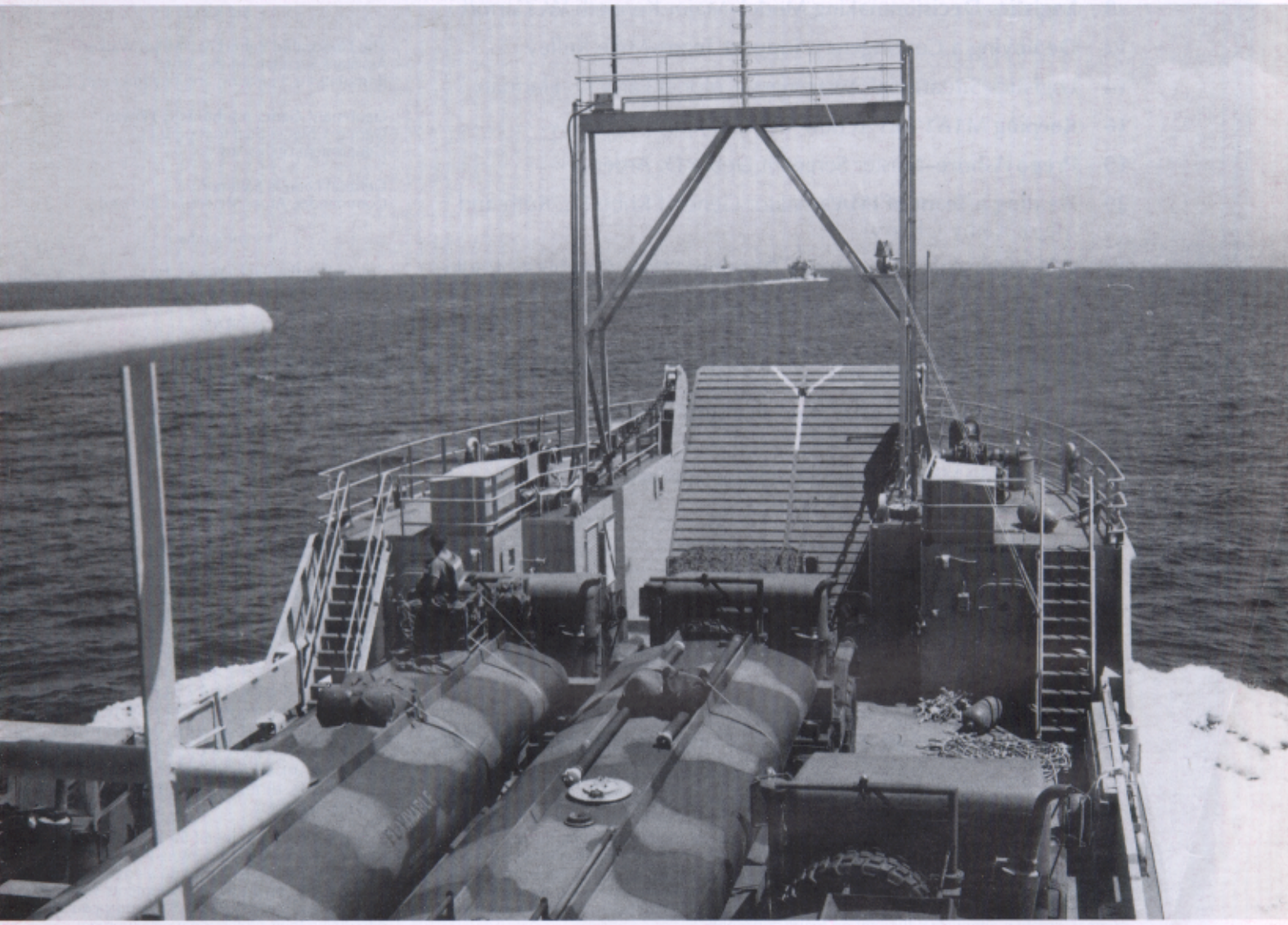
ARMY LOGISTICIAN

Reader Survey Results page 40

JANUARY-FEBRUARY 1996



Logistics Support in Haiti

Also in this issue—

- Joint Bare Base Development
- CSS Automation in a Heavy Division
- Reengineering Maintenance Management
- Battlefield Distribution

PB 700-96-1, Headquarters, Department of the Army

ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

PB 700-96-1
JANUARY-FEBRUARY 1996

ARTICLES

DEPARTMENTS

COVER

Last October, the Army and the Nation observed the first anniversary of Operation Uphold Democracy, an ongoing military operation other than war in Haiti. Logistics is playing a major role in that operation's success. The story begins on page 24. The cover photo depicts the scene one sees looking over the bow of an Army utility landing craft carrying fuel tankers toward Port-au-Prince. One begins to glimpse an outline of the island of Hispaniola emerging from the sea on the far horizon.

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

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

Submissions: Material on all facets of logistics is solicited. Direct communication is authorized and should be addressed to: EDITOR ARMY LOGISTICIAN, ALMC, 12301 A AVENUE, FT LEE VA 23801-6044. Phone numbers are: DSN 687-6400 or (804) 734-6400; FAX, DSN 687-6401 or (804) 734-6401; e-mail—tspeight@almc-lee.army.mil. Manuscripts should be accompanied by a 3.5- or 5.25-inch disk in ASCII or IBM-compatible word processing system. Materials may be reprinted with credit to *Army Logistician* and the author(s), except when copyright is indicated.

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

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

Yvonne M. Harrison

YVONNE M. HARRISON
Administrative Assistant
to the Secretary of the Army
00951

Coming in Future Issues—

- Logistics for the New NATO
- Light Infantry Convoy Operations
- Objective Supply Capability
- Do You Have a Contracting Support Plan?
- Beyond Synchronization
- Planning Combat Health Support
- 'Smart Card' Passes Test
- Strategic Mobility
- Pareto Principle
- From Sea to Shore
- Strategic Sealift
- Sealift Capacity and Logistics Readiness
- Line Replaceable Units
- Modern ASL Management Tools
- 'Where's My Stuff?'
- Redeploying an MSB
- Split Base Operations

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OFFICIAL BUSINESS

SECOND-CLASS MAIL
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ALOG DIGEST

SPECIAL INTEREST ITEMS IDENTIFIED

The Office of the Deputy Chief of Staff for Logistics (DCSLOG) has identified the special interest items for review in fiscal year 1996. The Logistics Integration Agency (formed by merging the former Strategic Logistics Agency and Logistics Evaluation Agency) Command Logistics Review Team-Expanded (CLRT-X) will visit active Army, Army National Guard, and Army Reserve activities to conduct assessments and provide assistance on these special interest items. Special interest items are high visibility issues for the DCSLOG that may impact current and future logistics support to the soldier. The CLRT-X findings are provided to the DCSLOG and his staff and form the basis for identifying improvements to total Army logistics effectiveness. The CLRT-X will conduct an assessment of the following specific functions—

- Command issues. Systemic problems and logistics concerns that could have an Army-wide impact will be identified during site visits through interviews with key logistics managers and leaders.
- Small arms repair parts management. The team will determine if the site is complying with directives and security guidance in managing small arms repair parts, shop stocks and bench stocks, small arms parts at the organization level, and demilitarization of small arms parts.
- Supply support activity management. The CLRT-X will assess accuracy and effectiveness of supply support activities in managing the authorized stockage list and the timeliness in processing materiel returns and receipts.
- Munitions accountability and reporting. The objective is to determine if units and ammunition supply points properly account for ammunition, accurately report on munitions, and correctly maintain records of all transactions.
- Property accountability and reporting. The team will determine if reconciliations are being performed between property books and supply support activities; validate property book posting accuracy; determine timeliness of receipt transaction processing; determine if continuing balance system-expanded (CBS-X) reporting is conducted properly; and determine if users are trained adequately in standard property book system-redesign operations.
- Unique item tracking. This effort will verify the accuracy of automated and manual property books and stock record accounts for serial-numbered tracked items.
- Operational readiness float asset management. The objective will be to determine how these assets are accounted for, if usage is in accordance with AR 750-1 and captured in the standard Army maintenance system, and the maintenance condition of the assets.
- Frequency and thoroughness of preventive maintenance checks and services of M17- and M40-series protective masks.
- Frequency and accuracy of chemical agent alarm (M8A1) radioactive source wipe testing.
- Effectiveness of management and evaluation of the command supply discipline program.
- Petroleum equipment readiness.
- Unit supply discipline. The objectives are to evaluate supply management procedures, evaluate the effectiveness of the standard Army management information systems (STAMIS), assess regulatory compliance for the prescribed load list, and identify possible improvements in unit supply discipline.
- Combat service support automation management office functions and STAMIS sustainment training. The team will determine if effective and standardized guidance and training are being provided for field units.
- Management of specialized repair activities. The objective will be to determine the number of programs, their effectiveness, and customer satisfaction.
- Army defense utility energy reporting system data entry system accuracy. The team will verify that data are accurately reported and recorded.
- Identification, authorization, and accountability of automation equipment. The team will make sure equipment is safeguarded and that property book accounting is correct.
- Unit level logistics system usage data reporting. This effort will be directed at verifying accuracy of data input and reporting.

