

ARMY LOGISTICIAN

MAY-JUNE 2001



Supporting the NTC

ARMY LOGISTICIAN

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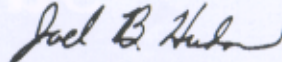
Many soldiers have experienced realistic combat training at the National Training Center (NTC) at Fort Irwin, California. The success of their NTC rotations has depended on combat service support units, both those at the NTC and those rotating from their home stations. In this issue, articles profile three of these vital units: the NTC's aviation support company (page 22), a division materiel management center (page 18), and a forward support battalion (page 24).

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.

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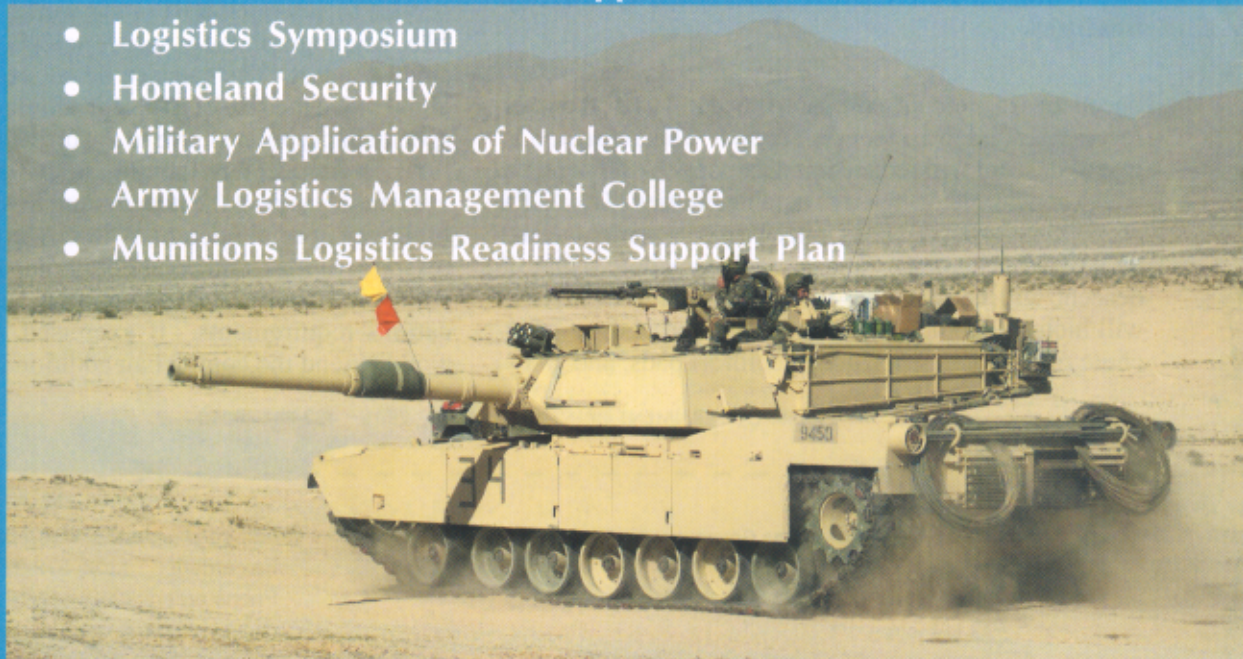
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- USAR Unit Status Reporting and Readiness
- Keys to Success With the Single Stock Fund
- Military Supply Chain Management Model
- Building a Synchronized SAMS-2 AHO-026
- Kosovo Bound
- Convoy Casualty Evacuation
- Out of the Mire: Theater Support Command
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ALOG NEWS

ARMY SWITCHES TO CUSTOMER WAIT TIME FOR BETTER VIEW OF SUPPLY CHAIN

In March, the Army transitioned to customer wait time (CWT) as the official Army metric of intransit time. CWT is basically an extension of order ship time (OST). However, CWT is an "end to end" metric that measures the actual performance of the Army supply chain. It thus provides a holistic view of the entire Army supply chain process.

Two features will make CWT superior to OST—

- CWT can measure the time from when a requirement is entered into the Unit Level Logistics System (ULLS), Standard Army Maintenance System (SAMS-1), and Standard Property Book System-Redesign (SPBS-R) until it is passed on to the supply support activity (SSA). CWT eventually will measure the time from when materiel is picked up from the SSA until it is received at the unit and direct support levels.
- CWT shows the performance of the sources of supply, including SSA's, maintenance units, direct vendor delivery, referrals and redistribution, and distribution centers (depots). CWT will show performance both with and without backorders. This feature will permit commanders to see the sources of supply that are driving CWT performance.

The CWT metric will expand in the future. The plan is to capture supply classes I (subsistence), bulk III (petroleum, oils, and lubricants), V (munitions), VII (major end items), and VIII (medical materiel). Additionally, the metric will show the individual processes of each source of supply; this will help commanders optimize their supply chain performance by being able to analyze each process associated with a particular CWT driver.

CWT will be built into the management module of the Global Combat Support System-Army (GCSS-Army). Until GCSS-Army is fielded, commanders in the field can access CWT performance data through the Integrated Logistics Analysis Program (ILAP). Army-wide statistics will be posted on the Velocity Management home page (<http://www.cascom.army.mil/vm>).

OST is redesignated requisition wait time (RWT). The Army will continue to measure RWT as a segment of CWT. The Army also will continue to measure RWT to monitor replenishment of authorized stockage lists.

During the last 5 years, the Army has reduced OST from 23 to 9 days for continental United States (CONUS) units and from 26 to 12 days for units outside CONUS.

SINGLE STOCK FUND ON LINE IN MOST ARMY SUPPLY CENTERS

With the recent conversion of Eighth U.S. Army activities, Headquarters, Department of the Army (HQDA), officials report that 80 percent of the Army's Milestone 1 and 2 supply support activities (SSA's) are operating under the Single Stock Fund (SSF). The initiative will be extended to installations and activities in Europe, Hawaii, and Alaska by the end of April.

SSF is an HQDA business process reengineering effort to optimize how secondary items are managed in the Army. Under SSF, the Army Materiel Command (AMC) is assigned increased responsibility as SSA's deal directly with the national system when ordering and turning in spare parts and components. Key to this effort is streamlining the Army's inventory accounting system; SSF replaces over 55 general ledger accounts previously operated by the major Army commands with a single national account. Along with this simplification comes greatly improved situational awareness of both requirements and assets.

Sue Baker, the HQDA SSF Program Director, says, "The benefit of the Single Stock Fund is that we get a single view of our working capital fund inventory and improved visibility of those items throughout the Army." The Army's spare parts inventory, which does not include subsistence, medical, bulk fuel, engineer/construction, or initial-issue items, is valued at \$9 to \$10 billion.

In addition, SSF allows AMC to cross-level supplies more efficiently among Army elements. "Now we have a global view and can see if there is a high-priority

(News continued on page 41)



NEWS

(News continued from page 1)

requirement for a particular item and get it to the warfighter—or whoever needs it—quickly,” says Baker.

The SSF is a key enabler for another HQDA logistics initiative, the National Maintenance Program, which integrates the Army’s maintenance activities. With full visibility of its inventory, the Army will not be performing unnecessary repairs or buy items it does not need. Using the SSF and the National Maintenance Program, the Army expects a \$6 savings for every \$1 spent, primarily in procurement offsets and improved repair decisions.

Contingent on a future Army leadership decision to implement Milestone 3, all divisional and nondivisional SSA’s that provide spare parts to tactical forces are scheduled to implement SSF by the summer of 2003.

OPLOGPLN 2000 READY FOR DISTRIBUTION

Operations Logistics Planner (OPLOGPLN) 2000, Version 2.20, is now available. A product of the Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia, OPLOGPLN 2000 is a computer-based program designed to assist logistics planners in calculating supply usage estimates in support of operations. It allows logisticsicians to calculate supply estimates for supply classes I (subsistence), II (clothing and individual equipment), III (petroleum, oils, and lubricants), IV (construction and barrier materials), V (ammunition), VI (personal items), VII (major end items), VIII (medical materiel), and water. (Class IX (repair parts) is not available at this time.)

In Version 2.20, the CASCOM-provided table of organization and equipment (TOE) database has been updated to include all published Department of the Army-approved TOE’s as of 3 November 2000. This encompasses the April 2000 consolidated TOE update. The TOE units have been modernized by applying all basis-of-issue-plan changes with system dates through 31 December 2000.

Official rate files contained in OPLOGPLN 2000 remain unchanged from OPLOGPLN 1999. The files will be updated as newer rates become available.

OPLOGPLN 2000 requires an IBM-compatible per-

sonal computer with an Intel386 processor or higher, 4 megabytes (MB) or more of random access memory, and at least 45 MB of free hard drive space (30 MB for installation, 10 MB for swap files, and at least 5 MB for user files). OPLOGPLN 2000 is a DOS-based program and will operate on MS-DOS 3.3 or higher (MS-DOS 5.0 or higher recommended). It also will run as a DOS program on Windows 3.1, Windows 95, Windows 98, Windows ME, Windows NT 4.0, and Windows 2000.

OPLOGPLN 2000 can be ordered on line at http://www.cascom.lee.army.mil/multi/Combat/Operations_Logistics_Planner/. Delivery will be made by e-mail if possible. U.S. Postal Service delivery will be used for customers without e-mail capability.

ASSET VISIBILITY TRAINING AVAILABLE ON LINE

A new computer-managed instructional system teaches Army logisticsicians the processes, procedures, systems, and tools associated with performing daily asset visibility tasks and activities. Asset visibility computer-based training (AV CBT) courseware developed by the Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama, delivers competency-based multimedia teaching directly to the students’ computers.

Army logisticsicians who complete the AV CBT program will understand the LOGSA asset visibility mission areas, the day-to-day processes and procedures performed by Army logisticsicians to provide visibility of Army assets, the automated and manual systems supporting Army logisticsicians, and the interfaces and relationships between processes and systems that support asset visibility.

To access the AV CBT, users must complete a system access request (on the LOGSA website at <http://www.logsa.army.mil/sar/sarprep.htm>). For additional information, call LOGSA at (256) 313-2473/2488 or DSN 897-2473/2488, or send an e-mail to avccbt@logsa.army.mil.

FREIGHT RATE CUTS ANNOUNCED

Beginning 1 October, Military Traffic Management Command (MTMC) customers will see a 40-percent drop in their freight rates. Cuts will be made in the cost of cargo operations, privately owned vehicle shipments, and liner over-ocean transportation.

This rate cut will be in addition to a 27-percent drop in fiscal year 2001. One of the reasons the rates have come down was a \$57-million savings in fiscal year

WEBSITE AIDS IN WARFIGHTER DEPLOYMENT

A new Military Traffic Management Command (MTMC) website makes it easier for warfighters to deploy. MTMC's Transportation Engineering Agency has completed the first phase of the new Intelligent Road/Rail Information System (IRRIS), which provides warfighters with transportation infrastructure data and real-time travel information.

IRRIS is available on the Internet at <http://207.140.67.27/> using Internet Explorer browser (available free at <http://www.microsoft.com/windows/ie/download/>). Using IRRIS, military and Government personnel can obtain information about road conditions, construction, accidents, and weather that might interfere with movement of equipment between forts and ports. The system offers the ability to display, browse, and query Geographic Information System maps and obtain real-time information.

For improved visualization, the Federal Highway Administration provided video logging of primary deployment routes. The vehicle used in the logging had digital cameras mounted on it to capture the surroundings as it moved along the road. The video was linked to a global positioning system to obtain latitude and longitude. Drivers can view the video to gain familiarity with all aspects of a route before actual deployment.

To supplement the deployment route data, digital maps of primary and secondary roads, as well as aerial photos and satellite imagery, are included in the system. These maps and images are essential if an alternate route is required.

The second phase of the system, currently under development, will include information on major road and railroad systems in the United States. Functions to be added include a routing capability and travel time and distance calculators. To announce critical events, the system will be enhanced to alert users automatically via cell telephones, pagers, or e-mail.



□ Transportation Engineering Agency employees discuss the IRRIS. Pictured in the background is the route between Fort Eustis and Norfolk, Virginia, as shown on the IRRIS website.

2000. Savings were achieved in areas such as labor, travel, and contractor costs for new systems development. Department of Defense customers will benefit from these rate reductions if they ship cargo through any of MTMC's 24 ports.

According to MTMC's Steve Andrews, Team Leader, Working Capital Fund, "rates for fiscal year 2003 should be stable—or go down more."

FIRST DISTANCE LEARNING CAS³ CLASS GRADUATES

The first Combined Arms and Services Staff School (CAS³) class to be taught by distance learning graduated on 15 February. Thirteen of the students enrolled in class 01-2 served as a test group to determine the feasibility of conducting the 6-week CAS³ via distance learn-

ing. The class was transmitted to them at their installations (Fort Lee, Virginia; Fort Leonard Wood, Missouri; and Fort Knox, Kentucky) via satellite from Fort Leavenworth, Kansas. The goals of CAS³ are to improve an officer's ability to analyze and solve military problems; to communicate; to interact and coordinate as a member of a staff; and to improve his understanding of Army organizations, operations, and procedures. Feedback from both students and faculty on the effectiveness of the distance learning initiative was positive.

NATIONAL GUARD SEEKS OBSERVER-CONTROLLERS

The National Guard Bureau (NGB) is seeking National Guard observer-controller augmentees for Joint Readiness Training Center Rotation 01-09, which will be held 1 to 15 August at Fort Polk, Louisiana. This will

be the rotation of the 27th Enhanced Separate Infantry Brigade from Syracuse, New York. NGB wants master sergeants, sergeants first class, and staff sergeants in military occupational specialties 63B, 63H, 68J, 68X, 71L, 75H, 77F, 88M, 91B, 92A, 92Y, and 92Z and captains in functional areas 90A and 92A.

NGB funds these tours as additional annual training, including travel and per diem. For more details, send an e-mail to john.wilson@ngb.army.mil or garry.porter@ngb.army.mil or call (703) 607-9154 or -7317 (DSN 327-9154 or -7317).

OSC AND MTMC HELP WITH CLEANUP OF USS COLE

The Army Materiel Command's Operations Support Command and the Military Traffic Management Command's Deployment Support Command provided contract support to the Navy for the cleanup of the *USS Cole*. The Norfolk, Virginia-based guided missile destroyer was the target of a terrorist bombing attack in the port of Aden, Yemen, during a scheduled refueling.

The *Cole* lost electrical power to its freezers and refrigerators following the October 12 attack, leaving its food to spoil. The cleanup involved removing nearly 35 tons of decaying meat, fish, poultry, and other perishables. World Environmental, Inc., of Milwaukee, Wisconsin, performed the work under an existing small business contract with the Operations Support



□ A clean-up crew from World Environmental, Inc., completes the double-bagging of spoiled meat and dairy products on board the *USS Cole*.

Command.

According to Paul Janecek, spokesperson for the contractor, the large volume of rotted meat emitted dangerous levels of methane and hydrogen sulfide gases. Wearing protective equipment, a five-member team began the cleanup on 16 December while the *Cole* remained on board the *MV Blue Marlin*, the Norwegian heavy transport ship that had returned it to the United States. The team disposed of the waste after cutting a 4-foot by 6-foot hole through the ship's hull. Then they cleaned and disinfected the area.

The Deployment Support Command awarded a contract to Boyle Transportation, Inc., of Billerica, Massachusetts, to haul the munitions removed from the ship at the Ingalls Shipyard in Pascagoula, Mississippi, to several munitions storage sites.

Litton Ingalls will repair the destroyer at a cost of about \$240 million. The Navy estimates that the repairs will take approximately 1 year to complete.

LOGISTICS MOS'S OFFER PROMOTIONS FOR CORPORALS AND SPECIALISTS

Corporals and specialists willing to re-enlist in critically short military occupational specialties (MOS's) may qualify for automatic advancement to sergeant. Two logistics MOS's—45T (Bradley turret mechanic) and 92Y (unit supply specialist)—are among 17 included in the special promotion program. To qualify, soldiers must be on a selection list for sergeant, be eligible for retraining, and be in an overstrength or balanced MOS with consistent cutoff scores of 550 or higher. Soldiers meeting these criteria must complete the Primary Leadership Development Course and retrain for the new MOS before being promoted. (At a commander's request, a soldier who attains the cutoff score required for promotion but is operationally deployed, on a temporary profile, or on the waiting list to attend the PLDC may receive a conditional promotion.)

Application procedures are outlined in Military Personnel (MilPer) Message 01-089, Special MOS Alignment Promotion Program, which is available at local personnel offices.

NATICK IMPROVES CAMOUFLAGE FACE PAINT

The Product Manager-Enhanced Soldier Systems at the Army Soldier Systems Center (Natick) and the Army Medical Research and Materiel Command are working together to produce a better camouflage paint for soldiers, known as the advanced camouflage face paint.

The new face paint will contain DEET insect repellent and have an additional color—black. Paint without DEET will be available for those allergic to it and for use in areas that are free of insects.

The advanced face paint meets all safety criteria and soldier acceptability standards set before testing. The design criteria include comfort in application and wear, durability, appearance, resistance to perspiration, ease of application and removal, and compatibility to clothing and other equipment. The face paint is nearly odorless and is nontoxic on the skin or if ingested.

The new paint, which is scheduled for release late in 2001, will come in a compact with enough green-, loam-, and sand-colored paint for 20 applications and enough white and black paint for 10 applications. The old product will be phased out as the new one arrives.

Developers plan to add thermal signature reduction in a future version of the face paint. Efforts are ongoing to produce a paint that conceals the wearer from not only visible and near-infrared regions of the electromagnetic spectrum, which are detectable with night vision goggles, but also the far-infrared spectrum, which thermal imagers capture.

NEW SHELTER OFFERS NBC PROTECTION

Forward-deployed Army medical units soon will be able to treat patients contaminated by nuclear, biological, or chemical (NBC) agents in a new chemically and biologically protected shelter (CBPS) developed by the Army Soldier Systems Center (Natick).

The CBPS is a self-contained system with five major components: an expanded capacity high-mobility, multipurpose, wheeled vehicle (HMMWV); a hard-walled, lightweight, multipurpose shelter (LMS) attached to the bed of the HMMWV; an airbeam-supported, chemically and biologically resistant, soft tent shelter attached to the back of the LMS; and a high-mobility trailer with a 10-kilowatt generator (see photo below).

