# ARMY LOGISTICIAN

**NOVEMBER-DECEMBER 2000**

## From Factory to Foxhole

# ARMY LOGISTICIAN

## PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

## ARTICLES

## DEPARTMENTS

### COVER

The Army's transformation will affect all points along the continuum of Army operations, from "factory to foxhole." This issue contains several articles that address aspects of transformation: Total Asset Visibility (page 3), combined and joint logistics planning (page 6), deployment and sustainment (page 8), contingency contracting (page 20), and split base operations (page 30).

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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# Coming in Future Issues—

- Staffing and Training for the FSC
- The Campaign in the Shenandoah
- Class VIII Prepacks for Joint Distribution
- Improving Change of Command Inventories
- Military Logistics Continues to Repeat Itself
- Mobilization of DS Fuel and Electric Capabilities
- Reducing Maintenance Backlog
- More Than a Name Change
- Logistics Over the Shore Operations
- Army XXI Total Asset Visibility
- Combat Equipment Group-Europe
- Medical Supply Support to Kosovo
- Damn the Logistics, Full Speed Ahead

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## ARMY EXPECTS TECHNOLOGY DEVELOPMENT TO KEEP TRANSFORMATION ON SCHEDULE

The Army is on schedule to meet its goals of achieving initial operational capability for the first two brigades of the interim force by the end of 2001 and of standing up the objective force by Chief of Staff General Eric K. Shinseki's target timeframe of 2008 to 2012.

According to Army officials, the Army should attain the technological innovations needed to create the objective force as projected. Key among these are the technologies required to produce the future combat system, which will be a replacement for the 70-ton M1 Abrams tank that will have the same lethality and survivability but will weigh only 20 tons. The Deputy Assistant Secretary of the Army for Research and Technology, Dr. Michael Andrews, predicts, "By the end of [20]05, early [20]06, we will have a future combat systems demonstration. We're not having to create new technologies out of thin air."

The first two initial brigade combat teams (IBCT's) of the interim force are being created at Fort Lewis, Washington, by reorganizing the 3d Brigade, 2d Infantry Division, and then the 1st Brigade, 25th Infantry Division (Light Infantry). At least six IBCT's will be established, including at least one in the reserve components. The interim force will not be an early-entry force. Instead, the IBCT's will fill the gap between early-entry forces and heavier follow-on forces; the brigades will be lethal, agile, and mobile enough to dominate combat during that interval.

Army Training and Doctrine Command schools are developing new doctrine and training techniques for the IBCT's. Some of the training will be provided in the form of simulations delivered through the Army's distance learning system. Tactical leader training for IBCT officers and noncommissioned officers is underway. Company training and brigade and battalion staff-level training was scheduled to begin at Fort Lewis in September.

While development of the future combat system proceeds, the IBCT will be equipped with an interim armored vehicle. Evaluation of candidate vehicles recently took place at Aberdeen Proving Ground, Maryland. In the meantime, the IBCT is working with armored vehicles borrowed from several other countries as surrogates for the interim armored vehicle.

## WARFIGHTING EXPERIMENT TESTS DIGITIZATION IN LIGHT UNITS

Approximately 4,000 soldiers converged on Fort Polk, Louisiana, in September to test the use of the Army's new digital systems with light forces. In the Joint Contingency Force Advanced Warfighting Experiment, the soldiers, plus a company of marines, engaged in combat scenarios against the Joint Readiness Training Center's opposing force. They used many of the technological enablers the Army is developing for its armored forces to see how well they work for dismounted forces and how they can be improved to increase dismounted forces' lethality, survivability, and operating tempo.

The Army evaluated 47 technological and doctrinal initiatives during the experiment. Chief among these were an en route mission planning and rehearsal system, the Army Battle Command System, and the Land Warrior individual soldier system.

Soldiers participating in the experiment were from the 1st Brigade, 10th Mountain Division (Light Infantry), from Fort Drum, New York; the 3d Battalion, 325th Airborne Infantry Regiment, 82d Airborne Division, from Fort Bragg, North Carolina; and an armored company of the 4th Infantry Division from Fort Hood, Texas.

## ARMY OPENS PREPO FACILITY AT QATAR

The Army's newest and largest pre-positioned stock (prepo) facility opened in Qatar in August. The facility falls under the forward command of Army Forces Central Command-Qatar, which is one of three forward commands in the region maintained by the Third U.S. Army and Army Forces Central Command, based in Atlanta, Georgia.

Colonel Kathleen Dennis, commander of the Army Materiel Command-Southwest Asia said, "The primary

reason for this installation was to contribute to the National Security Strategy that calls for the rapid deployment and forward presence . . .The Army prepo equipment in the Gulf allows for a much more rapid deployment of troops in the area." The mission of the 262-acre, climate-controlled facility is to store and maintain a brigade-sized equipment set that will facilitate the rapid movement of personnel, equipment, and supplies by land, sea, or air to other countries in the region.

Because of Qatar's location, the reception, staging, onward movement, and integration of vehicles and troops from Qatar will be different than from other countries in Southwest Asia. Troops will not be able to land in Qatar and drive the equipment from the site to the local area for combat. Instead, advance parties will fly to Qatar, draw the equipment, and use commercial heavy equipment transporters to move it to port to be loaded onto ships for transport to the combat zone.

Examples of the Army's logistics responsibilities include inland petroleum and water distribution. The equipment stored at the facility is intended for issue to Army forces but may be used to support joint forces if needed.

## INNOVATIVE CONTRACTING INITIATIVE TO PROVIDE COMPLETE LOGISTICS SERVICES

Defense Supply Center Columbus, Ohio, has awarded a virtual prime vendor contract to ProcureNet, Inc., headquartered in Great River, New York, to provide military units comprehensive logistics support for automotive and equipment parts and services.

The Fleet Automotive Support Initiative, or FASI for short, is a revolutionary total systems approach to streamlining parts support of military automotive and equipment fleets. It is designed to reduce the total cost of weapon system and automotive fleet support by consolidating purchasing and reducing the number of suppliers.

FASI will decrease the response time needed to obtain spare parts and reduce both wholesale and retail inventories. Military customers will receive quick, uninterrupted parts delivery, even when their requirements change. Using its own supplier base as well as the Government's, FASI's virtual prime vendors will deliver parts to designated locations within 2 to 10 days (depending on the priority of the request).

Under the terms of the agreement, ProcureNet will use its innovative OneSource™ suite of products and services to provide Internet-based procurement and delivery of parts and services to a wide-ranging group of military sites, including Camp Pendleton and Fort Irwin, California; Camp Lejeune, North Carolina; Fort Stewart, Georgia; and Fort Hood, Texas. The initial term of the contract is 2 years, with three additional option periods. Annual sales are estimated at $60 million.

## DIGITIZATION INITIATIVE HELPS PROTECT SOLDIERS IN BOSNIA

An enhanced information system that will improve soldier safety and communications has been installed in 70 high-mobility, multipurpose wheeled vehicles (HMMWV's) in Bosnia by technicians from Tobyhanna Army Depot, Pennsylvania. The Balkans Digitization Initiative (BDI) involved equipping the HMMWV's with information systems that allow the American command base in Tuzla, Bosnia, to keep in constant contact with soldiers on patrol through a satellite link.

"To adequately protect our soldiers and to ensure mission success, it's critical to track and know the whereabouts of patrol vehicles at all times," explained supervisory electronics engineer Ron Cappellini. "This system not only provides that, but also allows soldiers in those Humvees to track and communicate with each other and stay in communication with headquarters via e-mail."

The information system consists of a computer, omnidirectional antenna, keyboard, and monitor. The antenna is linked with a Global Positioning System satellite to give the location of the vehicle to headquarters and other BDI-equipped HMMWV's. A soldier in Tuzla can track some or all of the vehicles through a satellite terminal monitor and alert the drivers through the e-mail system if they are going to stray off course.

The system is similar to the commercial system used in tractor-trailers. One of the major differences is that the software customized for military use provides location updates every 5 minutes instead of every hour.

The Program Executive Office for Command, Control and Communications Systems, Fort Monmouth, New Jersey, led the initiative. Tobyhanna Army Depot; the TRW Corporation; QUALCOMM, Inc.; and the Army Communications-Electronics Command's Logistics Readiness Center at Fort Monmouth collaborated on the project.

## OCS EXPANDING TO TURN OUT MORE OFFICERS

To help stem a significant officer shortage, the Army's Branch Immaterial Officer Candidate Course, known Army-wide as officer candidate school (OCS), has expanded. A third company has been added to the 3d Battalion, OCS, 11th Infantry Regiment, at Fort Benning, Georgia. With the addition of the new company, approximately 1,050 officers will be able to attend OCS each year.

At one time there were as many as 13 OCS's, almost one for every military occupational specialty. In 1976,

they all were incorporated into the 14-week school at Fort Benning. "One myth is that our school is all infantry, but it's not," said Lieutenant Colonel Dave Osborne, the OCS commander. "We train officers for the 16 branches."

The 4-week first phase of OCS focuses on troop-leading procedures and writing operations orders. This phase also includes a lot of physical training, road marches, and hand-to-hand combat training. The last week is devoted to land navigation training.

The 6-week intermediate phase stresses tactics and includes classes on offensive and defensive concepts, which are tested in computer-based exercises. The fifth week of this phase is spent entirely in the field.

During the last 4 weeks, the candidates live much as they will as lieutenants. They no longer have restrictions placed on them, and, if they live in the local area, they can go home at night.

Osborne said the attrition rate is around 10 percent, and most of that is due to injuries. He credits the low attrition rate to the selection process, which picks the most motivated and qualified people.

To apply for commissioning through OCS, enlisted soldiers and warrant officers must—

• Be 18 to 30 years old. The top age may be waived if the applicants can be commissioned before their 35th birthday.

• Have at least 90 hours of college credit.

• Have SAT [scholastic aptitude test] scores of at least 850, or 19 on the ACT [American college test].

• Include with their applications letters of recommendation from their chains of command and three such letters from individuals outside their chains of command.

• Meet with a local board of officers, which ranks them in order of merit and forwards their applications to the Total Army Personnel Command for consideration.

## IMPROVED WORLDWIDE PORT SYSTEM TESTED SUCCESSFULLY IN BELIZE

Following a test of their improved Worldwide Port System (WPS) last May, officials at the Military Traffic Management Command's (MTMC's) Deployment Support Command (DSC) are hopeful that the new system will enhance the readiness of deployment support teams and improve the overall usefulness of the WPS's communications capabilities to team operations. The WPS will provide deployment support teams with in-transit visibility of cargo via the Global Transportation Network and help ensure that the teams' cargoes are documented properly.

The new system consists of a notebook computer that functions as a file server, an improved international mari-



☐ **The WPS is set up in a van semitrailer for testing in Belize.**

time satellite (INMARSAT) portable satellite dish, a router and hub, a bar-code printer, a laser printer, scanners with accessories, a jazz drive, and two notebook computers for user access. All system components fit inside padded custom-made cases that protect them during shipment. All the cases have wheels and weigh less than 70 pounds each when loaded, which makes them easier for one person to lift in and out of vehicles.

The system was updated to improve communications via the INMARSAT system. "But the real importance [of the updated system] is in its ability to communicate reliably with the satellites," said Robert Shepard, DSC's Assistant Deputy Chief of Staff for Information Management.

The system was tested in Belize in Central America. Belize was chosen as the site of the test because the 832d Transportation Battalion, a DSC unit, was deployed there.

"[In Belize], we hooked up, got the information transmitted over an INMARSAT phone line, and were finished 2 hours after the last cargo was loaded," said Major David Cintron, former battalion executive officer for the 832d. "This is opposed to the normal 6- to 8-hour time lag we experienced many times before."
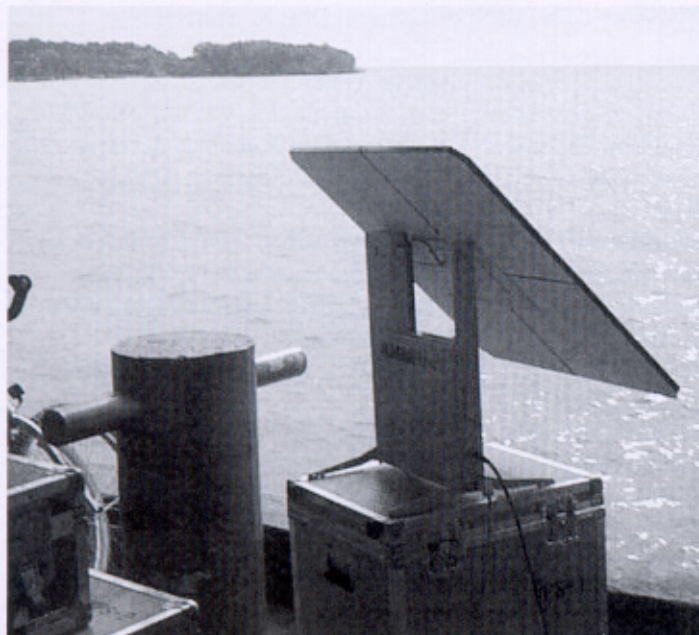


☐ An improved INMARSAT dish is a critical component of the improved WPS.

Plans are underway to purchase a number of the new systems to support MTMC units that have needs similar to those of the 832d. The current WPS system will continue to be used at stateside locations where satellite communications are not needed.

## NEW VEST KEEPS SOLDIERS AFLOAT

The Army has selected a new commercial-off-the-shelf vest that will keep soldiers afloat when they wear full body gear. The flotation vest previously available could not keep solders afloat with all of the equipment they now carry.

The Soldier Enhancement Program (SEP), which is managed by the Product Manager for Enhanced Soldier Systems at the Army Soldier Systems Center in Natick, Massachusetts, is responsible for finding commercial-off-the-shelf items to fit the needs of soldiers in the field. SEP purchased a number of commercially available flotation vests and tested them in Natick's hydro-environmental simulator. The test subjects—one small female and one large male—wore the vests over the maximum allowable amount of body gear and protection. Vests that provided the proper amount of buoyancy and automatically rotated the subject's face out of the water then were tested in real-world situations at Fort Leonard Wood, Missouri. Soldiers were asked to rate the vests for comfort, ease of mobility, compatibility with equipment and clothing, and how well they performed in water. They unanimously selected a vest produced by Stearns Manufacturing Company.



☐ The Army's new flotation vest.

The only change needed was to cover the vest with the Army's standard woodland camouflage pattern. The vest is now available for procurement in two sizes.

## ARMY RAIL USERS WARNED OF POTENTIAL TRANSPORT PROBLEM

The Department of Defense representative on the Association of American Railroads (ARR) Open-Top Loading Rules Committee cautions Army users of commercial railroads of the danger posed by unsecured turrets or gun barrels on tanks and other tracked armored vehicles being transported on flatcars. In such cases, the turrets can strike passing trains, crossing gates, or other trackside structures. The impact from a turret or gun is substantial enough to collapse a truss bridge, which could destroy a number of the cars following the tank.

Union Pacific Railroad (UP) reports that a recent incident was caused by inadequately tightened rope clamps on the wire rope loops intended to keep the turret from turning and the gun barrel from elevating. Also, the turret rotation lock was disengaged or had vibrated off. As a result of a number of such occurrences, UP now requires the gun barrels on tanks and other armored vehicles to be in the trailing position for all shipments originating on the UP.

☐ An M728 combat engineer vehicle turret with its boom torn off after striking a passing train.

Guidance for securing turrets is contained in the AAR Open-Top Loading Rules Manual, Section 6, Rules for Loading Military Equipment and Materiel. Similar guidance also is available in Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) Pamphlet 55–19, which is on the MTMCTEA website at http://www.tea.army.mil. For more information, call (757) 599–1645 or DSN 927–4646, or send an e-mail to KerrR@tea-emh1.army.mil.

## ARMY UNIVERSITY ACCESS ONLINE COMING SOON

Secretary of the Army Louis Caldera has announced a $600 million distance-learning initiative that will help soldiers obtain college degrees or technical certifications through Internet-based courses. The program, called Army University Access Online (AUAO), should be available next year to all Active Army, Army Reserve, and Army National Guard members.

Caldera called on colleges and universities, Internet companies, hardware and software companies, and others to submit bids to the Army for an extensive curriculum and the technology required to support it. Officials hope to award a contract in December.

Under the current Army Continuing Education Service, soldiers pay for their books and for 25 percent of a school's tuition. Caldera hopes to provide 100-percent funding for the distance learning program. The Army has budgeted nearly $50 million for AUAO and its website, http://www.eARMYU.com, in fiscal year 2001, with another $550 million over the next 5 years.

The website is not designed to eliminate the traditional classroom but to complement the current system. Caldera expects an increase in retention by improving in-service education opportunities. "Soldiers can better achieve their personal educational goals and do not have to leave the Army to get an education or use their GI Bill," he said.

## SUPPLY AWARDS ANNOUNCED

The following first-place winners of the 2000 Army Supply Excellence Award were announced on 31 August by Army Chief of Staff General Eric K. Shinseki—

### Active Army

*Table of Distribution and Allowances (TDA) (Small).* Aviation Technical Test Center, Fort Rucker, Alabama

*TDA (Large).* 527th Military Intelligence Battalion, Korea.

*Modification Table of Organization and Equipment (MTOE) Company Without Property Book.* Headquarters and Headquarters Company, 25th Infantry Division (Light), Schofield Barracks, Hawaii.

*MTOE Battalion With Property Book.* 532d Military Intelligence Battalion, Korea.

*MTOE Battalion Without Property Book.* 205th Military Intelligence Battalion, Fort Shafter, Hawaii.

*Supply Support Activity (SSA) (Small).* 20th Support Group, Korea.

*SSA (Medium).* 542d Maintenance Company, Fort Lewis, Washington.

*SSA (Large).* Company B, 782d Main Support Battalion, 82d Airborne Division, Fort Bragg, North Carolina.

### Army National Guard

*TDA (Large).* 209th Training Regiment, Camp Ashland, Nebraska.

*MTOE Company With Property Book.* Headquarters and Headquarters Company, 30th Engineer Brigade, Gainesville, Georgia.

*MTOE Company Without Property Book.* Headquarters and Headquarters Company, 682d Engineer Battalion, Willmar, Minnesota.

*MTOE Battalion With Property Book.* 527th Engineer Battalion, Ruston, Louisiana.

*MTOE Battalion Without Property Book.* 67th Forward Support Battalion, Lincoln, Nebraska.

*SSA (Small).* Company B, 29th Support Battalion, Honolulu, Hawaii.

*SSA (Medium).* U.S. Property and Fiscal Office-North Carolina, Raleigh, North Carolina.

*SSA (Large).* U.S. Property and Fiscal Office-Louisiana, Pineville, Louisiana.

### Army Reserve

*TDA (Small).* Southern European Task Force Augmentation Unit, Vicenza, Italy.

*TDA (Large).* Headquarters, 7th Army Reserve Command, Schwetzingen, Germany.

*MTOE Company With Property Book.* 802d Ordnance Company, Gainesville, Georgia.

*MTOE Company Without Property Book.* 1932d Medical Team, Independence, Missouri.

*MTOE Battalion With Property Book.* 844th Engineer Battalion, Knoxville, Tennessee.

*MTOE Battalion Without Property Book.* 317th Quartermaster Battalion, Lawrence, Kansas.

## USTRANSCOM PUBLISHES HANDBOOK ON DEFENSE TRANSPORTATION SYSTEM

The U.S. Transportation Command (USTRANSCOM)

Handbook 24–2, Understanding the Defense Transportation System, was published 1 September. It is available in hard copy and in electronic format.

The handbook covers airlift, sealift, and traffic management capabilities; Defense Transportation System operation; statutory and regulatory guidance; elements of the Transportation Working Capital Fund; and future initiatives and technologies.

Hard copies of the handbook can be obtained by major commands through the USTRANSCOM Public Affairs Office and by organizational military units through their respective transportation component command public affairs offices. Electronic copies can be accessed on the Internet at http://public.transcom.mil/J6/j6o/j6_oi/handbook.html.



☐ Troops from the 7th Transportation Group at Fort Eustis, Virginia, participated in the British Reserve training exercise Strong Virginian this past summer. After they were offloaded from the *MV Strong Virginian* (a vessel in the U.S. Pre-positioned Stocks Afloat Program) for biennial maintenance, four landing craft utility and one landing craft mechanized provided amphibious support to the British training exercise. Above, a landing craft mechanized 8 (LCM 8) modification 2 and a landing craft utility (LCU 2000) provide logistics over the shore (LOTS) support at Browndown Beach, England. In the photo to the right, an LCU 2000 offloads British army trucks at Marchwood Military Port, England.