The Logistics Integration Agency will notify major commands or activities approximately 30 days before a scheduled visit. An evaluation plan will be developed to describe specific areas to be assessed during the visit.

CARDLOCK FUELING NETWORKS REDUCE COSTS AND LIABILITIES

Installation commanders may want to consider commercial cardlock fueling networks as alternatives to operating fuel facilities, storing bulk fuel in mobile or underground tanks, and issuing Government credit

cards for fuel purchases. The cardlock system shifts operating responsibilities, expenses, and liabilities to private businesses or state or local governments.

The cardlock system involves issuing point-of-sale cards or keys and personal identification numbers (PIN's) that will allow Army personnel to dispense fuel. The commercial fueling outlets that participate in the program electronically record all transactions and can produce itemized reports on amounts of fuel purchased, fueling locations, and taxes paid. Limits can be established on fuel grades, dollar or volume per car or per day, and fuel points to be used.

Due to more stringent environmental regulations, the costs and liabilities of managing and operating fuel storage and dispensing systems are increasing. The cardlock system would eliminate the need for such facilities. In addition, manpower requirements would be reduced for installations.

Primary candidates for cardlock systems are small activities with no access to bulk storage and dispensing facilities, activities that store fuel in tanker vehicles, and activities that have small or outdated underground storage tanks. Most activities must conduct a cost analysis to determine cost effectiveness of the cardlock system. Requests for cardlock system participation must be sent through the activity's major command to the Army Petroleum Center for evaluation and endorsement. The Defense Fuel Supply Center will conduct market research and provide contracting functions for establishing cardlock operations as appropriate.

For more information, contact the Army Petroleum Center at (717) 770-5873 or -7258; DSN 977-5873 or -7258; or e-mail satpc-l@ncad-emh3.army.mil.

TOBYHANNA TO DEVELOP 'FEAST' CONCEPT

Tobyhanna Army Depot, Pennsylvania, has been designated by the Army Communications–Electronics Command (CECOM), Fort Monmouth, New Jersey, as the system designer and integrator of a forced entry air-droppable satellite terminal (FEAST).

Currently available Army satellite equipment is not sturdy enough to withstand airdrop into a theater of operations, a problem that surfaced during Operation Restore Hope in Somalia. The Production Engineering Directorate at Tobyhanna has been tasked to design a multiple-channel system that can absorb the shock and vibration that the equipment would experience in an 800-foot drop to the ground from a C-141 or C-130 aircraft. A multiple-channel system is needed by an initially deploying airborne assault force to provide the communications that are critical in the first hours of an operation.

The XVIII Airborne Corps, Fort Bragg, North Carolina, will be the recipient of the first system. The 82d Airborne Division, along with the 35th Signal Brigade, also at Fort Bragg, CECOM, and the Army Battle Command Battle Lab at Fort Gordon, Georgia, are collaborating with Tobyhanna in the development of the system. The Logistics Support Activity Packaging, Storage, and Containerization Center's Engineering and Laboratory Division at Tobyhanna will provide shock and vibration equipment for testing of the prototype.

EYE-PROTECTION SYSTEMS PREVENT INJURIES

The Army has completed type classification of the B-LPS and SPECS, two eye-protection products designed to prevent eye injuries and blindness. The Army Surgeon General estimated that minor and catastrophic eye injuries amount to approximately $160 per year for each active-duty soldier. Approximately $144 per soldier could be saved with the use of eye protection. The B-LPS and SPECS offer protection against environmental conditions as well as lasers and ballistics.

The B-LPS are designed to accommodate prescription lenses. The SPECS are for use by soldiers who do not wear glasses. Both systems are constructed of polycarbonate, a strong, lightweight, and versatile material. Both daylight and low-light versions are available.

More than 95 percent of the soldiers who tested the glasses found them comfortable, stylish, and effective. The U.S. Army is the first in the world to provide integrated eye protection for front-line soldiers.

Wearing eye protection during training exercises as well as in routine operations can prevent eye injuries.

DEPOT WASTE DISPOSAL SAFE, ECONOMICAL

Red River Army Depot, Texarkana, Texas, has devised a new way to dispose of blasting media and other hazardous waste and has secured regulatory approval from the state of Texas to continue its use as a valid disposal method.

Working with the Army Industrial Operations Command's Pollution Prevention Centers of Technical Excellence Program, depot personnel discovered a way to treat waste that significantly reduces its hazardous properties by stabilizing it. Stabilization involves adding certain materials that "fix" the waste's most hazardous constituents in their least toxic form and then "harden" (or immobilize) the chemically fixated components. The fixation and hardening of the hazardous waste components greatly reduces their potential for leaching when buried.

The depot uses a number of processes that generate hazardous waste that requires treatment and disposal. Materials such as garnet, steel shot, walnut hulls, and glass and plastic beads are fired under pressure at combat vehicles to remove paint. The depot also uses power washers to clean oily, greasy engines and parts. Still other military parts are cleaned with steam or by immersing them in chemical-filled vats.

Since January 1994, Red River Army Depot has had a contractor periodically come to the depot in a mobile unit to treat the waste onsite. The contractor adds various amounts of ferrous sulfate, sodium sulfide, cement kiln dust, fly ash, and water to the waste. The mixture is agitated at varying speeds until cadmium becomes cadmium sulfide, lead becomes lead sulfide, and hexavalent chromium changes to its trivalent form. The waste is then poured into covered roll-off containers and transported to Red River's landfill for disposal. The chemical fixation and hardening of the waste prevents hazardous metals from leaching into the surrounding environment.

Over 3 million pounds of waste have been properly treated and disposed of in the depot landfill. Since January 1994, the onsite treatment process has resulted in savings estimated at nearly $2.5 million. Another benefit to Red River Army Depot has been the elimination of the liability associated with shipping the waste off site for treatment and disposal.

MOS RECLASSIFICATIONS AVAILABLE

The U.S. Total Army Personnel Command (PERSCOM), Alexandria, Virginia, has listed approximately 250 military occupational specialties (MOS's) that either need more soldiers (in calls) or are overstrength

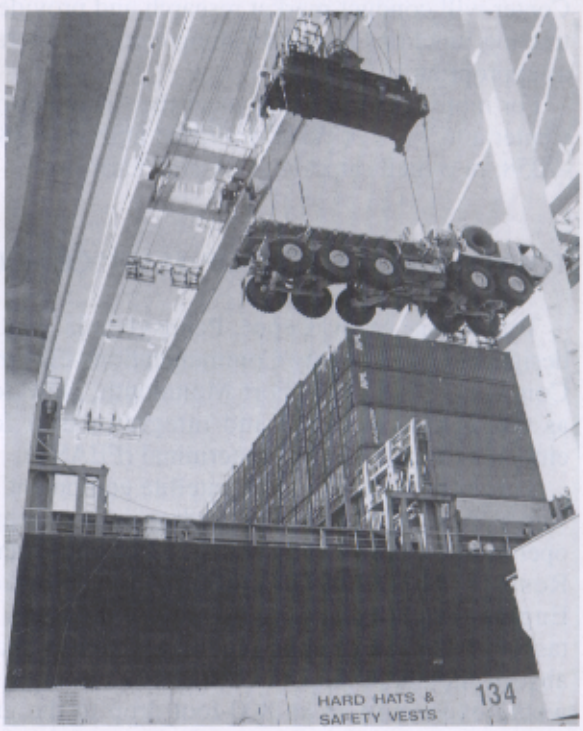
CONTAINERIZATION TESTED IN EXERCISE

The effectiveness of containerization, intermodalism, and intransit visibility was tested during the U.S. Transportation Command's exercise Turbo Intermodal Surge 1995. Roll-on-roll-off ships are not always available to divisions that are deployed, so the exercise tested the use of containerships for moving combat forces to locations where they are needed in a contingency.

Industry and military personnel worked together to containerize the equipment of the 3d Battalion, 29th Field Artillery, at Fort Carson, Colorado. The mechanized artillery battalion's equipment included 49 tracked vehicles, 133 wheeled vehicles, and other mission-essential equipment.

At Fort Carson, vehicles and other equipment were loaded in containers and on flatracks that were then loaded onto railcars. Two trains—one loaded with oversized equipment and the other loaded with containers and flatracks—traveled to the Port of Oakland in California. At Oakland, the 1302d Major Port Command, American President Lines, and Sea-Land unloaded the equipment from the train and loaded it on the *President Adams*. The equipment was then offloaded back on the trains for the return trip to Colorado.

Turbo Intermodal Surge 1995 proved that the military can work with commercial activities to effectively use containerization to move forces.



A palletized load system truck is lowered into the hold of the *President Adams* at the Port of Oakland, California.

and are allowing reclassification to other specialties (out calls). The lists are updated frequently and are available from personnel offices or retention NCO's.