After the trailer is positioned and detached, the unit



is ready to be set up. A fabric cover over the HMMWV tailgate is opened, and a pulley system lowers the tailgate to allow the soft shelter to roll out into position. Then a four-man team unfolds the soft shelter and inflates the airbeam assemblies, forming six arches. A rib air inflation system fills the beams within minutes and needs only 3 pounds of air per square inch to erect the shelter. Setup time in a nonthreat area is approximately 20 minutes. Up to seven systems can be connected together by unzipping a door-sized portion of the tent sidewalls and attaching one CBPS to another with passageway connectors.

The CBPS provides 300 square feet of space and can treat up to 10 patients an hour in a chemical and biological threat environment. Unlike regular tents, the soft tent shelter is treated to resist chemical and biological agents. The fabric also can be decontaminated. The CBPS can maintain an internal temperature of 60 to 90 degrees while set up in a chemically contaminated environment of -25 to 120 degrees Fahrenheit.

The CBPS has separate entrances for ambulatory and litter patients. Each entrance is an airlock that forces out any contaminated air that may enter when soldiers come into the shelter. Patients and personnel are decontaminated before they get to the CBPS, and the tent remains pressurized when operating in a contaminated area. The CBPS is expected to be available for delivery to users as early as June.

NEW ANKLE BRACE AND PARACHUTE WILL INCREASE SAFETY OF COMBAT JUMPS

Two initiatives of the Army Soldier Systems Center at Natick, Massachusetts—a parachutist ankle brace and the Advanced Tactical Parachute System (ATPS)—will offer combat parachutists increased protection from landing injuries.

The parachutist ankle brace (PAB), already fielded to all airborne units, is worn outside the boot to reduce airborne jump-related ankle injuries. In over 22,000 jumps made during airborne training, the incidence of sprains has been reduced by 52 percent and fractures by 80 percent.

The PAB is manufactured by Aircast Corporation of Summit, New Jersey. It is made of molded Kydex, which is a blend of acrylic and polyvinyl chloride (PVC), a mixture chosen because of its rigidity and impact resistance.

The ATPS includes a main parachute, a reserve parachute, and a harness. It will replace the venerable T-10 parachute system. The ATPS will be used in the same combat environment as the T-10 but will provide significant improvements. Its rate of descent will be re-



□ Above, the XT11 is one of two parachutes being considered to replace the Army's T-10. Right, the new parachutist ankle brace, already fielded to airborne units, dramatically reduces ankle sprains and fractures.

duced by 25 percent compared to the T-10, from 21 feet per second to 16 feet per second. This reduction in rate of descent will reduce impact energy by 40 percent, with a concurrent decrease in landing injuries. The ATPS also will incorporate an advanced reserve parachute and an advanced harness. The reserve parachute's rate of descent will be less than the T-10's, and the harness will include shoulder-mounted main and reserve parachute riser attachments, added comfort pads, and an in-

tegral equipment release, improving all aspects of harness performance.

The Army currently is testing two variants of the ATPS, the XT11 and the XT12. The one that performs better in testing at Yuma Proving Ground, Arizona, in April will advance to future reliability testing and could be approved for fielding by 2005.

DOD GETS SATELLITE PHONE SYSTEM

The Department of Defense (DOD) will have unlimited use of a global, satellite-based, secure telephone network provided under a new 2-year contract. Iridium Satellite LLC (IS) of Arnold, Maryland, will provide unlimited airtime over its satellite network to 20,000 government users at a cost of \$3 million a month.

IS offers state-of-the-art satellite communications service to any open area in the world. It provides mobile, cryptographically secure telephone services to a small handset. The handset, developed by Motorola, is about twice the size of a typical cellular phone and has a special encryption sleeve to ensure secure communications. It has a call reliability rate of 95 percent.

Officials expect the new system to improve the capabilities of special operations forces, combat search and rescue activities, and polar communications. They also expect it to enhance DOD's mobile satellite communications requirements. If exercised, contract options could extend the contract an additional 5 years.

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LOG NOTES

Civilians in Uniform

In the January-February 2001 issue of *Army Logistician*, you printed an exchange of letters concerning the uniforming of civilians. I am not conversant in the issues associated with putting contractors on the battlefield, but I am surprised to find that, 10 years after the Gulf War, there remains so much confusion (and misinformation?) about DA civilians in uniform.

Part of the confusion can be eliminated if it is understood that, under the Law of War, there is a distinction made between, for example, the DA civilian who operates the bowling alley and the DA civilian who conducts ammunition surveillance. The latter is appropriately designated as being "emergency essential." The former is not.

Both Mr. Studer and Mr. Fortner seem to believe that an emergency essential civilian (EEC) is a "noncombatant." This is a false assumption. An EEC is,

by definition, an essential contributor to the Army's mission. Thus, it is in the enemy's interest to target an EEC. And the EEC is a legitimate target. The EEC may be permitted to carry a weapon—and to use it under the specified rules of engagement—for this reason.

The wearing of the Army uniform in the field, together with the carrying of the DD Form 489-1, Geneva Conventions Identity Card, clarifies the status of the wearer as someone who is officially "serving with" the Army. An EEC who is captured is to be treated as a POW (combatant), not as a "retained person" (noncombatant). Without this clear identification, a civilian could be viewed by an enemy as a spy or a saboteur. Thus, wearing the BDU offers legal protection for an EEC.

There are other important advantages to wearing BDU's in the field. The passive protection of the camouflage is the most obvious benefit. But there is also the intangible benefit of being identified

as one who contributes to the mission under the same conditions as the soldiers we serve. Wear of unit shoulder sleeve insignia by EEC's has only recently been approved, and wear of the coveted "combat patch" is a privilege still denied EEC's who have served in the wartime theater (sometimes literally "in the foxhole") alongside the soldiers of the units to which they were assigned. But the Army is increasingly recognizing that its civilians are an important—and surprisingly versatile—aspect of its warfighting strength.

Andrew Rayment
Fort Richardson, Alaska

A Quicker Picker-Upper

I am wondering why the U.S. Army doesn't rig the container delivery system (CDS) airdrop containers with forklift pallets so a rough-terrain forklift can quickly pick them up and move them off the open drop zone.

The British Airborne use a SupaCat all-terrain vehicle (ATV) with a forklift trailer to do this (see photo at right).



Mike Sparks
Columbus, Georgia

Log Notes provides a forum for sharing your comments, thoughts, and ideas with other readers of *Army Logistician*. If you would like to comment on an *Army Logistician* article, take issue with something we've published, or share an idea on how to do things better, consider writing a letter for publication in *Log Notes*. Your letter will be edited only to meet style and space constraints. All letters must be signed and include a return address. However, you may request that your name not be published. Mail letters to EDITOR ARMY LOGISTICIAN, ALMC, 2401 QUARTERS ROAD, FT LEE VA 23801-1705; send a FAX to (804) 765-4463 or DSN 539-4463; or send e-mail to alog@lee.army.mil.

Revolutionizing Army Wholesale Logistics



The Army Communications–Electronics Command (CECOM) at Fort Monmouth, New Jersey, is revolutionizing the Army's wholesale logistics business processes and enabling technology by replacing the current wholesale logistics management system.

The Wholesale Logistics Modernization Program (WLMP) is an Army Materiel Command (AMC) contract managed by CECOM. It is an integral part of the Army's ongoing Revolution in Business Affairs and the resultant Revolution in Military Logistics. WLMP will transform wholesale logistics by revolutionizing the way the Army conducts its wholesale business. It will create an integrated logistics management capability that will provide total asset visibility, enhanced decision-support capability, a collaborative planning environment, a single source of data, improved forecasting accuracy, and real-time easy access to enterprise-wide information.

The Army's current wholesale logistics system consists of the Commodity Command Standard System (CCSS), the Standard Depot System (SDS), and associated applications. CCSS is used to manage the wholesale inventory, including the repair-versus-buy decision, inventory control, planning, and budgeting. SDS is used to run depot, arsenal, and ammunition plant operations, including inventory accountability and management of maintenance, equipment, ammunition, and facilities.

On 29 December 1999, the Army awarded a contract to Computer Sciences Corporation (CSC) to sustain the current legacy systems while concurrently modernizing the Army's wholesale logistics business processes. CSC will maintain these modernized services and provide technology refreshment for the life of the contract (10 years).

Tremendous progress has been made since the WLMP contract was awarded. CSC has successfully taken over the software sustainment of the legacy systems and, in the process, over 200 displaced Army employees have become employees of CSC. Each of these employees received a 3-year employment guarantee with comparable pay and benefits from CSC. Both the Vision/Strategy and the Business Architecture phases of the program have been completed. The results of these phases can be found in the Business Process Reengineering and Analysis (BPR&A) Report, which is available on line at <http://www.wlmp.com>.

The BPR&A Report highlights two critical concepts

for successful implementation of the WLMP: a new logistics services model and the application of SAP America's Enterprise Resource Planning (ERP) software package, which will serve as the WLMP backbone. The ERP uses state-of-the-art supply-chain management concepts to—

- Manage demand.
- Manage supply.
- Manage availability.
- Manage distribution.
- Maintain master data.
- Perform financial control and reporting.

Implementation of these six new services will allow AMC to manage weapon system readiness, supervise determination of mission-based requirements, and administer a global supply network.

CECOM's "Team WLMP" will work first on a "command neutral" service to be completed by 30 June. During the second half of 2001, validation and testing will be conducted to fine-tune the processes. General John G. Coburn, Commanding General, AMC, selected CECOM as the site of the first "go live" deployment of the new system, to be completed by June 2002. Logistics services and technology training for CECOM (and subsequent AMC subordinate commands) will begin 3 months before the scheduled deployment date.

Each of AMC's major subordinate commands has appointed a change agent to help facilitate AMC's transformation to the new logistics services and technology. These appointments recognize that organizational change is key to successfully implementing the new logistics services. In addition, Team WLMP currently is engaged in numerous information-sharing activities, such as WLMP "road shows," *WLMP News*, and "WLMP.com," to help keep the WLMP user community informed about the changes that will affect their daily job activities.

Team WLMP is confident that the new logistics services and the enabling technology solution not only will improve the business effectiveness and efficiency of wholesale logistics within the Army, but also will ensure that AMC has the tools to manage readiness aggressively for the warfighter. **ALOG**

The Army Logistician staff thanks CECOM's WLMP Program Management Office for providing information for this article.

The Army Special Operations Support Command

by Lieutenant Colonel Brian J. Burns

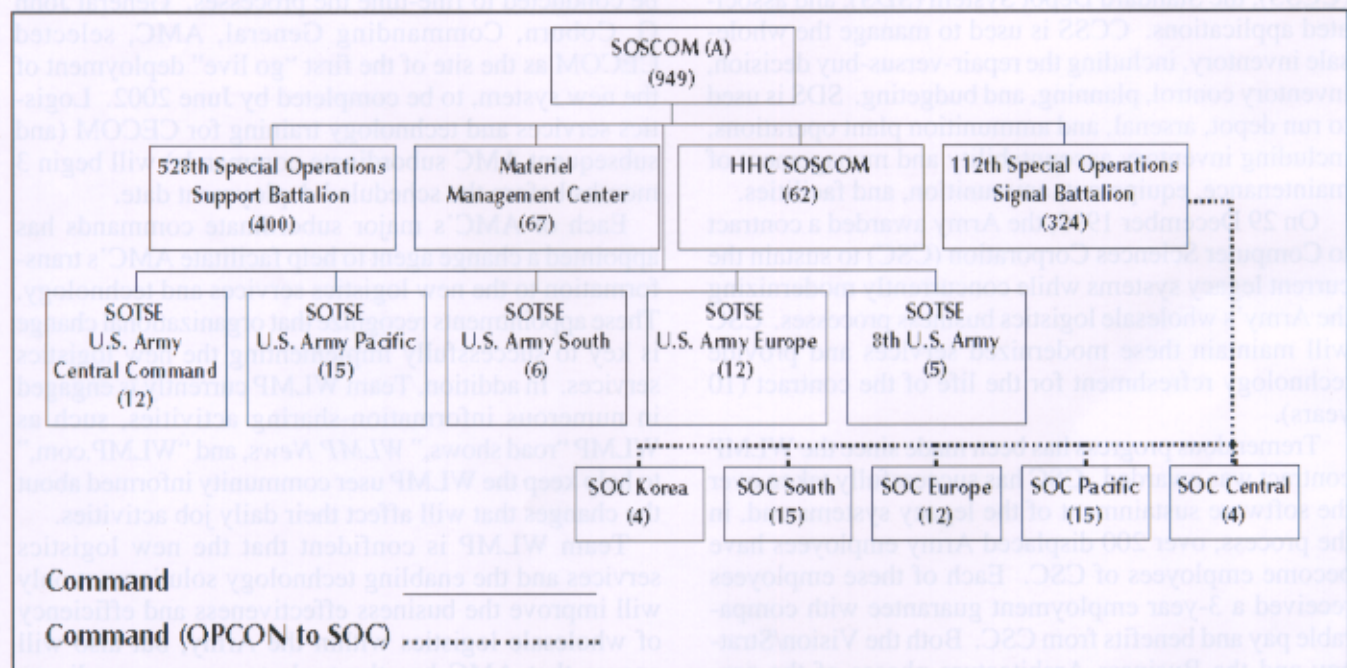
The Army's Special Operations Forces receive logistics and signal support from a unique unit.

The end of the Cold War has left the Army with an uncertain future where the only constant is change. Military experts agree that most future conflicts will be characterized by an increase in special operations missions. The downsizing of military forces, a reduced overseas presence, and the shift to a force projection strategy all reinforce the need to develop and refine our ability to rapidly provide tailored, modular, forward-deployed logistics and signal support to Army Special Operations Forces (ARSOF).

Army Special Operations Forces consist of Ranger, Special Forces, psychological operations and civil af-

fairs, and special operations aviation units that are deployed continuously and require support and sustainment. The planning and execution of operation plans, contingency plans, and operations other than war in each commander in chief's (CINC's) area of responsibility are especially critical to ARSOF because they bring limited logistics support capabilities to the battlefield. The mission of providing dedicated direct support to ARSOF units falls to the Army Special Operations Support Command (Airborne) [SOSCOM (A)].

Formed in 1995 and headquartered at Fort Bragg, North Carolina, with elements and detachments stationed



□ Organization of the Army Special Operations Support Command (Airborne). The command functions as a brigade of the Army Special Operations Command. Note the forward-deployed support (the SOTSE's) and signal detachments (the "SOC's").

Capabilities		Required Augmentation
<u>Headquarters</u> Command and control Staff support Contracting services Liaison offices	<u>Forward Support Companies</u> Fuel Ammunition Water production Class I, II, IV, IX supply Medical logistics, treatment, and holding Transportation Movement control Organizational and limited direct support maintenance Food service Bare base support*	Laundry and bath Mortuary affairs STAMIS integration Base security Transportation NBC decontamination Special Operations Forces-peculiar maintenance
<u>Headquarters and Main Support Company</u> Class II, IV, VII supply support activity Class IX tech supply office Organizational maintenance Food service Airdrop Medical logistics, treatment, and holding	*Provided by <u>Base Support Platoon</u> 13 personnel authorized to supervise establishment and operations of bare base camp to support 750 soldiers. Expertise: Combat engineer Electrician Power generation Carpentry/mason	

□ The 528th Special Operations Support Battalion and its capabilities and required augmentation.

in every major theater around the world, SOSCOM (A) is the stand-alone, premier provider of dedicated combat service support, combat health support, and special operations signal support to the entire ARSOF community and to joint special operations forces worldwide. SOSCOM (A) functions as a major subordinate brigade under the U.S. Army Special Operations Command (USASOC). It consists of the 528th Special Operations Support Battalion (Airborne), the 112th Special Operations Signal Battalion (Airborne), the USASOC Materiel Management Center (MMC), and a Headquarters and Headquarters Company (HHC). The command also has five forward-deployed Special Operations Theater Support Elements (SOTSE's) integrated into each theater Army command (such as U.S. Army Europe and U.S. Army Pacific) and five signal detachments integrated into the regionally oriented special operations commands (such as Special Operations Command Europe and Special Operations Command South).

SOSCOM (A) leads the Army in developing and implementing an Army special operations support ini-

tiative that provides aggressive, modular, forward-deployable logistics and signal support on a moment's notice anywhere ARSOF requirements exist. SOSCOM (A) is tasked to plan, coordinate, and provide combat service support and combat health support to ARSOF over the full spectrum of conflict in two theaters simultaneously. The command also coordinates and provides operational and tactical communications for Joint Special Operations Task Force commanders in support of up to two regional CINC's simultaneously.

Planning Support

Within the HHC of SOSCOM (A), the Logistics Operations Section plans and coordinates all logistics and signal support to the special operations warfighter. SOSCOM (A)'s multifunctional logistics and signal officers, warrant officers, and senior noncommissioned officers (NCO's) form plans and operations teams aligned to theater-oriented desks. These teams work on a day-to-day basis with the supported special operations forces (SOF) and with lower and higher headquarters to

anticipate logistics and signal requirements. Whether reviewing existing major operation and contingency plans, or working through crisis action planning for no-notice situations, the Logistics Operations Section works closely with SOF operational units to meet their support requirements.

The plans and operations teams use the comprehensive statement of requirements (SOR) format to ensure that all logistics and signal support needs are addressed and identified. The SOR covers requirements for all classes of supply and all logistics and signal services. It is the most important document the planners generate during the planning process. Once an SOR is completed, the supported SOF unit sends a formal copy of the document through operational channels for validation and sourcing. Simultaneously, the plans and operations teams take an informal copy of the SOR and start to put together packages of logistics and signal support that use equipment and personnel modules from the HHC, the MMC, and the 528th and 112th battalions. An initial deployment package from the subordinate battalions is prepared to deploy with special operations task forces as early as 24 hours from notification.

Other key players in the planning phase are the SOSCOM (A)'s forward-deployed, regionally oriented SOTSE's. The SOTSE's are attached to the theater Army commands and embedded in their operations and logistics staff sections. They are SOSCOM (A)'s "scouts," conducting logistics preparation of the battlefield for SOF that deploy or are forward-stationed within the theater Army's area of responsibility. As such, the SOTSE's plan, coordinate, and synchronize all support requirements through the theater Army. The SOTSE's use the SOR developed by the plans and operations teams and supported SOF units to identify where the theater Army is capable of supporting SOF requirements. The theater Army exercises its basic mission responsibility as defined in Title 10 of the U.S. Code to support deploying ARSOF whenever possible. However, some theaters are not as mature as others, and SOF may not be operating within the reach of conventional Army support units. In these situations, the SOTSE's turn to any available host nation support and contract support from local civilian vendors.

All of these players come together in the planning phase. The result is a logistics and signal support package consisting of a combination of SOSCOM (A) support modules, U.S. and host nation conventional support forces, and civilian contractors.