## NEW PT UNIFORM ISSUED

The Army began issuing the improved physical fitness (PT) uniform to basic trainees in August. At the same time, the new shorts, shirts and warm-up uniform became available for purchase at clothing sales stores on most Army posts.

The new PT uniform consists of a gray and black jacket with a reflective stripe; black, moisture-wicking trunks with reflective letters; a gray, moisture-wicking, short-sleeved T-shirt with reflective letters; and a gray, moisture-wicking, long-sleeved T-shirt with reflective letters. The cost of the entire uniform is $108.75.

The mandatory possession date for the improved physical fitness uniform is 1 October 2003. Soldiers may wear the old items until the wear-out date or purchase the new one. However, they cannot mix and match the old and new.

For the next 3 years, approximately $30 of each soldier's annual clothing replacement allowance will be based on the increased cost of the new PT uniform. Soldiers receive this allowance on the anniversary of their enlistment. The clothing replacement allowance is adjusted every year based on cost for uniform items and the projected wear life, so soldiers can replace uniforms as they wear out.

Army National Guard and Army Reserve soldiers do not receive an annual clothing allowance, so reserve component units will begin an issue-in-kind replacement of the old PT uniform in October.

Drill sergeants at Fort Jackson, South Carolina; Fort Benning, Georgia; Fort Knox, Kentucky; Fort Leonard Wood, Missouri; and Fort Sill, Oklahoma, were the first to receive the new PT uniform. By October 2003, all soldiers will be required to have one jacket, one pair of pants, two pairs of trunks, two short-sleeved T-shirts, and one long-sleeved T-shirt.

The PT uniform is authorized for wear in transit between home and duty station. Commanders also may authorize soldiers to wear the uniform off-duty and off the installation.

## AGSE CONFERENCE DATES SET

The 2d Annual Aviation Ground Support Equipment (AGSE) Users Conference will be held 5 and 6 December 2000 at the Fort Rucker, Alabama, Officers' Club. The theme for this year's conference is "Focus on the Future." Brigade, battalion, and company-level maintenance officers and noncommissioned officers are invited to attend to provide valuable input from the user's perspective on AGSE requirements and priorities for future systems development.

For more information, send an e-mail to WegnerR@rucker.army.mil. or call (334) 255–1580 or DSN 558–1580.

## MODULAR SLEEPING BAG SYSTEM KEEPS SOLDIERS WARMER

The Army Soldier and Biological Chemical Command, Natick, Massachusetts, has developed a modular sleeping bag system (MSBS) that can be adapted to different climates. The MSBS, which has a nylon cover and polyester insulation, replaces the down-filled mummy bag.

The MSBS is made up of a water resistant, breathable, Gore-Tex bivouac cover, a lightweight patrol sleeping bag, an intermediate cold-weather sleeping bag, and a stuff sack. The intermediate-weight bag fits into the patrol bag for very cold weather conditions, and there is room in the sleeping bag for a soldier to wear arctic clothing for additional warmth in extremely cold weather. The patrol bag provides protection in temperatures down to 35 degrees Fahrenheit; the intermediate weight bag protects a soldier in temperatures down to minus 5 degrees Fahrenheit; when the patrol bag and intermediate bag are combined and arctic clothing is worn, the bag provides protection in temperatures as low as minus 50 degrees Fahrenheit. The bivouac cover breathes, allowing body moisture to pass out while keeping water from coming in and can be used with any bag configuration.

The entire MSBS system weighs only 8.75 pounds and can be carried in, or strapped underneath, a rucksack. It is being fielded to all services.

## CONCEALABLE BODY ARMOR DEVELOPED FOR LAW ENFORCEMENT USE

Product Manager–Soldier Equipment at the Army Soldier Systems Center at Natick, Massachusetts, is developing a concealable body armor to be used by Military Police units, Protective Services, and the Army Criminal Investigation Command. The armor will provide 9-millimeter (mm) bullet protection over the entire vest and will have front and back contoured ceramic plates

that can be inserted to protect vital organs against 5.56 mm, 7.6 x 39 mm, and 7.62 x 51 mm rifle rounds. Each vest will be custom-fitted to the wearer, making it more easily concealed, and will weigh 6 to 13 pounds. Fielding of the commercially available armor to Protective Services could begin as early as this fall. Fielding of the concealable body armor "plus" with customer-approved modifications is expected by the fall of 2001.

## TRANSLOTS JOINS ROVING SANDS

☐ **For the first time, the annual TRANSLOTS (a transportation logistics over the shore exercise) held** last June at Fort Story, Virginia, ran in conjunction with Exercise Roving Sands, a joint-theater air and missile defense exercise that involved more than 18,000 troops from several nations. The association with Roving Sands helped make TRANSLOTS a larger joint exercise and involved the Navy. More than 2,000 soldiers from 46 units participated in the exercise.

The soldiers used landing craft to unload one of the Navy's newest cargo ships, the *USNS Fisher* (at left), and then truck supplies to the front lines. The *Fisher* was loaded with equipment from Fort Eustis, Virginia, and offloaded by Army landing craft and other vessels while anchored in Chesapeake Bay near Fort Story.

# ATAV Vision

by Louis M. Ferris

## During the next decade, the Army will follow an evolutionary path of integrating logistics information and business practices to achieve Army Total Asset Visibility.

The Army has begun a major organizational transformation to take full advantage of the Revolution in Military Logistics, and in particular the revolution in information technologies. To fulfill the objectives of Joint Vision 2010, the Army is moving toward operating on a digitized battlefield in order to gain full-spectrum information dominance. In keeping with its strategic mission and technological advances, the Army also is transforming its force structure to build more flexible, responsive, and capable units. A new generation of command, control, communications, intelligence, surveillance, and reconnaissance technology will use Internet-based applications that can be accessed from computers and satellite dishes that are smaller and lighter than those in the current Army tactical inventory. This technology will play a key role in helping the Army achieve the "agility and versatility" needed for the peace-keeping missions and small wars in which it increasingly is involved. A major component of this transformation is real-time situational awareness for both the warfighters and the logisticians who support them.

Arguably the single most important element—the "glue"—that will bind together the components of the transformation is total Army asset visibility and control. Without this, there will be no situational awareness, no rapid response to operational contingencies and peace-keeping missions, no responsive distribution, no achievement of planned business process improvements—and no Army transformation.

### Army Total Asset Visibility Future Vision

Army Total Asset Visibility (ATAV) is an automated capability designed to provide total visibility over Army major items and secondary assets to enhance strategic decision making for many Army logistics functions, echelons, and actions. Under the functional proponency of the Army Logistics Integration Agency, ATAV provides a single, authoritative source of asset information for Army logistics managers and decision makers.

Today's challenge is to establish a blueprint for the evolution of total asset visibility within the Army over the next 10 years. Technology offers numerous opportunities to revolutionize the process of acquiring and using asset visibility. However, effectively capitalizing on that opportunity will require a blueprint that charts an evolutionary path. That path must consider the changing roles of logistics created by the Single Stock Fund, National Maintenance Management, the Global Combat Support System-Army (GCSS-Army), the Logistics Integrated Data Base (LIDB), and the Wholesale Logistics Modernization Program (WLMP). Success will be measured by the degree to which we are successful in integrating these initiatives and then integrating asset visibility into their respective business processes. Success also will be measured by our ability to replace the unique asset-visibility business processes of the 90's with a transparent capability that is embedded within our routine combat service support (CSS) business processes.

The three-phased approach to developing ATAV outlined in this article is characterized by evolutionary stages rather than a single, revolutionary "new start." The magnitude of the effort needed to achieve ATAV is so great, and the scope so broad, that an evolutionary, or migratory, approach appears to be the most manageable. While technological revolution and innovation can be compartmentalized, the scope of the business process improvements and their accompanying application systems may be approached better in an incremental fashion, in terms of functional or business process reengineering.

### Integrating GCSS–Army Tier I and LIDB

In Phase I of developing the ATAV of the future, the Army capitalizes on technology and the ongoing development of both GCSS-Army and the LIDB to embed asset visibility into logistics business processes. Asset reporting processes and costly, application-dependent data updates are eliminated and replaced by new data

## Integration Concept



**One System**
**Seamless Information Flow**
**Integration of Data and Processes**

JTAV/GCSS

LIDB
National
Enterprise
Data Base

WLMP

data

Specified CINC/JTF requirements

Web-based–
National-level extension to GCSS-A T1
Centralized property book

data

Data
processes

**Web-based**
**Data base-to-data base synchronized**
**Unit to national to joint levels**

G-Army
Mgt Module

Web-based

One-stop shop

GCSS-Army Tier II
GCSS-Army Tier I

SSA     Maintenance     Ammunition     Supply
                        supply         point
                        point

The Approach:
• Common data model
• Common logical processes
• Logical data synchronization
    Centralized/regionalized/web-based
    Data synchronization
• Consolidate user presentations
• "Embedded" asset visibility

☐ **This chart shows how the integration of GCSS-Army Tier I (T1) and LIDB will form the framework for GCSS-Army Tier II retail and wholesale integration. ["G-Army Mgt Module" is the management module planned for GCSS-Army.]**

base update technology and Web-based capabilities. [GCSS-Army is the Army's initiative to ultimately re-engineer the entire logistics business process into a single, seamless, modernized, distribution-based system. It is being developed using a three-tiered approach. Tier I is integration of retail-level information, and Tier II will be wholesale and retail integration; Tier III will be joint integration.]

Where it makes sense to consolidate accountable records and visibility data bases into a centralized, Web-based environment (as is the case with the pilot Web-based Property initiative), TAV-unique processes become unnecessary because the accountable record and the visibility data base are one and the same. If it makes better sense to maintain distributed accountable records (which may be the case for supply support activities [SSA's]), data-base-to-data-base update and synchronization technology (such as Oracle Replication) can be used. In either case, technology is employed to minimize human error, enhance timeliness, improve reliability, and reduce costs.

In Phase I, the multiple national-level repositories of logistics information are consolidated, with the LIDB serving as the national-level extension of GCSS-Army. As such, LIDB potentially becomes the launching point for a broader National Enterprise data base that is central to WLMP and the key to the wholesale-retail inte-

gration that will take place in GCSS-Army Tier II. The Phase I concept also features a universal user interface (such as a Web-based browser) and continued advances in the application of automatic identification technology (AIT) to facilitate source data automation, inventory management, and in-transit visibility. Enterprise Portal (e-Portal) technology, with its emphasis on establishing a Web-based single point of access for the entire extended supply chain, can be applied in phase I to facilitate the integration process.

The success of this full integration concept for GCSS-Army Tier I and LIDB depends on adopting and implementing a single, enterprise-wide Logical Data Model (LDM). The LDM is the "brick and mortar" of an integrated enterprise system because it serves as the common enterprise "language." This common language is needed to standardize logical processes and eliminate the need for costly translation and bridging using application interface software.

Phase I represents a transition from ATAV *the system* to ATAV *the capability*. This will eliminate unnecessary business processes and save dollars and labor while improving quality and timeliness. In direct support of Joint Vision 2010 objectives, this concept will standardize data and logical processes and synchronize the tactical logistics data bases with a baseline National Enterprise repository, while establishing a true frame-

work for the wholesale-retail integration of GCSS-Army Tier II.

## Exercising Control and Functional Enhancements

Phase II focuses on how to leverage the results of the fully integrated GCSS-Army Tier I/LIDB national-level relational data base management system into a fully integrated and functionally operative integrated output process. In Phase II, we leverage the vast data warehouse to host a wide variety of user enhancements drawing from a single, authoritative, normalized, and synchronized logistics data repository. The national-level extension to GCSS-Army evolves into an Executive Decision Support System (EDSS) and Business Intelligence System (BIS) with enhanced performance measurement tools, such as metrics and trend analyses. Here we combine initiatives that provide similar products and services and abandon those initiatives that have become redundant because of the Phase I integration. The result is newer and better tools to support the decision maker.

By converting sound logistics business rules to artificial intelligence and other knowledge-based applications, the national-level warehouse can be exploited so that it is not a mere passive user presentation but a dynamic system capable of recommending alternative courses of action. To this end, the powerful knowledge-based decision support component of e-Portal technology is applied. Examples of resulting products might include—

- Predictive readiness, making recommendations for weapon system-specific corrective actions.
- Predictive operating tempo and sustainment, based on analysis of historical trends.
- Predictive distribution and issue, based on equipment on hand (EOH), upcoming changes in major items to modification tables of organization and equipment (MTOE's) and tables of distribution and allowances (TDA's), and demand for secondary items and repair parts.
- Advanced metrics, based on a single, authoritative, normalized, and reliable logistics data repository.

## Integrating Wholesale Logistics

In Phase III, the recommended corrective actions introduced in Phase II can be executed automatically. This will be possible because of the integration of the wholesale operation into GCSS-Army Tier II. All functions, missions, and organizations are connected and integrated as an enterprise-wide, end-to-end information, decision support, and execution system.

This system will provide the launching point for the ATAV of the first decade of the 21st century. It will be characterized by almost fully automated data collection, with real-time updates and availability to all echelons of the CSS and command and control communities. It will feature control mechanisms, based on prognostics and predictive inputs, that trigger fully automated, knowledge-based courses of action.

Control of the distribution process from the factory to the foxhole to final disposition also will be a key feature. Soldiers and civilians will be removed almost completely from the requisition, review, refer, issue, receive, and distribution pipeline. The Army of forms, desks, manual processes, and layers of review will become an anachronism. The highway between the factory and foxhole will have few if any rest stops, pull-offs, or cloverleafs. The effective application of this impressive technology results from the ability to develop reliable historical trend analyses from the data store and to draw from an integrated, shared, enterprise-wide data warehouse.

The lack of availability of a reliable and timely data store always has been the roadblock to successful application of decision-based technology. So the vision for asset visibility and the ability to control and execute CSS decisions based on that visibility must begin with the establishment of a shared, reliable, timely data process.

In our ATAV Vision, a fully integrated, event-driven, and seamless business process, supported by a Web-based communications backbone with real-time data base updates, will give the field commander, and indeed the national materiel manager, an animated view of the logistics and operations components of the battlefield and the garrison. Force, equipment, and resupply quantities and locations will be available via a Web browser in a moving graphics panorama on the screen. GCSS-Army, in conjunction with the Global Command and Control System (GCCS), will provide the battlefield commander with a "situational awareness" of the entire logistics support infrastructure available to his tactical operation. This awareness will be "situational" because the battlefield commander can draw on the integrated data warehouse and the executive decision support system-business intelligence system to isolate and evaluate not only his field of operations but also the entire Army logistics support infrastructure.

In our ATAV Vision for 2010, the full spectrum of logistics, operations, personnel, and intelligence information can be viewed, analyzed, and acted upon in a near-real-time "virtual reality" representation of the current situation. **ALOG**

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# A Technique for Combined and Joint Logistics Planning

by Major Ray W. McCarver, Jr.

Joint logistics planning is a difficult task for even the most talented logistics planners, regardless of service affiliation. Each service has its own unique requirements, techniques, doctrine, and capabilities, as well as its own terminology. Some of the most challenging aspects of joint logistics planning are the cultural differences and prejudices that exist among the services as they relate to one another.

At Combined Forces Command (CFC), Korea, the difficulty of logistics planning increases exponentially as you enter the world of *combined* logistics planning. At that level, not only do you have the same obstacles as a joint logistics planner, but you also face an entirely new set of variables that demand your attention, patience, and adaptability. Language barriers, doctrinal disparities, and cultural differences in problem solving must be surmounted. In an effort to overcome these obstacles, the U.S. Forces Korea (USFK) J4 (Director of Logistics) and the CFC C4 (a Republic of Korea [ROK] two-star general whose duties are similar to those of the USFK J4) decided to conduct a Combined and Joint Logistics Seminar (C/JLS). The intent of the seminar was to bring together logistics planners from each service, country, and organization that had an impact on a clearly defined planning target, which, in this case, was logistics.

The first C/JLS was conducted in February at CFC Headquarters at Yongsan Garrison in Seoul, Korea. Participants included over 155 ROK officers and U.S. officers representing service components in Korea, Japan, Hawaii, and the continental United States. For 4 days, the C/JLS focused on combined and joint theater distribution and sustainment in the Korean theater of operations (KTO).

## CFC's Mission

The purpose of the CFC is to deter war; however, in the event of hostilities, it must be able to transition rapidly to decisive military operations. Theater distribution and sustainment in support of operations, both defensive and offensive, in the KTO are extremely complex and arduous. The terrain poses the biggest challenge: north-south movement is limited to long, narrow valley corridors, and east-west movement is inhibited by mountains.

Further complicating operations and logistics support is an extremely limited transportation infrastructure.

Although hard-surfaced roads do exist, the majority of Korean roads are unimproved. Both coasts present challenges to conducting logistics-over-the-shore (LOTS) operations, with the west coast being particularly difficult because of extended mudflats and narrow channels. Aerial resupply and delivery are restricted because of limited airfields and highway runway strips and the extremely mountainous terrain.

The CFC Logistics Policies and Procedures Manual states that logistics is a service and a national responibility. However, in a combined fight, and to overcome the multiple sustainment distribution challenges presented in the KTO, CFC logistics planners must be prepared to cross boundaries and leverage all capabilities, both joint and combined, to maintain the momentum of combat operations. This will require theater logistics planners to identify all logistics capabilities available to support ground, air, and sea operations. They must understand clearly the field armies' and corps' schemes of maneuver and concepts of support, including both ROK and U.S. logistics operations doctrine. The most difficult part is marrying up the theater's joint logistics capabilities with the support concepts of the field armies and corps in a way that will provide the maneuver forces with the logistics required to conduct decisive operations.

Over a 4-day period, the C/JLS used a "building block" approach to engage these planning issues.

## Day One

Since it is critical for planners to know and understand all available logistics capabilities, each U.S. service component presented their service's unique capabilities to support combined and joint operations on the first day of the seminar. Because the ROK services are limited primarily to supporting their own operations, the briefings were conducted by the U.S. components exclusively.

The Air Force discussed establishing and using forward operating bases (FOB's) in support of ground operations. Should ground lines of communication become degraded or cut, existing airfields and highway airstrips in the KTO could provide critical logistics nodes for transferring supplies and personnel quickly. Theater planners must know and understand what is needed to establish an FOB. The primary requirements are ground

security, engineering support for repairing and improving the runways, and materials-handling equipment.

The Navy briefing focused on LOTS operations and provided a detailed analysis of LOTS equipment and the available capabilities and limitations of LOTS operations due to weather and sea state. Because LOTS operations can be conducted even where there are no ports or where existing ports are austere or damaged, this capability provides tremendous flexibility for logistics planners in moving both forces and supplies. In order for the Navy to conduct LOTS operations, enemy coastal defenses must be neutralized, and mine-clearing operations must be conducted before LOTS operations begin.

The Army briefed the group on the LOTS capabilities it brings to the theater and its responsibilities to provide common-item support to other services. Army LOTS capabilities include rapid movement of equipment and supplies over coastal and inland waterways. This capability represents a robust tool for conducting logistics operations. Some common-item support that the Army provides for the other services' inland forces includes all classes of supply; medical, mortuary affairs, and real estate support; theater movement control; and interagency coordination.

The Marine Corps conducted the final briefing on day one. Although the Marines' capability to support logistics operations outside their own internal support is limited, they do bring to the table years of experience and real-time knowledge of LOTS operations. They have significant aviation support assets that could be used in combined and joint operations.

At the end of day one, the logistics planners had a clear understanding of all of the tools available to support operations in the KTO.

## Day Two

While planning the seminar, the C4 staff devoted significant time and effort to developing a field army and corps "concepts of support" briefing format. The G1/G4 Battle Book, an Army Command and General Staff College product, proved to be the best source of information. One of the key principles of a concept of support is synchronization with the concept of the operation. Theater logistics planners needed an intimate understanding of the commander's concept of the operation to employ effectively all of the logistics capabilities that had been discussed during day one of the seminar. The approved briefing format included the field armies' and corps' mission statements, the support units' mission statements, the operational scheme of maneuver, and a combat service support overlay depicting support unit movements to provide bulk class III (petroleum, oils, and lubricants), class V (ammunition), maintenance, and transportation. Supply and services requirements, capabilities, and shortfalls also were presented.

On the second day of the seminar, the field armies and corps briefed their concepts of support. The briefings proved to be valuable tools for all logistics planners and senior officers in attendance. There was a lot of discussion among the various staffs. With a clear understanding of the scheme of maneuver across the battlespace, logistics planners could choose the most favorable terrain for conducting logistics operations.