Soldiers whose specialties are overstrength can apply for reclassification or, if they are in their reenlistment window, may "re-up" for training in a new specialty. Generally, soldiers must be in overpopulated specialties to reclassify and can switch only to shorthanded specialties.

Specialties not listed on the in- or out-call lists are considered balanced, and soldiers generally are not allowed to leave or enter those specialties. However, exceptions are sometimes made to help fill certain specialties or assist soldiers needing a career boost—

- Soldiers with the rank of specialist and below who are within 1 year of their expiration of term of service (ETS) in balanced or overpopulated specialties can request reenlistment for retraining into related specialties.
- Soldiers at the rank of staff sergeant and higher with specialties on the out-call list can change to shorthanded or balanced MOS's.
- Because of a shortage of executive administrative assistants (MOS 71C), administrative specialists (MOS 71L) at the rank of specialist can request reclassification to 71C.
- Specialists and corporals with 600 or more promotion points and sergeants with 700 or more promotion points who are in balanced specialties can request a change to shorthanded specialties if MOS training is available. Soldiers within 3 years of the maximum service for their rank (the retention control point) are urged to apply.
- Soldiers facing mandatory medical reclassification may request three MOS's, either shorthanded or balanced.

Soldiers should consult their personnel advisors to determine the career opportunities of their specialties and whether to stay or switch.

In all cases, soldiers must meet training and MOS eligibility requirements.

RED TEAM REDUCES ACQUISITION LEAD TIME

The Army Materiel Command (AMC) set goals for its major subordinate commands (MSC's) to institute across-the-board reductions in acquisition lead times in fiscal year (FY) 1995. The Army Communications-Electronics Command (CECOM), Fort Monmouth, New Jersey, exceeded its lead-time reduction goal. AMC set the goals to meet the challenge the Secretary of Defense made to his agencies in implementing Executive Order 12931 on acquisition reforms to reduce cycle times.

AMC established a lead-time reduction process action team to lead its efforts; in turn, CECOM formed, in April 1995, a lead-time reduction Red Team to streamline its acquisition process by minimizing administrative lead time (ALT) and production lead time (PLT). The team pursued and instituted strategies to reduce existing and future lead times, ensure data base accuracy, and ensure that all information on lead time activity is complete.

The Red Team is a multifunctional, integrated product team made up of motivated, innovative volunteers with technical expertise in different areas. A team-initiated action is to hold weapon system reviews with item managers that focus on data base and acquisition strategy analyses. Forty-six weapon systems have been reviewed thus far. The team also developed an on-line lead-time tracking system and a lead-time reduction bulletin board to provide the latest reduction status and guidance to the work force.

Acquisition strategies initiated as a result of the Red Team's creative thinking include—

- Using packaged buys and multiyear flexible contracts that allow for indefinite delivery and indefinite quantity ranges, with minimum and maximum quantities.
- Delegating ordering authority to inventory managers.
- Using direct vendor delivery.
- Using flexible computer integrated manufacturing, which is an alternate supply source that provides in-house capabilities for reverse engineering and includes on-line drawings, specifications, and other data.
- Developing acquisition requirements packages.

These strategies, reviews, and actions resulted in a reduction of 102 days of lead-time since December 1994. A 1-day reduction of ALT saves $1.6 million, and 1-day reduction of PLT saves $1.7 million. The team has introduced several other reduction initiatives, such as eliminating pre-production first-article tests (FAT's); minimizing initial production FAT's; reducing tests and inspections to minimums; and analyzing "driver" systems for best possible PLT reductions.

CECOM spokesperson Helen Roche said, "Through the cooperative efforts of the CECOM work force and the Red Team's initiatives, the command exceeded AMC's FY '95 reduction goal. There is still more work to be done, but the strategies initiated and implemented by the lead-time reduction Red Team will ensure cost effectiveness at CECOM and increase efficiency in serving the soldier."

ALOG EMPHASIS

TRADOC NAMED CHANGE AGENT

The Army Training and Doctrine Command (TRADOC), Fort Monroe, Virginia, was recently designated a reinvention center by Secretary of the Army Togo West. The designation gives TRADOC more power to create the Army of the 21st century—Force XXI. "Reinvention center authority provides us an opportunity to change the way we change by eliminating barriers," said General William W. Hartzog, TRADOC commander. Among the "barriers" are outmoded regulations. As a reinvention center, TRADOC will have the authority to waive most Army and Department of Defense regulations, except those that affect individual rights, threaten equal opportunity, or are based on Federal law. Four reinvention laboratories will be led by TRADOC deputy chiefs of staff for training, doctrine, combat developments, and base operations support. The labs will take informed risks where appropriate, cut red tape, listen to customers, empower employees, and get back to basics to implement TRADOC's Strategic Plan 1995.

ID CARD MAY GET COMPUTER CHIP

The Combat Service Support (CSS) Battle Lab, Fort Lee, Virginia, is currently evaluating a new identification card that contains a computer chip for storing soldier information. The soldier readiness card can hold personal information needed for a deployment, including a soldier's financial, medical, and personnel files. The Department of Defense has ordered a 2-year evaluation and test period for the card that includes using it as a meal card, flight manifest credential, and weapons distribution identifier. Some other ways in which the card may eventually be used include managing prisoners, maintaining vehicle registration and maintenance records, updating equipment inventories, and supporting humanitarian missions and refugee relief efforts. For more information, call the CSS Battle Lab at (804) 734-0012.

PALADIN, NOT ABRAMS

The vehicle in the photo on page 5 of the November-December 1995 issue is actually an M109A2 self-propelled howitzer, which evolved into the M109A6 Paladin. We erroneously identified the vehicle as an M1 tank in the photo caption.

(Continued on page 46)

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I certify that the statements made above by me are correct and complete: Terry R. Speights, Editor, 26 September 1995.

ALOG EMPHASIS

(Continued from page 1)

FORT STEWART OPENS NEW RMA

The new 24th Infantry Division (Mechanized) rail marshaling area (RMA) at Fort Stewart, Georgia, is equipped to deploy the tracked vehicles of three or four battalions simultaneously. The old RMA could deploy only one battalion at a time. The 400-foot by 2,500-foot facility features improved lighting that allows 24-hour movements. Concrete hardstand areas permit all-weather operation and eliminate the need to rewash vehicles once they reach the Port of Savannah. The new area is located away from buildings and motor pools to relieve traffic congestion in those areas created by movement of vehicles to the marshaling area. The remote location of the new facility also eliminates the need to obtain waivers before loading vehicles carrying ammunition onto rail cars. The original RMA will be used to load vehicles without ammunition, and the original staging area will be used to store containers and MILVAN's that accompany the division on deployments.

HOT WEATHER BDU IMPROVED

The enhanced hot weather battledress uniform (EHWBDU) is now available in Army military clothing stores in a wide range of sizes. The improved BDU looks better and is more durable. The EHWBDU is made of 50 percent nylon and 50 percent cotton ripstop poplin instead of 100 percent cotton ripstop poplin. Other changes include fused collar and pocket tabs, removal of bellows on one side of the lower pocket, removal of waist tab, waist suppressed 3 inches, and removal of knee pleats. The uniform is expected to last 12 months instead of 8. The price of the EHWBDU is a bit higher than the previous version. The coat costs $27.70 and the trouser is $24.55. Caps, which will be available in July, are $6.60. The Army approved a mix and match wear of the old and new BDU shirts, trousers, and caps. The Army Support Office will notify authorized requisitioners when the EHWBDU becomes available for requisitioning through the supply system.

PUBLICATIONS AVAILABLE

The National Technical Information Service, a self-supporting agency within the Department of Commerce, provides public access to many military publications. The *Consolidated Index of Army Publications and Blank Forms,* an index to available Army, Navy, and Air Force publications, may be ordered on CD-ROM for $65 plus handling (order number PB93-592551) or on microfiche for $17.50 plus handling (order number PB94-910801). The *Navy Stock List of Publications* is available on microfiche for $15.00 plus handling (order number PB93-940602). The *Numerical Index of Standard and Recurring Air Force Publications* is available on paper for $19.50 plus handling (order number PB95-939801). To order, call (703) 487-4684.

PLANNING AIDS DISTRIBUTED

The Army Combined Arms Support Command (CASCOM), Fort Lee, Virginia, has released version 1.30 of the supply usage requirements estimator (SURE) and the operations logistics planner (OPLOGPLN) computer programs. Both programs can quickly calculate individual unit- or user-identified task force supply estimates. Each program contains the latest approved information on tables of organization and equipment (TOE) and supply consumption rates. OPLOGPLN 96 has several program enhancements and a quicker calculation speed than previous versions. OPLOGPLN is a compiled, stand-alone program that functions without the use of commercial software. Users of SURE, however, must possess a copy of Lotus 1-2-3 to run the program. Because of this additional software requirement, version 1.30 of SURE will be the last version produced. OPLOGPLN will continue to be updated and distributed to users. For more information, call CASCOM at DSN 539-0668 or commercial (804) 765-0668.