Providing Support

Once SOSCOM (A) forms the deployable modular support packages from the HHC, the MMC, the 528th

Special Operations Support Battalion, and the 112th Special Operations Signal Battalion, it attaches them to the deploying special operations task forces. The subordinate units of SOSCOM (A) bring unique capabilities that greatly enhance mission SOF capabilities.

The 528th Special Operations Support Battalion is a 400-soldier multifunctional unit that provides rapid, deployable direct and limited general support logistics capabilities. The battalion is organized with a Headquarters and Main Support Company (HMSC) and two multifunctional Forward Support Companies (FSC's). Each company contains tailored support modules that provide all classes of supply and numerous services to SOF intermediate and forward staging bases.

Each FSC has the capability to provide an initial deployment package of critical support and service modules to arrive in an area of operations and be used to establish an operational staging base for up to 500 SOF soldiers. The remainder of the FSC's modules and modules from the HMSC will deploy as follow-on forces as the situation dictates. The follow-on packages are organized to support a 1,500-soldier base camp and can be expanded to support up to 3,500 special operations soldiers in the execution of a major theater war.

The fully deployed support package brings a robust logistics support capability to deployed SOF. Unique capabilities of the 528th Support Battalion include a level I medical treatment facility, special operations aviation fueling modules, an organic engineer base support platoon with subject-matter expertise in electricity, carpentry, and base camp layout and construction, and robust HMMWV (high-mobility, multipurpose, wheeled vehicle)-mounted water production and distribution.

SOSCOM (A) will deploy these tailored modular packages depending on the needs addressed in the SOR. Although independent, the packages are linked through the deploying organic command and control module to the SOTSE's in order to synchronize the support effort.

The 528th Special Operations Support Battalion will deploy its units with SOF task forces and provide support until the mission is completed or until the theater matures and conventional theater Army support units arrive and establish a robust logistics support structure. Once the theater Army is capable of providing support to the special operations units, the 528th will coordinate the transfer of support to the conventional units and redeploy.

The 112th Special Operations Signal Battalion provides strategic and tactical communications support for SOF units around the world. The battalion's primary mission is to support deploying joint special operations task forces by providing links from the task force to its components and from the task force to the supported CINC's headquarters.

The 112th's highly skilled special operations communicators are capable of furnishing, installing, operating, and maintaining both strategic and tactical communications to meet the special operator's secure and unclassified requirements. The battalion accomplishes this mission through its HHC and two signal companies (consolidated at Fort Bragg) and through the forward-deployed signal detachments. The signal detachments are attached to the regionally oriented special operations commands and form the core of support during contingency operations and exercises. As required, the 112th will deploy additional signal modules to meet the needs of the special operations commands and their components.

Synchronization and Command and Control

The SOTSE's coordinate, synchronize, and ensure that support is provided to deployed special operations task forces. In their wartime footing, SOSCOM (A) planners identify the logistics center of gravity for special operations support. This could be as simple as identifying a commercial vendor for bottled water for a Special Forces detachment's deployment to Africa or as complex as integrating the special operations requirements into a theater support command's plans during the execution of a major theater war operation plan. In each instance, the SOTSE's critical mission is to ensure connectivity of support by identifying and linking the deploying SOSCOM (A) support packages into the existing logistics structure.

The SOTSE's then will position liaison officers at key logistics and signal locations to facilitate uninterrupted support. If required, SOSCOM (A) augments the SOTSE's with soldiers from its Logistics Operations Section. This augmentation will consist mainly of subject-matter experts in transportation, signal, medical logistics and operations, contracting, and other logistics functional areas.

The SOSCOM (A) MMC plays a crucial role in providing logistics connectivity to planned and coordinated support. The MMC is the command's focal point for providing ARSOF with centralized and integrated materiel management of property, equipment, maintenance, logistics automation, repair parts, and supplies (all classes except classes V [ammunition] and VIII [medical materiel]). The MMC serves as the single point of contact for logistics management for both active and reserve component ARSOF units and provides command visibility on all matters concerning logistics and property accountability. The MMC's Logistics Automation Division is SOSCOM (A)'s primary means of ensuring

that ARSOF units are linked into all logistics system architectures using the most current Standard Army Management Information Systems (STAMIS).

In a contingency or exercise scenario, the MMC's highly experienced senior officers, warrant officers, and NCO's deploy to the SOTSE's and work to ensure that ARSOF task forces are linked by automation to Army support activities. The MMC accomplishes this mission by linking the deploying units' STAMIS with the existing theater Army architecture. If the ARSOF units deploy to a remote or immature area of operation, the MMC will ensure linkage back to Fort Bragg via organic strategic communications systems.

The SOSCOM (A) with its special operations support initiative is a forceful concept that requires doctrinal flexibility, tailorable support modules, and logistics connectivity and versatility across the full spectrum of conflict. The result is the creation of an aggressive support structure that can provide assured support to all deploying and forward-stationed SOF units conducting training and executing missions in areas of operations ranging from less than developed to fully mature theaters. The Army Special Operations Support Command (Airborne) stands ready to lead the Army in this dynamic initiative and continues to provide the best support to the U.S. military's premier forces, anywhere and anytime.

ALOG

Lieutenant Colonel Brian J. Burns is the Chief of Operations for the Army Special Operations Support Command (Airborne) at Fort Bragg, North Carolina. He has a bachelor's degree from Purdue University and an M.S. degree in operations management from the University of Arkansas.

Streamlining Mobilization Readiness

The Army Reserve has been mobilized six times in the last 10 years, which is equal to the number of call-ups in the previous 80 years of its existence. Mobilization begins when a unit is called up at the onset of war or contingency operations. Once a unit is called up and arrives at its mobilization station, it must prepare immediately to travel to the site where it will serve. There is little or no training time before the unit assumes its mission.

The 4003d U.S. Army Garrison Support Unit (USAGSU) in Norman, Oklahoma, is 1 of 16 Army Reserve garrison support units in the United States. Its wartime mission is to augment the skeleton garrison staff and division operations left at Fort Hood, Texas—the largest Army power-projection platform in the world—when much of the regular staff has been mobilized and shipped out. Typically, the GSU is required to “hit the ground running.”

Individual Mobilization Enabling Tasks

In June 1999, Lieutenant Colonel Terrence Farrier, the Logistics Support Officer for the 4003d USAGSU, expressed to Colonel Robert Bishop, who was then Fort Hood's Director of Logistics (DOL), his opinion that the 4003d USAGSU could be trained to do even more to augment Fort Hood's remaining directorate staff during mobilization. Bishop agreed that better integration and training were needed to streamline the performance of the actual tasks the GSU soldiers would perform upon mobilization of the DOL staff. Farrier and Bishop decided to come up with a systematic approach to integrating mobilization training and operations that would benefit both the Fort Hood Garrison and the 4003d USAGSU. They would develop individual mobilization enabling tasks (IMET's) for the GSU soldiers. The IMET's would include only the military occupational specialty (MOS)-prescribed responsibilities of the GSU's soldiers that matched those required of the Active Army and Department of the Army civilian positions they would be filling on the Fort Hood Garrison table of distribution and allowances (TDA) during mobilization.

Colonel Bishop asked his staff to make a list of the

actual tasks that the soldiers in the 4003d USAGSU would perform during mobilization. Seeing how quickly and efficiently the DOL staff prepared the task list prompted Farrier to want to broaden the scope of the program and include the entire 4003d USAGSU staff in the streamlined training and integration process. He discussed his idea with the Fort Hood Garrison Commander, Colonel David Hall, and the 4003d USAGSU Commander, Colonel Glendon Acre, both of whom not only gave the green light to

expand the program but also agreed to involve their entire staffs in the process.

Once the mobilization tasks of each position on the garrison TDA were established, the Fort Hood directorate chiefs decided on the training each soldier needed to complete the tasks. The scope of responsibilities for each reserve soldier was narrowed significantly; therefore, the training would be concise and the relationships among the active and reserve soldiers would be much more effective and cohesive.

Colonel Hall asked the 4003d Commander and his primary staff to meet with his staff to help develop a seamless TDA for the Fort Hood Garrison. The meeting fleshed out a number of Active Army and Army Reserve mobilization requirements. Discussion centered on such areas as contingency planning for directorate satellite operations during wartime, rank structures needed in the Army Reserve to retain soldiers, heightened security during contingency operations, and training required that usually is not available to soldiers in the Army Reserve. (The Active Army can cross-pollinate MOS's easily during peacetime, so this is not a normal planning task for them.)

Training to Task

After the new Fort Hood Garrison TDA was approved, the updated Army Reserve Garrison peacetime TDA had to be approved. This was a lengthy process because the request had to be sent through the Army Reserve Command and then to the Army Forces Command. Once the Army Reserve TDA was approved, the streamlined training began. Instead of being trained to perform up

Today I declare that we are The Army—totally integrated with a unity of purpose—no longer the Total Army, no longer the one Army. We are The Army, and we will march into the 21st century as The Army.

—General Eric K. Shinseki
Chief of Staff of the Army
23 June 1999

By focusing on the actual needs of the installation, reservists at Fort Hood quickly learned the skills needed to perform real-world missions.

to 50 duties outlined in Army Regulation (AR) 611-1, Military Occupational Classification Structure Development and Implementation, the soldiers were trained to perform only the 10 or so tasks actually required of them during mobilization. As a result, they were able to focus on those 10 tasks much better than on 50 and thus could be trained much more quickly and decisively for mobilization.

When the 4003d Army Reserve soldiers reported for annual training, their trainers had a list of the soldiers' training needs that could be met during annual training. If, for example, during the refining of the training needs, it was determined that more active duty for hazardous materials training was needed, requirements for that training were planned and the training accomplished early on. In other cases, the type of units mobilizing at Fort Hood and the operating tempo might require a focus on certain maintenance activities not identified before the IMET scrub.

A test administered to soldiers of the Port Support Activity (PSA) by Lieutenant Colonel Farrier during the mobilization of the 49th Armored Division (an Army National Guard unit) showed that, although the port mobilization mission was new to the 4003d USAGSU soldiers, both junior- and senior-grade soldiers were able to familiarize and focus themselves toward the integration and mobilization tasks using the IMET process. The test confirmed that soldiers had a 22-percent greater understanding of the mobilization requirements developed specifically for them over the requirements shown in AR 611-1.

The IMET program is a concentrated effort to align the requirements of AR 611-1 and to incorporate the lessons learned from Field Manual (FM) 25-101, Battle Focused Training, and FM 25-100, Training the Force. Although these documents discuss many training areas

and show units how to develop mission-essential task lists, they fail to get down to the individual soldier MOS levels to determine mobilization "fits" for supported units as do the IMET's.

Conducting a pragmatic study of the mission to be performed by the directorate and by individual soldier positions during mobilization is an excellent way to improve the operational relationship between Active Army and Army Reserve units. Taking the time to go through the weeds to get to the objective often reveals better and more efficient ways of doing things.

Instituting the IMET program in the Fort Hood Garrison has had a positive impact on the installation's mobilization readiness. The payoff has been proven. The Fort Hood Garrison continues to use the program, and it is working smoothly. By focusing on the installation's actual needs, soldiers can learn the skills needed to perform real-world missions more quickly and are able to apply them faster than through basic MOS or branch training only.

As General Shinseki indicated when he assumed the position of Chief of Staff of the Army on 23 June 1999,

integration of the Active Army and the reserve components is foremost on his mind. "The Army" that he spoke of that day requires new thinking, new leadership, and more soldiers like those in the 4003d USAGSU who have a sense of professional purpose and who are not afraid to "push new envelopes."

ALOG



□ Soldiers from the 4003d USAGSU Port Support Activity load 49th Armored Division vehicles for deployment to Bosnia.

The Army Logistician staff would like to thank Lieutenant Colonel Terrence L. Farrier (USAR), Commander of the 369th Training Detachment (Combat Support) in Houston, Texas, for his contribution to this article.

Contractors in British Logistics Support

by Major David W. Reeve, British Army

Contractor logistics support is an essential capability that must be considered for all future British military operations. The Strategic Defence Review White Paper issued by the British Ministry of Defence in 1998 recognized that defense commitments now require a more maneuverable and expeditionary warfare capability [similar to the U.S. Army's force projection strategy]. That paper also stated the requirement for executing two concurrent brigade-sized operations, one a warfighting operation and one an operation other than war. As demonstrated by a number of recent operations, such as the Falklands War of 1982, the Persian Gulf War, and the current Kosovo deployment, the strategic lines of communication (LOC's) in future deployments could stretch up to 8,000 kilometers and the internal tactical LOC's could be up to 700 kilometers. The Strategic Defence Review recognized that the consequence of this operational requirement was a need for significant logistics enhancement and suggested that civilian contractors could partially fill this capability gap: "Where appropriate we will consider the use of contractors to assist with logistic support."

I believe that military logisticians, whether in the United Kingdom or the United States, cannot ignore the option of using contractor logistics support because of the potential advantages it offers, such as economic savings and increased technical expertise. In the United Kingdom, the use of sponsored reservists also offers major advantages, particularly in low-intensity warfare. (Sponsored Reservists, or SR's, are a militarized version of civilian contractors. They result from the need to formalize support from a range of contractors, such as those used during the Falklands and Gulf Wars.) However, contractor logistics support is not a panacea for all problems, and the military must define carefully where operational risks will negate its use.

Contractor Logistics Support

According to U.S. Army doctrine, battlefield contractor logistics support consists of three types: theater support, external support, and system. Theater support

and external support contractors are civilians who provide broad support services for a particular operation. System contractors primarily support a weapon system or other equipment.

By introducing more sophisticated technology into weapon systems, the Revolution in Military Affairs has ensured that system contractors will become increasingly essential to military operations. These contractors perform specific and precisely defined activities and inevitably are essential to operating a variety of modern military systems.

There are two types of contingency contractors. The first is exemplified by the U.S. Logistics Civil Augmentation Program (LOGCAP), which is a worldwide planning and services contract under which civilian contractors perform such logistics functions as engineering, supply, services, maintenance, transportation, construction, and facilities management during both high-intensity warfare and operations other than war. The second type of contingency contractor is the operation-specific organization that becomes involved either during or after a deployment; the services it offers are similar to those of LOGCAP, but, unlike LOGCAP, its use is unanticipated.

Contractors on Deployed Operations

The United Kingdom currently is using contractors in the Balkans to provide logistics support, but there is no overarching policy on contractor employment and related legal and contractual matters. The United Kingdom's Defence Logistics Organisation is examining the role of the contractor on the battlefield through the recently formed Contractors on Deployed Operations (CONDO) committee. According to the CONDO vision statement—

In the medium term (or sooner if legal obstacles can be overcome), pressure on deployable logistic support manpower and assets of all three services [the British Army, Royal Air Force, and Royal Navy] is reduced through enabling competent commercial partners to provide a proportion



of that support, such as that is assured for the commander, profitable for the contractor and secure as possible for his workforce.

This concept of partnering on operations is being pursued actively, and, together with the Private Finance Initiative (PFI), some radical alternatives to traditional military support are being examined. [The PFI is a form of public-private partnership in which the Ministry of Defence seeks to use private sector management expertise, innovation, and capital investment to deliver services to the public sector. The ministry has signed for over 30 PFI projects worth over £1 billion and is actively considering more than 90 other projects with a combined value of over £6 billion. Current projects include such activities as logistics support, information technology, and training facilities.]

The use of SR's within the PFI is central to the CONDO study as an alternative to the use of regular military logisticians. SR's are contracted in peacetime to perform a peacetime function, and they carry out the same role during operations. The contractor is responsible for performing core technical functions. The SR concept is being tested by all three armed services.

Case for Contractor Logistics Support

In a deployment, when military force is limited and host nation support is not available, the use of contractors often has proved to be the best way to ensure support. During operations such as those mounted in Rwanda or Sierra Leone, the local infrastructure has broken down, making host nation support impossible. The U.S. LOGCAP has been used extensively to bridge the host nation support gap in a variety of contingency operations. It uses previously developed logistics contracts to provide a relatively rapid response and is limited only by the restrictions imposed by the security classification of some contingencies.

Key military logistics enablers must be released from lengthy operations, particularly when hostilities have ceased in the theater. Options for their replacement include allied bilateral agreements, host nation support, CONDO, or a mixture of all three. The use of civilian instead of military resources and the resulting civilian-military integration should ensure that current best practices can be exploited. As David Moore noted in an *RUSI Journal* article, "The contracting of civilian firms to provide a broad range of logistic services can be viewed as a potential force multiplier, especially in peacekeeping and humanitarian situations in countries that have little infrastructure."

The U.S. Army clearly believes that civilian-military partnering also can save money, particularly as it has reduced the military strength of the Army Materiel Command (AMC) by 60 percent. Major General Norman E. Williams, then AMC Chief of Staff, stated in a 1999 *Army* magazine article, "From a strategic perspective, partnering with industry clearly shows we are capable of providing the warfighter with increased ability at a lower cost to the taxpayer."

If a civilian firm can provide the same service for less cost, then contracting for support clearly is an attractive option at a time of shrinking defense resources and expanding equipment acquisitions. As Major James E. Althouse noted in an *Army Logistician* (November-December 1998) article, "Often, the cost of training [U.S.] troops to perform a task exceeds the cost of contracting with someone who already performs that task on a routine basis."

The British Army has found similar financial, equipment, and manpower savings in Bosnia and Croatia by using contractor elements for support. Recently, contracting for both the food storage and distribution centre and bulk fuel storage and distribution have achieved savings. The awarding of the food contract to Bookers Foodservices alone saved £560,000 the first year, and

further savings of almost £2 million are projected. Other areas for potential contracting include postal services and tank transporter support.

The most recent CONDO discussion paper produced by the Director General Defence Logistics Support (Operations and Policy) concludes that, as a potential force multiplier, contracting is indeed likely to contribute to overcoming some of the logistics shortfalls noted in the Strategic Defence Review and thereby relieve pressure on overextended resources. This clearly has assisted the United Kingdom Logistic Regiment in Bosnia and Croatia with a recent force reduction reported by an operations officer—

[Contracting] is the only viable means of making significant manpower savings. The need to reduce manning levels became even more pressing following the deployment of 23 Brigade Support Squadron to Macedonia in February . . .

Contracting also can provide strategic advantages by helping to capture technological advances and establishing benchmark costs. In the future, it may be difficult to cope without this assistance. Brigadier Paul Evans, the Commander Logistic Support at Headquarters Land Command, observed—

Clearly, the introduction of new and complex technology on the battlefield will place increasing demands and pressures on the military. In future some equipment may prove to be beyond the scope of our current military equipment support organisation, . . .

He went on to state that it will be difficult in the future to recruit military tradesmen to provide this function.