## Days Three and Four

By the end of day two, C/JLS participants had been briefed on all of the combined and joint logistics capabilities available to support operations, and they had a clear understanding of the scheme of maneuver and concepts of support of the field armies and corps. On the third day of the seminar, participants were divided into five working groups that were chartered to develop courses of action and recommend the best way to accomplish the difficult task of marrying logistics capabilities to the concept of operations. The five working groups were LOTS, supplemental lines of communication, aerial resupply and delivery, theater main supply routes, and log base planning.

Functional experts from each service and nation comprised the working groups. The groups spent the whole day discussing and debating their issues, and there was cross talk among them when issues overlapped. By the end of day three, each working group had developed a briefing that presented issues, courses of action, and recommendations.

The fourth day of the seminar brought all participants back together, and the working groups provided an outbrief on their issues. Issues and recommendations identified by the working groups were captured by the CFC staff for further development and incorporation into future plans.

The C/JLS provided an excellent forum for U.S. and ROK logisticians to exchange information and discuss logistics planning for current operations. Participants left the seminar with a better understanding of logistics plans. They were able to identify logistics constraints and methods to overcome them and to develop a plan of action to improve logistics support. Because the seminar was so successful, the decision was made to make it an annual event with a different, clearly defined target each year. **ALOG**

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# Deployment, Sustainment, and the Future

by Major General Walter L. Stewart, Jr., PAARNG

> But the quantity of Ice, made that Night, impeded the passage of Boats so much, that it was three O' Clock before the Artillery could all be got over, and near four, before the Troops took up the line of march.
>
> —General George Washington
> 27 December 1776

American military forces have a long history of leveraging commercial transportation resources and private-sector technology to meet contingent operational requirements. In the bitter cold and snow of Christmas night in 1776, the hard, unbroken core of an American army crossed the ice-filled Delaware River and destroyed an outpost of the British Army at Trenton, New Jersey. This victory and another triumph a week later at nearby Princeton affirmed the power of American arms and the tactical brilliance of our first commander in chief, General George Washington, and gave heart to a new nation badly in need of confidence. These successes depended on the borrowed use of large, shallow-draft, wide-beamed commercial watercraft that were designed to carry heavy and outsized cargo on the shallow waters of the upper Delaware. This class of boat was referred to as "Durham"—a name taken from the Durham Iron Works in Bucks County, Pennsylvania.

This use of privately owned boats to set the stage for a badly needed battlefield victory is just one of many examples from the past that demonstrate the importance of deployment and sustainment to military success. Deployment and sustainment continue to be subjects of intense study in the present, and they will remain so in the future.

## The Present

The 1999 Army Science Board Summer Study, "Enabling Rapid and Decisive Strategic Maneuver for the Army After 2010," focused on strategic and operational deployment and force sustainment, including the use of intermediate support bases (ISB's). (The terms "staging base," "support base," and "supply base" all have some common and some distinctive terms of reference within the services. This discussion uses "support base.") The ISB was identified as a support and sustainment requirement that was used frequently by the Army but lacked established doctrine and, accordingly, received little attention in contingency planning. When required, the short or no-notice establishment of an ISB added to the time required for force deployment and contingency response. The Science Board study recommended the development of an ISB doctrine.

The use of the term "intermediate support base" leads to a natural misunderstanding about recent support and sustainment practices. When we think of a base, it is easy to picture a large area of ground—often a seaport or airport—with controlled access and a fenced-off "iron mountain" of supplies, accompanied by intense combat service support activities. However, our most recent operational deployments have shown that support and sustainment of U.S. and coalition military operations will be provided from a wide variety of sources at a broad range of geographic locations (including the continental United States [CONUS]) by an increasingly diverse group of agents. This diversity of support locations and agents will increase, as military planners are driven by cost and force-structure considerations to adopt the efficiencies of commercial logistics practices and to make greater use of commercial transportation resources and contract services.

Perhaps most important to the deployment, support, and sustainment process are recent, planned innovations in the communication systems needed to manage the required complexity of command and control. While span-of-control limitations once made it necessary to have numerous transfer-of-control points in a support and sustainment pipeline, it is now possible for a single responsible individual to control support and sustainment from fort to fight and from warehouse to user. The Department of Defense (DOD) community, with active and reserve component military forces in every region of the Nation, is uniquely equipped to execute timely and seamless deployment and sustainment operations in support of our combatant commanders. Achieving unity of command over the entire deployment, support, and sustainment process must be the primary object of any doctrinal development. ISB doctrine can be viewed only as a subset of this larger requirement.

During Operation Joint Endeavor, support and sustainment tasks were accomplished from a variety of locations and under the control of a variety of headquarters. What could best be described as a U.S. Army ISB was (and remains) at Taszar, Hungary. Taszar

served as a way station for Army units moving to and from Bosnia and as a center for Army logistics activities. At the same time, U.S. Air Force support flowed through Rhein-Main Air Base, Germany, and other theater air bases, and U.S. Navy support activities centered on Rota, Spain, and other Mediterranean ports. North Atlantic Treaty Organization and other coalition partners used their own support and sustainment systems or leveraged those established by U.S. forces. In effect, the "joint-combined" (and uncoordinated) ISB for Operation Joint Endeavor was central and southeastern Europe—a support and sustainment hub of immense proportions and capabilities.

The 1999 Summer Study also recognized that leveraging commercial resources was central to meeting the near-term and future requirements of U.S. force deployment and sustainment. Events in Kosovo have shown that, in peace support operations, small-scale contingencies, and lesser regional conflicts, areas of intense armed activity will occur in close proximity to benign environments where day-to-day commerce continues, little affected by fighting that might be taking place only a few miles away. Simply stated, the security requirements of commercial activities most likely can be met at facilities not far from an area of hostile activity. This proximity to secure facilities invites the military to make greater use of commercial resources for the strategic and operational legs of deployment and sustainment, thereby freeing scarce military resources for those activities that involve risk from hostile action. In addition, the ability to move and track freight via a worldwide network of integrated commercial movement systems is increasing, while movement using DOD carriers and tracking systems is static or only evolving slowly.

From a doctrinal point of view, deployment, support, and sustainment operations are performed by existing organizations. When operations dictate the establishment of a geographically focused ISB or other support structure, we do quite well in cobbling one together from existing resources. What was lacking in the past were the command and control systems and the doctrine necessary to expand the operational support and sustainment function (as embodied in a geographic ISB) from a mission-driven geographic focus to a standing, planned and trained, on-call capability that exists independent of location.

Fortunately, information management systems and technologies are coming into use that will permit—in fact invite—unity of effort over the entire force deployment, support, and sustainment process. The Global Command and Control System, the Global Combat Service Support System, the dynamic promise of the Defense Advanced Research Projects Agency's (DARPA's) Advanced Logistics Project (ALP), and the Joint Total Asset Visibility program, as well as similar service and private-sector programs, are all pieces of the solution to the deployment, support, and sustainment unity-of-effort puzzle.

The United States is, in effect, an island nation, and it is uniquely situated—geographically, militarily, and technologically—to serve as a gigantic ISB for the rapid deployment and sustainment of military forces over great distances. The coastal regions of CONUS provide a variety of deep-water port facilities, most of which are suited or easily adapted for military use. Using the northeastern region as an example, deep-water shipping capacity exists from Portland, Maine, to the Chesapeake Bay ports. Competition among local government agencies, aimed at making their port facilities attractive for commercial users, will ensure that the most efficient cargo throughput techniques are readily available for military use. The Delaware River Port Authority "Agile Port" initiative, linked contractually with Fast Ship Atlantic, is one example of a joint private sector-local government initiative that will reduce from days to hours the time required to transfer cargo from rail, road, and air to a state-of-the-art fast ship (or conversely, from ship to rail, road, and air). A small, commercial "fast ship" fleet of seven vessels, similar to the Civil Reserve Air Fleet, could lift and deliver two Army of Excellence brigades, along with 2 weeks' worth of sustainment, 8,000 nautical miles in 10 to 12 days. National Defense Features [NDF] funding of approximately $50 million per fast ship would produce a per-ship strategic deployment capability that is the equivalent of over a billion dollars' worth of C–17 transport aircraft.

Again using the northeast as an example, DOD forces, bases, air bases, equipment, and logistics agencies are disbursed throughout the region. The 10th Mountain Division (Light Infantry), at Fort Drum, New York; the 42nd Infantry Division, New York Army National Guard; the 28th Infantry Division, Pennsylvania Army National Guard; the 29th Infantry Division, Maryland and Virginia Army National Guards; the Defense Distribution Center at New Cumberland, Pennsylvania; and dozens of Army Reserve units, facilities, and senior commands represent a significant national deployment, support, and sustainment potential that is mirrored throughout the United States. The recently announced Army Reserve initiative to establish equipment deployment sets at CONUS ports is one example of affordable steps that can be taken to improve Army deployment flexibility and reduce deployment time. The concept of "prepared equipment sets" (perhaps better referred to as "CONUS Prepo") could be expanded at an affordable cost to include active and reserve component combat vehicle packages, which could be formed from on-hand equipment that is excess to troop training requirements. The equipment would be stored in fully mission capable status, ready for immediate ship or air loading.

## The Future

The scenario is some time in the future. The lessons learned from the deployment and sustainment of U.S. forces in the Balkans and elsewhere have been "chewed, swallowed, and digested." DOD investments in deployment and sustainment command and control systems (particularly the DARPA-developed umbrella network originally referred to as ALP) have created unity of command throughout the deployment and sustainment process. Deployment and sustainment organizations and chains of command (using the CONUS Area and Regional Distribution System [CARDS]) have been formed and trained to joint doctrinal standards and are exercising effective CONUS-based control over the entire deployment and sustainment pipeline. (Under the proposed CARDS concepts, regional alignments are virtual in nature and will be task-organized easily to meet mission requirements. For example, a particular contingency might require that CARDS-Northeast coordinate sustainment support to a European theater operation coming from a depot in California. The virtual nature of the CARDS concept allows for deliberate deployment and sustainment planning in a "no time for planning" environment.)

The "iron mountain" has been leveled to a continuous flow of just-in-time supply. The Army Reserve system of prepared deployment sets has been expanded to include Active Army and Army National Guard combat, combat support, and combat service support systems. These sets are located throughout the coastal regions of the United States in order to enhance ship access and reduce the complexities of road and rail connections and the potential for enemy disruption. Deployment exercises, with actual load outs, are conducted periodically. Joint reserve units have been formed to augment designated deployment, support, and sustainment headquarters. These reserve units take advantage of those skills that reservists, as citizen-soldiers, -sailors, -marines, and -airmen, bring to the battle. Small movement facilitation teams have been formed at appropriate National Guard state area readiness commands (STARC's). These STARC teams provide a DOD link to the movement control, emergency response, and security resources of state governments. DOD has funded NDF's and contracted for contingency services from the recently introduced family of high-speed ships. Arrangements for using the Civil Reserve Air Fleet and similar agreements for using ocean vessels have been updated. CONUS regional alignments (formed under CARDS) have been established: the northeast region supports the U.S. European Command, the southeast region supports the U.S. Southern Command, the south-central region supports the U.S. Central Command, and the Pacific coast region supports the U.S. Pacific Command.

By using emerging information management technology, the DOD community can achieve, at an affordable cost, the elusive goal of unity of effort over that most difficult of military operations—force deployment and sustainment. This is what the future of deployment and sustainment should look like. **ALOG**

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# Model Services Motorpool

by Captain John M. Cooper

The last decade has been a period of downsizing and belt-tightening for the Army. As a result, battalions and companies have learned to make every dollar count and every operation more efficient so their soldiers are able to train, maintain, and sustain with annual budgets that are smaller than those of past years. In an effort to streamline and modernize the Army and improve the way the Army performs maintenance on its equipment, the Army Forces Command (FORSCOM) has implemented a test program known as the Model Services Motorpool (MSMP).

General Thomas Schwartz, who was the FORSCOM commander at the time, devised the MSMP concept. It uses the latest industrial equipment to make redundant tasks associated with vehicle services as simple and efficient as possible. It equips soldiers with tools from reputable companies, such as Snap-On, Inc., and Craftsman, and makes their jobs more ergonomical, pleasurable, and efficient, therefore improving the quality of work and extending the life of the equipment.

## Unit Selection

After developing the MSMP concept, FORSCOM had to select a unit to serve as the foundation for the Force XXI motorpool. General Schwartz selected Fort Hood, Texas, as the location for his concept motorpool because of its track record for cutting-edge maintenance and its impact on the Army as a whole.

Once the installation was selected, the III Corps commanding general had to decide which unit would get more than $180,000 to remodel and refurbish its facility. The natural choice would have been either a combat arms unit or a main support battalion (MSB). However, since services are performed at the organizational level, a model service program at an MSB would have benefited only the MSB. The combat arms units certainly would have gained from the program; however, their equipment is rather homogenous and low-density, and the efficiencies gained would have been difficult to repeat in combat support and combat service support units. Motor transportation battalions generally have a diverse collection of equipment in large quantities and thus offered a better test of the MSMP.

The 13th Corps Support Command (COSCOM) commander recommended the 180th Transportation Battalion, Fort Hood's motor transportation battalion, because of its extensive track record for maintenance excellence. With minimal guidance from III Corps and the 13th COSCOM, the battalion initiated its plan for implementing the concept outlined by General Schwartz. Within the battalion, the 96th Transportation Company was chosen for the pilot program.

## Planning Phase

With only a notion of what the MSMP would entail, the 96th Transportation Company's commander created a list of what he and his maintenance technician thought would improve the performance of services. The commander conducted market research to ascertain costs and delivery times of the equipment he wanted for the motorpool. His list also contained modifications and repairs to the motorpool's buildings, including repairing insulation that was destroyed by pigeons and extending the bays to accommodate the M1070–M1000 heavy equipment transporter (HET) system. He submitted an initial estimate of $500,000.

Several days later, FORSCOM stipulated that the 180th Transportation Battalion would receive $183,000 to implement the MSMP, using the equipment specified by the company commander. Building modifications were deemed too costly for the benefits gained and were deleted from the initial plan. The remaining items were consolidated into an unfunded request for $161,000. The battalion determined that it could go ahead with the plan and meet the FORSCOM commander's goals for no less than $208,000, which included $183,000 from FORSCOM and an additional $25,000 from the 13th COSCOM.

With the tool list already established, the battalion staff had to determine specific models and prices. The battalion maintenance officer (BMO) was selected as the action officer, to be assisted by the battalion S4. The BMO contacted specific vendors, such as Automotive Resources, Inc. (ARI), and Snap-On, Inc., (both with offices in Dallas, Texas), to produce a concrete estimate of the overall project costs. He determined that the entire project, minus shipping and labor costs, would cost approximately $187,000.

## Implementation Plan

The BMO developed a four-phase plan to acquire and install the equipment. The initial phase consisted of coordinating with the III Corps contracting officer to procure items readily available through the General Services Administration or a contracted manufacturer and items that exceeded the $2,500 single-purchase limit on

the international merchant purchase authorization card (IMPAC). Phase 1 also included painting the walls and floors of the motorpool bays to give a fresh look to the motorpool.

Phase 2 was by far the largest phase and the most difficult to coordinate. It consisted of ordering and receiving shop tools and hardware such as wall lockers, toolboxes, workbenches, pneumatic tools, and handtools. Because of the quantity of equipment coming into the unit, as well as the potential for pilferage, the BMO established a centralized receiving point where the equipment arrived, was added to the unit property book, and then was issued to the unit. This centralized point also ensured that the BMO could track each item as it arrived and maintain detailed expenditure records.

Phase 3 consisted of automation improvements in the motorpool administrative areas. The building was equipped with a local area network (LAN) connection, and new computers were ordered. The battalion also purchased a small Xerox Workcenter (copier and laser printer) and a facsimile machine. The remaining office upgrades, such as desks and chairs, would be ordered as the project budget permitted.

During Phase 4, mechanical and pneumatic lift systems were delivered, and a centralized, pneumatically operated petroleum dispensing unit was installed. This phase was the most costly of the four, with an initial expense estimate of over $100,000.



☐ The ARI Hetra lifting system raises an M1070–M1000 HET system. The lifting system consists of separate lifts that are connected by cables so they can be operated simultaneously.

## Time Studies

To determine the program's success or failure, the unit had to create a service-time baseline against which any improvements could be measured. Using one organizational mechanic, assisted by vehicle operators, the unit serviced several systems and measured each step of the process with a stopwatch. Large, complex systems, such as the HET, were measured several times, while smaller, less complex systems, such as the M871 trailer and M998 high-mobility, multipurpose wheeled vehicle, or HMMWV, were recorded only once.

Once the baseline was established and the model service program was in operation, the unit had to determine and document the amount of time needed to perform a service. The III Corps Science and Technology Division arranged for a private, independent contractor to

track and monitor services. The Blackhawk Management Corporation of Houston, Texas, assigned a technician to the motorpool to observe and track the time required for soldiers to perform services using the new equipment. For comparison, the technician also spent time in the 27th Main Support Battalion, 1st Cavalry Division, and the 704th Division Support Battalion, 4th Infantry Division, to track how much time they needed to perform services without the 96th Transportation Company's new equipment.

## Plan Implementation

Once the 13th COSCOM comptroller allocated the money, the 180th Transportation Battalion began purchasing the equipment and supplies for the MSMP. The battalion S4 made the purchases either through the III Corps contracting office or with the IMPAC card, depending on the cost of the items being purchased.

As most Army leaders know, plans are bound to go awry as operations begin, but because of the foresight of the BMO, S4, and executive officer, the contingency plans they established paid off. To say that the plan was executed flawlessly would be an overstatement, but clearly it went much better than anticipated.

Most vendors, once they understood the significance of the project for the Army and the potential gains for their businesses, were very generous and eager to please. A representative of the lift manufacturer, ARI, visited the motorpool and coordinated with outside agencies to ensure that his lift systems would work and only would need to be plugged in to an outlet when received. He also gave hands-on safety training to each soldier who would use the lift. Overall, the greatest assistance to the project came from outside companies that wanted the project to succeed as much as the unit did.

## Environmental Improvements

In recent years, the Army has emphasized the importance of environmental protection and made significant environmental gains. III Corps and the Fort Hood community are no exception to the Army's official policy of making soldiering both habitat friendly and environmentally sound. In support of these goals, the Fort Hood Directorate of Public Works (DPW) Environmental Sec-
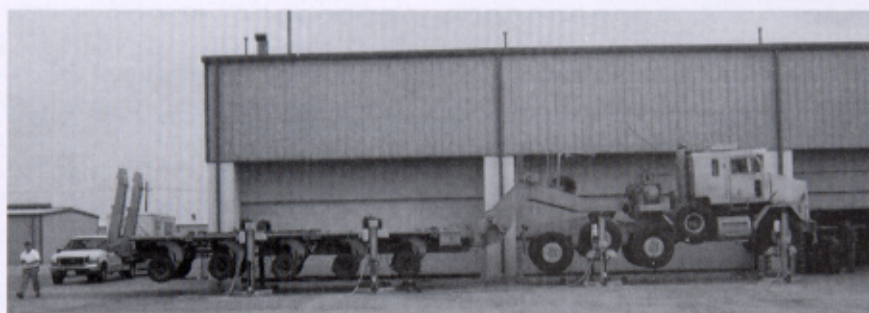
□ The Inland Technologies parts cleaner uses a nontoxic, nonhazardous solution to clean and degrease parts. The fluid lifetime is expected to be 2 years at a cost of approximately $900, compared to the old system that required a $100-per-month service call.
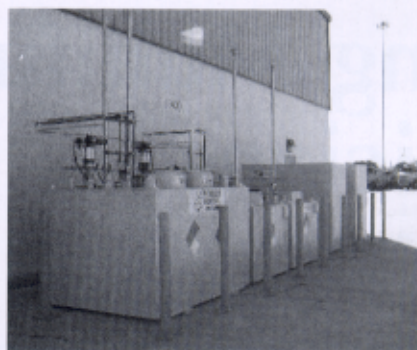


□ The fluid storage tanks for the POL dispensing unit hold a variety of fluids, including antifreeze, 10W oil, 15W–40 transmission fluid, and 80W–90 gear oil.

tion conducts routine inspections of motorpool facilities and supports units as they strive to meet Federal environmental protection regulations.

Some of the greatest gains for the 180th Transportation Battalion through the MSMP have been in environmental protection and hazardous materials-handling. Fort Hood's DPW subsidized the MSMP with over $100,000 to purchase numerous items, including petroleum, oil, and lubricants (POL) cabinets, absorbent recycling bins, and a detergent dispensing unit. Overall, these additions to the motorpool will reduce waste and eliminate the need for units to stock excess materials, some of which may be hazardous to the environment.