LEARN TO MANAGE SHELF-LIFE ITEMS

The Defense Logistics Agency (DLA) Operations Support Office (DOSO) is offering shelf-life item management classes at the Defense General Supply Center (DGSC), Richmond, Virginia. The training includes hands-on computer instruction on how to reduce disposal costs using DLA's M-204 program. The training will also provide Department of Defense policy information on how to properly manage shelf-life materiel. Tentative 1996 training dates at DGSC are 5-6 March, 4-5 June, and 4-5 September. DOSO will also conduct classes onsite at installations requesting training. Call Gilbert Ruffin on (804) 279-5224 or DSN 695-5224, or Karen Wolfe on (804) 279-5212, DSN 695-5212, for more information.

INFO AVAILABLE ON FORCE XXI

A bibliography of studies on Force XXI is available to authorized persons. Write to—US ARMY LOGISTICS MANAGEMENT COLLEGE, ATTN DIRECTOR DLSIE ATSZ DL, 2401 QUARTERS ROAD, FORT LEE VA 23801-1705; send e-mail to—jkirklan@almc-lee.army.mil; or call—(804) 765-4007 or DSN 539-4007.

PHONES FOR SOLDIERS

Soldiers living in barracks at 14 Army installations can apply for telephone service for their rooms this spring. The Army and Air Force Exchange Service (AAFES) is working with Sprint Communications to provide regular local and long-distance services with free call waiting and voice mail. A Sprint office on each installation will take applications and collect payments. Telephones will be available for purchase at the post exchanges. The first installations scheduled for participation include: Fort Rucker, Alabama; Fort Huachuca, Arizona; Fort Benning, Georgia; Schofield Barracks, Hawaii; Fort Leavenworth, Kansas; Fort Polk, Louisiana; Aberdeen Proving Ground, Maryland; Fort Leonard Wood, Missouri; Fort Monmouth, New Jersey; Fort Sill, Oklahoma; Fort Jackson, South Carolina; Fort Bliss, Texas; Fort Eustis, Virginia; and Fort Lee, Virginia. AAFES plans to donate 80 percent of the phone usage income to soldier morale, welfare, and recreation programs.

DGSC CATALOGS ON INTERNET

Customers can order items from the Defense Logistics Agency's Defense General Supply Center (DGSC), Richmond, Virginia, by accessing the DGSC home page on the World Wide Web (http://www.dgsc.dla.mil). Military and civilian agency customers with access to the Internet will find DGSC catalogs listing items such as chemicals, batteries, food service equipment, film, and packaged petroleum, oils, and lubricants. Customers also can order items not listed in the catalog by providing the national stock number and other information required for a MILSTRIP or FEDSTRIP requisition. Catalogs and brochures on DGSC products are also available on floppy disk. For information on the commodities managed by DGSC, call 1-800-352-2852 or DSN 695-5699 or fax a request to 1-800-352-3291 or DSN 695-5695. For information on the web site, call DSN 695-6082/3100 or commercial (804) 279-6082/3100.

AAFES IMPROVES READINESS

The Army and Air Force Exchange Service (AAFES) enhanced its readiness to support contingency operations by participating in the recent computer-simulated Warfighter exercise, Prairie Warrior, at Fort Lee, Virginia, and Fort Leavenworth, Kansas. In testing Force XXI issues, AAFES controlled and operated 13 tactical field exchanges supporting over 200,000 troops in the simulated theater of operations. The data from this exercise will shape future doctrine on AAFES tactical field exchanges and will enable AAFES to participate in the initial planning phases for regional conflicts or military operations other than war.

Joint Bar

Logisticians need to know what facility packages and civil engineering support are available for military operations other than war.

On Tuesday, 6 September, at 0800 central daylight time, an earthquake occurs on the Reelfoot Rift in the south central New Madrid seismic zone of the United States. The earthquake, which lasts approximately 20 seconds, registers 7.6 on the Richter scale and affects portions of seven states. The epicenter of the earthquake is in a sparsely populated area 5 miles northeast of Marked Tree, Arkansas, about 40 miles northwest of the center of Memphis, Tennessee.

The Army Forces Command names XX Corps as the disaster relief task force for the disaster response in the St. Louis, Missouri, area. The Director of Military Support designates Fort Leonard Wood and Whiteman Air Force Base, Missouri, as base support installations for the relief efforts in St. Louis.

At 1230, 6 September, you, as an acting staff officer of the 20th Corps Support Command, are tasked to conduct a mission analysis. Specifically, the Assistant Chief of Staff, G4, wants to know what is available in the region for bare base development so the deploying troop support does not further drain the resources of the local area. Since you are only vaguely familiar with joint capabilities in bare base development, you search for a source that addresses joint base development.

This scenario is part of the culminating exercise in the Logistics in Operations Other Than War Course at the Army Command and General Staff College (CGSC), Fort Leavenworth, Kansas. As the author of the current course and instructor of two iterations of the exercise, I learned that many Army logisticians are not aware of what is available within the Department of Defense (DOD) to support bare base development. I hope this article will be useful as a quick reference for anyone assigned to a unit that may have to deploy and establish a bare base facility to support a joint or combined task force.

Army Regulation 310-25, Dictionary of United States Army Terms, defines "bare base" as "a base having a runway, taxiway, and parking areas that are adequate for the deployed force and possess an adequate source of water that can be made potable." However, each service views bare base operations differently. In general terms, and for the purposes of military operations other than war (MOOTW), bare base development requires the establishment of a troop support site capable of providing quasi-fixed billeting and field service facilities. MOOTW missions that require bare base development range from deployment in sparse and ravaged theaters (such as Somalia, where anything of value was stripped and local support was nonexistent) to operations in less austere sites (as was the case in the Yellowstone forest fires in 1988).

With increasing DOD requirements for joint and combined bare base development in MOOTW, logisticians must become familiar with the various services' troop support and sustainment engineering capabilities. However, the capabilities of the services to establish bare base fixed facilities and provide field services to various troop densities differ significantly. Logisticians should be familiar with the types of facilities available, by service, and the civil engineering support that establishes and sustains the support mission.

Currently, there are three prepackaged quasi-fixed facility systems for bare base troop bed-down operations. They are Force Provider for the Army and Harvest Eagle and Harvest Falcon for the Air Force. Although the Navy and Marine Corps have constructed permanent and quasi-fixed bare base facilities in the past, they currently do not have preexisting, complete deployment packages in their inventories.

Force Provider

With the ability to support up to 3,300 personnel, the Army's Force Provider is the largest single prepackaged bare base capability in the DOD's inventory. The Force Provider package is maintained and operated by a quartermaster general support company consisting of a headquarters section, support operations section, maintenance section, and six provider platoons. Each platoon module is designed to support 550 soldiers, excluding Force Provider platoon personnel.

Inherent in the Force Provider platoon are billeting

e Base Development

by Major Thomas G. Roxberry

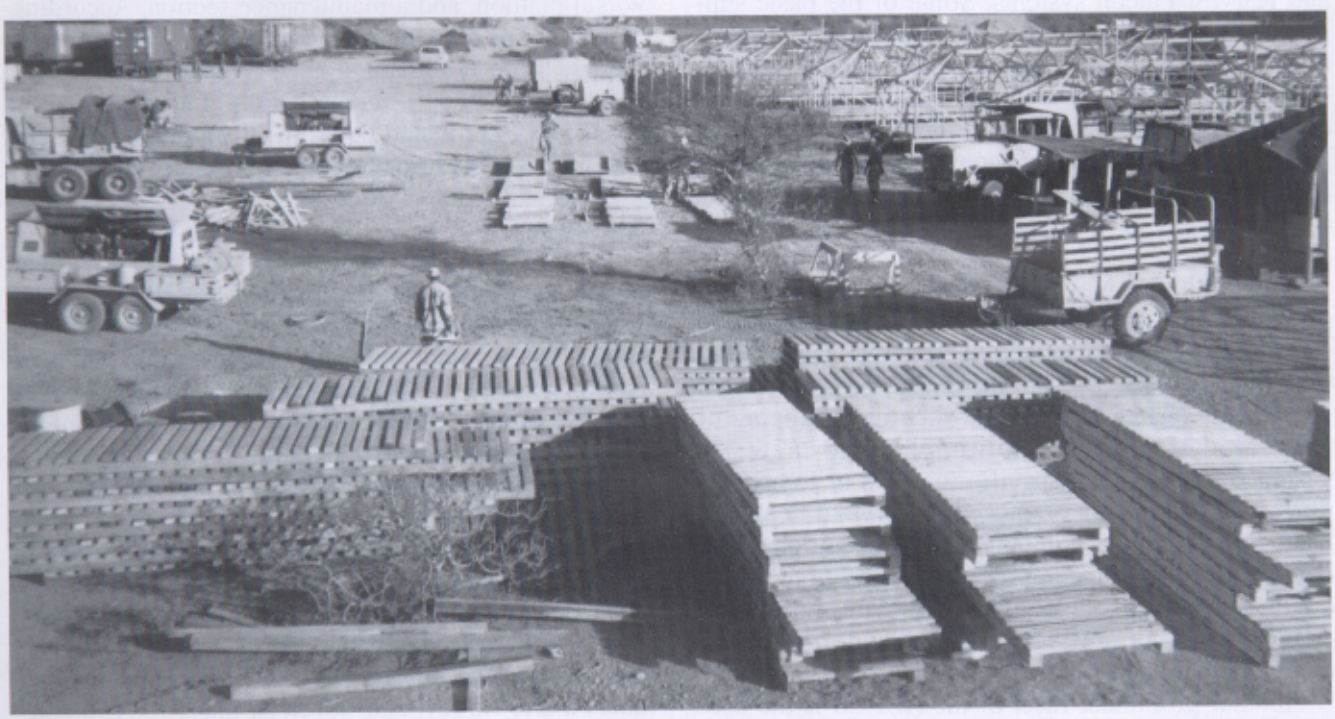
(TEMPER tents and cots); an operations center; a dining facility; latrines; showers; a laundry; power generators; tentage for a first aid station; and a morale, welfare, and recreation center. Each platoon is self-contained and can be operational within 120 hours, depending on required sustainment engineering.