If a contractor is to become an integral part of the whole life of a system, he must be considered for deployment with that system. Without this approach, or providing for equivalent military expertise, the system will clearly fail. Althouse recognized this—

Consideration of the role of contractors must begin at the very start of a product life cycle, and decisions about their participation and involvement must be made at every level—strategic, operational, and tactical . . . That will require sound decision making in doctrine development.

Evans further observes, "I would argue that the further introduction of contractors on the battlefield is now inevitable, and arguably desirable, if we are to keep pace with technology, retain access to the best that industry can offer and apply increasingly scarce resources to high value combat systems."

The widespread use of civilian contractors and SR's enables military units to be available for major regional

conflicts. It also helps to solve the problem of troop ceilings, which often are imposed in certain operational theaters. For example, political constraints have limited troop numbers in Bosnia, so the United States has given most support functions to contractors because they are not included in the total force figures. CONDO can assist in reducing overextension of troops, potentially achieve savings, and provide critical technical support.

Risk in Contractor Logistics Support

The major risk in using civilian contractors is operational failure. Current British policy on deployment of SR's acknowledges that there are limits on what support functions even SR's may assume and that there are unacceptable operational risks. The latest Directorate of Reserve Forces and Cadets paper even goes as far as to note that—

Should a contractor fail to deliver, financial penalties (in the form of delayed payments) are unlikely to be an adequate substitute for the actual loss of capability, and thought must be given at the concept stage to how the capability might be met from other resources or through alternative capabilities.

In a study I made of potential contracting of the tank transporter trade, I noted that, while the outsourcing of that service in peacetime was most suitable, the use of SR's on the battlefield presented "inappropriate operational risk." This same issue appears to be the problem with contracting for and using SR's at the Marchwood Military Port in England. Marchwood, a strategic asset that is fundamental to maintaining a LOC to any deployed force, could be contracted if commercially viable. However, it would not be easy to replace the military capability that would be deployed from the resident port squadrons. The port could be run by 50 dockworkers; however, to guarantee the port's operational capability while also meeting the deployment requirement for 70 SR's, Marchwood would need a base of 120 dockworkers from which to draw. The costs involved also would be considerable, with little prospect of any savings.

Doctrine is still emerging on the use of contractors. U.S. forces in Bosnia have discovered that the issues of control still need resolution if contractors are to be used effectively on a large scale. The U.S. experience in Bosnia with LOGCAP also has proven that using a contractor is not always cheap. A 1997 General Accounting Office report noted that there are "escalating costs associated with the use of civilian contractors to provide logistics." The Army's estimate for contractor support at that time was \$461.5 million, approximately \$111 million more than the original estimate. Despite the

Army's significant efforts to manage LOGCAP, Army inexperience and "a lack of understanding of the contract and capabilities caused difficulties during the deployment phase and also unnecessary costs."

Further risks arise because contractors cannot fight and thus sometimes need protection. Most military personnel are trained for combat and can at least protect themselves and their equipment and hold their ground. The British Army continues to rely heavily on logistics troops to provide both their own force protection and rear area security. Rear area security is almost a secondary task for the Royal Logistic Corps and the Royal Electrical and Mechanical Engineers. This remains true despite efforts to allocate combat arms forces for rear area security tasks, because inevitably there are insufficient combat troops available. The widespread use of contractors and inexperienced SR's would not assist in providing rear area security. While SR's conceivably could carry out force protection duties, civilians may require protection themselves. An example of this occurred in Somalia, where U.S. soldiers and marines were required to escort all contractors.

Widespread contracting also could erode core skills and low-level expertise and experience among military personnel. This is particularly important for officer and noncommissioned officer development and training. Current British SR policy notes that there is a need to retain core skills among military personnel. The pilot heavy equipment transporter (HET) PFI project is a case in point: once contractors take over the military tank transporter mission, military expertise in that area will dissipate after several years. Resurrecting that lost military expertise would require several years.

Finally, there are considerable limitations on the timeframe for deploying contractors. The U.S. view is that contractors should not arrive until hostilities have ceased. The Commander Logistic Support at Headquarters Land Command has a similar view on British contractors. In a worst-case scenario, contractors will have to wait up to 30 days for the operational commander to assess the risk before allowing them into the area of operations. However, the mobilization of reserves by the Secretary of State for Defence may reduce the operational risk because of the enhanced operational effectiveness of SR's, who are able to deploy earlier.

Pros and Cons of Contractor Logistics Support

There are four questions that must be asked when considering the use of contractors on the battlefield, as outlined by the Commander Logistic Support at Headquarters Land Command in a recent article in Royal Logistic Corps Review—

- What should remain military owned and operated?
- What should be military owned but contractor

operated?

- What could be contractor owned but remain military operated?
- What could be contractor owned and contractor operated?

Having answered these questions, the potential advantages of using contractors, including economy, flexibility, force enhancement, and relief of logistics over-extension, then provide a strong case for doing so in certain operations. These cases include peace support operations where host nation support is often lacking and the threat levels are not significant. Contractor logistics support can be adopted instead of using expensive and scarce military resources at the lower levels of conflict. The requirement for specialized technical support may dictate deployment of contractors, regardless of operational risk, within all levels of warfare.

However, contractor logistics support is not a cure for all ills. Outsourcing for logistics support is not suitable for high-intensity warfare, where joint or coalition logistics support should be the alternative to integral logistics support; contracting for logistics support should be considered only when hostilities cease. It is here that the force levels are important, because logistics troops must be present in order to protect themselves and other assets and even fight as combat arms (which arguably is even beyond the ability of SR's). The military must retain the essential core logistics capabilities and avoid the temptation to use contractor logistics support as widespread and cheap replacements.

Clear CONDO doctrine is fundamental to using contractors if seamless and lean logistics with effective command and control is to be achieved. SR's, in particular, may offer the best option in certain scenarios. They certainly will provide the best alternative to using regular military capability, and with the least operational risk.

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The Army Branch Detail Program

by Captain Michael E. Sloane

The author explains the Total Army Personnel Command's positive approach to ensuring that branches with large lieutenant requirements are filled to their required levels.

Each year, approximately 4,000 second lieutenants are commissioned into the Active Army. The actual number is based on Army mission requirements and is subject to congressional approval. The Total Army Personnel Command (PERSCOM) distributes these newly commissioned officers to its respective branches.

The Infantry, Armor, Field Artillery, Air Defense Artillery, and Chemical branches have the biggest demand for these new lieutenants and receive approximately 2,200 of them to fill key junior officer leadership positions. The Aviation, Engineer, Military Intelligence, Military Police, Signal, Ordnance, Quartermaster, Transportation, Adjutant General's, and Finance branches receive the remaining 1,800 lieutenants. Although the Infantry, Armor, Field Artillery, Air Defense Artillery, and Chemical branches receive more than half of the new lieutenants, they still face a shortfall.

To cover the shortfall, these five "recipient" branches borrow officers for a predetermined length of time (usually 2 to 3 years) from other "donor" branches that initially have more available lieutenants than duty positions. The donor branches are Military Intelligence, Signal, Ordnance, Quartermaster, Transportation, Adjutant

General's, and Finance. (It is interesting to note that this imbalance no longer exists when the officers reach the ranks of captain through lieutenant colonel. By that time, the donor branches have more duty positions than officers, while the recipient branches have fewer duty positions than officers.)

This "borrowing" process is called the Branch Detail Program. The program is administered by PERSCOM according to the provisions of Army Regulation 614-

100, Officer Assignment Policies, Details, and Transfers, which establishes policies and procedures for reassigning commissioned and warrant officers between commands or units of the Army.

After commissioning, a second lieutenant participating in the Branch Detail Program is detailed immediately to a recipient branch and attends that branch's

basic course. The timeline for fulfillment of the officer's donor assignment begins when he enters active duty. Ideally, the detailed officer is assigned to an installation that can support assignments in combat arms or chemical and in combat support (CS) or combat service support (CSS) branches. This will enable him to transfer to a CS or CSS position on the same installation at the end of his detail. During his assignment to the

Sample 24-Month Branch Detail Transition

- Quartermaster lieutenant detailed to a shortage branch after commissioning.
- Attends Air Defense Artillery (ADA) Officer Basic Course (20 weeks).
- Serves 18 months as an ADA platoon leader.
- Attends 5-week Quartermaster transition course.
- Returns to same installation on which he served in an ADA unit and is assigned as a Quartermaster platoon leader or staff officer for 18 to 24 months.
- Attends Combined Logistics Captains Career Course (24 weeks).
- Is available for assignment to a Quartermaster unit or command anywhere in the world.

combat arms or chemical branch, the detailed officer gains valuable tactical and technical skills that will serve him well in his future assignments.

Although the recipient branches would like to keep the donated officers, the officers are counted in the officer population of their respective donor branches

and are expected to fill critical positions in these branches when they return. Therefore, commanders must be aware of the importance of sending the officers back to their donor branches, and they must understand the impact on the donor branches when the officers are not returned promptly at the end of their contract period.

The recipient and donor branch assignment officers must coordinate to make sure that follow-on assignments for the officers completing the branch details help to develop their careers. To help make the transfer back to their basic branches as smooth as possible, the recipient branches schedule the returning officers to attend a branch transition course en route to their CS or CSS assignments. Each transition course provides the officers with an understanding of the policies, principles, and procedures needed to serve successfully as a logistics staff officer in a theater of operations. The branch-specific courses are approximately 3½ to 10 weeks long and are offered several times a year depending on the branch.

Ideally, the transition course is scheduled within 4 months before or after the expiration of the officer's branch detail. Officers participating in the Branch Detail Program know when they are required to return to their basic branches and should coordinate with their current chains of command to make sure they are programmed to attend the transition course at the appropriate time.

These officers must be given the opportunity to attend this training before reporting to their next units whenever possible. Their donor branches expect them to be able to perform branch-specific duties upon arrival. Recipient branch commanders should plan for this training in their command operating budget to ensure that money is available to fund the transition course. Currently, Military Training Specific Allotment (MTSA) funds are used to pay for this course when officers take

Exceptions to the Branch Detail Program

- Chaplains are not detailed to other branches nor are officers of other branches detailed as chaplains.
- Army Medical Department commissioned officers may be detailed to other branches, functional areas, or branch immaterial positions subject to the approval of the Surgeon General and the Director of Officer Personnel Management.
- Commissioned officers in the Judge Advocate General's Corps are not detailed without the approval of the Judge Advocate General.

it en route to their next assignment. If they attend the course and return to their installations, local funds must pay for the training. Returning officers also should coordinate with their basic branch chains of command, their division G1's, and their division support command or corps support group S1's to make sure

CS and CSS positions are available when they return to their branches.

The chiefs of the branches to which the officers will return send welcome letters to each officer approximately 8 to 10 weeks before the transition course begins. The letters contain the names and phone numbers of points of contact and other useful information that will help to ensure that the attending officers are well prepared for the transition courses. In addition, the staff in each branch of PERSCOM is always available to answer questions about the courses.

Following the transition course, the officers are transferred to CS or CSS units, where they spend the next 24 months gaining valuable logistics experience. At the end of this time, they are programmed to attend the Combined Logistics Captains Career Course (CLC3) or, in the case of Adjutant General, Military Intelligence, Signal, and Finance officers, the equivalent captains career course. Upon graduation, the officers are available for assignment to CS and CSS units worldwide.

For more information about the Branch Detail Program, call the appropriate branch representative at PERSCOM.

ALOG

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Supporting Train-Up for Peacekeeping Operations in Bosnia

by Captain Bradley L. Rees

In 1999, the 3d Infantry Division (Mechanized) at Fort Stewart, Georgia, was tapped by the Army Forces Command (FORSCOM) to provide troops for Stabilization Forces (SFOR's) 8 and 9 in Bosnia-Herzegovina. The division immediately set in motion specific training plans to prepare Task Force Eagle for the peacekeeping operation. These training plans included theater-specific individual readiness training, platoon and company lanes training, weapons qualification, driver certification, and other training required by soldiers entering the theater. The training began in July 2000, when the 3d Infantry Division and elements from FORSCOM, the Army Reserve, and various Army National Guard units converged on the Joint Readiness Training Center at Fort Polk, Louisiana, to participate in the SFOR 8 Mission Rehearsal Exercise, or MRE 00-09.

Combat service support (CSS) units supporting peacekeeping operations often have to interpret emerging CSS doctrine and embrace non-doctrinal support techniques to meet constantly changing support requirements. During MRE 00-09, the 226th Supply Company (Direct Support [DS]), 87th Corps Support Battalion (CSB), 24th Corps Support Group, did just that. Using both emerging CSS doctrine and non-doctrinal support techniques, the 226th provided support to three outlying base camps that supported battalion-level task forces and Eagle Base—the main base camp that sustained the division headquarters (-) and other slice elements that comprised Task Force Eagle.

226th Organization

The 226th Supply Company was broken down into a primary staff and a support operations branch. The primary staff included a personnel section, an operations section, a supply section, and a communications section. The company executive officer served as the company battle captain and operations officer and supervised the internal operations of the company. Personnel from the company orderly room comprised the personnel section. The operations section was composed of the company training noncommissioned officer (NCO) and the nuclear, biological, chemical NCO. The supply sergeant and supply clerk made up the supply section, and the communications NCO headed the communications sec-

tion. The primary staff gave the company commander and first sergeant a nightly update on the company's status and capabilities.

The company commander met with battalion and division representatives daily at 1500 to discuss the logistics required over the following 24 to 72 hours. The company commander relayed these requirements to the 226th in a meeting with platoon leaders or sergeants at 1600. At 1700, the entire primary and support operations staff met with the company commander to discuss enemy activity and the internal workings of the company for the day and to back-brief the commander on the missions for the next 24 to 72 hours.

The concept of support for the exercise was structured around the forward support company (FSC), with its multifunctional task organization, and nonstandard support techniques such as off-cycle issues of class I (subsistence) and water, multiple logistics package (LOGPAC) convoys at regular intervals, and direct interaction with the "host nation" (in this case, Fort Polk), the contingency contractor, and Army Materiel Command (AMC) activities.

Food and Water

Doctrinally, division support command (DISCOM) staff sections usually interface with the division G4 food service officer (FSO) or the troop issue support activity (TISA). But because of the scope of the mission in Bosnia and the lack of a DISCOM at Fort Polk, much of the staff coordination was done at lower levels. For example, the 226th coordinated directly with the division G4 FSO for subsistence and with the TISA to have box lunches issued sometimes instead of meals, ready-to-eat. The 226th drew bottled water and ice from the TISA or coordinated with prime vendors to have bottled water and ice delivered directly to the class I field ration breakout point. There, the 226th broke out the supplies into separate shipments. Food, water, and ice went to the three outlying base camps, which had mobile kitchen trailers. Only bottled water and ice went to Eagle Base because it was supported by civilian-contracted dining facilities.

Spare Parts

The 87th CSB support operations maintenance sec-

tion coordinated with the task force S4 and forward support battalion (FSB) support operations section for spare parts needed by the task force. The FSB supply support activity (SSA) deployed with a limited combat authorized stockage list, so Fort Polk SSA's, AMC liaison officers, the AMC contingency SSA, and local vendors assisted in providing the parts. The 226th transported parts, and sometimes major assemblies such as engines and transmissions, from outlying base camps to customers at other base camps when needed.

Because of the short time the units were actually at Fort Polk, local parts stores often provided items that had a required delivery date that could not be met through normal supply channels. When necessary, parts were sent by FedEx from Fort Stewart. The 226th picked up the parts from various locations and delivered them to the customer. FSB maintenance support teams at each base camp installed the parts and made other repairs when required.

Training Realism

In Bosnia-Herzegovina, Brown & Root Services (BRS), a contingency contractor for the Department of Defense, provides supply classes I, II (organizational clothing and individual equipment), III (packaged and bulk petroleum), and IV (construction and barrier materials) and manages class IX (repair parts and components), transportation, construction, laundry, and feeding support. To ensure that training received at MRE 00-09 was as realistic as possible, the 87th CSB acted in the role of BRS. The 226th Supply Company served as the supply activities branch of BRS and provided BRS-type support of Task Force Eagle in theater. BRS representatives were on hand to assist if needed and to add realism to the exercise.

Using the FSC as a model, the 226th operated with its existing modification table of organization and equipment and was augmented by slice elements from the 24th Corps Support Group and the 142d CSB at Fort Polk. The 226th Supply Company task-organized into a supply and services platoon, a petroleum platoon, a water platoon, a combined organizational and DS maintenance platoon, two transportation platoons, and an environmental compliance section. With this task organization, the 226th Supply Company provided classes I, II, III (bulk), IV, V (ammunition [replicated]), IX, bulk and packaged water, and organizational and DS maintenance. In all, the company had 170 personnel and 115 pieces of equipment to support Task Force Eagle.

Because of the size and complexity of the support mission for the exercise, many factors had to be addressed in order to provide seamless support to the customer units. Headquarters, 87th CSB, provided command and control and guidance to the 226th Supply Company and managed reception, staging, onward

movement, and integration and pre-positioned equipment for the task force. The battalion headquarters also managed all movement control team operations, host nation transportation motor pool management, contracting through local vendors, current operations tracking, and future operations planning. The 226th, working in conjunction with the battalion support operations section, carried out DS missions 7 days a week over a 6-week period.

A centralized motor park was collocated with a convoy staging area and LOGPAC validation checkpoint. The evening before departure, LOGPAC convoys uploaded a 2- to 3-day supply of commodities and enough fuel and water for 1 day. Uploading and staging the vehicles the evening before departure allowed key leaders and convoy commanders time to verify vehicle densities and cargo types and quantities. It also allowed time to rebuild LOGPAC configurations if necessary. The LOGPAC's arrived at the base camps between 0900 and 1000 each day. "Red Ball Express" emergency trucks supplemented the LOGPAC's when necessary.

Materials-handling equipment holding areas were set up so the equipment could surge, simultaneously if necessary, to the field ration breakout point, the class IV yard, or the class V staging area. Bulk class III transfer points were established in the Task Force Eagle vehicle staging area, and retail points were set up along main supply routes to support task force units moving between outlying base camps and Eagle Base.

During MRE 00-09, the 226th Supply Company received, stored, and issued 500 tons of food and other subsistence items; 50,000 gallons of bottled water; 125,000 gallons of bulk water; 103,000 gallons of bulk petroleum; 100 tons of construction materials; and 250 tons of ammunition (replicated). The company drove over 13,000 miles, delivered over 200 separate lines of repair parts and 7 major assemblies, and completed over 31 organizational maintenance jobs and 10 DS maintenance jobs in support of Task Force Eagle. The CSS training provided to the three outlying base camps and Eagle Base helped prepare over 4,000 soldiers for their mission in Bosnia. The exercise demonstrated that units must conceptualize and rehearse their commander's mission and goals to meet fully the end-state put forth in his guidance. Along the entire operational continuum, logistics plays a key role in the success or failure of the mission.