One of the best additions to the unit was the pneumatic POL dispensing system. This system consists of four 500-gallon tanks containing antifreeze, 10W oil, 15W–40 transmission fluid, and 80W–90 gear oil that are located adjacent to the main motorpool building. There are also waste tanks for mixed oils and antifreeze. Each tank is connected to a piping system that routes the product to a dispensing reel and nozzle. The nozzle contains an analog gauge to monitor the quantity of product dispensed. To operate the system, the mechanic squeezes the handle (similar to a gas pump) and monitors the quantity on the gauge. Using this dispensing system reduces the amount of POL that is wasted because of spills, contamination, and expired shelf life. The greatest benefit to the unit will be the reduction of man-hours needed to transport POL from the packaged class III issue point to the maintenance bay. The HET tractor's hydraulic system has a 42-gallon capacity, while the cooling system holds over 23 gallons of antifreeze. When dealing with such large quantities of fluid, it is easy to see the importance of an efficient POL dispensing unit.

## MSMP Benefits

The MSMP goal is to have a streamlined, efficient service facility with the latest cutting-edge equipment. Though the real benefits to the facility will not be known fully for some time, the unit has made conservative esti-

mates using known data on service times and assumed improvements that will result from the addition of the model service equipment. While an annual service on a HET trailer takes about 56 hours to complete, the unit expects to reduce this time to approximately 40 hours. With a fleet of 96 trailers, that reduction translates into over 1,500 man-hours saved annually. Additionally, the unit is estimating a 2,600-man-hour reduction for the two semiannual services on the HET tractor, for a total of 4,100 man-hours saved in servicing the HET system alone.

Using the Army's standard maintenance charge of $22.79 per hour, the unit expects to save approximately $93,439 per year in labor costs. In essence, the project will pay for itself in reduced labor costs alone in just over 2 years. Further cost avoidance will be realized from reduced overhead costs created by the elimination of wasted POL and other consumable assets and from the increased longevity of better maintained Army equipment.

The MSMP clearly has the potential to save each battalion in the Army hundreds of thousands of dollars each year through sound and financially responsible upgrades to existing motorpool facilities. Certainly, these improvements and efficiencies can be transferred to combat arms and combat support units—not only to save money and time, but also to boost the combat effectiveness and readiness of our fighting forces. **ALOG**

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# Training Multifunctional Logisticians

by Colonel Steven D. Patrick, USAR,
and Colonel Gary C. Howard, USAR

To develop multifunctional logisticians, the Army
must supplement individual training with more collective unit training.
The authors describe how their reserve component unit is meeting this need.

We must develop a vibrant capability for reach back communications and intelligence so that we can begin to aggressively reduce the size of our deployed support footprints—both combat support and combat service support. If we don't deploy it, some maneuver commander won't have to feed it, fuel it, move it, house it, or protect it.

—General Eric K. Shinseki,
Chief of Staff of the Army
12 October 1999

**M**anaging military logistics has always been a great challenge, and realizing General Shinseki's intent will require new thinking and ever more accurate logistics planning. As the only reserve component corps support command (COSCOM) supporting an active corps, the soldiers of our unit, the 311th COSCOM, located in both Los Angeles, California, and Fort Lewis, Washington, are keenly aware of these difficulties. In wartime, the COSCOM oversees logistics for the 120,000 soldiers of I Corps. In peacetime, the 311th and its multicomponent 304th Materiel Management Center are full participants in the corps' daily activities, including the establishment of the new interim brigade combat teams at Fort Lewis, Washington.

To accomplish these missions, the COSCOM needs a large number of skilled, multifunctional logisticians who can work in a multi-echelon environment. For the Army as a whole, developing officers and non-commissioned officers (NCO's) into multifunctional logisticians requires years of diligent work. This task is even more difficult in the reserve components. The unfortunate truth is that an officer's or NCO's career usually leaves little time to master the skills needed to be a multifunctional logistician. At the 311th COSCOM, we see this deficiency year after year in our own training and in that of other units.

As a senior logistics functional command, the 311th COSCOM has a clear mission to assist in the training and development of multifunctional logistics officers, NCO's, and units. It is not altruism that drives us; it is simple survival. We will depend on these very soldiers and their units if mobilized.

The Army does an excellent job of training individual logisticians. Officer basic courses in the Transportation, Ordnance, and Quartermaster branches and the Combined Logistics Captains Career Course are enhanced with the Reserve Components Multifunctional Combat Service Support (RCMCSS) Course and other Army Logistics Management College courses. NCO's have a similar career path. Our concern stems from the lack of collective training needed to round out the development of logisticians so they are prepared to work at the echelons-above-division and echelons-above-corps levels.

## Collective Training Essentials

To overcome these difficulties, the 311th COSCOM has developed a broad-based training program focusing on collective training. We begin with individual training by sponsoring the RCMCSS in Los Angeles each year. We then build on that base with intensive, year-round training in logistics operational planning targeted to key collective training events. Our training focuses on the deliberate staff planning process as outlined in Field Manual 101–5, Staff Organization and Operations. We conduct this training through the use of an operational planning group, in which planning elements from all COSCOM staff sections meet on off-drill weekends to analyze missions and prepare operation plans (OPLAN's) and operation orders as an integral, ongoing function of the COSCOM staff. We then execute these OPLAN's at collective training events.

We have learned that a training program for multifunctional logistics must have certain elements. First, units need the opportunity to conduct actual support

operations. Rotations at the National Training Center (NTC) at Fort Irwin, California, and the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, are good examples of what is needed. In those operational environments, logistics units gain real-world experience supporting warfighters. If class I (subsistence) support fails, real soldiers get real hungry real fast. Unfortunately, there are few of these types of missions that truly exercise a full corps support group (CSG). Also, the functional elements of the COSCOM, such as the materiel management center and movement control center, are not available to the CSG commander at the JRTC and NTC, which contributes to a lack of both COSCOM command and control and visibility of stock status and movements within the corps area. In most cases, the CSG must train on what is essentially a battalion, or battalion-minus, mission.

Second, multifunctional collective training needs to be connected to the warfighters. A solid connection to our real customers infuses this training with a sense of urgency and purpose that can be lost when combat service support units train alone.

Third, unit training needs to be multi-echelon. It is only when all of the logistics pieces on the battlefield, from company to COSCOM, are put together that the full impact of a corps-level logistics operation can be appreciated.

## Collective Training Exercises

All of these training elements are applicable equally to CSG's and corps support battalions (CSB's). A combination of real-world missions and computer simulation exercises is the ideal way to train. Our model would rotate colonel- and lieutenant colonel-level commands through three types of exercises—

• NTC and JRTC rotations. Real-world operations require genuine operational planning and execution. The training shortfall during these rotations is that the missions for corps-level units usually are at the battalion level and lack doctrinal command and control.

• Warfighter exercises (using Corps Battle Simulation, an Army ground training simulation used in exercises for training corps and division commanders and battle staffs). These computer simulation exercises expose the COSCOM and its CSG's and CSB's to the customer and its needs (for example, I Corps). Unfortunately, the simulation driver for Warfighters does not play logistics as intensively as the Combat Service Support Training Simulation System (CSSTSS), and the combat units tend to move supplies "magically" to keep the battle going since they are the primary training audience.

• CSSTSS simulation exercises. CSSTSS is a logistics simulation used to train combat service support commanders and staffs from the battalion to the theater

levels. CSSTSS imitates selected Standard Army Management Information Systems reports and provides logistics management data to be used in the military decision-making process. CSSTSS exercises involving the Army Combined Arms Support Command's Logistics Exercise and Simulation Directorate at Fort Lee, Virginia, are very logistics intensive. The simulation program tracks the various classes of supply down to the number and types of rounds of munitions, the distances and times of truck travel, and the hours of maintenance support in a given direct support company. The use of CSSTSS in Warfighter exercises has been limited because of the system's intense logistics focus, data base, and programming. To meet the need to train multifunctional logisticians in a collective environment, the 311th COSCOM conducts its own biennial CSSTSS exercise, Cascade Steel, sponsored by I Corps at Fort Lewis. In addition, training support divisions within the Army Reserve can conduct CSSTSS training on drill weekends.

We believe that the 311th COSCOM's training program has achieved the right balance between individual and collective logistics training and includes a broad spectrum of unit training events. The 3-year rotation of exercises leverages the best aspects of each of the training programs. By combining them in a sequential rotation, one program's weakness is compensated by the strengths of the others.

It is crucial that, if The Army is to meet the ambitious goals of the Revolution in Military Logistics, multifunctional logisticians must be managed as career professionals to serve in as many multifunctional logistics assignments as possible. Unless logisticians have the dedicated and focused years of experience gained in various levels of logistics organizations, no number of classes on individual training will develop them as the skilled logisticians that The Army needs. **ALOG**

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# Building an Effective Brigade Maintenance Meeting

by Major Gerhard Schröter and Major Brian K. Vaught

*TD05 [training day 5], brigade battle update briefing, 0300 hours, in preparation for an 0430 movement to contact LD [line of departure]. The brigade commander cannot understand why he has only 37 of 58 tanks, 33 of 58 Bradley fighting vehicles, and 2 of 6 FISTV's [fire support team vehicles] available for the fight. His executive officer had back-briefed him after yesterday's maintenance meeting. Based on the units' reports, he thought he would have 47 of 58 tanks and 50 of 58 Bradleys to execute his mission. Now, the plan must change because the task force assembled for the main effort has insufficient combat power. He shakes his head and thinks, "What went wrong?"*

**W**hat went wrong may have been the commander's daily maintenance meeting. A successful maintenance meeting synchronizes the activities of numerous individuals throughout the brigade's battle space and focuses their efforts on the goal of generating and sustaining combat power. Conversely, a poorly prepared and conducted meeting may leave the commander uncertain about his combat posture and hinder the execution of his plans.

The purpose of a brigade's daily maintenance meeting is to provide the commander with a clear picture of his current and projected combat power, as well as to synchronize and coordinate the brigade's maintenance and class IX (repair parts) sustainment efforts. An effective brigade maintenance meeting is the product of many activities by crews, leaders, mechanics, staff officers, and commanders throughout the entire spectrum of the brigade's battle space. It also includes echelons-above-brigade activities.

The building blocks of an effective maintenance meeting are—

- Effective tactical unit maintenance programs.
- Combat service support (CSS) automation connectivity and synchronization.
- Accurate ad hoc 026 reports from the Standard Army Maintenance System-2 (SAMS–2). The printed 026 report, SAMS–2 Equipment Deadlined Over NNN Days by Battalion, is the principal brigade and division automated maintenance management tool.
- An effective class IX distribution system, from corps and division support areas (CSA's and DSA's) to the unit maintenance collection point (UMCP).

A productive and well-attended maintenance meeting ties together all of these building blocks. Leadership (meaning command emphasis) and involvement by personnel at all levels are the crucial bonds that ensure the brigade's management system is focused on the commander's priorities for current and follow-on operations.

## Tactical Unit Maintenance Program

The cornerstone of an effective unit maintenance program is the preventive maintenance checks and services (PMCS) performed by the operator or crew of each system. The first key to the maintenance system, and the gateway to logistics automation, is the Unit Level Logistics System-Ground (ULLS–G) computer. ULLS–G links unit class IX requirements and maintenance data to the automated logistics system that provides supply and maintenance requirements to both the Standard Army Retail Supply System (SARSS) and SAMS. ULLS–G provides the battalion maintenance officer (BMO) with the tools he needs to monitor and manage his unit's maintenance program in the form of a commander's not mission capable (NMC) report. Although this report is not as easy to read as a locally produced spreadsheet, it provides information that a spreadsheet does not—automated confirmation that the logistics system has received and processed the unit's requirements.

During tactical operations, when time is limited, the unit focuses on the essential components of tactical maintenance management, which include—

- Daily PMCS reported on DA Form 5988E, Equipment Inspection and Maintenance Worksheet. (The nonautomated version, DA Form 2404, is used only as a backup).
- Supervisor and leader reviews of crew PMCS.
- Mechanic verification of faults and of the parts required to fix those faults.
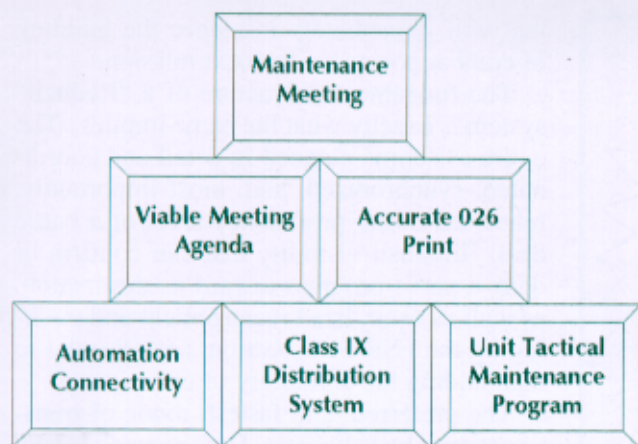
☐ **The building blocks of an effective maintenance meeting.**

- Timely and accurate reporting of NMC systems up the chain of command, from the crew to the team leader to the company executive officer (XO) to the UMCP to the brigade administrative and logistics operations center and the forward support battalion (FSB) tactical operations center.
- An effective flow system for routing 5988E's from ULLS–G to the crew and back to ULLS–G.
- An operational ULLS–G computer.
- Automated reporting of faults and parts requirements in ULLS–G.
- ULLS–G supply and maintenance disks submitted in accordance with the brigade's disk synchronization plan.
- A daily review of the ULLS–G-generated commander's NMC report.
- Prescribed load list management and timely posting of parts received in ULLS–G.
- Command emphasis and involvement.
- Sending of a unit representative to the brigade maintenance meeting who can provide a clear, concise, and organized situation report.

### Automation Connectivity and Synchronization

A viable brigade supply and maintenance management system requires that its CSS automation infrastructure—ULLS–G, SAMS–1/2, and SARSS–1/2—be connected seamlessly and integrated under the brigade's communication support plan. CSS automation connectivity and synchronization are not unique to operations in the theater of Mohavia used at the National Training Center (NTC) at Fort Irwin, California. A force-projection Army must be prepared to use many of the same techniques when deploying anywhere else in the world. Today and in the 21st century, contingency deployments will require the formation of ad hoc organizations whose components normally do not work together on a daily basis. These mission-tailored organizations must be able to operate together for extended periods, using the logistics information flowing from ULLS–G through SARSS–1 and SAMS–1 to manage normal maintenance and class IX support within the theater. In some cases, the supporting logistics structure will be based in the continental United States.

Our logistics automation systems are very flexible. However, soldiers and their leaders must establish these systems properly and validate that they are connected and able to "talk" to their supporting logistics automation systems, often under austere conditions. All ULLS–G computers within a brigade must be "zeroed and boresighted" to produce accurate maintenance and supply information. This ensures that maneuver commanders have a clear picture of combat power and that maintenance managers at all levels can validate that the supporting system is "talking" properly to sustain combat power. In order to validate this ability, all ULLS–G computers within the brigade must clearly demonstrate that they can—

- Deadline equipment in ULLS–G.
- Create a maintenance disk and transfer the data on that disk through the shop office SAMS–1 site to create a printed 026 report.
- Create an automated requisition in ULLS–G.
- Create an ULLS–G supply disk.
- Transfer the supply disk into the supply system via the FSB's class IX supply support activity (SSA) SARSS–1 site.
- Receive SARSS–1/2 parts status on ULLS–G supply requisitions and post them to the 026 print.
- Ensure that the brigade's class IX distribution system works, from the main SSA to the units' parts bins.
- Show units where to pick up their parts.
- Permit ULLS clerks to close NMC faults.
- Transmit closed NMC information into SAMS to remove the NMC system from the SAMS–2 026 print.

### Accurate SAMS–2 026 Print

The SAMS–2 026 print serves as the principal automated maintenance management tool for brigade and division maintenance managers. The 026 print is produced at the SAMS–2 computer, located in the FSB's support operations (SPO) section, and provides leaders an automated snapshot of the brigade's maintenance posture by system and unit. It also provides a view of each system's repair parts requirements and status. The 026 print indicates the relative "health" of the entire brigade's CSS automation architecture and maintenance management procedures. In the absence of any other maintenance information, an accurate unit 026 print will represent a unit's maintenance posture at the maintenance meeting—particularly if a unit representative is unable to attend.

- Today's julian date
- BDE mission next 24 / 48 / 72 hours
- BDE maintenance priority by system
- BDE XO issue
- SPO issues
- Review yesterday's info requirements
- ULLS-G disk turn-in status
- Automation Issues / ULLS-G box problems
- Class IX requisition volume
- ORL / RICL (recoverables)
- Unit 026 print scrub
- Parts cross-level options (units must bring PLL listings)
- LAO / LAR comments / issues
- Miscellaneous
- Review today's information requirements
- Closing comments

BDE XO or FSB Cdr Is The "Hammer"

☐ A sample meeting agenda.

However, as a system management tool, the 026 print's accuracy depends not only on the effectiveness of unit maintenance programs and CSS automation connectivity but also on a comprehensive data synchronization plan. The data synchronization plan is the conductor that orchestrates the efforts and products of unit maintenance programs and automation connectivity. Within a brigade combat team, the FSB SPO officer and the brigade S4 should develop the synchronization plan. The plan is based on tactical conditions, the maneuver plan, and the capabilities of a theatre's support infrastructure. The time-windows and sequences for data transmission that each computer site must meet are vital to realizing the synchronization plan's potential to produce timely and accurate 026 prints.

Failure to develop, disseminate, and enforce a synchronization plan jeopardizes the integrity of the entire automated system. The brigade then will be forced to operate in an unresponsive, error-prone manual environment—and that potentially could destroy its combat power as maintenance problems accumulate.

### Effective Class IX Distribution System

A brigade's class IX distribution system is the lifeline of maintenance sustainment operations and combat power generation. Effective class IX distribution is divided into two systems. The first handles the routine class IX pushes, which consist of all item priority designator (IPD) shipments; these include the highest priority IPD–02 parts. These routine class IX items are not absolutely vital for the next mission and do not require intensive management or tracking. In other words, these parts are resupply pushes that usually are sent with other sustainment commodity pushes for the brigade. The second system is the "Redball," or "911," class IX distribution system, which is designed and tailored specifically to expedite critical, or "hot," parts

that will immediately influence the building of combat power for the next mission.

The fundamental structure of a "Redball" system is exactly what the name implies. The entire system is planned in detail and coordinated, synchronized, and, most importantly, rehearsed to the proficiency level of a battle drill. Intransit visibility that can confirm or deny a part's progress toward its destination, as well as centralized management and tracking by the FSB SPO section, are essential to maintaining the continuity of effort.

The preferred, and fastest, mode of transportation is by helicopter. Unfortunately, many units observed at the NTC do not use their aviation assets to help expedite the flow of critical class IX parts forward on the battlefield. Because of weather, battlefield friction, and other factors, ground transportation always must be available to take over immediately and complete the mission. So a unit's primary plan should focus on ground transportation, but it should have a backup plan to take advantage of aviation assets as they become available.

### Maintenance Meeting Agenda

A common observation at the NTC is that, after the brigade maintenance meeting, the brigade XO does not have a clear picture of the brigade's maintenance posture or a reasonable prediction for combat power at LD. Consequently, the XO is unable to advise the brigade commander accurately on the brigade's capabilities and limitations. A viable maintenance meeting agenda is effective only if the key participants from all units attend and the meeting has command emphasis.

A meeting agenda is the execution plan for the meeting, focusing and guiding its conduct. The brigade XO or FSB commander must ensure that all critical topics are covered and must prevent the meeting from drifting off onto irrelevant and time-wasting tangents. The chart above is an example of an agenda that covers all of the key matters that the meeting should address; it can be modified in a time-constrained environment.

The heart of a maintenance meeting is the "scrub" of the 026 print. The effectiveness of the meeting in most cases is directly related to the accuracy and integrity of the 026 print. The automated data synchronization plan therefore must be designed to produce an 026 print with a near-real-time maintenance snapshot of the brigade before the maintenance meeting. An 026 print scrub process that covers all of the key matters and can be modified quickly to adapt to a time-constrained environment would look like this—

- Review the previous day's "Redball" or command interest maintenance item (CIMI) efforts.
- Focus effort on combat systems in accordance with

the brigade combat team's maintenance priorities by system.