The Army's goal is to have 36 platoon modules in its operational project stocks—12 positioned on prepo afloat ships and 24 at Sierra Army Depot, California. Currently, one Force Provider module is being used in the relief operations at Guantanamo Bay, Cuba. Of the other two Force Provider companies available, six modules are located onboard the *Gopher State* in AR3, and two are being assembled. [Note: Army reserve stocks (ARS) are five groups of supplies and equipment aligned and designated to satisfy initial wartime sustainment requirements: AR1 is stored in the continental United States (CONUS); AR2 is stored in Europe; AR3 is pre-positioned afloat near areas of potential conflict; AR4 is stored in the Pacific; and AR5 is stored in Southwest Asia.]

A unique feature of the Force Provider company is its "type B" strength order designation in its table of organization and equipment, which allows nonmilitary personnel to replace up to 90 percent of the Force Provider personnel. This designation is particularly expedient in MOOTW because it allows the Army to use indigenous contract labor to bolster the local economy after a natural disaster, war-stricken civilians seeking to help their country, or host nation support to accomplish the unit's mission.

Harvest Eagle and Harvest Falcon

The Air Force's Harvest Eagle and Harvest Falcon systems complement Force Provider's capabilities and applications in MOOTW. Smaller than the Force Provider company, Harvest Eagle and Harvest Falcon systems can support 1,100 personnel each. However, of the two Air Force systems, the 50 Harvest Falcon sets are more comprehensive and consist of four major component sets: housekeeping, industrial, initial flightline support assets, and follow-on flightline support. The housekeeping sets are designed to support personnel and include TEMPER tents, hardwall shelters, latrines, showers, a dining facility, and support vehicles. Industrial sets expand the basic capabilities of the housekeeping sets by providing underground water, sewerage, and electrical services.



Members of the 36th Engineer Group from Fort Benning, Georgia, construct a base camp in Mogadishu, Somalia, in support of Operation Restore Hope.

Industrial sets also can support other facilities such as warehouses, maintenance and engineer shops, field exchanges, and even chapels. Although of limited use in MOOTW, initial and follow-on flightline sets offer airfield lighting and aircraft hangars. In total, current Harvest Falcon systems can support up to 55,000 personnel and 750 aircraft at 14 separate bases.

Not as robust as Harvest Falcon, Harvest Eagle systems consist of two major components: a housekeeping set and a utility support package. Harvest Eagle's housekeeping set is similar to Force Provider's in that its principal focus is on basic troop support. Equipment in the set includes, but is not limited to, TEMPER tents, water purification units, latrines, a laundry, power generators, showers, fuel and water storage, and airfield lighting. Four Harvest Eagle sets are kept in U.S. Air Force, Europe, four in the Pacific Air Forces, and four in CONUS. The utility support package consists of upgraded generators, primary and secondary distribution centers, and plumbing and is only available with the four CONUS sets. The CONUS sets, stored and maintained at Holloman Air Force Base, New Mexico, are earmarked for worldwide deployment.

Prime RIBS

Prime readiness in base service (Prime RIBS) teams provide supplies and services to the military and civilian personnel assigned to the Harvest Eagle and Harvest Falcon systems. Some of the basic support they provide includes food service, mortuary affairs, and laundry. Support requirements for the Prime RIBS teams are also tied closely to the type of environment in which they are deployed. For example, arid climates demand more water, cooling capabilities, and lightweight clothing.

ABFCS

Although the Navy and Marine Corps do not prepackage a specific system to support bare base operations, their eclectic approach to bare base operations works. They use the advanced base functional component system (ABFCS), which is a grouping of personnel, facilities, equipment, and materiel designed to perform a specific function or to accomplish a mission of an advanced or forward-deployed base. Some ABFCS components are operational and contain all of the subcomponents required to perform certain mission elements. However, complete ABFCS's are not preassembled and held in stock for contingency issue.

Another prominent facet of the ABFCS is the usefulness of its data base as a planning and design instrument. Logistics and engineer planners can query the ABFCS data base for information on bills of material, facility design characteristics, manpower, and equipment requirements.

Sustainment Engineering

Essential to any bare base development operation is sustainment engineering. Sustainment engineering is defined in Field Manual (FM) 5-114, Engineer Operations Short of War, as "tasks that support the force through the construction and repair of billeting, support and logistics facilities as well as lines of communication (LOC)." The FM also states that "engineer unit capabilities vary, depending on the type of unit." This statement, referring to Army units, is even more accurate when applied to joint engineering units and their capabilities. Each service has designated units to provide sustainment engineering support to complement their base development requirements. The logistician assigned to a joint operation requiring bare base development needs to be aware of the specific engineering roles and capabilities each service can offer to maximize the support effort.

Army

Combat heavy engineer battalions usually consist of a headquarters and support company and three engineer companies. Each engineer company has a company headquarters, a construction platoon, a horizontal platoon, and a maintenance section. According to FM 5-116, Engineer Operations: Echelons Above Corps, these companies can perform construction, maintenance, repair, rehabilitation, and modification of airfields, command posts, main supply routes, supply installations, bridges, and other related facilities.

Air Force

A rapid engineer deployment, heavy operational repair squadron engineering (RED HORSE or RH) squadron is a separate squadron within the Air Force that is not aligned with any particular air wing or base. The RED HORSE concept of operations states that the unit's primary mission is to provide major force bed-down, heavy damage repair, and heavy engineering operations within its regional area of responsibility.

The RED HORSE squadron is structured to deploy in one of three packages designated RH1, RH2, and RH3. RH1, a team of up to 16 airmen plus equipment, is the advance party. RH1 prepares the initial base for the follow-on RED HORSE elements, conducts a site survey, and develops plans for construction requirements. The "bed-down echelon," RH2,

consists of 94 airmen and a limited quantity of engineering vehicles and equipment and is capable of conducting light to medium construction responsibilities. The entire squadron, RH3, or the "construction echelon," includes all 296 airmen and more than 1,100 tons of vehicles and equipment. RED HORSE is the most heavily armed engineering force within the Air Force.

Prime base engineer emergency force (Prime BEEF) is an Air Force headquarters, major command, and base-level program that "organizes civil engineering force teams for worldwide direct and indirect combat support roles" (Air Force Pamphlet 93-12). It assigns civilian employees and military personnel to peacetime real property maintenance and wartime engineering functions. Prime BEEF is made up of 50-, 100-, 150-, and 200-man teams of major command-assigned civil engineering personnel identified by selected skills and designated as Prime BEEF-deployable. The major command then places these selected individuals on mobility status; when called upon collectively, they become the Prime BEEF team. Selected pieces of equipment are also earmarked for deployment status to accompany the deployment team.

Navy

The backbone of the naval construction force is the naval mobile construction battalion (NMCB). Unlike the Army, the NMCB has functional, rather than multifunctional, companies assigned to it from which deployment packages can be task-organized into detachments up to one-half the size of the battalion. Its organic companies are a headquarters company, an equipment and horizontal construction company, a utilities and camp maintenance company, and two vertical construction companies. Unique to the battalion is its air detachment (AIRDET), consisting of 89 personnel and 34 engineer support vehicles. Like the NMCB, the AIRDET can operate independently and can conduct operations in an austere environment for up to 30 days except for classes I (subsistence); III (petroleum, oils, and lubricants); and V (ammunition).

Marine Corps

The Marine Corps engineer support battalion (ESB) is a multifunctional combat service support organization designed much like the Army's corps support battalion. When the Marines are tasked to conduct MOOTW, the ESB is the preferred engineer force. The ESB consists of a headquarters and service company, a bridge company, an engineer support company, a bulk fuel company, and three engineer companies. The engineer companies are responsible for sustainment engineering within the battalion. Fleet Marine Force Reference Publication 1-11 lists tasks assigned to the engineer company in support of bare base development. They include repairing, stabilizing, and reinforcing airfield taxiways and runways within organizational capabilities; preparing sites; installing, repairing, and maintaining expeditionary airfields; constructing, repairing, and maintaining LOC's and main supply routes; providing vertical construction; conducting construction surveys; and preparing drafting designs to support construction missions.

