management center (CMMC) will have the supply module, but there are obviously vast differences in function and capability required at two such different sites. The CMMC, as presently configured, needs demand analysis capability; and a unit supply room needs an arms room inventory function. It is most likely that submodules of the ICS³ supply module will exist to cover these specific requirements and will not require universal fielding. Wherever a function or capability is developed it will be fielded in identical form wherever it is required, regardless of echelon. All ICS³ sites will have the admin module, which will consist of a standard set of office products (MS Office™ or equivalent) and specialized software that will perform routine military administrative functions not otherwise included in one of the other ICS³ modules.

- **Interface protocols.** ICS³ will have interface protocols built in to move files and distributive information among ICS³ sites and other locations as necessary. These are not free text but formatted transactions that will communicate automatically and transparently. Examples include such things as requisitions, status, and file updates needed by others, always keeping the “one time input” characteristic in mind. ICS³ is intended to share information with Department of Defense-level CSS automation systems such as the transportation coordinator’s automated information for movements-II (TC AIMS-II), the Army medical management information system (TAMMIS), the standard installation/division personnel system-version 3 (SIDPERS-3), and the Defense finance automation system (DFAS).

- **Data structure.** ICS³ will have the capability to reach into files and extract useful data, either in a structured report, including recurring reports, or by ad hoc query. Anybody with a computer, connectivity, and proper password access (any ICS³ site) can read, extract, and manipulate the data. This is the proper capability when retrieval of the data is sporadic or the form is uncertain and a full interface is not desirable. Data may reside in a centralized, relational database or it may be extracted directly from the ICS³ site, depending on the final technical design.

The ICS³ prototype is slated for testing at Fort Lee during this quarter of the fiscal year. The core ICS³ team members are Lieutenant Colonel Loretta Starkey, Donnie Parr, and Captain Paul Mason. More information on ICS³ is available on CASCOM’s World Wide Web site at—<http://www.cascom.army.mil/la/default.htm>.

STAMIS	SHORT TERM	ICS ³ MODULES	REMARKS
SIDPERS			Umbrella interface access
ULLS-S4	Merge with SPBS-R	Supply	Subsumed
ULLS-A	Merge maint w/others	Maint, supply, trans (Avn subset)	Subsumed
SAMS-1	Merge maint w/others	Maint, supply	Subsumed
TAMMIS			Umbrella interface
SAAS		Supply (ammo subset)	Subsumed
DAMMS-R	Subsumed by TC AIMS II	Trans	Umbrella interface
TC AIMS-I		Trans	Umbrella interface