• Provide current and projected slants; specify the number of "circle-X" systems. The maintenance posture focuses on which systems are NMC and which systems one reasonably should expect to be repaired in time for the next fight; these are commonly referred to as "unit slants." On a DA Form 2404, an "X" is used to indicate that a system is NMC and thus by regulation will not be operated. However, a commander can authorize a crew to operate a system under clearly specified conditions and circumstances for a limited period of time by circling the "X."

• Brief details of current maintenance and class IX requirements by unit.

• Receive feedback on parts availability and location from the FSB and the division materiel management center (MMC).

• Create a CIMI hit list. Only list a system when all parts are available in the brigade support area, DSA, or CSA that will ready the system before LD. This becomes the immediate Redball focus.

• Make a firm commitment to deliver parts in time to influence combat power at LD.

• Fix responsibility: who tracks the location, progress, and completion of maintenance actions?

• Before departing the meeting, review the responsibilities of all parties involved in the CIMI process so that everyone leaves with a clear picture of what they must do in the upcoming class IX Redball effort.

A critical step in creating a viable meeting agenda is determining who should attend and what each participant should bring to the meeting. The key participants should include the brigade XO, FSB commander, maneuver unit BMO or battalion maintenance technician, FSB SPO officer and SPO maintenance officer, a division MMC representative, the main support battalion or corps support battalion liaison officer to the FSB, shop officer, technical supply officer, and logistics assistance representatives. Remember, the FSB SPO officer is the person responsible for focusing and synchronizing the direct support effort. However, he must have the backing of the brigade XO so that he can follow up on delinquent issues and enforce compliance by the units.

Before the meeting, all key participants should know what information they are required to bring; they should conduct their own internal assessments of their respective areas of responsibility; and they should come prepared to discuss all issues in detail—they must do their homework. Specifically, the key players within the FSB should conduct a pre-meeting scrub of the 026 print to ensure that they can provide cohesive, accurate information on direct support issues and customer support. Likewise, the unit representatives should conduct a reconciliation of their ULLS–G NMC report against their current 026 print to ensure that they report accurate information; if they have not performed a reconciliation, they should be prepared to provide essential information to expedite the repair parts process. As a result of these preparations, the meeting will not bog down in administrative details. Instead, it will be able to focus on the critical tasks needed to accomplish the next mission in accordance with the commander's intent.

The building blocks of an effective maintenance meeting provided in this article serve as the tactics, techniques, and procedures for focusing the efforts of leaders and managers on the essential elements required to build and sustain combat power. Although each task is relatively simple, the potential for complexity arises as all of the individual steps are assembled into the entire system. The ultimate goal is to produce a maintenance meeting that is proactive and shapes events, rather than a reactive meeting that allows events to propel the brigade into daily crisis management. Planning, training, and rehearsing ensure that this maintenance management system remains relatively simple to orchestrate and synchronize.

These tactics, techniques, and procedures were developed for the current CSS automation architecture and maintenance doctrine. However, their fundamental principles and mechanics provide a framework that is flexible enough to adjust to the changing environments and emerging technologies of Force XXI and the Army After Next. New communication technologies, such as video-teleconferencing at the battalion level and lower, will eliminate the constant need for face-to-face meetings. All of the key participants then will be able to link up electronically to synchronize their efforts, permitting them to spend less time traveling to meetings and more time on executing their missions. ALOG

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# Do Noncommissioned Officers Need a Contingency Contracting MOS?

by Major Mel M. Metts and Major Nicholas L. Castrinos

The authors believe that a new
military occupational specialty (MOS)
would provide stability, continuity,
and greater institutional knowledge
in contingency contracting commands.

Before the Army Acquisition Corps (AAC) was established, contracting officers had to pursue divided careers. They served in their primary branch until they were branch-qualified at the O–3 level, then served a tour in the functional area of contracting. While serving in the functional area, officers were required to remain competitive for promotion within their primary branch. Serving a tour in the contracting functional area decreased an officer's opportunity to obtain branch-qualifying jobs at the O–4 level and remain competitive for promotion. Contracting officers had to rotate between their contracting functional area and their primary branch, although they were developing skills better suited to their functional area. As a result, officers were not highly proficient in either their primary branch or contracting.

To varying degrees, a contracting noncommissioned officer (NCO) faces a problem similar to the problem officers faced before the creation of separate officer career paths—the tour in the contracting field is only a temporary assignment. The question then arises: Is the Army headed for trouble with NCO contracting personnel similar to that it experienced with officers? We think the answer is yes!

## Contracting Personnel in Other Services

In the Marine Corps, enlisted marines are accessioned into the contracting field at the E–5 level and can remain in a contracting MOS throughout their careers. The primary candidates for accession into the contracting field come from supply administration. Before he is accessioned into the contracting field, an NCO is required to complete 6 months of mandatory on-the-job training successfully. This provides the basic skills and technical expertise needed to become a contracting NCO.

The Air Force has a well-defined and long-established career MOS for enlisted contracting personnel. Enlisted personnel can be accessioned into the contracting field at the E–1 level, so they begin their contracting careers when they enter the Service. This is not to say the Air Force does not accession enlisted personnel of other grades into contracting. The Air Force accessions NCO's from all other MOS's in grades E–4 to E–7. However, the Air Force considers accession at the earliest opportunity in the career development process vital to developing the future acquisition work force.

Using two sources of accessions provides the Air Force with a mixture of E–1's promoted within the sys-

tem and personnel with prior field MOS experience in contracting.

## Current Problems

Establishing a contracting MOS for Army NCO's would correct a number of existing problems.

*Perceptions.* The majority of Army NCO's entering the contracting field are at the senior level. This creates the perception that senior NCO's entering the contracting field are less competitive for promotion in their primary branches and therefore are attempting to acquire a marketable job skill to be used after retiring. Allowing senior NCO's to enter the contracting field after their 15th year of service also could mean that the Army is not getting a full return on its investment.

*Training levels.* The majority of NCO's are Level-I certified, and those NCO's that are Level-II certified are primarily senior NCO's (E–7's). (Level certification refers to the task proficiency or ability normally required for successful performance at the grade with which the skill level is associated.) Typically, a senior NCO enters the contracting field as an E–5 or E–6, serves a tour as a procurement NCO, shifts to his primary MOS for an assignment, and then returns to the contracting field. This sequence of events suggests that an NCO has only a slight possibility of obtaining Level II certification during his first job rotation, so repetitive tours are necessary to attain higher certification levels

*Highly perishable skills.* Because of the continuously changing contracting environment, an individual risks losing his expertise if contracting skills are not updated constantly. Contracting officers and NCO's must keep abreast of the latest changes in administrative and procurement regulations and policies.

*Part-time NCO's.* Currently, NCO's with additional skill identifier (ASI) G1 (contracting agent) are being trained for their current tour only, not for long-term usability in the contracting field. Contracting is technical and requires more than formal classes. Hands-on training is necessary to achieve proficiency. Although these skills are not lost when the NCO's return to their primary branches, they are forgotten temporarily.

*Contracting command concerns.* Contracting commands lose valuable assets, continuity, and stability under the current NCO structure. When a new NCO arrives, or an experienced NCO begins a second tour, the training process starts again. Achieving the qualifications of ASI G1 (senior logistics services supervisors) takes a minimum of 2 years, including mandatory classes (CON 101, Basics of Contracting; CON 104, Fundamentals of Contract Pricing; and CON 234, Contingency

Contracting) and on-the-job training. This time does not include any mandatory deployments, which are frequent.

*Cost-benefit ratio.* The current cost of training to obtain ASI G1 is approximately $30,000. The cost-benefit ratio the Army receives after training is only 33 percent if the NCO is qualified in 2 years and then is employed for only 1 year. Remember, an NCO leaves after a 3-year tour, and there is no guarantee he will return to an NCO contracting position. Therefore, the Army receives minimal benefits from the cost of his training.

To achieve a higher return on its investment, the Army should follow the leads of the Air Force and the Marine Corps, where NCO's have a separate contracting MOS and begin their contracting training and experience early in their military careers. The Air Force and Marine Corps consider NCO's long-term assets. Accession into contracting early in their professional careers guarantees the highest cost-benefit ratio. The Army must develop the same professional career model.

*Promotion opportunities.* NCO's who responded to a survey on promotion opportunities felt they were not as competitive in a contracting MOS as those who remained in their primary MOS's. Currently, NCO's working in career management field (CMF) 92, supply and services, are required to pursue staff-related positions during their tenure as E–6's or E–7's. These positions include recruiter, drill sergeant, instructor, and contracting NCO. Promotion boards view "harder" staff jobs (recruiter, drill sergeant, and instructor) more favorably than "softer" staff jobs (contracting NCO). Therefore, NCO's who volunteer for the harder staff jobs have a greater chance for promotion than NCO's in contracting. Furthermore, positions in the contracting field are not considered leadership positions, whereas harder staff jobs are. This creates a lose-lose situation for both NCO's and contracting commands. Until promotion boards are educated on the importance of contracting NCO's as combat multipliers for their commanders, the current problems will remain.

## Maintaining Critical-Task Skills

NCO's are required to maintain not only their contracting skills, but also their primary branch critical-task skills. This means that 92A automated logistical supply specialists must keep up with as many as 85 critical tasks, including proficiency on 2 separate computer systems; 92Y unit supply specialists must maintain proficiency on 22 critical tasks. These numbers only refer to critical tasks and not to the related subtasks within each critical task.

The depth of knowledge required for contracting NCO's to be proficient in both their primary branch critical tasks and their contracting tasks is enormous. Surveyed 92A's stated that they could not keep up with the critical tasks in their primary MOS as well as their contracting tasks. Therefore, during the time that NCO's serve in the contracting field, their primary MOS knowledge diminishes. Upon returning to their primary MOS, they must relearn the entire spectrum of designated critical tasks. How can the Army possibly benefit from these conditions?

## MOS Background

Is it necessary for contingency contracting NCO's to have a logistics background? Based on recent changes and a new direction for the contingency contracting NCO, a logistics background is not necessary. Contracting has something to do with logistics, but logistics has very little to do with contracting. Contingency contracting officers acquire everything for deployed forces from tractor-trailers to refrigeration trucks. Therefore, a soldier in MOS 88M (transportation NCO) might have an advantage over a 92Y when leasing or purchasing transportation equipment in a contingency operation. The background of contracting NCO's could range from maintenance or food service to communications. Finally, drawing contracting NCO's from noncritical MOS's would alleviate some of the problems created by drawing NCO's from CMF 92, which is a critical-shortage CMF Army-wide.

The majority of survey respondents indicated that personnel from other MOS's could handle contracting NCO requirements, but a logistics background would assist in the transition. They also indicated that the Army should open ASI G1 to all MOS's that are not critically short.

## Benefits of Contracting NCO's

What are the benefits of establishing an MOS for contracting NCO's with ASI G1?

A new MOS would provide stability, continuity, and greater institutional knowledge in contingency contracting commands. Like NCO's in other branches of the Army, NCO's are the backbone of a contracting organization. Contingency contracting officers (CCO's) are required to have a broad range of skills in contingency and administrative contracting as well as in contract and program management. Additionally, CCO's are required to rotate through various positions to remain competitive for promotion. The continual exodus of NCO's and CCO's is making it difficult for contingency contracting organizations to maintain qualified personnel for contingency operations. Thus, if NCO's could remain in contracting organizations and provide continuity and stability, their contracting skills and knowledges would continue to grow and benefit their commanders and their contracting organizations. More importantly, this retained knowledge base would be beneficial to deployed troops in the field.

A new MOS would improve the professional development of NCO's, allow them to single-track their careers, and create greater promotion opportunities (mirroring those of officers in the acquisition field). NCO's would compete against other NCO's with similar jobs, eliminating any bias toward other MOS's by promotion boards. NCO's would continue to gain experience and take the necessary Defense Acquisition University courses to become highly competent, warranted contracting officers and, when deployed, combat multipliers.

A new MOS would generate a larger pool of qualified contracting specialists who would be available for mobilization and reduce the current deployment workload of the CCO. The current operational tempo requires two 6-month deployments every 2 years for CCO's. Deployable NCO's would reduce the number of back-to-back deployments for many CCO's. If both a contracting NCO and a CCO were deployed on a contingency mission, the contracting NCO could handle routine acquisition tasks, leaving the CCO free to work on more complex issues. NCO's and CCO's could be interchangeable in some cases, depending on their proficiency levels. This would allow the officer to become more involved in planning and leadership.

## Implementation Problems

Currently, personnel needed to build an MOS within the contracting field are limited, bescause there are only 35 positions available Army-wide for ASI G1. The grades of these positions range from E–5 to E–8.

There are several problems associated with having a small number of personnel in a given MOS. One is not having enough people to allow opportunities for promotion within the MOS. Career progression in a small MOS is slow, which means longer periods of time at lower ranks. Therefore, to establish an MOS, there must be enough personnel to ensure that soldiers are allowed the opportunity for continued career progression. This scenario is similar to that of contracting officers in the AAC: there are numerous positions available at the lieutenant colonel level, but command positions are limited. Without command opportunity, chances for promotion to colonel dwindle exponentially.

***Increased demand for contracting NCO's.*** Recent revisions in the organizational structure of the theater support commands (TSC's) and Force XXI requirements have increased the need for additional ASI G1 person-

nel. The TSC revision calls for an additional 16 positions in CMF 92 with ASI G1. This requirement includes four E–9 positions for ASI G1's within each TSC. The TSC revision also allows for complete vertical movement of NCO's to the E–9 level if a decision is made to establish a contracting MOS.

The new Force XXI division, the 4th Infantry Division at Fort Hood, Texas, requires four additional E–7 positions (92Y40 with ASI G1) to fulfill the requirements documentation system. Three positions are located in the forward support battalion, and one position is located in the division aviation support battalion. In the long term, every heavy division in the Army will be organized in this configuration, adding a total of 24 positions for NCO's with ASI G1.

*Professional development*. Another problem with instituting a contracting MOS is establishing an appropriate training path for the NCO's. Professional development must be in accordance with Army Regulation 600–3, The Army Personnel Proponent System (APPS). Personnel proponents are responsible for the eight life-cycle management functions of their respective career fields. They take the lead in defining developmental needs, refining requirements in the field, and providing assistance to improve all aspects of the Army's personnel management system. The personnel proponent recommends or determines appropriate accession criteria for enlisted personnel, identifies training criteria by career field, and ensures that training for career development is in concert with all aspects of professional development. There is no schoolhouse or branch that currently offers basic or advanced NCO contracting courses, so where would contracting NCO's go to receive training, and who would support it?

The final problem with establishing a contracting MOS is how to develop institutional training and career progression within operational assignments. Currently, the AAC is a proponent with no enlisted soldiers, and personnel proponency for ASI G1 functions is a responsibility of the Quartermaster General. Because the Quartermaster General is not a branch proponent for the AAC, there also is a problem of who owns NCO's.

## Recommendations

Clearly, the current enlisted force structure of contingency contracting is not as effective as it could be. The career development model for NCO's in the contracting field needs a major restructuring.

Establishing a new MOS would benefit combat commanders, contracting NCO's, and contingency contracting commands. The contracting skills and knowledges gained by NCO's would continue to multiply and bene-

fit warfighters and the entire contracting community. With the establishment of a contracting MOS, NCO's would be allowed to single-track their careers, thus creating greater promotion opportunities.

NCO's in all MOS's Army-wide that are not critically short should be considered for accession into the contracting field. A yearly accession board for NCO's should be established that coincides with the officer board. The majority of accessions should come from CMF 92 because of the similarities in job descriptions. NCO's should be accessioned into the contracting field at the grades of E–5 through E–7, but each E–7 should be screened carefully to ensure that the Army receives a full return on its investment in him.

The AAC should become the functional proponent for the contracting MOS, and the Quartermaster Corps should handle the normal MOS personnel proponency functions. The AAC is a proponent with no schoolhouse or branch that supports its professional developmental requirements, so it can develop training requirements but must rely on a branch to conduct courses. Adopting this recommendation would be logical, because the Quartermaster Corps already has the schoolhouse and the developmental courses necessary for CMF 92 MOS's.

Contracting NCO's are combat multipliers who can help ensure mission success in any tactical environment. The Army must develop a separate functional area MOS for them that includes designated career progression and a training path that is comparable to basic branch MOS schools. **ALOG**

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# Staff Ride to Gettysburg

by Major General Terry E. Juskowiak
and Lieutenant Colonel James P. Herson, Jr.

## Junior officers of the 1st Corps Support Command find a visit to the past a rewarding training experience.

The first week of April found over 100 officers of the 1st Corps Support Command (COSCOM) (Airborne), from Fort Bragg, North Carolina, deployed to Gettysburg, Pennsylvania, for a unique and exciting off-post training opportunity. As the capstone event of the COSCOM's Officer Professional Development (OPD) Program, a staff ride to the historic Civil War battlefield at Gettysburg was an exceptional training event for the First Team's junior leadership.

Over 80 percent of the participants were company-grade officers and warrant officers, from 0–3 to W–1. Fiscal considerations and contingency manning requirements meant that not all COSCOM junior officers could participate in the staff ride. However, the available slots for the ride were distributed equitably so that each battalion was represented by several officers. The COSCOM's junior leadership eagerly anticipated this training event because of the opportunity it provided them to learn more about their profession and our Nation's military history and, most importantly, to bond with fellow COSCOM officers in a dedicated event planned especially for them. It drove home the command's commitment to investing in the professional development of junior officers—a crucial factor in officer retention.

### Planning for a Staff Ride

The 46th Corps Support Group, "The Super Group," was in the process of designing a group-level staff ride to Vicksburg, Mississippi, in November 1999 when it was reassigned to plan, command, and control a COSCOM staff ride to Gettysburg that would be oriented toward junior officer professional development. The group staff rose to the occasion and set their sights to the north.

After much work, the group staff briefed a detailed mission analysis to the COSCOM commander. A cost estimate, proposed training regimen, and staff ride methodology were approved by the general, and he provided further guidance for staff ride development. After the COSCOM commander gave the green light for further planning and commitment of resources, the group staff began the laborious process of coordinating, contracting, and preparing training plans. The staff coordinated with National Park Service officials at Gettysburg and requested assistance from Army historians. The faculty of the History Department at the U.S. Military Academy; the Combat Studies Institute at Fort Leavenworth, Kansas; and the Army War College at Carlisle Barracks, Pennsylvania, were unstinting in their support and advice. The First Team command group provided infusions of refined guidance at scheduled in-progress reviews. Gradually, a unique millenium staff ride concept for company-grade officers took shape.

Since the staff ride was oriented toward junior officers, the thrust of the training focused on strengthening their research skills and enhancing their understanding of the operational art, the ongoing process of doctrinal development and refinement, and the mechanics of putting together an intelligence preparation of the battlefield (IPB). A 4-mile battlefield run and a historically oriented tactical dining-in were added to further enhance COSCOM officer camaraderie and to inject fun into the event. The complexity of planning, combined with coordinating for an off-post deployment, created the added training benefit of making the staff ride a reinforcing training exercise for the group's staff.

### Staff Rides—An Army Tradition

Staff rides were developed at Fort Leavenworth as a cost-effective means of training officers to "think their way through" tactical and operational problems by using the terrain and historical context of an actual battle as a forum for sharpening tactical skills, refining intelligence interpretation and logistics planning, and gaining insights into the combat leadership challenges of their predecessors. Originally begun in the 1880's by a reform-minded General William T. Sherman, staff rides have grown increasingly common in the Department of Defense as an excellent and relatively low-cost officer training method that stimulates professional development, fosters a deeper understanding of the operational art, promotes unit cohesion and camaraderie, and, importantly, contributes to junior officer retention.

Given the increased tempo of operations in today's busy Army, constrained resources, and conflicting requirements, many units are challenged to prepare adequately for a staff ride. Lack of preparation time and resources can diminish greatly the numerous training benefits associated with a quality staff ride. Some units may simply go to a convenient battlefield and, after spending a short amount of time at the museum or hastily reading a National Park Service pamphlet, employ a local tour guide or thrust an ill-prepared unit officer into the important role of staff ride training facilitator. This officer may or may not be a subject matter expert on the campaign, or possess a working knowledge of the period's historiography, or—a critical factor—understand and articulate important linkages to today's operational quandaries that will make the ride relevant.

Like any good collective training event, a staff ride must be researched, rehearsed, and planned thoroughly. A battlefield tour preceded only by a smattering of disjointed readings is a poor substitute for a properly prepared and executed staff ride.