Future Applicability

In MOOTW, the broad brush of missions and humanitarian conditions that we face as logisticians dictates that we know what bare base facilities exist and that we be flexible enough to employ them with maximum effectiveness. Since we can only speculate on what the next disaster, peace operation, or other MOOTW support requirement may be, the information available during the mission analysis stage directly impacts how we plan and execute support.

Remember your G4 tasker? Fortunately, you recall that you took the Logistics in OOTW Course at CGSC. Rushing to your personal library, you quickly locate your notes from the course, organize your thoughts and material, and head back to brief the G4. He is quite impressed with your astuteness and asks you what you know about United Nations logistics. But that's a subject for another day. **ALOG**

Major Thomas G. Roxberry is a logistics instructor for the Logistics in Operations Other Than War Course at the Army Command and General Staff College, Fort Leavenworth, Kansas. He is a graduate of the Army Logistics Management College's Logistics Executive Development Course, the Army Command and General Staff College, the Supply and Services Management Officer Course, and the Transportation Officer Basic and Advanced Courses. He holds a bachelor's degree in organizational communications from the University of Colorado at Boulder and a master's degree in materiel acquisition management from the Florida Institute of Technology, Melbourne, Florida.

Battlefield Distribution

by Major George G. Akin

The velocity management approach to battlefield distribution does more than streamline current processes; it transforms them into new processes that accommodate the complexities of the logistics pipeline.

To maintain the logistics continuum, logisticians must ensure that tactical concepts support strategic policy objectives. With that principle in mind, let's examine the battlefield distribution concept in light of the new strategic approach of logistics *velocity* and see how it supports the strategic objective of *velocity management.*

Background

Flaws in the tactical distribution system led Major General Thomas W. Robison, commander of the Army Combined Arms Support Command and director of the Combat Service Support (CSS) Battle Lab, both at Fort Lee, Virginia, to launch a fundamental modernization of the Army's tactical materiel distribution system.

In August 1994, General Robison originated the "battlefield distribution" concept, which implements distribution management on the modern battlefield. Battlefield distribution positions new technology at distribution nodes, develops new processes to perform current CSS distribution functions that accommodate the complexities of the logistics pipeline, and introduces a "hub-and-spoke" distribution process. This concept uses speed and responsiveness to move critical supplies under positive control through a distribution system from the source to the soldier.

In the fall of that same year, the RAND Corporation submitted a report to the Army's Deputy Chief of Staff for Logistics (DCSLOG) that called for improvements to current logistics processes—thereby endorsing a need already recognized by operational commanders. That report was entitled *Velocity Management.*

Velocity management, as defined by the RAND Corporation, "aims to substitute velocity and accuracy for mass in the logistics system." But how applicable is the tactical objective—battlefield distribution—to the strategic objective—velocity management—and can battlefield distribution be implemented?

One of the strategies recommended by the RAND Corporation to improve dramatically the responsiveness and efficiency of the Army's logistics systems was to reengineer all logistics processes. RAND recommended velocity management as one approach to reengineering and four measurements to gauge its success: availability and readiness of materiel; repair cycle time; costs; and order and shipping time (OST).

Though the first three parameters selected were not surprising to logisticians, it was unusual that OST variability was considered a precise indicator of the quality of distribution. According to Major Steve Lyons, a logistics officer in the CSS Battle Lab, "Variability [of OST] is a more accurate indicator if you are trying to reduce inventory levels." Previous performance measurements indicated that the practice of maintaining large stockpiles of materiel was being replaced by speed and responsiveness in distributing materiel. Speed and responsiveness are the cornerstones of the battlefield distribution concept.

Logisticians know that distribution requires a fundamental integration of materiel and movement management functions. This integration requires more

than just making technology enhancements to management information systems. First, the distribution manager in all tactical logistics organizations must be identified clearly. Battlefield distribution supports this idea by placing the responsibility for distribution management in the support operations section. Second, battlefield distribution adds a movement control capability to the support operations section. Finally, the battlefield distribution concept harnesses technology to pinpoint responsibility for materiel as it is handled at and between distribution nodes.

Validating the Concept

Once conceptual solutions are identified, the Army must meld compatible technology with current distribution systems and processes. To test the battlefield distribution concept, the CSS Battle Lab; the Strategic Logistics Agency in Alexandria, Virginia (reorganized as the Logistics Integration Agency in September 1995); and the DCSLOG of U.S. Army, Europe (USAREUR), conducted a technology demonstration in April 1995. Using a real-world distribution system, the demonstration combined various technologies to sustain USAREUR's daily tactical mission.

As explained by Lieutenant Colonel John Bucher, a logistics officer in the CSS Battle Lab, "We wanted to demonstrate the ability to precisely measure the amount of time that cargo spends at each node in the system." This type of accurate data is what velocity management must have to demonstrate that speed and control of logistics materiel are more important than mass.

Technology used in the demonstration included the automated manifest system (AMS); radio frequency automatic identification technology (RF AIT); Army total asset visibility (TAV) and intransit visibility (ITV); and the shipping, tracking, and redistribution system (STARS). The AMS is a system developed by the Defense Logistics Agency that uses laser optical memory cards to store multipack and trailer-load transaction data. The system facilitates rapid and reliable receipt processing at supply support activities. RF AIT transmits data from tags on containers over radio frequencies to collection receivers called interrogators. This information then is transmitted to a central data base and "fused" to provide transportation and manifest information. TAV and ITV use fused data to provide real-time asset visibility and intransit visibility information to materiel management centers and movement control centers. STARS automates the break bulk area of the "hub-and-spoke" distribution system in use in USAREUR. [The break bulk point, or the "hub," is the activity to which multiple shipments are consigned for further distribution by way of transportation routes, or "spokes," within a predetermined transportation system.]

The initial focus of the demonstration was tagging all sustainment cargo to be shipped to three supply support activities in Europe from Defense Depot Region East (DDRE), the container consolidation point in New Cumberland, Pennsylvania. Source data information (military standard requisition and issue procedures [MILSTRIP] and military standard transportation and movement procedures (MILSTAMP]) were downloaded from the DDRE computer to the RF tags before the tags were placed on containers or air pallets. When the tags passed any interrogator installed at distribution nodes, arrival or departure information was automatically generated. This system accurately measured the time cargo spent traveling between each node in the system. AMS and STARS allowed positive identification of critical materiel and more responsive break bulk operations. These technologies enabled battlefield distribution to improve efficiency and reliability using the inherent tenets of velocity management—speed and responsiveness.

Improving Combat Service Support

The velocity management approach to battlefield distribution reengineers ongoing logistics processes as it reduces stocks carried by forward CSS elements. This enhances not only customer support but reduces the "logistics tail" under force projection. (The "logistics tail" refers to the amount of support needed to sustain the combat force [the "teeth"]. By reducing the "tail," a force can move faster with more resources devoted to combat units than to support units.) During the USAREUR demonstration, both the concept and strategy were confirmed, and distribution trouble spots were pinpointed while expediting materiel processes. This technology heralds the change to dynamic CSS and, at the same time, provides the soldier in the field better solutions and methods for tailoring logistics support. The final measure of success is not just streamlining current processes but transforming them into new processes that accommodate the complexities of the logistics pipeline. **ALOG**

Major George G. Akin is a student at the Army Command and General Staff College, Fort Leavenworth, Kansas. He is a graduate of Texas A&M University, the Ordnance Officer Basic and Advanced Courses, and the Army Logistics Management College's Logistics Executive Development Course. He was previously assigned as a logistics staff officer in the Combat Service Support Battle Lab, Fort Lee, Virginia.

Logistics Decisionmaking

For logistics support units, highly effective battle staff planning is dependent on two principles. First, the supported combat unit must integrate the support unit's battle staff into its planning and orders process. Second, having worked through the military decisionmaking process with the supported unit, the battle staff must use an internal decisionmaking process better suited to the reactive nature of logistics support missions.

Few military planners would argue the first principle. Participation of the logistics unit in tactical course of action (COA) development and orders production can only serve to make the process more efficient and the final order more effective. The second principle is another matter.