Captain Bradley L. Rees, a Quartermaster Corps officer, is the Commander, 226th Supply Company (Direct Support), at Fort Stewart, Georgia. A graduate of Virginia Military Institute, Captain Rees commanded the Brown & Root Supply Activities Branch during MRE 00-09.

The Role of the DMMC at the NTC

by Captain Calyes L. Kynard II

The author describes how the materiel management center of the 24th Infantry Division (Mechanized) functioned during a National Training Center rotation.

I had the privilege of working with the 218th Enhanced Separate Brigade, an Army National Guard unit from Newberry, South Carolina, during its National Training Center (NTC) rotation at Fort Irwin, California, in June 2000. This was the first NTC rotation of an Army National Guard unit with an active duty headquarters—the 24th Infantry Division (Mechanized) at Fort Riley, Kansas. Filling in as the active and reserve component logistics officer from the division for my first NTC rotation, I expected the learning curve to be steep, and it was. I learned a lot about division materiel management center (DMMC) operations, including locating, procuring, tracking, and delivering parts; taking part in meetings; and interacting with the NTC Materiel Management Center (MMC).

DMMC Operations

Upon arriving at the NTC as the advanced party for the brigade's rotation, my 24th Infantry Division colleagues and I made connections with NTC MMC personnel, talked to the class IX (repair parts) personnel, did a reconnaissance of the warehouse, and helped set up the DMMC. We worked in a van right outside of the NTC MMC building. I worked with four chief warrant officers and a major, who set up the Standard Army Maintenance System-2 (SAMS-2); the Internet capability for systems such as the Web Based Corporate Account Tracking System (WEBCATS), the Defense Standard System (DSS), and the Visual Logistics Information Processing System; radio communications; and the capability to "blast" data over telephone lines with a tactical terminal adapter. [As used here, "blast" refers to sending a blocked asynchronous transmission, or BLAST.] The Standard Army Retail Supply System (Corps and Above) (SARSS2AC) was set up in the van already, so we had visibility of what the class IX warehouse, as well as the other supply support activities (SSA's) in the area, had on hand. With the assistance of

the NTC procurement office, we established Internet accounts for the various Defense Logistics Agency (DLA) websites.

Locating Parts

The DMMC had landline capability, so we were able to access SARSS and the Internet to locate parts within the theater. By using SARSS, we could see what was stocked in any class IX warehouse at Fort Irwin or in the immediate area. Using this information, we could walk through requisitions for urgently needed parts or parts that would make a combat system operational before the next battle. For example, if a unit needed an engine for an M1A1 Abrams tank, we could check the class IX warehouse to see if one was available. If the warehouse had the engine, we could go to the warehouse and have the part released and sent to the unit. If the part was not in the class IX warehouse, we could query SARSS to see if the part was available in any warehouses in the immediate area.

When a part was not available in theater, we used the Internet to obtain information on where an available part was located. One site we found useful was WEBCATS, a DLA site that can give information on the stockage of parts at depots, the location of the depots, and the mode of shipping the parts. Once we were able to locate the part, it was only a matter of procuring it.

Procurement

We used two procurement methods—automated and manual. With the automated method, we ordered the part by putting the identifying information into the computer and letting the automated system locate and order the part. With the manual method, we did a walk-through, locating the part in the system and going to the SSA and procuring the part with a manual requisition using a Department of the Army Form 2765-1, Request for Issue or Turn In.

The automated system sends the information to the SSA's and depots and finds out who actually has the part on hand. At the NTC, the automated process worked well for the units during the reception, staging, onward movement, and integration (RSO&I) phase because the parts arrived quickly and there was never a need to request that a part be delivered within 24 hours. Some problems with the system occurred when—

- Units did not put the parts data in the system. If they stored the information on a bad disk, or let the desert sand damage it, units would lose 24 to 72 hours of maintenance time because information on the part was not in the system to be processed.

- Units did not cancel the part in the system if parts were obtained by another means. This resulted in double ordering and caused the unit to go over its budget.

- Units did not notate the parts as received in the Unit Level Logistics System (ULLS) computer. Once the units received parts, they should have closed the loop by filling out the paperwork correctly and entering the information into the ULLS computer.

A walk-through using a manual requisition was much faster. Once we identified where a part was located, we took the paperwork to the SSA, and they picked up the part and brought it to us. This cut out many people, such as truckers and handlers, and the unit received the part that day. This process came in handy during the force-on-force stages of NTC and, to a certain extent, the regeneration phase. The class IX warehouse at the NTC was stocked with many lines to support any unit in the theater. The walk-through was an important step to quickly building combat power. However, we ran into one obstacle using walk-throughs. If a needed part was not at the warehouse, the unit lost valuable time getting the part into the system if it used a walk-through. The DMMC was 2 hours away from the brigade support area (BSA). If the unit did not order the part before departing for the field, the affected equipment could be down for an additional day.

We also had the help of the logistics assistance office (LAO). These civilians proved invaluable in parts procurement. They had the ability to call all of the depots and expedite the release and delivery of parts. They also traveled the desert and supported the unit maintenance collection points with their expertise. The LAO's biggest impact was on the procurement of parts that were not in the system. The LAO was able to locate those hard-to-find parts and get them into the hands of the soldiers who needed them. For example, when one of the 218th Enhanced Separate Brigade's tanks caught fire because its nuclear, biological, and chemical (NBC) filters had not been replaced since 1986, the LAO was able to get five NBC filters, which were located only in war stocks.

Tracking

Manually tracking parts caused confusion. Using the computer to organize, track, provide status, and find parts is much easier than doing it by hand. At NTC, we completed so many walk-throughs that it was hard to identify what part went to what vehicle unless explicit instructions were given telling where the part should be delivered.

The NTC worked the supply and maintenance lines of communication to the fullest. During the force-on-force stages of the exercise, it was evident that battalion motor officers were looking not only for the status of the requisition and the depot or SSA that was shipping it but also for the mode of shipment, such as truck, boat, air, or FedEx. We had to look at the tracking programs on the Internet to find that information.

Tracking parts within the Army seemed like a gigantic task, but we were able to use the Internet to track the flow of documents through the supply system with relative ease. One of our best resources was the DLA website. We used the DSS requisitions system and WEBCATS to track all NTC documents in the system. For example, for document number W90X2G02005005, the computer would look into the system and pass back the following information—

DOC #: W90X2G02005005

DEPOT: San Joaquin, California, Army Depot

CARRIER: Small Parcel

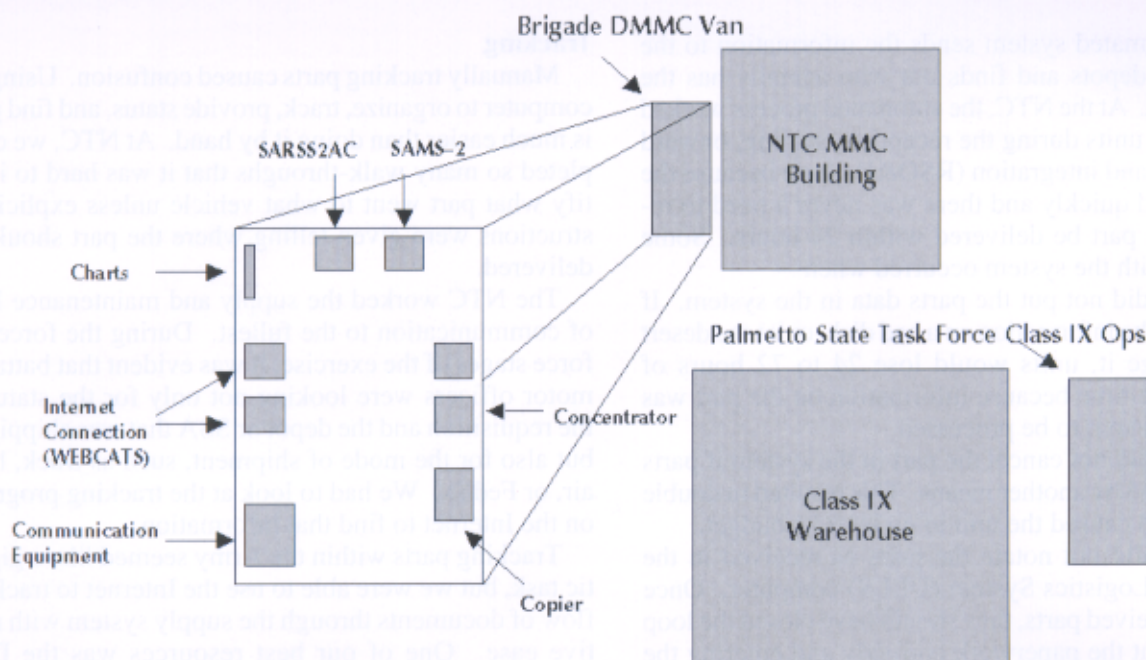
CARRIER COMPANY: Charter Truck Service

DATE SHIPPED: 17 July 00

Once we learned that the parts were released from the depots, we passed the information on to the units so they could conduct battlefield assessment and repair, cross-level the equipment (pull working parts from one inoperable tank to repair another inoperable tank), or prepare the equipment for repair once the part arrived.

Delivery

The final step in the process for the DMMC was to ensure that the delivery of parts from the warehouse to the brigade's main support battalion (MSB) was handled correctly. We had the help of the class IX section of the Palmetto State Task Force, which oversees all South Carolina National Guard units, and a portion of the trucking section of the MSB set up outside of the warehouse. Once the parts were pulled from the warehouse, the class IX section issued a manifest to identify what was to be delivered. The manifest was broken down by priority. Items with priorities 02 and 03 were the most important and went out as soon as they reached the trucking section. Priority 05 and 12 parts left on dedicated parts runs. The officer in charge and the noncommissioned officer in charge verified the shipments before the drivers took them to the forward support battalion (FSB),



□ The DMMC setup at the NTC.

where they were distributed to the field units.

We also had logistics air support available to deliver parts. These logbirds, as we called the aircraft, had a dedicated delivery schedule, and parts that usually took 2 to 3 hours to reach the field site arrived at the BSA in approximately 30 to 45 minutes.

Some lessons learned with delivery of parts included—

- Drivers need all of the prescribed mission equipment. For the desert environment, night-vision goggles; water; meals, ready-to-eat (MRE's); and a passenger were needed for missions to succeed. Soldiers without the proper equipment found out how unforgiving the desert can be.
- An automated manifesting system should be used. This would have made it easier to track parts coming from the warehouse. Using bar coding and tracking the parts "into the box" would have followed parts all the way down to the user level.
- The DMMC should have more command and control. The DMMC needed its own section to control parts delivery. The aviation liaison officer also needed to coordinate with the DMMC for aerial delivery to the BSA.

Schedules and Meetings

Keeping the DMMC on a regular schedule was very important throughout the entire rotation. During RSO&I, the deputy commander, brigade S4, FSB maintenance officer, DMMC representative, battalion motor officers, theater support representative, and NTC MMC officer met at 1000 hours daily to discuss all deadlines equip-

ment. The 026 report (Equipment Deadlined Over XX Days by Battalion Report) was the tool we used. The discussion focused on building combat power and preparing for deployment "into the box." It was rough going at first. Units had to learn that submitting the disks and going through all of the processes helped track vehicles and parts through the maintenance and supply systems.

During the force-on-force operations, the meetings were held at 1000 hours. It took me 2 hours to drive to the BSA site, so I backed my day up 2 hours. My schedule looked something like this—

- 0600—Arrive at DMMC van.
- 0605—Run new 026 report.
- 0620—Check status of requisitions using new information "blasted" from FSB.
- 0720—Check status of released parts (WEBCATS, DLA).
- 0800—Leave division area for BSA site.
- 0930—Arrive at BSA.
- 0940—Check with FSB maintenance officer on any changes.
- 1000—Attend meeting.
- 1130—Leave BSA for division support area.
- 1300—Arrive at division support area.
- 1330—Work issues for brigade to build combat power from the rear.
- 1600—Call BSA to find new issues that need division support.
- 1900—Work all remaining maintenance issues.
- 2000—0600—On call for any brigade issues.

This was a continuous cycle for the rotation, starting with RSO&I and ending when the 218th left the NTC. Two of the challenges we faced were getting to meetings and receiving timely information from the FSB. Attending the meetings at the BSA took 5½ to 6 hours each day. The DMMC therefore was in a virtual "black-out" period until we returned to the rear and worked the issues. We did not have a radio in our vehicle, so we tried to call back to the rear before we left, and if the small extension node (SEN) was working, we passed the information by secure e-mail.

If the DMMC did not receive a "blast" from the FSB before a meeting, we provided information that was 24 to 36 hours old. From the first day of force-on-force, we had problems with blasting. During RSO&I, the FSB was static, so they were able to hardwire into landlines and send information to us. Once they moved to the field, the SEN that the signal personnel set up fluctuated the entire time. For the first 3 days, we could not receive any information, making it impossible to provide accurate information to the units. During days 4 to 8, the SEN stayed steady and the FSB could send real-time data back to the division area. In turn, we were able to provide real-time information from the SSA's and depots to expedite the shipment of parts. These operations tied right into the heart of DMMC operations, which were the location, procurement, tracking, and delivery of parts.

Maintaining Data

To keep up with the information, I put together a continuity book that I took to every meeting. The sections of the book included—

- **026 report.** I kept the previous 026 reports to help me remember what "contracts" were made at previous meetings. I always kept an up-to-date 026 for the meetings.
- **Availability balance file.** This file listed what was in the class IX warehouse. Once I was at a meeting and I learned that a unit was looking for a part and knew its national stock number, I could look the part up and find out if the warehouse had it on hand.
- **Class IX manifest.** This report gave me the time, quantity, and priority of parts going to the FSB. I also could track a part coming from the warehouse. If the part was important to the brigade, I could let them know what time it left the warehouse, what truck it was on, and which driver had signed for the part.
- **Listing of parts hard to find in the system.** This was a listing of parts that the computer could not locate in the Army supply system. The list was given to the LAO, and it tried to find the parts.
- **Computer printout on parts coming from depots.** WEBCATS provided this information.

Interfacing with the NTC MMC

The NTC MMC is the link to the class IX warehouse, other SSA's, and other sources of parts procurement on post. MMC personnel run and control the main SSA and can assist with walk-throughs. MMC personnel also can assist in finding a part at alternate sites such as the cannibalization point or other SSA's on post. MMC personnel also look up documents in the system and re-establish requisition documents in the system if there is a problem. If the warehouse has the parts, MMC personnel make sure the parts are released that day.

The class IX warehouse is an area that must be visited regularly. Although the computer may say the part is on hand, sometimes discrepancies occur. I talked to the stock control section on a daily basis to ensure that parts were moving and stock was on hand. The challenge we saw in the warehouse was that it was run by ITT—a contractor. The warehouse was not open from 2300 to 0700 hours, so we had a blackout time every day for parts procurement. I made sure that we received all of the parts we needed during that day.

During my short stay at the NTC, I learned the following things to support a successful rotation—

- Appoint two to three personnel in the DMMC to go on the advanced party and set up the DMMC area.
- Interface with the class IX section, DMMC officers, and the procurement office.
- Ensure that communications are available using the Internet and the FSB SAMS-2 computer.
- Attend all meetings.
- Use all resources available to find the parts for the units.

I learned that the NTC is a logistics battle that is interrupted by a couple of maneuver battles and that the DMMC plays an integral part in winning that fight. The DMMC is the backbone of rear area supply and maintenance efforts in any operation. By locating, procuring, tracking, and delivering parts, maintenance becomes much easier to manage and the logistics battle much easier to fight.

ALOG

Captain Calyes L. Kynard II is the Deputy G4 Plans and Operations Officer for the 24th Infantry Division (Mechanized) at Fort Riley, Kansas. He is assigned to assist the active and reserve component integration program with maintenance support. He has a B.A. degree in marketing from the University of Toledo and is a graduate of the Infantry Officer Basic Course, the Ordnance Branch Qualifying Course, and the Combined Arms and Services Staff School.

Aviation Support at the NTC

by Major James R. Macklin, Jr.

By providing a variety of helicopter support services, the NTC Aviation Company helps ensure meaningful training experiences for units during their NTC rotations.

Providing general support, air assault, and opposing forces aviation support to the National Training Center (NTC) at Fort Irwin, California, is a diverse and complex mission. The NTC Aviation Company (Air Assault) is a part of the NTC Corps Support Battalion, which provides direct support and general support maintenance for more than 1,200 vehicles and 15,000 items of equipment at the NTC. It also maintains equipment



□ The Sokol helicopter replicates a Soviet helicopter and provides support for the NTC's opposing force.

for the NTC's tenant activities, such as the 11th Armored Cavalry Regiment (ACR) opposing force (OPFOR). Although it is located 40 miles from the NTC at Barstow-Daggett Airport, the NTC Aviation Company deploys an average of 6 aircraft a day during each of the 10 14-day brigade-level rotations held annually. This constant support results in an extremely high operating tempo (OPTEMPO) for the aviation company.

The NTC Aviation Company performs its mission with 22 aircraft: 5 visually modified JUH-1 Sokol helicopters, 8 UH-60A Black Hawk helicopters, and 9 UH-1H Iroquois helicopters. The company is task-organized into three platoons: OPFOR, air assault, and general support (VIP).

Birds of Prey

The smallest of the three platoons in the NTC Aviation Company, the OPFOR platoon has an Army-wide reputation for excellence. The OPFOR platoon's mission involves flying attack helicopters in one of the most demanding environments in the world. During the force-on-force portion of the rotation, the OPFOR platoon executes its mission nearly 24 hours a day. It is by far the most visible and feared presence on the battlefield. The Sokol aircraft, armed with multiple integrated laser engagement system (MILES) AT-5 missiles, 57-millimeter rockets, 30-millimeter cannon, and a 50-caliber machinegun, replicates the Soviet Mi-24E Hind attack helicopter threat. Sokol is the Russian word for bird of prey, and the Sokol helicopter lives up to its name.

Sokol crews routinely post impressive battle damage assessments using Soviet-style attack helicopter doctrine that has been modified for today's modern battlefield environment. Aggressive tactics and individual pilot skills make the Sokol birds of prey formidable adversaries on the NTC battlefield. The OPFOR aviation threat provided during the force-on-force segment of an NTC rotation helps rotational units improve their force protection and air defense.