## Preparing Training Resources

A staff ride must follow the Army's typical eight-step training model. The preparation for the 1st COSCOM's staff ride to Gettysburg was designed to be intense. All officers were required to read *The Killer Angels,* by Pulitzer Prize-winning author Michael Sharra, and see the Ted Turner-released movie *Gettysburg.*

A comprehensive staff ride guide of selected readings, richly illustrated with easy-to-use oversized maps, provided novice riders with a common understanding of the campaign and offered suggestions for further reading. The staff ride planners were mindful of recent



☐ **Participants in the staff ride gather at the Gettysburg battlefield for a briefing about the battle.**

changes in copyright laws and legal reproduction restrictions, so they worked to secure the necessary permissions to reproduce locally published materials for a limited number of staff ride guides. Following the Gettysburg staff ride, the guides would remain as a resource in the COSCOM G3 shop in case future groups of the 1st COSCOM decided to take a similar staff ride. This would save money and ensure continuity.

For modern corps and division Warfighter exercises and joint exercises, many military organizations use a web-based protocol on a secure net to facilitate information sharing and planning and conduct a multitude of other cross-coordinations. Most—though not all—junior officers are familiar with surfing the World Wide Web for information gathering and consumer shopping. With this in mind, the staff ride planners created a special 1st COSCOM Staff Ride website for the riders' use. It incorporated hot links to pertinent Gettysburg and Civil War sites, search engines, and other research resources and provided campaign maps, biographical sketches of key leaders, information briefings, copies of OPD slides, and film clips. As expected, the number of hits on this website greatly accelerated as the staff ride grew nearer and as riders shared information and new sources.

## Setting the Stage

While many officers possess a fair knowledge of military history and the operational art, the range of expertise and understanding varies considerably. Many junior officers had a moderate grasp of the Gettysburg campaign, but the majority knew only the most rudimentary facts about the battle. Clearly, a baseline OPD plan was needed so that the training audience could put the event in the proper historical context and understand the thinking of both combatants in seeking a decisive engagement in the summer of 1863. The use of the DIME (diplomatic, information, military, and economic) paradigm (a mainstay of the Army Command and General Staff College) as an explanatory tool enabled the riders to understand not only the military strategy of the opposing sides but also the political, economic, and diplomatic elements of national power.

The OPD was broken down into three subsets—

• Prelude to war; period tactics and formations; tactics, techniques, and procedures (TTP's); and the state of the two armies.

• DIME explanation and exploration.

• The campaign, leaders, prior battles and campaigns, setting the stage, and a workshop.

Two OPD sessions were held for the participants before the staff ride to put the Gettysburg campaign in operational and strategic context and

complement the mandatory readings for the trip. The principal training facilitators—one for each of the three subgroups into which the staff riders were divided—each taught a portion of the first OPD session following an introduction by the COSCOM commander. At the OPD's conclusion, one of the facilitators put on a live demonstration of a musket-firing drill while in period uniform. Reproductions and authentic Civil War-era artifacts were passed among the officers and helped to round out the OPD, which mostly followed a lecture format. Several film clips illustrating armaments, weapons firing and effects, doctrine, and period-specific TTP's also were shared with the riders. A social hour followed in which riders and facilitators got to know one another and shared ideas and strategy on how to get the most out of the upcoming staff ride.

OPD 2, held some 2 weeks after the first OPD session, was dedicated to leadership. Discussions on the principal commanders at Gettysburg and other relevant Civil War characters served as an introduction to viewing the movie *Gettysburg*. This excellent film brought to life the characters richly portrayed in *The Killer Angels*. Although not 100 percent accurate, the film nonetheless did bring the battle and its protagonists alive in a refreshing and fascinating manner. OPD 2 was held at an on-post theater with spouses and family members also in attendance. Following the film, many spouses expressed disappointment that they would not be able to take part in the staff ride. Clearly, an interest was kindled.

## Designing the Staff Ride

Selected officers had to prepare detailed IPB products for each day of the battle. These IPB's then were to be presented from both the Union and Confederate perspectives. Almost every officer had to play the role of a specific historical figure in the staff ride. Each officer needed an in-depth understanding of his figure's persona and role in the conflict. In many instances, these motivated junior officers went to great lengths to become subject-matter experts on their characters and even adopted some of their distinctive mannerisms when talking to the group. Enthusiastic officers played key battle leaders like Robert E. Lee, George G. Meade, James Longstreet, and others with intensity and insight.

Senior leaders were selected to lead topical discussions on such subjects as the role of African-American soldiers in the Civil War, campaign logistics, command and control, and other pertinent topics. Preparing for the staff ride took a considerable amount of time for research but bore much fruit. As First Lieutenant Melissa Wilkerson commented, "The events were thoroughly covered. There was a lot of insight into the entire battle, and it was great to have people research and explain what they learned."

## An Airborne Arrival

Like many units in the XVIII Airborne Corps, the 1st COSCOM habitually practices airborne operations in order to maintain airborne proficiency. In the interest of saving money on the staff ride, it was decided that many of the staff riders would be transported to Gettysburg as a joint airborne/air transportability training (JA/ATT) mission using aircraft from Pope Air Force Base, which is adjacent to Fort Bragg. By requesting a JA/ATT mission, the training cost for using the aircraft would not be charged to the Army. Non-airborne-qualified officers would be transported separately as an airland operation.

Initially, the staff ride planners looked to jump onto Fort Indiantown Gap, Pennsylvania, which is approximately 45 minutes from Gettysburg. However, the old adage credited to British historian Liddell Hart, "time spent on recee [reconnaissance] is seldom wasted," again proved true. A trainer's recon conducted in March revealed that the only drop zone of sufficient size at Fort Indiantown Gap had too many ground obstacles for a safe airborne operation; recent construction and landfill work on and adjacent to the drop zone had increased the likelihood of serious injury. Although Fort Indiantown Gap range control personnel made coordinating airborne operations smooth and efficient, the hazards discovered on the drop zone outweighed the benefits of jumping onto an Army post. Fortunately, there was another option for airborne insertion—landing at Gettysburg itself.

As in all airborne operations, a surveyed drop zone offers tremendous benefits because it expedites joint coordination with the Air Force. Pope Air Force Base mission planners were eager to support the operation since they had never planned a mission to drop jumpers on Gettysburg. This was a different type of mission and an exciting departure from standard airborne missions at Fort Bragg. The surveyed Gettysburg drop zone lay on the Confederate approach to Gettysburg, which would enable First Team jumpers to maintain airborne proficiency while receiving a unique aerial perspective of the battlefield.

Two C–130 aircraft were loaded with approximately 22 jumpers each, while the 48 "airland" officers would land at the nearby Harrisburg airport and then be bused to Gettysburg. Unfortunately, after airborne refresher training, manifesting, "chuting up," and finally getting seated on the aircraft, one of the C–130's went down for maintenance. The disappointed officers on the not-mission-capable aircraft were loaded onto standby commercial buses and had to endure a 9-hour bus ride, arriving later that evening. The remaining plane departed on time, and the jumpers smoothly exited the C–130 over Gettysburg. COSCOM riggers safely and professionally managed the drop zone, while local police redirected

traffic away from the site.

All jumpers landed without injury, and the linkup with the advance party went smoothly. The jumpers were met at the drop zone by local members of a veterans' group, the 82d Airborne Division Association, and touring retired British paratroopers, who later joined the staff riders for a no-host social. The COSCOM junior officers enjoyed the World War II perspective of the veterans, and the insights of the British on combined airborne operations in the European theater of operations were both fascinating and entertaining. Old and young paratroopers enjoyed the opportunity to meet and mix at the site of the Civil War's most pivotal battle.

## Dining-In

A unit dining-in can be a powerful vehicle for building unit cohesion, enhancing historical knowledge, connecting past achievements of the unit to current operations, celebrating organizational traditions and battle heritage, acknowledging the foibles and feats of fellow members of the mess, and simply relaxing and reveling in the fellowship that can be found only with comrade warriors. The idea of conducting a dining-in while visiting the bloodiest battlefield of the Western Hemisphere was very appropriate. A tactical dining-in using canteen cups for ceremonial toasting and punishing trips to the grog bowl, skits and fines, points of order, and other assorted dining-in traditions lent themselves to supporting the overall concept of the staff ride. Still imbued with the passion of the 20th Maine's charge on Little Round Top and the bravery of the Army of Northern Virginia, the historical celebration of the COSCOM's own impressive history took on an even greater meaning for the participants.

Escorted to the dining room by a First Team officer playing the bagpipes, the riders filled the tactically laid out dining room and, after traditional toasting and roasting events, participated wholeheartedly in the evening's program. Both alcoholic and nonalcoholic punch were mixed in the traditional fashion, and the COSCOM's airborne heritage and colorful history were recalled and reverently extolled. The entire event was expertly planned and professionally run by the junior officers of the First Team. Highlights including lampooning skits and colorful stories, and gleefully rendered "points of order" rounded out the evening's solemn tone with levity.

□ **Colonel Joshua Chamberlain, commander of the 20th Maine and hero of Little Round Top.**

The riders did not know the identity of the dining-in's secret guest speaker. A respected Lincoln re-enactor, James Getty, astounded the riders when, after a solemn introduction and entrance from a sheltered doorway under dimmed lights, he was introduced as the "Commander in Chief." Officers shot up from their chairs and were locked in a rigid position of attention, expecting the incumbent President to tell them to be seated, when a gentle Illinois voice politely requested them to "please take a seat and suffer an old man an opportunity to clear his throat." The speaker's emotion-filled Gettysburg Address, followed by a thought-provoking speech on the value of the Union Army's officer corps and acknowledgement of the unique sacrifices required of today's Army leaders, made all pause to consider their commitment to the Constitution. This reflection-inspiring speech generated a renewed sense of dedication to the Nation and a career in the Army among those in attendance. Perhaps First Lieutenant Bud Jameson said it best: "Lincoln was the most sublime choice possible. I had shivers up and down my back, just thinking about his words and what it meant to be an officer. I think every officer needs to be reminded of his reasons for service. I'll never forget this experience." The event was a resounding success and exposed many of the junior officers to a standard-setting dining-in experience.

## A Run Around the Battlefield

All XVIII Airborne Corps units must complete a 4-mile run in less than 36 minutes. The opportunity to meet the corps standard on the history-rich Gettysburg battlefield was a once-in-a-lifetime collective physical training (PT) opportunity for the members of the First Team. Arriving at the park before daylight, the staff riders promptly fell in wearing their muted gray PT uniforms and, after stretching in the cold, formed in a mass formation behind the national colors and the COSCOM flag. A shot from a circa 1861 pistol rang out as the command to double-time launched the riders on their historic run. Snaking their way along the same routes used by both the Blue and the Gray in their rendezvous with history, the runners wound through the drama that was the Devil's Den, past the saga that was Little Round Top and the tragedy of the Wheat Field, and finally stopped at the beautifully serene Pennsylvania Battle Monument, where Lee's gray-clad legion almost broke the thin blue line.

After the run, the officers enjoyed refreshments while

☐ **The staff riders retrace Pickett's charge, the climactic action of the battle.**

the COSCOM commanding general gave a talk on officership and Army values. The growing dawn light, reflecting off the dew-covered cannons of the Union artillery on now-still Cemetery Ridge, added a unique poignance to the moment. After cooling down, the runners prepared for the second day of the battle. This exciting run was an eclectic combination of fitness, historical immersion, and camaraderie that always will be remembered by those fortunate enough to have participated.

## Day Two: Joshua Chamberlain Recalled

Perhaps no other name in our Army's history kindles such military respect, save George Washington or perhaps Dwight D. Eisenhower, as that of Maine's amateur soldier extraordinare, Colonel Joshua Chamberlain of the 20th Maine. Field Manual 22–100, Army Leadership, uses the example of Chamberlain's command at Little Round Top to demonstrate the importance of leadership as a critical element of intangible combat power.

Little Round Top, a small hill at the southern end of the battlefield, is perhaps the most revered of sites at Gettysburg. It was here that professor-turned-officer Chamberlain, newly commanding the 20th Maine Infantry Regiment, demonstrated what bravery and a few bayonets could accomplish. The 20th Maine, after enduring devastatingly accurate Confederate fire from the recently rebel-captured Devil's Den, took a position on the extreme left of the stressed Union line in order to deny the Army of the Potomac's flank to Longstreet's attacking Confederate corps. Chamberlain's weary regiment, having exhausted their ammunition in repelling repeated attacks from resolute Texans and Arkansans and facing a fresh charge from a determined enemy, were galvanized by Chamberlain's electrifying order to "Fix Bayonets!" and audaciously attack the enemy in a make-or-break offensive charge. No American can fail to be moved by this powerful testimony to martial bravery, and the First Team riders were no exception. First Lieu-

tenant Matthew Phelps commented, "I am a better person and soldier for having come on this trip. Colonel Chamberlain's leadership was awesome and inspiring. Makes me even prouder to be an American. This was an extremely educational experience from all angles."

Each of the three groups of riders walked Little Round Top and, after tracing the combat on the front slope, went to Chamberlain's position and reenacted his famous charge. A junior officer in each group, playing Chamberlain, positioned his regiment after explaining the events of the afternoon and then had his soldiers sweep down the slope, with whoops and yells, in the same fashion as the 20th Maine 137 years earlier. Each "Chamberlain" reluctantly brought the "swinging gate of bayonets" to a halt on the upward slope of the adjacent hill, Big Round Top, to the cheers of watching tourists. These civilian onlookers enjoyed the impromptu drama of the charge, and during a break in training they sought to talk to the officers about the reason for their battlefield visit and life in today's Army. School children also enjoyed the sight of modern soldiers, clad in battledress uniforms, charging on Little Round Top, and they persuaded many officers into taking pictures with their classmates to record their special class trip to Gettysburg.

## Day Three: The High Water Mark

Consummate operational artist Robert E. Lee decided to go for broke on the third day of the battle. Lee intended to launch Longstreet's corps at the center of the Union line to break Meade's front and then defeat the Army of the Potomac in detail. He counted on the impact of the fresh division of George Pickett to swing the battle in favor of the South. This audacious, and as some historians claim, foolish attempt to conclude the battle decisively is often cited as the 'high water mark of the Confederacy," since the South never again possessed enough combat power to invade the North.

After finishing the third day of the battle, all three

☐ The staff ride concluded with a final session on lessons learned and opportunities lost.

staff ride groups converged at Lee's monument on Seminary Ridge and formed the approximate frontage of a Confederate regiment in Pickett's division. Taking the same axis of advance, the First Team riders retraced Pickett's doomed route and marched steadily in linear formation toward Meade's position on Cemetery Ridge, a mile distant.

Recreating Pickett's charge was a thrilling experience for the riders. First Lieutenant Brian Fickel observed, "I thoroughly enjoyed the experience this staff ride provided me. It allowed me the time to sit down and get to know my fellow officers. I also learned a lot about the battle of Gettysburg and the sacrifices the soldier[s] made in fighting for what they believed in." Following the charge, the riders participated in a final session led by the senior facilitator that provided closure on the staff ride and recounted lessons learned and operational opportunities lost.

## A Busy and Beneficial Exercise

The staff riders traced the 3 days of battle in sequence, using persona modeling and IPB briefings to learn about the campaign; reenacted the electrifying bayonet charge of Colonel Joshua Chamberlain's 20th Maine down Little Round Top; executed a stimulating and historically rich XVIII Airborne Corps standard 4-mile run through the battlefield; conducted a first-class tactical dining-in, with "Abraham Lincoln" as the guest speaker; and culminated the exercise by recreating Pickett's high-water-mark charge en masse, followed by a campaign closure session and free time. Many junior officers stated that it was the best training event they had ever experienced and that it would be a career highlight. Comments in the after-action reviews were almost uniformly positive,

with many participants expressing a desire to do a staff ride annually. A considerable number planned to start a professional self-development program because of the inspiration they had received at Gettysburg. All felt the staff ride was a great cohesion builder and validated the importance of junior officers to the organization.

A reward-filled, quality staff ride can be undertaken by any unit willing to invest the appropriate mix of time, resources, and experience. By introducing junior officers to their rich military past, commanders can plant the seed of interest in military history and create a thirst for further personal development. A staff ride to Gettysburg can be an epiphany. As First Lieutenant Steven Dorris commented, "This staff ride is a dream come true, and I shall always remember my thoughts as I walked the hallowed ground. Taken in proper perspective, a staff ride to Gettysburg will cause a leader to know whether the Army is merely an occupation . . . or a calling." **ALOG**

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# Splitting Hand Receipts for Deployment

by Chief Warrant Officer (W–4) Michael E. Toter
and Chief Warrant Officer (W–4) James M. Townsend

*The 10th Mountain Division developed split accounting procedures to maintain accountability of deployed and nondeployed assets. The authors describe the procedures that were used during their deployment to Bosnia.*

As units from the 10th Mountain Division (Light Infantry), Fort Drum, New York, deployed to Bosnia in fiscal year 1999, the division property book office (DPBO) had to make many things happen to ensure that there was no lapse of property accountability or reporting requirements. The challenge came when units at company level split, with only a part of the company going to Bosnia and taking only a portion of the company's equipment. Following are the basic steps used by the DPBO for continuous, 100-percent property accountability from deployment to Bosnia to redeployment to Fort Drum.

## Eight Steps for Deployment

*Step 1-Identify the units deploying.* For the 10th Mountain Division, elements from 63 of the division's 107 units were deploying.

*Step 2-Request the derivative unit identification codes (D–UIC's).* The DPBO required D–UIC's and Department of Defense activity address codes (DODAAC's) for the deploying element of each unit. The property book teams then loaded a new header in their Standard Property Book System-Redesign (SPBS–R) computer systems for each unit deploying to Bosnia.

*Step 3-Determine the equipment to be deployed.* Once a unit was identified, the unit commander decided which equipment on his primary hand receipt (PHR) was needed for Bosnia. He used the authorization document established for Bosnia and any additional equipment approved by the division G4 as the basis of his decision.

*Step 4-Prepare the lateral transfer documents.* The deploying unit's supply sergeant prepared a Department of the Army (DA) Form 3161, Request for Issue and Turn-In, to laterally transfer the equipment to Bosnia. The deploying commander used his PHR to verify the accuracy of serial numbers, quantities, and nomenclature on the DA Form 3161. Accuracy of the DA Form 3161 was very important because its information eventually became the Bosnia portion of the unit's split PHR.

*Step 5-Appoint a rear detachment commander.* At this time, the rear detachment commander was appointed in writing. Since the unit going forward now had a D–UIC, both the forward and the rear detachment commanders needed new appointment orders. The DPBO received copies of the rear detachment commander's orders and DA Form 1687, Delegation of Authority Card.

*Step 6-Complete a change-of-command inventory.* If possible, the equipment to be deployed was separated from the equipment that would remain with the rear detachment. The rear detachment commander then completed a 100-percent physical inventory of the equipment remaining at Fort Drum in the same manner as a

change-of-command inventory. For the purposes of the division property book, the rear detachment commander became the commander of the unit when he assumed command and signed the rear detachment SPBS–R hand receipt.

*Step 7-Complete the lateral transfers.* The DA Form 3161 listing the equipment for deployment then was processed as a lateral transfer to the unit's D–UIC. As far as the division property book was concerned, there were two units with two commanders—essentially a split hand receipt. During this process at Fort Drum, a property book under the SPBS–R system was established in Bosnia. This system in Bosnia was loaded with unit headers that matched the derivative task force UIC's and DODAAC's established at Fort Drum.

*Step 8-Transfer property from Fort Drum to Bosnia.* As each unit deployed, the unit reported to the DPBO and received a ZRF (Unit Transfer Request) on disk and a hard copy of the unit's PHR. The property book team also kept a copy of the ZRF. Upon the unit's arrival in Bosnia, the forward commander gave the disc containing the ZRF to the Bosnia PBO. The Bosnia PBO loaded the ZRF into the property book and printed a copy of the commander's PHR. The commander compared this PHR with the PHR from the DPBO at Fort Drum. If the two PHR's matched, the commander signed the new PHR establishing property book accountability in Bosnia. At this point, the PBO in Bosnia assumed responsibility for maintaining property book accountability and all reporting requirements for a unit's property.

## Redeployment

During the Christmas 1999 holidays, personnel and equipment began returning home, and the DPBO began recombining split unit hand receipts with parent unit hand receipts at Fort Drum.

The process for redeploying equipment was essentially the reverse of the deployment process. Redeployment started with the unit commander in Bosnia performing a 100-percent physical inventory of all the property on his PHR from the PBO in Bosnia. Based on this inventory, the PBO updated the commander's PHR, making any adjustments required by Army Regulation (AR) 735–5, Policies and Procedures for Property Accountability.