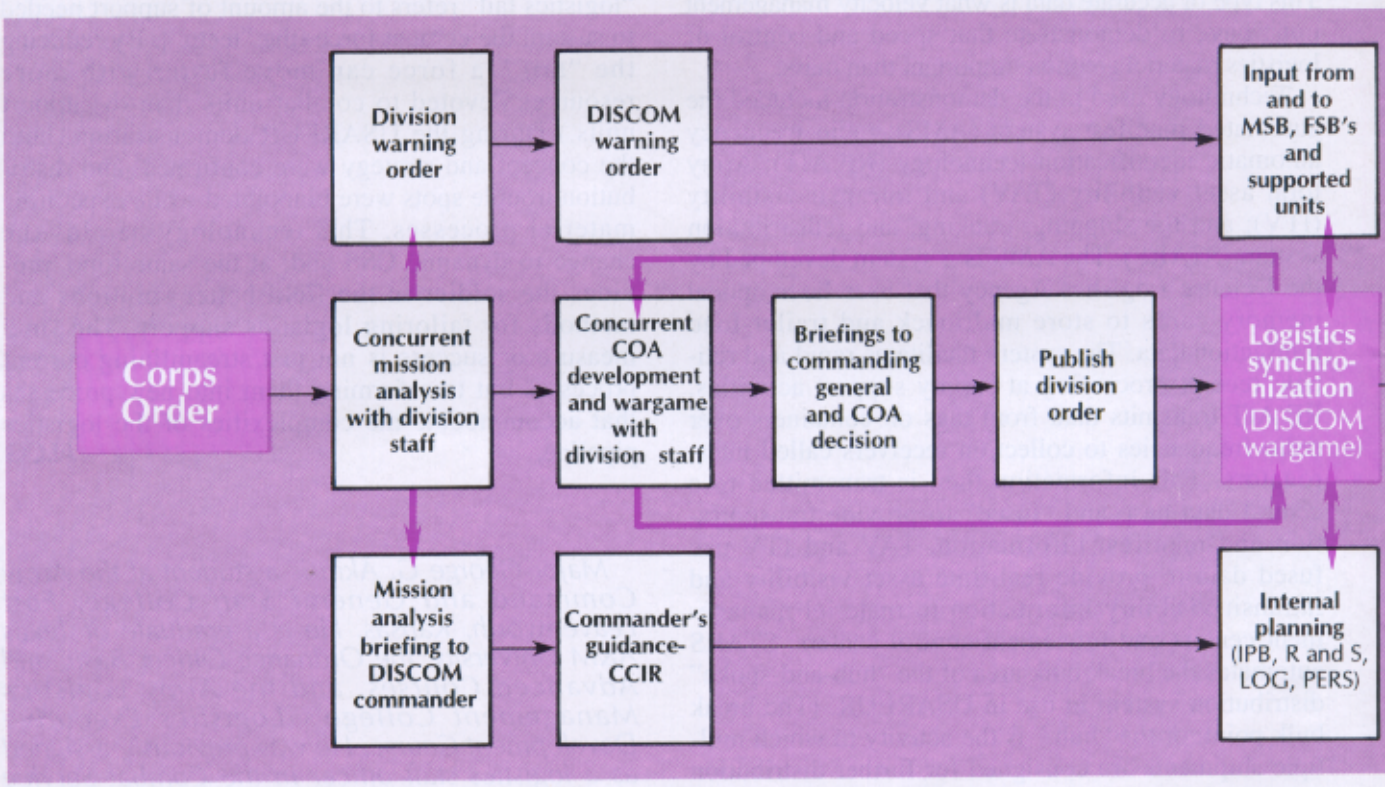
The general consensus is that one military decisionmaking process is sufficient to meet the needs of all units, regardless of the unit's composition or mission. This perception forces the logistics commander to follow a decisionmaking process that, while very effective for maneuver units, is not the most efficient model for developing tactical logistics support plans.

Maneuver-unit planning is at the active end of the military planning spectrum, and higher headquarters normally provides a very specific mission statement. By laying out the commander's options, the battle staff can develop COA's that will accomplish the mission within the prescribed parameters.

The commander will choose one COA as a roadmap for the operation but will not follow it blindly, because modifications must be made as the battle develops. Barring disaster, the baseline plan will remain in effect until the mission is complete. Logistics, on the other hand, falls within the range of reactive decisionmaking.

Logistics commanders' missions are much less precise because they must look at a series of options rather than a clear-cut COA. By this, I mean that during every hour of every day of an operation there is a variety of options available to logistics commanders. In effect, they have literally thousands of mini-COA's that are in a constant state of flux, depending on the ebb and flow of the battle. For the most part their decisions are driven by the plans and actions of the units they support.

The key to the success of logistics commanders is their ability to synchronize logistics assets while providing maximum flexibility. To accomplish this, they



The logistics decisionmaking model used during a battle command training program.

Model

by Major Kenneth W. Carroll

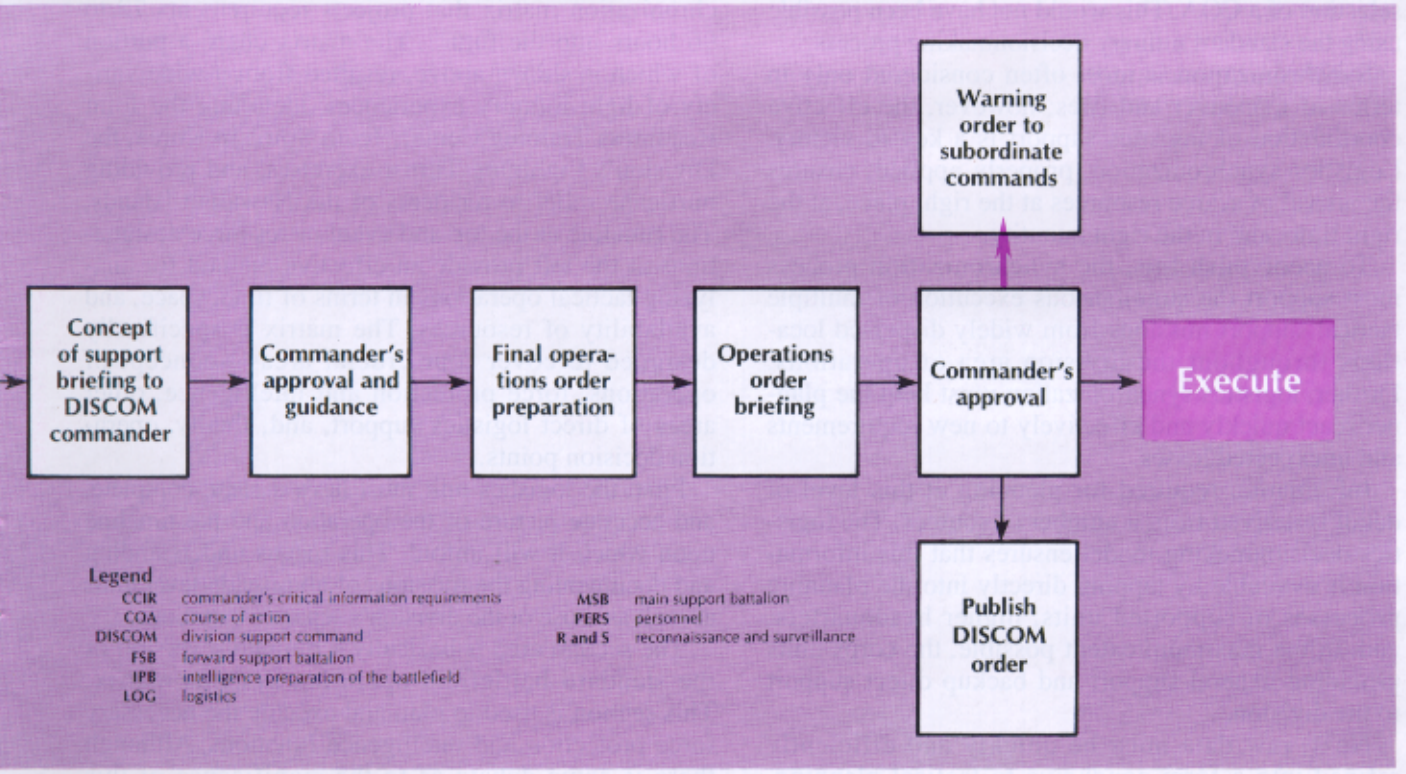
must embrace the reactive nature of maneuver logistics and plan accordingly. This requires synchronization at a level of detail far surpassing that accomplished during normal wargaming. Logistics planners must use a decisionmaking model that ensures direct input into the development of the maneuver COA while allocating adequate time for detailed synchronization of their operations.