"We Own the Night"

The air assault platoon's motto, "We Own the Night," comes to life during force-on-force operations, when over half of the platoon's missions are at night. The air assault platoon provides all nonattack tactical support to the 11th ACR OPFOR. In addition to flying air assaults, the platoon conducts both OPFOR reconnaissance insertions and counter-reconnaissance missions. Consisting of five Black Hawks, the air assault platoon is known for its multiship, night-vision-goggle air assault mission—code named "Task Force Angel." While the landing zones and pick-up zones may change,



□ Black Hawk helicopters provide air assault and opposing force reconnaissance support.

□ A soldier performs maintenance on a helicopter at Barstow-Daggett Airport.



the platoon's objective remains the same: Insert light infantry equipped with AT-5 antitank weapon systems behind the forward line of own troops—undetected.

The air assault platoon's success rates are the result of in-depth participation in an integrated planning process with the 11th ACR. This close operational relationship and the frequency of air assaults allow greater air-ground integration. The aircrews are extremely familiar with the NTC and all associated MILES components, which gives the NTC Aviation Company "Desert Hawks" the edge.

VIP Transportation

"World Class Training for the World's Best Army" is posted proudly at the entrance to the NTC. These words signify the importance of the NTC to the Army and its leadership. The general support (VIP) platoon routinely carries flag officers from Las Vegas, Nevada, and Ontario, California, to the NTC. In addition to transporting such notables as the Secretary of the Army, the Chief of Staff of the Army, and the Forces Command commander, the platoon carries the NTC commanding general and the commander of the Operations Group daily. In the last 2 years, the general support (VIP) platoon also has carried dignitaries from Kuwait, Mexico, and Saudi Arabia. This high-visibility, zero-defects mission is accomplished routinely to allow all visiting dignitaries to view and understand the tough training conditions at the NTC.

[Editor's note: Since this article was written, the NTC Aviation Company has reorganized and now has only

two platoons—OPFOR and air assault. These platoons picked up the VIP transportation mission that the general support (VIP) platoon once performed.]

Maintaining the Force

The NTC Aviation Company's 22 aircraft fly 3,607 hours annually. This OPTEMPO demands a high level of preventive maintenance and quick turnarounds. Desert operations present many unique maintenance challenges. The sand and dust are constant corrosive factors. When combined with helicopter downwash, most landings at the NTC are in brownout conditions. This means that engines, rotor blades, and windshields experience a significant amount of corrosion. Through an extremely aggressive and proactive inspection program, problem parts are identified and replaced, enabling the company to meet its demanding mission load.

The NTC Aviation Company has a tough and widely varied mission. The OPTEMPO and rotational schedule are the driving factors behind how the unit operates. Flying in one of the harshest environments for any aviation unit, the Desert Hawks contribute significantly month after month to the training of the force. **ALOG**

Major James R. Macklin, Jr., is attending the Army Command and General Staff College. An aviator, he was the National Training Center Aviation Company (Air Assault) commander in his last assignment.

Supporting an NTC Rotation

Providing a brigade-sized task force with the tools it needs to be successful on the battlefield is no easy task. But that is what the 64th Forward Support Battalion (FSB), 3d Brigade Combat Team (BCT), 4th Infantry Division (Mechanized) from Fort Carson, Colorado, did when it provided supplies to more than 4,000

soldiers for their rotation at the National Training Center (NTC) at Fort Irwin, California.

During the 3d BCT's rotation in September and October 2000, the 64th FSB issued approximately 100,000 gallons of fuel, 200,000 pounds of ice, and 40,000 gallons of water and completed almost 150 direct support maintenance jobs. Each day for 2 weeks, the 64th FSB supplied the soldiers with everything they needed, including food, fuel, water, ammunition, medical supplies, maintenance, vehicle recovery, and transportation support. Units picked up most supplies from the brigade support area (BSA), but certain supplies, such as fuel and ammunition, were picked up at a logistics release point outside the BSA.

Supplying fuel, ammunition, water, and food was not the 64th FSB's only mission during this NTC rotation. It also provided vehicle maintenance for the 3d BCT. Without its services, the brigade would have been unable to fix or move broken-down vehicles. In addition, the 64th FSB's Company B ensured that spare parts were requested properly and arrived at the BSA. Once the requested parts arrived, the units could pick them up and have their vehicles fixed and ready for battle again.

The medical company conducted the 64th FSB's third mission. The medical company helped with dental work, X rays, and ambulance service for casualty evacuation and provided other immediate medical care.

Although the 64th FSB was the main supplier for the brigade, it received support from the 704th Main Support Battalion and the 2nd Battalion, 4th Aviation Brigade, both of the 4th Infantry Division at Fort Hood, Texas, in meeting its mission requirements. **ALOG**

□ A 64th Forward Support Battalion soldier fuels a vehicle at the brigade support area's fuel point.



□ At left, a soldier places a part inside one of the unit boxes at the brigade support area. At right, a medical company noncommissioned officer checks a soldier's pulse during the NTC rotation.

APS-Afloat Ammunition Configuration Changes

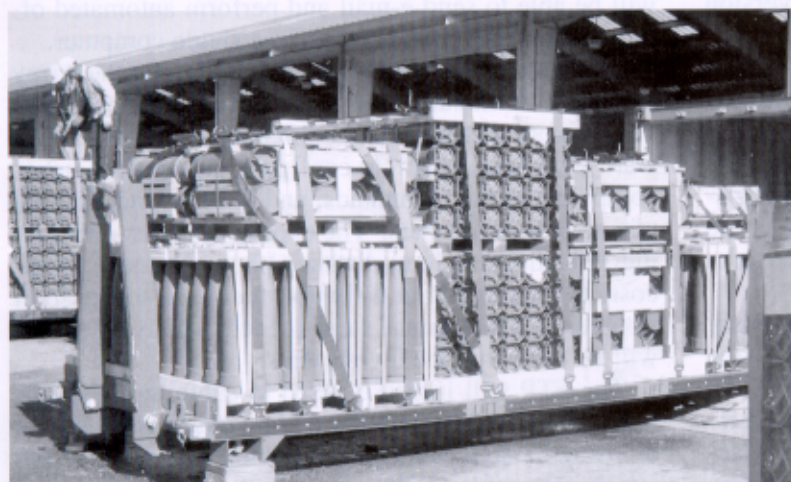
The Army Materiel Command's Operations Support Command is changing the way it stores ammunition for Army pre-positioned stocks (APS)-afloat. In the past, three lighterage aboard ship (LASH) vessels carried ammunition in a breakbulk barge configuration. Now, two modern containerships will carry ammunition in strategic configured loads that contain all the munitions needed by a deployed team, platoon, or company. Loads will support various armor, artillery, and aviation combat platforms.

As the ammunition is removed from the LASH vessels, it will be inspected, tested, maintained, and bar-coded with two-dimensional bar codes that contain information such as the national stock number, lot num-

ber, and serial number for the item. Once bar-coded, the ammunition will be loaded onto M1 flatracks or directly into climate controlled International Organization for Standardization (ISO) containers and placed on the two containerships, *MV John U. D. Page* and *MV Eddie Carter*.

The operation, which is being conducted at Military Ocean Terminal Sunny Point, North Carolina, began last November and should be completed by July. **ALOG**

The Army Logistician staff wishes to thank Daniel M. Carlson of the Operations Support Command Public Affairs Office for his contribution to this article.



□ At left, the strategic configured load has 192 complete rounds and some additional small arms ammunition for crew-served weapons on the Paladin self-propelled howitzer.



□ Above, an Operations Support Command worker applies bar codes to a strategic configured load before it is loaded onto a containership. Left, ammunition is being removed from the storage barges of the *SS Green Valley* at Military Ocean Terminal Sunny Point, North Carolina. The ammunition will be converted to strategic configured loads and placed inside cargo containers aboard a containership.



Improving Army Reserve Data Transfer

by Major Marvin E. Johnson and Captain Karen Scott

The U.S. Army Reserve Command (USARC) is working on a program that will help Army Reserve units improve the transfer of data in logistics Standard Army Management Information Systems (STAMIS). Data currently are transferred among the different logistics STAMIS by such antiquated means as manual data entry, transfer of floppy disks, and blocked asynchronous transmission (BLAST) through dial-up modems. The USARC solution is to use a file transfer protocol (FTP), a computer-to-computer connection that uses the Army Reserve Network (ARNET) to communicate among STAMIS. The FTP is reliable and up to 100 times faster than BLAST. It also will lay the communications foundation for the Global Combat Support System-Army (GCSS-Army) because setup and fielding of the FTP across the Army Reserve are tasks that will have to be accomplished in the conversion process.

Where the ARNET is available, the FTP will eliminate the dial-up, diskette, and e-mail requirements for data transfer. With the use of the FTP, the Army Reserve will be able to improve readiness, reduce the costs of data retransmission, reduce support costs, use logistics personnel more effectively, gain a quicker, more accurate view of asset availability, and reduce the turnaround time for completing logistics actions.

The FTP has been an unused capability within many of the logistics STAMIS. Although two STAMIS—the Standard Property Book System-Redesign (SPBS-R) and the Unit Level Logistics System-Aviation (ULLS-A)—currently do not have FTP capability, the contractor for USARC's Combat Service Support Automation Management Office (CSSAMO) was able to develop some rudimentary programming to use FTP capability in all STAMIS.

The CSSAMO contractor demonstrated the principle of the FTP in a controlled environment during USARC's Logistics Automation Conference in May 2000. USARC then organized an integrated process team that included personnel from the 70th Regional Support Command at Fort Lawton, Washington, the 99th Regional Support Command at Oakdale, Pennsylvania, and the USARC Office of the Deputy Chief of Staff for Logistics. This team developed the steps required for full testing of the FTP, from testing in a controlled environment to testing in a live environment to full implementation. A proof-of-principal (POP) test was conducted at the 70th Re-

gional Support Command, and the results exceeded the expected outcomes.

USARC incorporated the lessons learned in the POP test and developed an even more robust FTP platform that accommodates the STAMIS and office automation functions without impeding "go to war" functions. These new enhancements were evaluated during a live test at the 65th Regional Support Command at Fort Buchanan, Puerto Rico, and they met or exceeded all expectations.

Following this successful test, the Chief, Army Reserve, gave the go-ahead to field the FTP across USARC. Fielding has started at the 70th Regional Support Command and the 63d Regional Support Command at Los Alamitos, California. Successful fielding in each regional support command ultimately will allow the Army Reserve to greatly reduce the number of dedicated analog phone lines it uses because the logistics STAMIS will be connected to the ARNET. Once a command is fully connected, new capabilities can be leveraged to improve its logistics operations. Army Reserve customers will be able to access STAMIS data remotely, pull specific data from logistics STAMIS, provide data to all commanders from any computer, and consolidate data into a central data warehouse. The individual reservist will be able to send e-mail and perform automated office and logistics functions using a single computer.

The costs of integrating the FTP fully into the Army Reserve will include computer components, programming support to complete modification of STAMIS software, technical support to configure and set up logistics computers in the commands, and internal and external wiring of logistics sites. The expected returns—including reductions in long-distance phone charges, postal costs for mailing data diskettes, fuel used to transport floppies, and the manual steps needed to transmit data—will far outweigh the investments.

The FTP will increase speed in submitting requisitions, improve the reliability of data transmissions, and, by using modem connections, reduce the risks of cyber attack. Use of the FTP will meet the Chief of Staff of the Army's directive to "Train and Do" and prepare the Army Reserve for the introduction of GCSS-Army.

Major Marvin E. Johnson is a logistics staff officer at the U.S. Army Reserve Command at Fort McPherson, Georgia. A multifunctional logistician (90A), he is a graduate of the Quartermaster Officer Basic Course, Ordnance Officer Advanced Course, and the Army Command and General Staff College.

Captain Karen Scott is a logistics staff officer at the U.S. Army Reserve Command at Fort McPherson, Georgia. She is a graduate of the Transportation Officer Basic Course, the Combined Logistics Officer Advanced Course, and the Combined Arms and Services Staff School.

Revising Army Supply Manuals

by Chief Warrant Officer (W-3) Dirk J. Saar

It is no secret that the Army has volumes of supply-related regulations, pamphlets, and manuals. How, when, and by whom these publications are kept current or updated remains a mystery to most of us. I had an opportunity to participate with a group of Quartermaster warrant officers who helped the Army Quartermaster Center and School review and update several publications. Here is a look at the publication update process and how the warrant officers got involved.

Publication Update Process

The Deputy Chief of Staff for Logistics (DCSLOG) is the proponent for most publications related to logistics functions such as food service and supply operations. In this capacity, the Office of the DCSLOG (ODCSLOG) is responsible for reviewing all recommended changes and deciding if they should be included in the publication update process.

Publications are updated using the DCSLOG Publication Management System (DPMS). [For more information on DPMS, see "Keeping DCSLOG Forms Up to Date" in the July-August 2000 issue of *Army Logistician*.] There are essentially six players involved in this process—

- Originator: Anyone who recommends changes to a publication.
- Author: Someone who writes publications and changes to publications.
- Coordinator: Logistics Integration Agency (LIA).
- Reviewer: Army general staff members, major Army command (MACOM) representatives, and other agency representatives as needed.
- Approver: DCSLOG directorate responsible for the publication's subject content.
- Publisher: Army Publishing Agency.

Each publication is reviewed for possible revision every 3 years. This does not preclude submitting a suggestion whenever an error or a change that may improve a publication is discovered. When LIA receives an out-of-cycle change, it sends the suggestion to the author for review. The author reviews the suggestion to determine its validity and when it should be applied. The author then notifies LIA of whether the change should be implemented out-of-cycle or during the next

scheduled review.

Under the normal 3-year review cycle, LIA notifies the responsible author of the approach of a publication's review date. The author reviews the publication and any recommendations received and writes changes to the text in the publication. The author then provides a change package or revision to LIA. LIA forwards the change package or revision to the reviewer for coordination of the proposed changes. Once reviewed, the proposed changes and reviewer's comments are returned through LIA to the author for final review and input. The author returns the finalized package to LIA for submission to ODCSLOG for approval. After receiving final approval, LIA adds finishing touches and submits the approved change package to the Army Publishing Agency for publication.

A Publication Review Opportunity

The Supply Excellence Award (SEA) Division, Logistics Training Department, Army Quartermaster Center and School, at Fort Lee, Virginia, is responsible for reviewing supply publications. The SEA Division's primary mission—administering the SEA program—is conducted Armywide and requires a great deal of travel by division personnel. The vast amount of time spent in support of the SEA program does not leave a lot of time for other tasks, such as reviewing supply manuals. However, when the review time for an Army publication approaches, someone must conduct the review. To remedy this dilemma, Chief Warrant Officer (W-4) Jeff Brehmer and Chief Warrant Officer (W-3) Paul Hodson from the Warrant Officer Division suggested that senior warrant officers attending the Quartermaster Warrant Officer Advanced Course (WOAC) conduct the reviews.

WOAC prepares chief warrant officers (W-3) for battalion- and brigade-level positions. In order to develop staff skills, WOAC presents students with a variety of real-world problems. The students must research the problems and develop workable solutions for them. Having WOAC students review the publications would meet the goals of the course and accomplish the task of reviewing publications. This approach had never been tried before, but it made sense because experienced Quartermaster warrant officers are well suited to review

Army supply and service manuals. The idea was presented to the Logistics Training Department Director and was approved.

WOAC 001-00 Gets Organized

On 9 September 2000, 51 senior warrant officers met at Fort Lee to attend the Quartermaster WOAC 001-00. The class was given the task of reviewing and, if necessary, revising four Army publications dealing with subjects ranging from supply and food service to rigger operations. The WOAC class had 8 weeks to complete its part of the review process.

Since the class had students from four military occupational specialties, four working groups were established with a group leader for each group. Two groups that were too large divided into eight-member teams that were controlled by team leaders. Once the groups and teams were established, they were assigned an Army publication to review. As illustrated below, the two large groups were divided into teams. The publications for which they were responsible were broken down by chapter, and chapters were assigned to teams for review.

To succeed, everyone involved in a project must understand its purpose and intent. It also is important for participants to be aware of the parameters within which they are to achieve their assigned tasks. Ensuring that the WOAC students understood the purpose and intent of the project was the responsibility of the course director, who served as the facilitator and ensured that students remained focused on their tasks. The purpose, simply put, was to provide products that accurately reflect how the Army conducts supply, airdrop, and food

service operations. The intent was to ensure that changes, if needed, occurred within the parameters of current Army policy. This did not mean that suggesting changes to policy was not permitted or was discouraged, but, because changing policy is a complex and lengthy process, it was not the primary focus.

To ensure that the project stayed on target, the class established milestones, identified dates for in-process reviews (IPR's), and published a corresponding schedule. By placing significant events on the training calendar, the class underscored the importance of the endeavor. A schedule that clearly identified significant events helped ensure that the groups remained on target to accomplish the tasks.

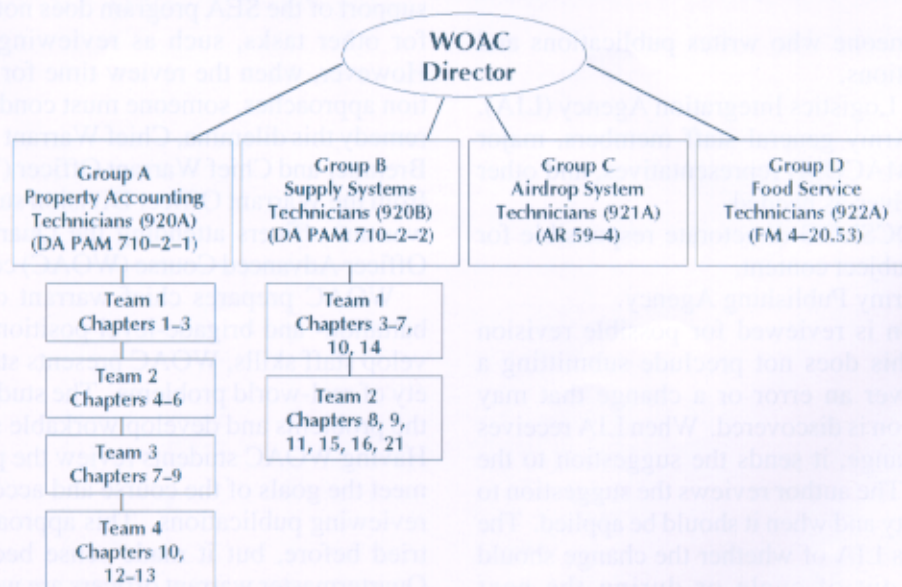
Conducting the Reviews

The students started work on the project by reviewing Army pamphlets and comparing them to governing regulations; these publications go hand-in-hand. It is important to note that Army regulations set forth Army doctrine and policy, while Army pamphlets provide implementation procedures. If conflicts between the two are identified, the regulation takes precedence.