## Four Steps for Redeployment

*Step 1-Identify the returning unit.* When an entire unit was identified to return, the Bosnia PBO processed three copies of the PHR. One remained in the supporting document file in Bosnia, one was mailed to the Fort Drum PBO, and one was sent with the senior person in the unit returning with the equipment.

*Step 2-Complete the unit transfer.* The second step was for the Bosnia PBO to send a ZRF to the Fort Drum PBO. The computer disk containing the ZRF was copied and distributed to the same three locations as was the PHR. When equipment arrived at Fort Drum, the ZRF was loaded into the supporting property book team's SPBS–R system. At this point, accountability for the original Fort Drum unit was established under two separate UIC's, the original and the derivative.

*Step 3-Perform a change-of-command inventory.* Next, both the forward and rear commanders performed a 100-percent physical inventory. The incoming unit commander signed two PHR's, one for each UIC.

*Step 4-Put the unit back in its original configuration.* The property book team merged the D–UIC with the original UIC by a lateral transfer, printed one PHR, and had the commander sign it to return the unit hand receipt to its original configuration. If only a portion of the unit's equipment was returning, the Bosnia PBO directed a lateral transfer from the 10th Mountain Division Property Book in Bosnia to the Fort Drum Property Book. A DA Form 3161 was filled out as a request for lateral transfer, listing the property to return to Fort Drum. The lateral transfer was processed as any other lateral transfer, going from one property book to another. The same process took place when the remainder of the unit's equipment returned from Bosnia.

## After-Action Review

This split accounting process worked well in Bosnia and Fort Drum. Property accountability was maintained, and reporting procedures remained in place. As with any military exercise, an after-action review identified the following issues for resolution.

*Accuracy of the PHR before splitting the hand receipt for deployment.* Last-minute reports of survey and administrative adjustment reports are the most common problems with splitting hand receipts. As with any 100-percent inventory, unit commanders should conduct an internal review of their property before the change of command. This internal review should include balancing all signed sub-hand receipts against the master hand receipt from the DPBO and requiring all hand receipt holders to conduct an internal, 100-percent physical inventory. Discrepancies (including in the components of line items) should be reported according to AR 735–5, giving close attention to serial numbers, stock numbers, and model numbers. Sixty days before a known deployment, property book adjustments should be submitted according to DA Pamphlet 710–2–1, Using Unit Supply System (Manual Procedures), AR 710–2, Inventory Management Supply Policy Below the Wholesale Level, and AR 735–5.

*Solution: Conduct inventories (10-percent cyclic, prechange of command, and change of command) accord-*

□ Two warrant officers from the 10th Mountain Division process unit transfer requests (ZRF's) in Bosnia.

ing to DA standards, and report discrepancies according to DA Pamphlet 710–2–1, AR 710–2, and AR 735–5.

***Accuracy of DA Form 3161 lateral transfers to split the hand receipt.*** Some unit supply sergeants—many without military occupational specialty 92Y (unit supply specialist)—did not pay attention to details. As a result, serial numbers, stock numbers, line item numbers, and nomenclature sometimes did not match the property book or the actual equipment. This mismatch stopped the posting of equipment that, in some cases, already had been deployed. Lack of posting caused delays in splitting the hand receipt. These delays complicated the rear detachment commander's completion of the beginning-balance hand receipt needed to start his initial 100-percent inventory of rear detachment property.

*Solution: The G4 and S4 logistics officers should train the supply sergeants and rear detachment commanders on the basic procedures for completing a DA Form 3161. DPBO should provide guidance on specific deployment procedures.*

***Failure of soldiers attached to another unit for deployment to notify either the losing unit or the gaining unit that they were carrying personal items such as weapons, masks, and toolboxes.*** Unit commanders must know which soldiers are deploying outside of their units.

Commanders and first sergeants must ensure that every deploying soldier clears the arms room, the nuclear-biological-chemical noncommissioned officer (NCO), and the supply sergeant. Hand receipt holders who are not deploying but are sending equipment must inform the supply sergeant of all transactions and request his guidance. Before the deployment, the unit supply sergeant must laterally transfer a soldier's equipment to the unit to which the soldier will be attached. This is essential for the deploying commander to maintain 100-percent accountability, especially with sensitive items.

*Solution: The G4's and S4's should establish a mandatory out-processing checklist for soldiers who are deploying with other companies. Soldiers should not be allowed to deploy until the lateral transfers are posted to the deploying unit's hand receipt. An exception to this procedure is for deployments with less than 72 hours' notice.*

***Deploying with excess equipment.*** Higher headquarters had given specific instructions to deploy only with equipment that the division G4 had approved for deployment. The DPBO also had instructed units not to take equipment that was excess to their modification table of organization and equipment (MTOE) without written approval from the G4. Units were briefed on the many items already in country that were on a Bosnia

table of distribution and allowances (TDA) property book.

The intent of the requirement was to ensure that units brought only the equipment they would be using. In Bosnia, space for and security of equipment were limited. Someone from the unit would have to secure and maintain unused equipment, in addition to the pre-set package signed for in country. Further, higher headquarters did not want units to deploy with the intent of leaving excess equipment in Bosnia. Although the property book teams convinced most units not to deploy with excess equipment, a few units still did so. The excess caused very little impact on the missions, either in Bosnia or back at home station. However, the fielding of new equipment at Fort Drum was affected by excess taken to Bosnia.

*Solution: Although deploying with excess equipment was a minor problem compared to previous Bosnia rotations, the command should continue to emphasize adherence to the MTOE.*

**Failure to verify the equipment needed for the mission and update the requirement documents to reflect those needs.** The DPBO struggled to acquire equipment required by higher headquarters, only to be told by the Bosnia PBO not to send it. This contradiction caused discontent across several divisions and with the PBO's who assisted in acquiring and sending equipment to Fort Drum because we had to send equipment back to its original owners. It also made it impossible to make sure that units took enough equipment to Bosnia and left behind equipment they would not need.

*Solution: Do not have higher headquarters (above division level) dictate specific equipment requirements down to the user level. Higher headquarters should review and validate authorization documents annually and then instruct the current Bosnia PBO to requisition command-directed line item numbers according to the authorization documents. The current Bosnia PBO can ask the next rotation's PBO to fill the remaining shortages. For the next rotations, the PBO can fill only from current MTOE authorizations without corps approval. A list of all shortages for Bosnia that will exceed the next division's authorizations for the participating units must be sent back to the responsible headquarters, with a copy sent to the Bosnia PBO. The Bosnia PBO is responsible for working with higher headquarters to fill shortages.*

**Delay of Continuing Balance System-Expanded (CBS–X) and Unique Item Tracking (UIT) serial number reporting to the Army Materiel Command's Logistics Support Activity (LOGSA).** Establishing the D–UIC's early and immediately requesting DODAAC's for the new D–UIC's ensured 100-percent CBS–X and UIT reporting for all transactions leaving the division. However, the actual in-country procedures were delayed,

causing errors in the LOGSA data base. Those errors meant rejections for the 10th Mountain Division's UIT data base because they had not been reported as a gain in Bosnia. Serial numbers are not removed from one unit's UIT records until matched to another unit's serial-number receipt.

*Solution: Upon notification of a deployment, contact LOGSA for specific procedures for a unit's deployed location. While deployed, process CBS–X and UIT reports weekly.*

**Arrival of more than one ZRF for the same D–UIC at the deployed PBO.** According to SPBS–R procedures, the losing unit sends the ZRF disk with the forward-deploying unit commander. The unit commander gives the ZRF disk to the gaining PBO to load that commander's assets onto the deployed PBO's SPBS–R system. Several divisions commented that this procedure becomes a problem when the commander loses the disk. To maintain property book records at both PBO sites, Fort Drum modified the SPBS–R procedures. Within 48 hours of processing a unit's ZRF disk, Fort Drum sent a report by electronic mail and attached another ZRF disk as a backup. (This also keeps CBS–X and UIT data bases up to date.) If a commander lost the ZRF disk but the Bosnia PBO had the file on e-mail, he would not have to build the hand receipt manually. The Bosnia PBO could download the ZRF data from the e-mailed report, and if the commander finds the original disk later, the PBO could print and compare the two.

*Solution: The gaining PBO should post only the first ZRF disk received. Post either from the losing PBO from the e-mail report or from the incoming commander. In either case, the incoming commander must compare the hand receipts printed at the deployed location against the hand receipt he signed to produce the ZRF disk.*

**Importance of advance notification, command emphasis, in-process reviews, other meetings, and training to the success of the deployment process.** Failure to coordinate efforts with all other activities could lead to reduced readiness. However, this was not a problem during this deployment because most commanders and units participated in meetings and developed training on deployment procedures early in the deployment process. Most units began communication with their property book team chiefs 6 months before deployment. Critical shortage lists relating to Bosnia were established and worked by the property book team chiefs. In the 30 days before deployment, all but 14 line items from the critical shortage list were filled from the MTOE's. The property book team chiefs worked closely with item managers and other PBO's throughout the corps. Before deployment, all but one line item was filled. Many units followed the detailed guidance, started early, completed early, and thus could spend time with their families in the last few days before the

deployment.

*Solution: To prepare successfully for deployment, the unit, the property book office, staff offices, and outside agencies must work together as a team.*

## Elements of Success

To make this split accounting process work, face-to-face briefings with each deploying unit were essential. The DPBO put together a briefing for the property book team chiefs. Months before deployment, the team chiefs briefed battalion and company commanders, S4's, and supply sergeants on the responsibilities and requirements of split hand receipts for Fort Drum and Bosnia.

Early identification of deploying units helped them prepare for split hand receipts. The PBO had to maintain close contact with the G3 plans and operations officers. This allowed the most time to prepare units for deployment.

As always, a 100-percent physical inventory before and after any deployment improves the margin of success. Units that were diligent in this process saved a lot of time on recovery.

Coordination between the property book at Fort Drum and the property book in Bosnia was essential. Even though the property book team in Bosnia did an outstanding job, developing an additional property book team at Fort Drum and deploying it with the 10th Mountain Division would have been easier. All assets, either deployed forward or remaining on the installation, still belonged to the 10th Mountain Division. Deploying the property book team from Fort Drum would have made CBS–X and UIT reporting easier, as well as the unit status report (USR) that was completed manually by the units. Each procedure was completed separately. The job got done on both sides, but it could have been easier. The USR shows the on-hand assets every month for every parent-level unit in the division. While the USR is automated in SPBS–R, SPBS–R is limited to what is on hand at the rear location, so accurately accounting for the property at its real physical location impacts the USR.

Manually maintaining total asset visibility at Fort Drum was almost impossible. Determining current excess and shortage reports consumed an enormous amount of time. Fort Drum chose to have the Bosnia PBO send a property book extract for 10th Mountain Division units. After each unit's deployed assets were loaded on the division's total asset visibility computer, the items in the property book extract from Bosnia were listed directly below their original UIC. This also provided the Fort Drum PBO the correct assets within a battalion.

## Deployment to Areas With No PBO

Fort Drum also had units deployed to other countries outside the Bosnia PBO's authority, such as Kosovo and the Sinai—some with no PBO contacts. Once a ZRF is processed, the equipment is no longer on any PBO's property books until a gaining PBO posts the gaining ZRF. Timing is critical. Until the gaining PBO posts the ZRF, the CBS–X validation shows the assets as losses. If an in-country PBO cannot be located, there is 100-percent loss of accountability in the Army inventory.

In an immediate real-world deployment (less than 30 days' notice), there may be no contact with a gaining PBO. In such a case, an additional SPBS–R computer should be set up and loaded with the unit's deployed property from the extra copy of the ZRF disk for the deployed unit so that neither CBS–X nor UIT data will be reported twice. From the additional computer, a property book extract should be run, just as for other property deployed to Bosnia, which would give a true picture of the organization's assets worldwide.

The D–UIC's identify property not physically on the installation. For split operations, all the ZRF's must be processed in the same manner—as a task force deployment, not as a unit movement. Even when most of a unit is deploying, use the D–UIC as the forward UIC. Otherwise, there is a mixture of UIC's and D–UIC's deployed, eliminating the instant identification (by the number at the end of the D–UIC) of deployed units on consolidated property reports for total asset visibility.

Splitting property and accounting for all of it during deployment was not an easy task. If not for the dedication and expertise of the warrant officers, NCO's, and enlisted soldiers working in the DPBO, it could not have been done. They are the ones who worked 14-hour days to make it happen while maintaining total division support and 100-percent accountability. ALOG

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# The Swiss Transportation Troops

by Captain Peter Chen

The author believes that, to be successful in joint operations, we must learn as much as we can about other armies. Here he tells what he has learned about the Swiss Army.

Last January, I was fortunate enough to be invited by a Swiss officer who had been my classmate at the Army Transportation School at Fort Eustis, Virginia, to visit the Swiss Logistics Officer School at Wangen, Switzerland. It was an opportunity that few Americans have—to observe and learn about the logistics operations of the Swiss Army.

One might ask, "Why study the Swiss Army?" The first things that come to mind when someone mentions Switzerland probably are the Swiss Army knives and Swiss chocolate that we buy in the post exchange. The Swiss tradition of neutrality puts the country out of the minds of most military planners. Although Switzerland is not a member of the European Union (EU), its participation in foreign affairs has increased. It is a member of the North Atlantic Treaty Organization (NATO) Partnership for Peace, and the Swiss Army sent a detachment to Bosnia to serve as an element of the Organization for Security and Cooperation in Europe. In 1999, the Swiss Company (SWISSCOY) became part of the Kosovo Peacekeeping Force, in cooperation with the German and Austrian armies, and provides logistics support to the Austrian Army.

Peacekeeping operations around the world show that joint operations clearly are the way of the future. Although the United States has not planned any joint operations with Switzerland for the immediate future, we still would benefit from studying how its army conducts operations. In joint operations, we cannot afford to be so narrow-minded that we focus solely on U.S. military doctrine and our way of doing business.

## Mission of the Swiss Army

To understand Swiss Army transportation, it is important to understand the mission of the Swiss Army. Traditionally, the Swiss Army has been a purely defensive force. Its three security missions are promoting peace, preventing war, and providing assistance. In 1995, the Swiss Army was completely reorganized and

modernized under the Army '95 initiative. Someone who served in the "old" Swiss Army hardly would recognize the new army and its new weapons, equipment, and uniforms.

The fact that promoting peace is the Swiss Army's number one mission reflects Switzerland's commitment to European and world affairs, while maintaining its neutral tradition. Preventing war reflects the traditional defensive mission. The last mission, providing assistance, is shared with other armies of the world and refers to providing disaster relief and other domestic assistance. Since the Swiss Army has not engaged in war since the Napoleonic Wars (1792 to 1815), this mission has grown in importance.

## Citizen Soldiers

Under Article 18 of the Swiss Constitution, every male is responsible for military service. The period of service as a "citizen soldier" begins at age 20 and ends at age 42 (52 for officers). After initial training, a citizen soldier is required to serve a certain number of days before his service ends. For younger men, this can translate into up to 3 weeks in a year. The Swiss Army uses a system of staggered refresher training to ensure the readiness of the army. When a citizen soldier completes his training, he takes home his individual equipment, which includes a personal weapon with a basic load of ammunition. This draft system allows the Swiss Army to maintain a potential force of 400,000 with only 2,000 full-time commissioned and noncommissioned officers.

## Organization

The Swiss Army is organized into three field army corps and a mountain army corps. In these four corps are six field divisions, three mountain divisions, five armor brigades, and three fortress brigades. At the canton (state) level, there are four territorial divisions and two territorial brigades.

Swiss Army forces are divided into combat troops,

combat support troops, and logistics troops. Combat troops comprise infantry and mechanized units. Combat support troops include artillery, fortress, engineer, and signal personnel. Logistics troops include transportation, medical, maintenance, supply, veterinarian, and rescue troops.

The rescue troops are unique to the Swiss Army. They provide disaster relief and are trained to use explosives for rescue purposes. They offer several classes during the year to fire departments and other agencies around the world.

The logistics requirements of the Swiss Army are small compared to those of the U.S. Army. The Swiss Army is not designed for force projection, nor does it have a logistics system for overseas deployment. Since the main strategy of war is defensive (hence the fortress brigades), most of the supplies the Swiss Army needs are pre-positioned inside well-protected depots or mountain fortresses.

## Modes of Transportation

The primary modes of transportation for the Swiss Army are rail and highway. According to Swiss doctrine, rail is used when transporting supplies or equipment a distance of 150 kilometers or more.

Swiss rail operations are relatively simple compared to American rail operations, especially when it comes to rail loads. Vehicles simply drive onto the rail cars. They are not tied down. The rear wheels are chock-blocked. For long trips, the rear wheels are blocked from three sides, and the blocks are nailed down. Special

cars for heavy equipment such as tanks have metal surfaces that have holes in them into which heavy metal blocks fit like Lego™ toy blocks. If it is necessary to load or offload equipment in an area that has no railhead, the last car in the train usually is a special car that can be converted to a mobile ramp (see photo below).

By doctrine, trains will not venture into hostile territory. However, if an attack is imminent, the unit commander has the option of stopping the train inside one of the many tunnels in Switzerland and offloading the vehicles inside the protection of the tunnel. Unlike American railcars, Swiss railcars are sometimes loaded off center so large tracked vehicles overhanging the cars will pass safely through tunnels that have off-center rails.

Switzerland does not have a seaport, so it does not have a navy. However, it does have a merchant marine. The Swiss Luftwaffe (Air Force) does not have large fixed-wing transporters like the C–130, but it is planning to acquire medium transport aircraft as soon as next year. However, considering the small size of the nation, fixed-wing transporters are not crucial. The Swiss Luftwaffe uses the Super Puma transport helicopter as its primary cargo and personnel mover. It also uses Alouette-3 helicopters and small, fixed-wing passenger aircraft.

Saurer and Steyr trucks are the backbone of the Swiss Army. Like the U.S. family of medium tactical vehicles, Saurer trucks come in two- or three-axle versions; e.g., Saurer 6DM and 10DM (the numbers refer to weight in metric tons). The Steyr trucks are similar to the older Saurer trucks. The Swiss Army began procuring Steyr



□ **The last car in a train carrying Swiss equipment usually is a special car that can be converted to a mobile ramp.**

gravel, sand, cobblestones, and dirt (see photo above). On part of the course, drivers must negotiate a descent of over 85 degrees. The driving exercises are conducted independently in all types of road, weather, and light conditions.

## The Transportation Battalion

A typical Swiss motor transport unit is comparable to a light truck company in the U.S. Army. The traffic police, who function much like U.S. Army military police (MP's), are part of the Transportation Troops. If we look at the organization of Transportation Battalion 5, for example, we see that it has five companies: companies 1 and 2 are traffic police; companies 3, 4, and 5 are transportation truck companies.

This type of integration of services is common in the Swiss Army. For example, an engineer pontoon bridge company is assigned its own MP's. As the movement control officer for Task Force Eagle in Bosnia, I often found arranging MP escorts for heavy equipment transporters (HET's) troublesome because I had to coordinate with the G3 to send a division-level fragmentary order (FRAGO) to the brigade to request MP escorts. (A Task Force Eagle "FRAGO" also meant "request approval from a general officer.") The Swiss Army battalion commander does not have to worry about this type of problem.

The Swiss Army has been composed mostly of reserves for a very long time. While many European nations were neutral at one time or another, only the Swiss Confederation has remained neutral for almost 200 years. Still, potential invaders throughout history have recognized that the Swiss Army is always ready and capable of defending its territory.

The future U.S. Army envisioned by Chief of Staff of the Army General Eric K. Shinseki is a lighter, more mobile Army that will require integration of reserve component units. Gone are the days when U.S. forces conduct an operation alone. We are certain to conduct operations with nations other than those that have been our traditional adversaries or allies in the past. That is why I believe it is important for us to learn as much as we can from other armies, and there is much to be learned from the Swiss Army. **ALOG**



□ The surface of the obstacle course used to train Swiss truck drivers is covered alternately with rocks, gravel, sand, cobblestones, and dirt.

trucks when production of the Saurer trucks ceased.

For a light or command car, the Swiss Army uses the Puch, which is the Swiss version of the Mercedes jeeps found in most NATO armies. Despite its diminutive appearance, the Puch can carry up to eight passengers. In between the Puch and the large Saurer or Steyr truck is the Duro, a truck that is smaller than an American high-mobility, multipurpose, wheeled vehicle, but it can carry up to 20 soldiers.

By doctrine, the Swiss truck driver's duties include transporting up to 44 passengers and moving ammunition, equipment, and supplies. The typical Swiss Army truck driver is trained in a driving simulator for 8 to 12 hours before actually driving. I had the opportunity to drive a Saurer 10DM 3-axle cargo truck through the obstacle course at the Transportation School at Wangen (the Swiss equivalent of Fort Eustis). The obstacle course contains stretches of narrow, hilly roads with tight turns. The course surface is covered alternately with rocks,

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# A Revolutionary Vehicle for the Future

by Colonel Larry Harman

While many technological advances occur in an evolutionary manner, occasionally a revolutionary technology appears on the horizon that creates startling new conditions and profound changes. Such is the case with the privately developed Moller Skycar, which is named after its inventor. With his permission, I would like to discuss the military potential of this vehicle. The ruggedized Moller Skycar variant the military is evaluating is called the light aerial multipurpose vehicle, or LAMV (pronounced "lam-vee").

The LAMV is a vertical take-off and landing aircraft that can fly in a quick, quiet, and agile manner. It is a new type of vehicle that combines the speed of an airplane and the vertical take-off capability of a helicopter with some characteristics of a ground vehicle, but without the limitations of any of those existing modes of transportation.

The LAMV is not operated like traditional fixed- or rotary-wing aircraft. It has only two hand-operated controls, which the operator uses to direct the redundant computer control system to carry out desired flight maneuvers. The left-hand control twists to select the desired operating altitude and moves fore and aft to select the rate of climb. The right-hand control twists to select the vehicle's direction and moves side-to-side to provide transverse (cross-wise) movement during the hover and early-transition-to-flight phases of operation; it also moves fore and aft to control speed and braking. Simply put, the LAMV is user friendly.

The LAMV of the future will be 18 feet long, 10 feet wide, and 6 feet high and weigh 2,200 pounds. It will hold four passengers and a payload of 875 pounds (including fuel). The vehicle will have a maximum rate of climb of 6,400 feet per minute and an operational ceiling of 30,000 feet. It will attain a top speed of 390 miles per hour at an altitude of 6,000 feet and a cruising speed of 350 miles per hour at 25,000 feet, and it will have a maximum range of 900 miles at 80 passenger miles per gallon. The LAMV also will be quiet enough to function as an acoustic "stealth" plane at 500 feet. It will have a vertical take-off and landing capability and emergency airframe parachutes, and it will be capable of using various fuels.

Safety, of course, is most important. The LAMV design incorporates a number of safety features. For starters, the LAMV has multiple engines. Unlike any light helicopter or airplane, the LAMV has multiple engine nacelles, each with two computer-controlled Rotapower engines. These engines operate independently and allow for a vertical controlled landing should either fail.

The LAMV features redundant, independent computer systems for flight management, stability, and control. Two airframe parachutes can be deployed in the event of the vehicle's catastrophic failure. These parachutes ensure that the LAMV and the operator and soldiers it carries can land safely. The Wankel-type rotary engines are very reliable because of their simplicity. The three moving parts in a two-rotor Rotapower engine are approximately seven percent of the number of parts in a four-cylinder piston engine. Each nacelle fully encloses the engines and fans, greatly reducing the possibility of injury to soldiers who might be near the vehicle in the event of an engine fire or explosion. Multiple systems check fuel for quality and quantity and provide appropriate warnings. The LAMV can land on virtually any solid surface.

The LAMV is aerodynamically stable. In the unlikely event that sufficient power is not available to land vertically, the LAMV's stability and good glide slope allow the operator to maneuver to a safe area before using the airframe parachutes. Since computers control the LAMV's flight during hover and transition, the only operator input is to control speed and direction. Undesirable movements caused by wind gusts are prevented automatically.

The potential economic advantages of the LAMV are worth mentioning. Its fuel-efficient engines and ability to operate on various fuels will lower fuel costs. The LAMV uses one-fourth of the fuel per passenger mile used by the tilt-rotor V−22 Osprey or high performance helicopters. The LAMV's acquisition cost also will be a significant factor in its favor. The LAMV's purchase price per passenger seat is projected to be approximately eight percent of that for the 30-passenger Osprey.

The LAMV's potential military uses will be numerous. They include aerial medical evacuation, aerial reconnaissance, command and control, search and rescue, insertion of special operations forces, air assault

□ The privately developed Moller Skycar will be the base model for the military's LAMV.

operations, airborne operations, forcible-entry operations, military police mobility and maneuver support, communications retransmission, battlefield distribution for unit resupply, transport of individual and crew replacements, weapons platform, noncombatant evacuation operations, battlefield contractor transport, and battle damage assessment.

Consider the LAMV's use in contingency operations. An adversary observing a LAMV would have great difficulty determining the type of force approaching and that force's destination and intention. If the adversary did realize our intentions, the senior enemy commander would not have time to react. Imagine a forcible entry and early entry force package based in the continental United States that self-deployed overseas in LAMV's. With short halts along the way at seaborne resupply vessels or land-based refueling sites, the force package would reach its objective within hours. This concept would reduce dramatically the Army's dependence on the U.S. Transportation Command for strategic airlift and on the geographical commander in chief for intratheater airlift support. The overall speed of force closure would improve greatly. This would enhance the senior commander's ability to conduct multiple, simultaneous operations in his battlespace with an accelerated operational tempo that precludes the adversary from achieving his goals. Dependence on air and sea ports of debarkation would be reduced.

LAMV will benefit the Army's battlefield distribution concept tremendously because it will be able to move commodities rapidly when and where they are needed across a widely dispersed battlespace. Both air and ground main supply routes (MSR's) would exist throughout the battlespace. The MSR's in the air would change as missions and situations dictate. Eventually, small, multicommodity shipping containers could be designed for transport by either a LAMV or an even more futuristic medium or heavy aerial mobility vehicle. Consider a new type of transportation unit equipped with LAMV's

for aerial distribution; many types of land mines used to block convoy movements today would become less of a concern for logisticians and engineers since they could use MSR's in the sky. Or consider moving contractors around the battlespace in LAMV's to perform their tasks. Basically, the LAMV concept promotes a smaller, more agile, and more effective sustainment presence within a supported battlespace.

Consider the LAMV working in unison with the Army's Future Combat System (FCS). The LAMV could become an integral component of the overall concept for employing the FCS. The operator of the LAMV actually could be a member of the FCS crew or unit. In this role, the LAMV would provide multiple benefits—reconnaissance, resupply, medical evacuation, and maintenance support. Perhaps the LAMV itself could become a future combat weapon system platform. Perhaps this innovative technology could force major changes in joint and Army doctrine, training, leader development, organizations, materiel, and soldier programs.

Of course, the LAMV brings with it some obvious challenges. Its limited payload will be a negative factor. Its use will complicate Army airspace command and control. How the LAMV will be used in conjunction with forces under the joint force air component commander will have to be determined. LAMV support issues also require resolution. For example, operator selection and training, leader training, employment doctrine, LAMV basis-of-issue plans, and LAMV life-cycle management all require the Army's attention.

However, once the LAMV technology matures, its military possibilities are startling. We in the Army combat service support "futures" arena are encouraged by the developments so far and hope that the LAMV will be ready for Army fielding around 2010. The LAMV can become a reality in our Army and possibly in the other armed services as well. Without any doubt, this technological innovation will succeed internationally in the private, commercial, and military sectors. I hope that the U.S. Army will be the first army in the world to embrace and exploit this technology. But sooner rather than later, this aerial vehicle technology will affect all of our lives. It is just over the horizon. **ALOG**

*Colonel Larry Harman is the Vice Director of the Combat Service Support Battle Laboratory at the Army Combined Arms Support Command at Fort Lee, Virginia. A Transportation Corps officer, he has served in many command and staff positions. His previous assignment was Commander, 501st Corps Support Group, at Uijongbu, Korea.*

# The Friction Index and the Army Vision

by Colonel Christopher R. Paparone

The Army is on the edge of a new, emerging philosophy of organizing, training, and equipping our force based primarily on speed. The 1997 book *Chaotics*, by Georges Anderla, Anthony Dunning, and Simon Forge, sums up the global trend that transcends U.S. military thinking—

Space-time trade-off is the key to all sorts of previously unthinkable changes, substitutions and permutations. It is the basic rationale behind new patterns of international trade, the relocation of work, new divisions of labor and even staggered education patterns during our lifetimes. Everywhere, a new flexibility is being introduced to challenge existing . . . boundaries. The newer forms of organization increasingly dispute traditional, centrally controlled, territorial entities . . .

The rules (or the "unrules") of such chaos also dominate our thinking as military professionals. Indeed, while chaos and uncertainty govern the international scene, the Army is pushing the conceptual envelope. In the Army Vision, announced by General Eric K. Shinseki, the Army Chief of Staff, the goal is clear—

We will develop the capability to put combat force anywhere in the world in 96 hours after liftoff—in brigade combat teams for both stability and support operations and for warfighting. We will build that capability into a momentum that generates a warfighting division on the ground in 120 hours and five divisions in 30 days.

How can we understand the magnitude of change required to accomplish this under the conditions that the chaotics model presents? I believe one tool that could help us is the friction index.

## The Friction Index and Strategic Agility

In the May-June 1995 issue of *Army Logistician*, I presented a friction index that could provide a useful measure of effectiveness for logistics operations. The idea was based on Martin Van Creveld's conclusion in his book, *Supplying War*, in which he adopted Henri Jomini's definition of logistics: the practical art of moving armies and keeping them supplied. In the *Army Logistician* article, the proposed friction index compared the actual speed of an army to its potential speed of movement. The potential speed is determined by the technological speed of the mode of transportation available (meaning the mode by which the preponderance of the army force will move). This is how I explained the calculation of the friction index in that article—

Simply stated, the index is derived by dividing the actual miles per hour (mph) by the potential mph and subtracting the result from one. For example, with the potential speed of the 18th century foot soldier being 3.0 mph and the actual speed measuring .62 mph, the friction index is computed as .80. [1 − (.62 ÷ 3.0) = .80]

When applied to various XVIII Airborne Corps movements, the resulting friction indexes were within the .80 to .97 range. This was not significantly different from the 18th century army moving by foot (.80). In fact, in computing the standard deviation, the difference was slight (within one standard deviation, or "sigma"). Although modern armies, such as the XVIII Airborne Corps, move much greater distances than their 18th century counterparts, the actual-to-potential speed by which closure of a decisive force is attained has remained relatively constant for over 200 years.

In 1998, the Army's goal was to move 5.3 divisions with corps slices in 75 days. This was a significant improvement (37.5 percent) from the 120 days required to close the XVIII Airborne Corps for the defense of Saudi Arabia in 1990. However, the estimated friction index for the 1998 goal (.78) still would fall within one standard deviation of those experienced in the last 200 years. Even with the billions of dollars spent on acquiring more

| Case | Military Operation | Potential Speed | Actual or Required Speed | Friction Index |
|------|--------------------|-----------------|--------------------------|----------------|
| 1 | 18th Century Foot March and Attack | 3 | .62 | .80 |
| 2 | Just Cause (75th Rangers) | 300 | 26.37 | .91 |
| 3 | Desert Shield CONUS to Saudi Arabia | 20 | 2.178 | .86 |
| 4 | Desert Shield Move to West | 40 | 1.05 | .97 |
| 5 | Desert Shield Ground Attack | 9 | 1.56 | .83 |
| 6 | Army Goal 1998 5.3 Divisions in 75 Days | 20 | 4.44 | .78 |
| 7 | Army Vision 5 Divisions in 30 Days | 20 | 11 | .45 |

□ The friction index is applied by the author to various military operations. Potential, actual, and required speed are measured in miles per hour. Cases 6 and 7 are for Southwest Asia.

C–17 transports, pre-positioned stocks, and fast sealift and roll-on-roll-off ships, the magnitude of change would not be as dramatic as one might expect.

## Operation Just Cause

Some senior leaders would suggest that Operation Just Cause in Panama in 1989 is the model we should use for the future—the prototype of strategic agility and "nonlinear warfare" for the Army After Next. I critiqued this hypothesis in the article "Multilinear Warfare" in the November-December 1996 issue of *Army Logistician*.

The friction index is helpful in restating my contention that Just Cause was more of a coup d'etat than a coup de main, based on our significant forward presence at the time in the U.S.-protected former Canal Zone. Because events unfolded over several days, the friction index turns out to be relatively high (.92). Given that the Presidential order to proceed was given at about 1600 on 17 December and that H-hour was set at 0100 on 20 December (for the arrival of the 75th Ranger Regiment by air), the potential 300-miles-per-hour average speed of a C–130 was not achieved.

## Army Vision: A Two-Sigma Magnitude of Change

The Army Vision calls for 5 divisions to close, ready for combat, within 30 days. Employing the Southwest Asia deployment model used to figure the 5.3 division goal, the friction index for the Army Vision is computed to be .45—a startling figure! This is a statistically significant difference from the norm—a little over two sigma from the mean of previously calculated indexes.

Clearly, this kind of strategic agility end state can be achieved only by radical ways and means.

To solve the means issue, we are "lightening up" the Army force structure while making the force more lethal. What we also have to figure out are ways of controlling the chaos and uncertainty (the "chaotics") of the deployment and employment processes, which look like this—

• Planning and orders process. Information dominance begins, and troop-to-task analysis is completed. International actions, such as bilateral agreements, need to be concluded quickly or pre-negotiated.

• Pre-deployment activities. These include staging, equipping, and other preparations.

• Movement to port. (Must equipment and personnel be separated?)

• Strategic movement. While en route, planning and rehearsals continue. (Should the movement use combat or administrative loading? Must equipment and personnel be separated?)

• Reception, staging, onward movement, and integration (RSO&I). Note that there is no such thing as a functional RSO&I unit in the Army force structure! (Should the deployment use the Logistics Civil Augmentation Program? Are there host nation support agreements?)

• Operational reach. For example, can Army forces interdict the enemy's battlespace?

• Sustainment. This will be determined by such factors as a small logistics footprint and just-in-time delivery of supplies.

• Redeployment. Redeploying forces may have to

be just as agile for the "next event."

While I am not debating that we have figured out that we need to improve the ways we do business, the friction index can offer an overall measure of our effectiveness. What it shows us is the magnitude of change required. Achieving the level of change proposed in the Army Vision in an increasingly chaotic world will be a tremendous challenge. We should understand the magnitude of that challenge.

*Colonel Christopher R. Paparone is participating in the Army War College Professorship Program and working toward a Ph.D. degree at Pennsylvania State University at Harrisburg. A Quartermaster Corps officer, he is a graduate of the Army War College. He has served in a variety of command and staff positions at division, corps, theater, and national levels.*

# Things I Don't Understand

by Thomas R. Welch

**H**aving served in the Active Army for 23 years and as a civil servant for 14, I thought I understood a little about Army logistics. Now, however, I am only sure of how little I understand. In fact, as time has progressed, the number of things I don't understand has grown in obverse order to the number of things I do understand. I want to share some of them with you.

### Work Order Logistics File

Our Standard Army Maintenance System (SAMS) units must send work order logistics file (WOLF) data each month to the Army Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama. If a unit does not receive confirmation from LOGSA of data receipt, the SAMS clerk must call LOGSA to confirm. If the SAMS clerk fails to do this, receipt may not be posted to the data base, and the unit may be identified as a nonreporter. With modification, the Executive Management Information System, which is managed for the Army by Innovative Logistics Techniques, Inc., (INNOLOG), could pull WOLF data from SAMS.

*I don't understand why we don't take the reporting burden off our soldiers and civilians by pulling WOLF data from SAMS.*

### Personal Property Reporting Requirements

The Chief Financial Officer Act requires all personal property valued at over $100,000 to be reported. The Army Personal Property Data Call requires all personal property to be reported regardless of dollar value. The Defense Automation Resources Management Program requires all information technology property to be reported.

*I don't understand why we cannot pull these data from the property books when required, taking the reporting burden off our soldiers and civilians.*

### Cost of Processing Requisitions

I recently received an e-mail advising that the Army Soldier and Biological Chemical Command (SBCCOM) was receiving numerous requisitions for individual items from the same installation on the same day. According to SBCCOM, it costs $152.50 to process each requisition; therefore, if a unit sends in 300 requisitions for 300 items, processing costs are $45,750. If the requisitions were consolidated, the cost would be $152.50. The note indicated that hundreds of these requisitions are being received and released. One SBCCOM item manager estimated that since January 2000, 600 to 1,000 requisitions were filled like this. While we originally thought that there was an attempt to build bogus demands, research later revealed that, in this particular case, the unit ULLS (Unit Level Logistics System) clerk had a separate DA Form 2406, Materiel Condition Status Report, for each item, and he completed a requisition for each one so he could track it for reporting purposes. Chalk it up to human error.

However, while this problem was caused by human error, we are likely to perpetuate this problem deliberately under the Single Stock Fund (SSF). Specifically,

be just as agile for the "next event."

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However, while this problem was caused by human error, we are likely to perpetuate this problem deliberately under the Single Stock Fund (SSF). Specifically,

under SSF, the requisition order number/document order number (RON/DON) process has been eliminated. Under RON/DON, when a unit requisition hits the Standard Army Retail Supply System (SARSS), and the requested item is on the authorized stockage list, replenishment requisitions go forward with a supply support activity document number. The elimination of RON/DON means that requirements will not be consolidated, and more small-quantity requisitions will be forwarded to the national inventory control point (NICP) for processing. We are going to pay more for these assets in the long run, as NICP's are going to raise the item costs to cover their operating costs. I do not know if SSF is looking at the increased cost passed to the customer when the elimination of RON/DON results in more shipments.

*I don't understand why the Army opted to eliminate RON/DON when the final result will be higher item costs.*

## Report of Survey Costs

In 1987, while assigned at the Army Logistics Integration Agency, I completed a study that showed that the average cost of conducting a report of survey exceeded $1,000 with a survey officer and $300 without a survey officer for an item that could cost far less. When this happened, assigning financial liability did not result in cost avoidance. Some 13 years later, we still are wasting money in this way. It seems to me that, to save money, a dollar threshold should be established below which a commander could write off a loss. Yes, I remember the quarterly loss report and the abuse, but the items that were written off most often were linens.

*I don't understand the logic of spending more than the value of an item to determine liability for its loss.*

## Single Stock Fund

Remember the conversion of class IX (repair parts) from free issue to stock funded depot-level reparables (SFDLR)? Remember that this initiative was supposed to cause the field to repair more, resulting in fewer buys and less spending? Remember the furor when we at retail level did exactly what we were expected to do, and the wholesale stock fund was in real danger of going broke? Remember when we thought of SSF? To save the wholesale stock fund, we are eliminating the retail stock fund. What happens if this conversion backfires like SFDLR? Are we going back to free issue of class IX?

*I don't understand.*

## Internet Requisitioning

SARSS can send requisitions to the wholesale level many times a day. Using SARSS ensures compliance with all edit checks. Internet requisitioning affords instantaneous interface with the wholesale supply system. With Internet requisitioning, anyone with a password can order supplies and obligate funds. Using SARSS ensures that demands are captured at the retail level. With Internet requisitioning, demands are captured only in the wholesale central demand data base unless the demand is entered manually into SARSS, which is so labor intensive that it will not be done. The result of demands not being captured at the retail level will be a decreased authorized stockage list. Using SARSS ensures only one bill. Using Internet requisitions will cause double billing—first, when operation and maintenance, Army (OMA), funds are charged against a credit card, and second, when information from the wholesale level creates a transaction in SARSS that passes to the retail level financial system. The resolution of this problem is labor intensive. To me, the possible advantage of decreasing order ship time by 1 day does not justify the manual "workarounds" that Internet requisitioning will cause at the retail supply level. Frankly, I do not see the need for an Internet requisitioning capability, except possibly in remote locations where the current Standard Army Management Information Systems are not available.

*I guess I just don't understand.*

## Revolution in Military Logistics

When I consider SSF, Global Combat Support System-Army, Defense Property Accounting System, Acquiline (paperless contracting), Tank-automotive and Armament Command A-Mart, Defense Logistics Agency (DLA) EMall, DLA Industrial Prime Vendor, Prime Vendor Delivery, National Maintenance Manager, legacy systems, Force XXI, and contractors on the battle-field, the term that most often comes to mind is "discovery learning." That is, we develop an end state and then proceed to bend and twist the parameters until we have a product that usually will not work without a plethora of manual "workarounds."

*I don't understand how all of these initiatives interface or what the third and forth tiers of consequences are. I doff my hat to anyone who does.*

*Thomas R. Welch, retired master sergeant, is a logistics management specialist in the Supply, Maintenance, and Systems Division, Office of the Deputy Chief of Staff for Logistics, Army Forces Command.*