Once initial reviews were complete, the students checked all references cited in the pamphlets against Department of the Army Pamphlet (DA Pam) 25-30, Consolidated Index of Army Publications and Blank Forms, to ensure they were current. Each team member was responsible for a chapter or section of the publication his group was reviewing. This meant that they had to coordinate with each other to resolve any conflicts.

If changes were needed in the governing regulations,

Task Organization Warrant Officer Advanced Course (WOAC) Class 001-00



Research/Briefing Schedule (Sample)

DATE	TIME	REMARKS
27 September	1600–1700	Brief Milestone #1 In-Process Review (IPR)
1 October	2000	Submit team slides to group leaders for brief on 3 October 00
2 October	1700	Turn in DA Forms 2028
3 October	1600–1700	Brief Milestone #2 IPR
10 October	1600–1700	920A class discussions
16 October	1500–1700	920A class discussions
18 October	2000	Submit team slides to group leaders for brief on 20 October 00
19 October	1530–1700	Research (group leaders' discussions with LIA/ODCSLOG); Turn in DA Forms 2028
20 October	1500–1700	Brief Milestone #3 All group/team leaders' members brief
25 October	1500–1700	Submit team slides to group leaders for brief on 27 October 00
26 October	1700	Turn in DA Forms 2028
27 October	1500–1700	Brief Milestone #4 IPR
30–31 October, 6 November	1500–1700	Research time
7 November	2000	Submit team slides to group leaders for brief on 9 November 00
8 November	1700	Turn in last DA Forms 2028
9 November	1500–1700	Brief Milestone #5 IPR
14 November	1000–1200 1300–1500	Team briefing rehearsals
15 November	0800–1200 1300–1700	Team briefings: All group/team leaders' members brief

team members had to prepare a cover memorandum explaining the changes, attach a DA Form 2028, Recommended Changes to Publications and Blank Forms, and submit it through their team and group leaders to the SEA Division for action. Although recommending changes to Army regulations was not the focus of the project, the reviewers recommended changes they deemed necessary.

Students documented all of these efforts and discussed them with the entire class in an open forum and during IPR's. Each team recorded their recommended changes, chapter by chapter, on 3½-inch disks that were sent to LIA. Group leaders prepared briefing charts and passed them on to their team leaders. The team leaders completed the slides and kept them current for milestone IPR briefings.

Whenever the teams reached a milestone, the team leaders conducted an IPR for representatives from DCSLOG, LIA, the SEA Division, and the Warrant Officer Division to discuss progress and concerns and to receive further guidance on how to proceed. These IPR's were excellent tools and essential to ending the project successfully. The fact that key people attended the IPR's added a sense of urgency and underscored the importance of the project. The capstone event for the project was the final briefing on 15 November 2000, during which every member of WOAC class 001-00 briefed their findings and recommendations to senior officer-level personnel from DCSLOG and LIA.

The benefits of this publication review project were threefold. It made possible the timely review of DA Pams 710-2-1, Using Unit Supply System (Manual Procedures), and 710-2-2, Supply Support Activity Sup-

ply System: Manual Procedures; Field Manual 4-20.53, Dining Facility Operations; and Army Regulation 59-4, Joint Airdrop Inspection Records, Malfunction Investigations, and Activity Reporting. It provided an opportunity for experienced soldiers who work with these publications daily to improve them and make them better reflect current operating procedures. Finally, the endeavor served as an excellent training opportunity. The Active Army, Army National Guard, and Army Reserve warrant officers in WOAC class 001-00 worked together to change supply publications to ensure that they meet the needs of all users. The teamwork displayed during this project exemplifies the fact that the Army National Guard and Army Reserve are essential parts of the Army and vital to its success on the battlefield.

Chief Warrant Officer (W-3) Dirk J. Saar is Chief of the Supply Branch, Supply and Services Division, Directorate of Logistics, 22d Area Support Group in Vicenza, Italy. He holds an M.S. degree in business administration from the University of Central Texas and is a graduate of the Quartermaster Warrant Officer Advanced Course.

The author would like to thank Lieutenant Colonel James C. Bates, Chief Warrant Officer (W-4) Jeffrey T. Brehmer, Chief Warrant Officer (W-4) Rex Hendricks, Chief Warrant Officer (W-3) Paul W. Hodson, and the members of Quartermaster Warrant Officer Advanced Course class 001-00 for their contributions to this article.

Logistics Staff Ride to Tunisia

by Major Thomas D. Little

Logistics officers visit the site of the final World War II battle for North Africa during a staff ride to Tunisia.

Area Support Team-Livorno (AST-L) is located at Camp Darby, on the west coast of Italy near the port city of Livorno and the city of Pisa. AST-L, a battalion-sized logistics command, is part of the 22d Area Support Group (ASG) located in Vicenza, Italy. The mission of AST-L is to provide a logistics platform for U.S. forces in the Mediterranean, the Balkans, and North Africa. The logisticians assigned to AST-L perform their wartime mission daily by supporting U.S. and NATO forces that are conducting contingency and peacekeeping missions throughout the Mediterranean and North Africa.

Despite the fast tempo of life at Camp Darby, the AST commander decided that the officers needed to take 4 days away from their jobs for some important professional development in the form of a staff ride. Participating in a staff ride to study a battlefield or mili-

tary campaign is part of Army officer professional development. For officers stationed in Europe, there are many opportunities to visit nearby World War II battlefields. Few officers, however, get the opportunity to visit a World War II battlefield in North Africa.

Operation Torch

In February 2000, the officers of AST-L visited North Africa for a logistics staff ride to Tunisia to study the final phase of Operation Torch. The objective of U.S. and British troops in Operation Torch, which began in November 1942, was to land in Morocco, link up with free French forces, and advance over land to Tunisia, which is wedged between Algeria and Libya in North Africa, directly below Italy (see map on page 32). In Tunisia, the Allies planned to meet British forces moving west from Egypt and Libya and defeat the German and Italian forces. Under the command of Field Marshal Erwin Rommel, the German Afrika Korps controlled North Africa. The Allies needed to use North Africa as a logistics base for an eventual attack on Italy and southern Europe.

Contrary to what many people may think, the terrain of North Africa is not all desert. There is a narrow strip of hilly and fertile land in the north, along the Mediterranean coast; the impassable Sahara desert begins south of Tunis, the capital of Tunisia. The only way the Allies could move was along the narrow northern coast. This presented an enormous logistics challenge, which is what the AST-L officers planned to investigate and study.

Objectives and Preparations

The logistics staff ride had two objectives. The first was to study the logistics of Operation Torch, focusing on the final months of the campaign that ended in northern Tunisia in May



□ Chaplain (Captain) Chuck Wood (center) uses a map drawn in the sand on the beach in Bizerte to show the AST officers how the Allies used the terrain to their tactical and logistics advantage.



□ The author uses the tile mosaic at the North Africa American Cemetery and Memorial to explain the Allied logistics movements during Operation Torch.

1943. The second objective was to build unit cohesion and camaraderie, while exposing junior officers to an area of the world in which they may have to conduct logistics operations someday.

The staff ride was conducted in two phases. In the first phase, which was completed at Camp Darby, the AST-L commander presented intense training on the entire Operation Torch campaign. The training included an overview of the logistics perspectives of conducting an operation on North African terrain, a map exercise to familiarize the officers with the terrain they would encounter, and classes on Arab culture and some basic Arabic words and phrases. The officers were assigned several books to read in preparation for the staff ride. The second phase was the actual visit to Tunisia.

Day 1: Arrival in Tunisia

The AST-L officers arrived in Tunis after a short flight from Rome. After clearing customs, the group boarded a bus and went to the U.S. Embassy in downtown Tunis. At the embassy, the Defense Attaché provided a current country brief and explained his role as attaché. The group then received the mandatory force protection briefing from the State Department security officer. Because there was a high threat level, the officers wore civilian clothes during the entire staff ride.

Since the AST-L commander was the only officer in the group who had ever lived in the Middle East, he took the officers on a walking tour of downtown Tunis. He showed them the *souks* (markets) and other cultural sights and pointed out the area of the city that the British had captured during the southern flanking move during the final days of Operation Torch.

The Tunisian Army provided a liaison officer to accompany the AST-L officers during the trip. The liaison officer, Major Mohammed, was not only a logistician but also quite a history buff. He had studied Operation Torch at the university in Tunis, and, throughout the staff ride, he gave the group a unique perspective of the campaign from the Tunisian point of view. He showed the officers battle locations and logistics points off the beaten track that were not in history books. Major Mohammed also showed the officers how the logistics supply routes have not changed much over the past 50 years because of the terrain constraints. This allowed the AST-L officers to view the battlefields in almost the same condition, logistically, as they had been in 1942 and 1943.

Day 2: Northern Tunisia

After a Tunisian breakfast, the officers boarded a chartered bus and headed north out of Tunis. Some officers were assigned to role-play the key Operation Torch players, such as General Dwight D. Eisenhower, Major General George S. Patton, Jr., and Field Marshall Rommel. Officers not role-playing parts were each assigned a certain area of the battlefield on which to give a 30-minute class on that area's logistics importance.

The first stop was the town of Mateur, located about 40 miles northeast of Tunis. Mateur was the site of the final Allied push to control North Africa. At Mateur, the U.S. II Corps, under the command of General Patton, used concentrated armor power successfully to punch through the German defenses. Mateur was also an important highway and rail junction; control of the town cut off important Afrika Korps logistics links.

The group then moved on to the town of Menzel Bourghiba, known as Ferryville during World War II. (After the war and Tunisian independence from France, the town was renamed in honor of Tunisia's first president.) At Ferryville, the Afrika Korps set up a strong defensive position in a last-ditch effort to save the port city of Bizerte, which was their last logistics base and their port for evacuating to Italy. The Allied armor was too much for the Afrika Korps, and Ferryville fell after intense fighting, leaving Bizerte wide open.

The group next turned north to Bizerte, which is the northernmost city in Africa. Bizerte was the final city in North Africa to fall to the Allies and was the final battlefield of Operation Torch. When Bizerte fell on 15 May 1943, all German and Italian opposition in North Africa ceased. The Allies had gained a very important logistics platform from which to launch the invasions of Sicily and Italy.

The AST-L officers also learned how their home installation, Camp Darby, was built as a result of Operation Torch and the fall of Tunisia. Shortly after the suc-



□ Tunisia is located due south of Italy in northern Africa between Algeria and Libya. The staff ride took place on the northern coast of the country.

successful Allied landing at Anzio, Italy, the U.S. Army built Camp Darby and used it as a logistics platform for operations in northern Italy and the Alps. Camp Darby is still one of the U.S. Army's most important logistics platforms south of the Alps.

Day 3: Tunis and Carthage

Day 3 began with a short drive to the city of Carthage, just outside of Tunis. Carthage was a major power in the Mediterranean over 2,000 years ago and fought the Punic Wars with Rome. Carthage also is the site of the only U.S. military cemetery in Africa, the North Africa American Cemetery and Memorial, which is administered by the American Battle Monuments Commission. There are 2,841 U.S. military service members, including 240 unknowns, buried in the cemetery—most of whom were killed during Operation Torch in Morocco, Algeria, northern Tunisia, and in the skies over North Africa. Also located in the 27-acre cemetery are the Tablets of the Missing. The marble tablets contain the names of 3,724 men and women whose remains were never identified or who were lost at sea. The officers received a briefing on Operation Torch from the cemetery director and then took a tour of the graves. The visit was an emotional event.

After visiting the cemetery, the officers walked over to the city of Carthage to spend some time exploring the ancient ruins. From a hill in Carthage, the officers were able to see the Cap Bon Peninsula—the site of the final Afrika Korps resistance in the Tunis area.

Day 4: After-Action Review and Return to Italy

On the final day of the staff ride, the officers gathered over breakfast to review the logistics lessons learned from the staff ride and conduct an after-action review.

The AST-L officers boarded the flight back to Rome that afternoon with the knowledge that they had just completed a unique and rewarding mission. They had completed a first-class logistics staff ride on the actual battlefields of a World War II campaign and, as a result, would become better logisticians. The staff ride also had increased unit camaraderie and cohesion.

The exposure to Arab and North African culture was a tremendous benefit to the staff ride participants, both personally and professionally. Captain Kirsten Meskill, the AST-L S3, stated, "As a result of this staff ride, I am a better logistician and better officer overall. I intend to continue studying North Africa and hope to someday conduct my own staff ride to Tunisia for other junior officers who work for me." All of the AST-L officers echoed her positive comments and agreed that the staff ride was a complete success. **ALOG**

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The CONUS Land Bridge: A Panama Canal Alternative

by Darlene F. DeAngelo

The railroad network across the continental United States (CONUS) offers a strategic alternative to the canal across Panama.

On 1 January 2000, ownership of the Panama Canal passed from the United States to the Government of Panama. The Panama Canal Treaty of 1977, which provided for this transition, included provisions that permit the United States to intervene militarily if there are disruptions to canal service. Since the initial proposal was made to transfer the canal to Panama, there has been much discussion about the effect of the transfer, if any, on U.S. military strategic mobility. Now that a year has passed since the change in ownership, this seems to be a good time to consider possible alternatives to using the Panama Canal.

It must be recognized that the capabilities of the canal, as constructed, are limited because larger vessels cannot traverse it. This can constrain naval fleet movements, because aircraft carriers and some other naval vessels are too large for the canal. It also can hinder the shipping industry, where, for economic reasons, the worldwide trend is to construct increasingly larger tankers and container-carrying vessels. Because the majority of military supplies transported by sea will move on these larger vessels that the Panama Canal no longer can accommodate, an improved method of interocean transport that does not depend on the canal should be developed.

The most obvious solutions would appear to be either upgrading the Panama Canal's capabilities or constructing a new canal at another site that can handle larger vessels. There have been discussions about three potential alternative canal routes, in Colombia, Mexico, and Nicaragua. The Colombian and Mexican routes would allow for the construction of a sea-level canal, while the Nicaraguan route, like the Panama Canal, would require a lock system. A sea-level canal is obviously the most desirable alternative since it would eliminate the need for locks and their associated natural resource and construction costs. (As an example of the

natural resource costs of a non-sea-level canal with locks, each ship crossing the Panama Canal requires 52 million gallons of fresh water to pass through the canal's locks.)

While an alternative canal could be constructed to accommodate large modern ships, it could prove to be only a temporary fix since ship sizes might continue to increase. The cost of either upgrading the Panama Canal or constructing a new canal also could prove prohibitive. In addition, any new canal would be subject to the same vulnerabilities as the current one. Because it would be located in non-U.S. territory, a new or upgraded canal would be subject to volatile local political disruptions and would be a relatively easy target for sabotage or aerial attack.

For these reasons, it is desirable to develop, insofar as possible, a transoceanic transport capability that is located entirely within the continental United States (CONUS). To transport petroleum and other liquid products, there are existing pipelines within CONUS that span the continent. However, their capacity to support wartime transcontinental transport requirements is uncertain. Pipeline capabilities should be studied in future strategic planning to determine what additional pipeline construction, if any, might be required to attain the necessary capacity.

It also would be prudent to develop outside CONUS (OCONUS) pipeline capabilities at other locations, where transcontinental distances would be less daunting. Potential OCONUS pipeline locations could include Costa Rica, Guatemala, and the Chiapas-Tabasco region of Mexico. These would be in addition to the existing Trans-Panama pipeline located outside the old Canal Zone near the Costa Rican border. While OCONUS pipelines would be more vulnerable to operational disruptions than those in CONUS, the redundant pipeline capability they would offer is highly desirable. It can

□ The S.S. *Ancon* was the first vessel to transit the newly completed Panama Canal in August 1914. (Photo courtesy of Panama Canal Authority.)



be assumed that at least a part of the OCONUS capability would continue to be available to the United States during a contingency.

However, pipelines, in any location, will not support the transoceanic movement of dry cargo. The best strategic alternative to the Panama Canal is a land transcontinental transport capability totally within CONUS. The elements of this capability already exist, in an underdeveloped manner, within the CONUS railroad system. This system is commonly referred to as the "land bridge."

The land bridge supports the movement of cargo containers that satisfy International Organization for Standardization (ISO) criteria from vessels in one ocean to vessels in another ocean using overland transport by rail, normally on specially designed railcars. (Standard container sizes are 8 feet wide and 8½ feet high, with lengths in 20-foot increments. Lengths of 20 feet and 40 feet are the norm.) This ocean-to-ocean traffic is referred to as the full, or "maxi," land bridge. Variations of this concept (referred to as "mini" or "micro" land bridges) are the movement of cargo by rail from one water port for loading aboard a vessel at another water port (mini bridge), or the movement of cargo between an inland point and a water port (micro bridge).

The concept of a land bridge is not new. The current Hutchison Whampoa operation in Panama is, in effect, a land bridge. (Hutchison Whampoa Ltd. is a giant Hong Kong-based shipping company. Panama's contract with Hutchison Whampoa does not involve the company in canal operations. The contract calls for the company to unload cargo from vessels too large to traverse the canal, forward the cargo across the isthmus by land transport, and reload the cargo on vessels on the opposite coast of the isthmus.) Land-bridge operations exist in all industrialized countries, including the United States.

However, neither the concept nor the operations have been fully developed. The CONUS land bridge has been used for many years to transport containers moving from the Orient to Europe and vice versa. For example, in the early 1980's, American President Lines (APL), an ocean carrier, entered into long-term contracts with various U.S. railroads. These contracts provided for the railroads to accept APL containers, in 20-foot equivalent units, from APL vessels at Pacific ports and transport the containers in special cars to Atlantic ports for reloading on vessels bound for Europe. APL found that this method of transport saved approximately 2 weeks over the all-water route through the Panama Canal. Similarly, a study by Boeing concluded that moving a 10,000-pound shipment with a density of 10 pounds per cubic foot from Kobe, Japan, to Rotterdam, The Netherlands, via the Seattle-to-New York land bridge would decrease transit time by 9 days compared to shipping through the Panama Canal.

When compared to all-water routes, land-bridge traffic is fuel efficient, lowers environmental pollution, reduces traffic congestion, and shortens transit times (although currently the cost may be a bit higher). Since virtually all dry cargo shipments entering ocean traffic now move in ISO containers, it is clear that land-bridge traffic is here to stay.

Containers can be loaded on railroad flatcars, but most railroads, for economic reasons, are turning to specially designed "double-stacked" trains of permanently coupled cars. Double-stacked container transcontinental train routes are increasing dramatically. This alternative to the Panama Canal can be developed further to better support military logistics requirements in both peace and war. While the CONUS land bridge (as part of the existing transcontinental rail network) was used



□ A modern containership enters one of the canal's locks. Note the tight fit compared to the Ancon 87 years ago. (Photo courtesy of Panama Canal Authority.)

to some extent during Operation Desert Storm, its full capabilities were not exploited. As it stands, the land bridge can handle both commercial and military traffic, but not in a manner that would satisfy priority military requirements in a logistics-limited "just in time" inventory environment.

What is needed are specific procedures and firm agreements with rail carriers. The land bridge, to be effective in a military emergency, must have the capability of dedicating a transcontinental track route to military movements. This would not preclude the use of transcontinental tracks for commercial traffic during non-emergency periods. The military, for their part, must develop a fleet of container-capable railcars that can be added to the land-bridge system when and where required. This fleet can be composed of leased commercial cars, military-owned cars, or, when practical, an entire double-stack container train.

Land-bridge transit times probably can be reduced by 50 percent or more if intermediate stops can be minimized and train schedules rigidly followed. Achieving this reduction will require effective coordination among military elements, participating railroads, and entry and exit seaports. Inland CONUS points of entry where container traffic can best interface with the land bridge must be identified. These points of entry must be able to accommodate the positioning of heavy equipment designed to rapidly load and unload full containers weighing up to 20 tons from railcars and motor vehicles. They also must have adequate space for stacking and holding full containers awaiting transport and spur tracks for holding container railcars awaiting locomotive power. Maximum train-and-track capacities must be established, and track and equipment maintenance requirements must be scheduled. Logistics planners must consider land-bridge

traffic requirements in war and contingency plans. These improvements in land-bridge military usage can be achieved at relatively low costs, especially when compared with the cost of upgrading the Panama Canal or constructing an alternative canal.

In adopting the land bridge as an alternative to the Panama Canal, we will eliminate the vulnerabilities that are so evident in relying on the canal as a logistics avenue. The track and equipment of the land bridge are located entirely within CONUS, so there will be no threat from local non-U.S. populations. If tracks or equipment are damaged or destroyed by misadventure or sabotage, other tracks and equipment are readily available. The efficient use of the land bridge will reduce transit times significantly compared to those encountered by traffic through the Panama Canal. Finally, use of the land bridge in times of military emergency will result in less interference with normal commercial traffic on CONUS roadways and Panama Canal sea routes.

ALOG

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Money and Logistics: The Critical Determinants in How We Fight a War

by Dr. Burton Wright III

What determines how a war is fought? Strategy and tactics would be the logical answer, of course. But what determines strategy and tactics? The answer is logistics. A war cannot be fought without ammunition, replacement weapons, and subsistence for the armed forces. History reveals the truth about the dominant nature of logistics.

Supporting a Standing Army

Louis XIV of France was one leader who learned the hard facts about the effects of logistics on war. When Louis became king in 1643, he inherited a united kingdom that was generally well financed. However, to field the type of army he would need to make France a great power and bring himself personal glory, Louis needed far more money. At that time, large armies were rarely fielded because of their great expense. France was one of the first nations to develop a modern industrial system that could supply the money needed to purchase and transport the sinews of war.

France's Minister of Finance, Jean Baptiste Colbert, provided Louis with funds to create a standing army of nearly 250,000 men. They were well equipped and well trained, thanks to the work of the Minister of War, the Marquis de Louvois, and Inspector General Jacques Martinet. The state enlisted soldiers for its army, paid, trained, and fed them, and hired contract agents to provide logistics support in the field.

Eventually, it became difficult for France to financially support her army in the field. Louis was able to defray some of the expense of keeping soldiers in the field by getting the territories his army occupied outside of France to help pay for their own occupation by developing magazines to supply his units. The magazines were used to stock the two vital necessities—food and fodder. Without these two items, his army could not move or exercise strategic initiatives. The concept of “an army marches on its stomach” was as true for Louis XIV as it later was for Napoleon Bonaparte.

Mercantilism

France's navy was even more expensive to operate than her army, so Louis was forced to look for less expensive ways to wage war. Colbert helped to provide Louis with a bountiful war chest by implementing his concept of mercantilism. Mercantilism was based on the premise that national wealth and power were best served by increasing exports and collecting precious metals in return. However, mercantilism also had limits—limits the British intended to exploit with their superior navy. To guard against British naval forces, the French moved from major fleet confrontations to “guerre de course” (or commerce-raiding), whereby combat ships and privateers licensed by France attacked only commercial vessels. This change in strategy did not mean that the French were outclassed—far from it. French fleets were equal in design and gun power to the English and the Dutch. The decision was based primarily on logistics and money or, rather, the lack thereof.

Positional Warfare

Louis was forced by both poverty and geography to resort to positional warfare. Although initially expensive, construction of fortresses was cheaper in the long run. Fortresses did not require large armies or protracted campaigns in the field costing millions of livres. (A livre was equal to a pound of silver.)

France's enemies used fortifications, too, but not to cut costs. Rather, they used fortifications to protect themselves from the French army, which tended to be successful in open battle.

Sieges were among the most expensive military operations, especially when the French conducted them. In his book, *The Wars of Louis XIV, 1667-1714*, John A. Lynn writes—

The amount of stores necessary for a major siege was staggering. Saint-Remy calculated that an army involved in a major siege would require 3,300,000 rations for the troops involved and



□ Louis XIV in Majesty, 1701, by H. Rigaud.

730,000 forage rations for the horses in a forty-day period. Such a theoretical force would also require 40,000 24-pound shot and an equal number of grenades, in addition to 944,000 pounds of gunpowder. This says nothing of the mountains of other supplies necessary for the work. Sieges conducted by Vauban's principles required so many troops and were so expensive that the French rarely conduct more than one at a time.

Battling with England over several decades nearly bankrupted France. The English, with millions of pounds of trade through their huge overseas empire stoking the furnace, could keep large fleets and armies on the continent. England emerged as the strongest nation in Europe. This was a position that Louis had wanted for France, but he was not able to obtain it because he did not have enough money to keep forces in the field.

In the final series of battles involving England's Duke of Marlborough, the once-powerful army of Louis XIV was reduced greatly in size and power, and often was

outnumbered by the armies of the English-led coalition that included Prussia, Austria, Holland, and others.

Money Talks

The Duke of Marlborough also had something that the French could not match, and it was not soldiers or weapons. It was money. In obtaining food and fodder for his army, Marlborough had the luxury of taking money with him and using it to contract with locals for the supplies he needed. Whereas the French could not pay for their supplies and often had to take what they needed from peasants, the English could pay for their support and, as a result, could count on locals for support. Money talked then as it does now. When the French forced the locals to provide support, the locals sometimes retaliated by attacking French columns. During one campaign in Germany in 1704, the French lost nearly 2,000 men in the area of the Black Forest to attacks by locals angered by the foraging French forces.

Sustaining even foraging forces in the field strained an already-depleted French treasury. The wars of Louis XIV finally came to an end not because of decisive battles, but because there were no sources of revenue and insufficient logistics to keep armies in the field.

Louis brought France to the brink of economic collapse with his incessant wars. France no longer had the food and consumer goods to sustain its people while supporting the military. Support for the once-popular King waned.

We as a nation always must be mindful of the fact that freedom is not cheap. Maintaining a powerful military force is a very necessary expense and must be continued. This is important today because the world is a more perilous place than it was at the height of the Cold War.

The United States cannot keep a military force it needs in the field without two pillars—the support of its people and an economy that can provide both consumer goods and military hardware. Louis attempted to do both and failed. We must not.

ALOG

Dr. Burton Wright III is the command historian at the Army Chemical School at Fort Leonard Wood, Missouri. He is a retired Army lieutenant colonel who graduated from the Infantry Officer Basic and Advanced Courses, the Armor Officer Advanced Course, the Army Command and General Staff College, and the Industrial College of the Armed Forces. He has a Ph.D. in modern European history from Florida State University.

Multinational Logistics

by Lieutenant Colonel Michael C. Mauldin, USA (Ret.)

I found Joseph R. Bainbridge's commentary, "Toward a Multinational Future," in the September-October 2000 issue of *Army Logistician* most interesting. In his commentary, Mr. Bainbridge announced the Army Logistics Management College's (ALMC's) intent to develop a multinational logistics course. Perhaps my experience with the North Atlantic Treaty Organization (NATO) in Allied Command Europe will be beneficial to ALMC course developers.

I believe any schoolhouse that sticks to doctrine alone will grossly misrepresent the true state of multinational logistics in NATO. While some multinational logistics concepts, such as "role specialization" and "lead nation," do work in practice, any similarity between NATO's multinational logistics policies and doctrine and what actually happens when military forces deploy under NATO command is almost coincidental. The old NATO logistics mantra, "Logistics is a national responsibility," continues in effect despite new doctrinal changes that promise otherwise. NATO logisticians must constantly rise above multinational resource shortfalls and national constraints to get the job done.

ALMC should profit from a lesson learned by logisticians with NATO's Headquarters (HQ) Land Forces Central Europe. They had been trained to NATO policy and doctrine in NATO exercises. But when they applied this training to logistics planning for the Kosovo Force (KFOR), much of it did not work as intended when they arrived in theater.

At the strategic level, NATO logistics planning lacks agility to support the "out-of-area" contingency operations on which NATO has staked its future. NATO theater logistics structure is driven by what the Nations are willing to provide rather than what is required or efficient. A nation eager to provide an infantry battalion may not be able to spare a movement control team when it is time to resource a deployed multinational logistics structure. NATO logisticians must accept and take into account that NATO is a defensive alliance, among 19 sovereign nations, built on political consensus—not military efficiency. In all NATO operations to date, national considerations have defeated the implementation of every plan to create a rational logistics structure. NATO logistics tends to "grow" toward a multinational ideal instead.

NATO's rapidly deployable Combined Joint Task

Force (CJTF) HQ will give more substance to NATO's multinational logistics doctrine. However, NATO members are reluctant to loosen NATO's purse strings to secure its own multinational support assets for contingency operations or to contract for much support in advance. Additionally, old attitudes that logistics planning at the tactical level is always someone else's responsibility make the provision of multinational logistics necessary to rapidly deploy, establish, and sustain the multinational CJTF HQ uncertain.

A NATO logistician's tasks will vary widely depending on whether he is working in his assigned "peacetime establishment" (PE) position or temporarily deployed in a "contingency establishment" position. Much of NATO's PE logistics structure is focused on standardization and infrastructure within its borders rather than on multinational logistics operations. This means the deployed NATO logistician may have to fall back on skills learned before his NATO assignment and adapt them to the situation in theater. NATO's structural shortage of logisticians and ongoing operations means an individual will likely have a 4- to 6-month unaccompanied deployment at least once during a normal 3-year tour.

Army logisticians should know that while NATO PE positions are often overgraded, what a job might lack in responsibility will be made up for by the need for maturity to work effectively in a multicultural environment. Good "people skills," a little less national hubris, and salesmanship are essential. NATO's operational language is English, but an American familiar with another European language is appreciated. Patience with some European peers and their English is a virtue. Army logisticians are prized in NATO headquarters for their "can do" attitude and initiative. Characteristically, they will be expected to lead because they are among the most experienced logisticians in the organization.

Army logisticians should study The North Atlantic Treaty, NATO Summit Initiatives such as the Defense Capabilities Initiative, and NATO Military Committee (MC) decisions such as MC 319/1, NATO Principles and Policies for Logistics. An understanding of NATO structure and organizations and NATO logistics agencies and committees would be helpful. NATO logistics doctrine and policies—such as Allied Joint Publication 4, Allied Joint Logistics Doctrine, and the NATO Lo-

gistics Handbook—and U.S. joint doctrine should be reviewed as well.

However, as far as NATO is concerned, ALMC should teach multinational logistics as it really operates. Mr. Bainbridge's article gives every indication that this is ALMC's intent. Students should study current NATO logistics operations in Bosnia and Kosovo. U.S. logisticians with recent NATO experience should be invited to address and interact with the students. The students should discover what actually works, how it works, and maybe why it works.

Finally, I recommend that ALMC course developers and *Army Logistician* readers read the article by Major

General William N. Farnen, USA (Ret.), "Ad Hoc Logistics in Bosnia," published in the Autumn/Winter 1999-2000 edition of *Joint Forces Quarterly*.

Lieutenant Colonel Michael C. Mauldin, USA (Ret.), is a senior logistics analyst with Logistics, Engineering, and Environmental Support Services, Inc. He is a graduate of the Infantry Officer Basic and Advanced Courses, the Army Command and General Staff College, the Industrial College of the Armed Forces, the North Atlantic Treaty Organization (NATO) Logistics Course, the NATO Staff Officers Course, and the NATO Defense College.

Commentary

Ultrareliability: A Goal for the Army

by Charles Lee Holmes

Without some in-depth thought about what pursuing ultrareliability as a vital piece of the future really means—what the actual requirement or product is—the effort is reduced to a practice of psittacism that will diminish any future returns on the Army's investment toward its acquisition. [*Psittacism is "acting like a parrot; automatic speech without thought of the meaning of the words spoken."*—Editor]

The Army's effort to obtain the desired future is a lengthy and resource-expensive process that is in the capable hands of the same players who have been responsible for the Army's success: the combat, materiel, and training developers. Both individually and collectively, they are responsible for effectively employing traditional and nontraditional means of developing and delivering functionality and capability that are "quantum leaps" ahead of legacy forces and that are acquired at an optimized return on the Army's investment of resources while maintaining desired levels of readiness.

The combat developer has coined the term "ultrareliability" to identify the quantum leaps in system reliability needed to improve virtually all facets of the future force, including reducing the logistics footprint. Evolving Army concepts and doctrine demand a higher level of dependability from the systems available to a commander to conduct a directed mission. However, a problem associated with achieving that higher level of dependability, especially for legacy systems, is the size

of the Army's logistics footprint. The knee-jerk response to "shaping," or reducing, the logistics footprint is to point at the existing level of system reliability and declare that it is not adequate.

The Combat Service Support (CSS) Battle Laboratory at Fort Lee, Virginia, identified ultrareliability as a pillar of the Army After Next (AAN) effort designed to ". . . reduce the logistic footprint, increase reliability, increase capability, [and] increase maintainability . . ." in support of the vision for future forces. According to Ultrareliability, The Army After Next Project—

Reliabilities needed in 2025 will be much higher than those of current conventional systems. Increased operational tempo, greatly expanded distances, and the remote self-reliant nature of the Battle Force drive the need for much higher reliability characteristics in weapons and equipment of the AAN. Major changes in the culture and policy are needed to achieve AAN needs for ultrareliable weapons and equipment.

Therein lies the sophistry of the existing concept of ultrareliability and its perceived relationship with the mode of future operations and required levels of functionality. Suggesting that system reliability can be augmented by adding the prefix "ultra" denies the credibility of the science of reliability and gives the Army's own efforts in the area of reliability a black eye. Much like the Holy Grail of legend, ultrareliability exists only

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in the minds and whispered conversations of the ones charged with manning the actual quest for its acquisition, the CSS Battle Laboratory. And like the Holy Grail of legend, ultrareliability is never to be had, but there is logic in pursuing it. In the end, the pursuit itself avails new knowledge and expanded capability.

The Army's reliability engineers (now called combat development engineers) have a long history of ensuring that soldier-prescribed mission needs are met by developing reliability requirements that attempt to optimize system performance and maintainability. Typically, all Army systems meet reliability requirements at rates in the upper 90 percentiles. Using these established reliability requirements as a baseline, it is normal to assume that ultrareliability consists mainly of obtaining the remaining 5 to 9.9 percentage points of reliability. However, without a "generational leap" in technology, it is not practical economically to pursue those remaining few percentage points of system reliability.

Advocates of ultrareliability have attempted to qualify and "sell" the concept by comparing the level of desired performance of Army systems with the level of performance of common, everyday items such as a television set. An article in *Army Logistician*, "Ultrareliability: Pillar of the AAN" by Richard W. Price (September-October 1999), used the levels of known reliability and maintainability associated with today's version of the television and compared it to a set from the 1960's—

In the 1960's, home visits by the TV repairman were frequent. Operational defects were numerous and varied, and problems like vertical picture rolling were common. However, today's younger viewers have never seen a television with that problem. In fact, it is not uncommon for a television today to last 20 years without needing service or repair.

Comparing a television set from the 1960's to what is available today does not present an honest measure of the advances in system reliabilities. Pitting early vacuum tube technology against available digital technology, with their relative reliability and maintainability, is like racing an old plow mule against the space shuttle. The result of a generational leap in technology, today's television sets have unbelievably high inherent levels of performance; when replacement is considered, it is not a matter of past failure modes but a factor of the fluctuating whims and wealth of the consumer. After giving consideration to the influence of the consumer, the real driver of technology is industry competition and company profit margins—which differ from the Army's impetus to pursue technological advances.

The Army lives and dies by the process of defining

mission-accomplishing needs. These needs, in turn, are the basis for determining system requirements. Success for the Army rests squarely on the shoulders of system performance within strictly defined mission constraints. Increasing system performance is at the heart of the AAN ultrareliability pillar. The desired ultrareliability "effect" is a level of performance at which a system or a system of systems, without combat damage, experiences no mission failure during a defined length of operation. As an example, a division fights battles and engagements. Battles generally last between 2 and 7 days, and engagements generally last between 24 and 48 hours. These peak periods of operation, tied to a reshaped logistics footprint, would require a raised level of functionality resulting from an obtainable "ultrareliability effect." This ultrareliability effect is demonstrated by the example of squeezing a balloon at its respective ends, sustainability and reliability, with the result being a failure-free performance "bulge" in the middle. That bulge is the ability of a system to last during a prescribed period of operation, or what can be called "perdurability."

The word *perdurability* describes the capability of being very durable, of continuing to last. The Army developers must have access to a combination of systems and processes designed to deliver into the hands of the soldier a weapon system that is very durable—that is, a system built to last during a defined peak mission, where any failure mode outside of combat damage is undesirable.

Making *perdurability* a measurable requirement is possible. Within the combination of reliability (to include up-front probabilistic engineering design, static and dynamic reliability models, establishment of measures of system effectiveness, and extensive statistical analysis of existing system performance and test data—all establishing a system's inherent life performance parameters), maintainability, and the ongoing Revolution in Military Logistics are the means of determining the bounds of a system's *perdurability*.

The key to obtaining ultrareliability or *perdurability* can be had by optimizing the Army's in-place methodologies and blurring the distinctions between the respective Army developers and their responsibilities to result in establishing and delivering higher levels of system and force performance capabilities.

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