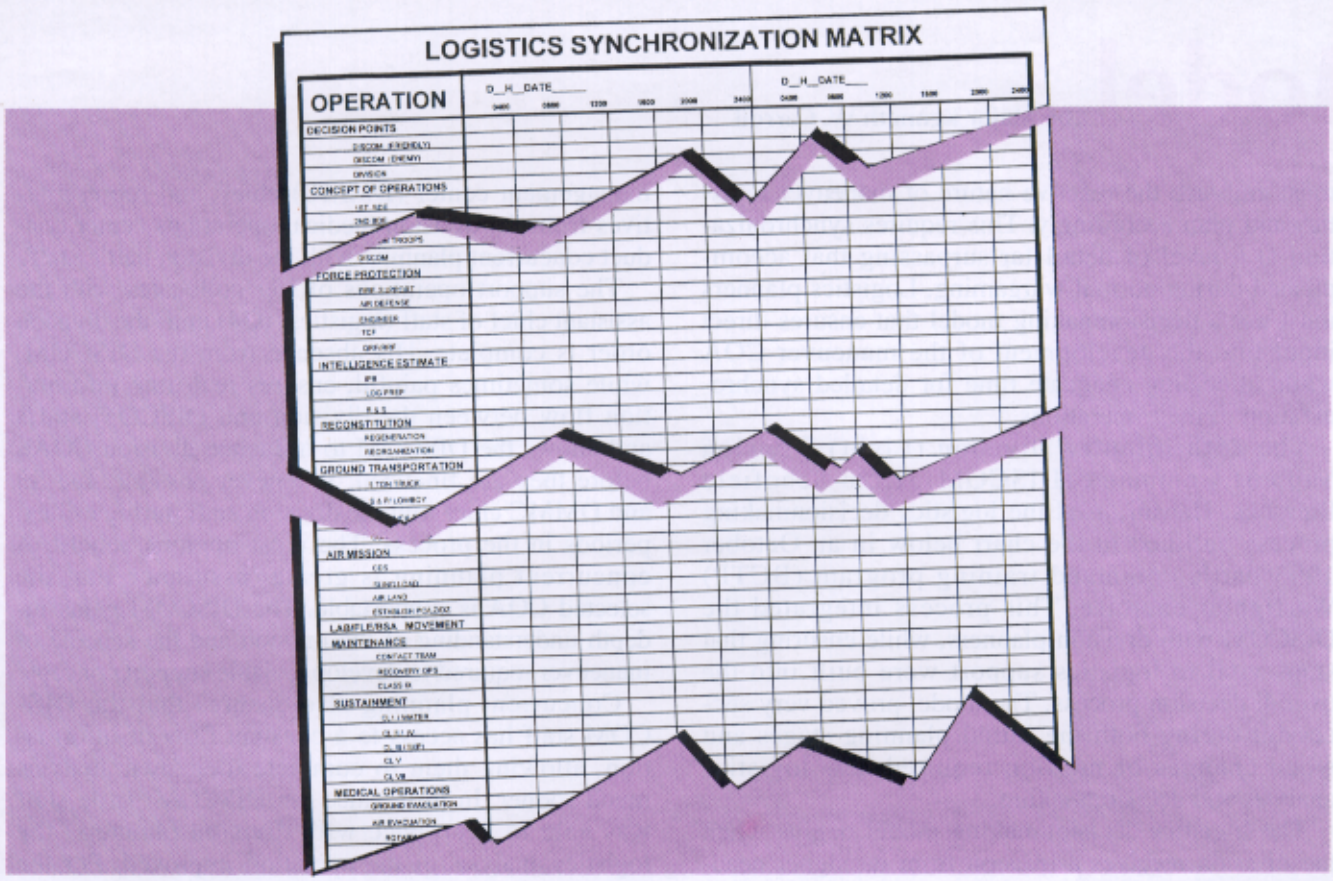
The 25th Infantry Division (Light) Division Support Command (DISCOM), from Schofield Barracks, Hawaii, used the logistics decisionmaking process outlined in the chart below in an October 1993 battle command training program (BCTP) Warfighter exercise. This process integrated the DISCOM with division planners, while ensuring that steps vital to logistics support were built into the overall decision process. The model proved very successful during both the initial planning stages and when changes of mission required new logistics analysis and decisionmaking.

The logistics decisionmaking model begins when the division receives a mission from its higher headquarters. The DISCOM operations and training officer (S3), support operations officer, division materiel management center (DMMC) chief, and representatives from the division medical operations center conduct concurrent planning with the division battle staff.

The support operations officer collocates with the assistant chief of staff (logistics) (G4) until the division order is complete. His absence from the DISCOM, while sometimes painful, ensures real-time information flow between the division and DISCOM staffs and allows the DISCOM to influence division COA's before they are finalized. Whenever possible, the S3 and DMMC chief join the division staff during critical periods in the process. The most obvious benefit of concurrent planning is greater assurance that the selected COA is supportable. The DISCOM gains in-depth understanding of the mission and the scheme of maneuver required to develop a viable support concept.

Concurrent planning also ensures that the DISCOM staff has access to a constant flow of information, allowing them to complete their own analysis much sooner. In turn, since the DISCOM battle staff was able to keep pace with division planners, the logistics analysis of the operation improved. For the BCTP, the DISCOM was able to finalize its concept of logistics support within hours of the commander's





A portion of a logistics synchronization matrix.

selection of a COA. This would not have been possible using the standard military decisionmaking process.

Synchronization is most often considered only in terms of maneuver and fires; however, the effective coordination of logistics support is a key to victory. Logistics synchronization, properly applied, ensures the arrival of scarce resources at the right place, at the right time, and in the right quantity.

To accomplish this, the synchronization process must support the simultaneous execution of multiple tactical support missions from widely dispersed locations throughout the division area of operations. Further, logistics synchronization must help the planner react quickly and effectively to new requirements and unexpected losses.

Information required for planning at this level of detail is derived from a number of sources. The logistics decisionmaking model ensures that this information is available by tapping directly into the planning processes of supported units, higher headquarters, and, to the maximum extent possible, the corps units providing general support and backup direct support to the division.

Next, raw data must be quickly and efficiently refined into a form conducive to tactical planning. This can be accomplished by using a logistics synchronization matrix that projects requirements 72 to 96 hours into the future. The matrix chart, a portion of which is shown above, resulted from a wide variety of light infantry experiences, including the Joint Readiness Training Center, Team Spirit in Korea, the Division's Lightning Thrust exercises, and providing hurricane relief to residents of the Hawaiian Islands. The timeline at the top and event or resource designations at the left provide an effective method for analyzing tactical operations in terms of time, space, and availability of resources. The matrix is specifically designed to cover four crucial areas—concept of operations, force protection and intelligence, other areas of direct logistics support, and, finally, operation decision points.

First, the logistics unit must have a clear, complete, and accurate picture of the operation and the timeline upon which it will unfold. This means understanding and documenting the missions of all brigade-level units as well as those of the division's separate battalions.

The second area is basically a miniature version of the standard battlefield operating systems matrix. This section is used to plan and execute the necessary force protection and intelligence functions. Although there is some debate as to the significance of this area, I view it as essential. Logistics units must pro-

tect themselves. In so doing, they use assets that otherwise would be actively engaged in the support effort. Logistics commanders must be aware of the support capability cost extracted for each force protection measure.

Other elements of direct logistics support comprise the third major area of the matrix chart. This area is divided into ground and air transportation requirements, maintenance, sustainment, and medical operations and provides planning space for reconstitution operations and the forward echeloning of multifunctional logistics support elements of less than battalion size. This section lays out all of the major actions involved in the division-level concept of support.

Finally, the top of the matrix is dedicated to division and DISCOM decision points. Planners record division decision points along the timeline in order to determine what impact various decisions might have on support operations.

For example, an attacking brigade might experience greater than expected success, resulting in requirements for emergency air resupply. Planners would then annotate decision points on the matrix timeline that would relate to a detailed description of the decision point and its possible branches outlined on a separate document attached to the matrix board.

The following scenario offers an example of how the matrix supports the synchronization process during a change of mission—

A light division with an attached heavy brigade is operating within a midintensity environment. The division commander has just issued a change of mission calling for a transition from defensive to offensive operations. The new plan calls for two light brigades to attack, seize limited objectives, and then support the passage of lines of the heavy brigade attacking north as the main effort. The road networks in the area of operations are extremely limited, and following the passage of the heavy brigade, the division support area must jump forward to shorten logistics lines of communication.

Even a superficial look at the requirements reveals the usefulness of the synchronization process. Logistics planners working their way down the matrix will be prompted to answer critical questions that will almost certainly result in adjustments to the existing support plan. It is easy to see from this example that any change on the matrix will result in the need to modify related areas covered elsewhere on the matrix. In the heat of battle, the ability to swiftly evaluate the effect of changing events on the overall division support plan proves indispensable.

Use of the logistics decisionmaking model proved highly beneficial as the Warfighter exercise progressed. Foregoing the internal COA development also allowed the DISCOM and subordinate units to adhere to the 1/3-2/3 planning rule. The standard military decisionmaking process places logistics units so far behind the combat units' planning cycle that this is rarely possible.

It is important to realize that the synchronization matrix does not take the place of traditional planning tools such as intelligence preparation of the battlefield, map overlays, and sector sketches. But the matrix does ensure the requirements generated from these tools are integrated into the overall support plan. The tendency in many tactical operations centers has been to physically separate the intelligence and force protection work areas from the logistics operations center. This separation can lead to unilateral decisions by either element. These uncoordinated decisions defeat the purpose of synchronization and can lead to disaster. Locating both tactical and logistics planners and operators and all their planning tools in adjacent areas and using the synchronization matrix as the central planning tool should eliminate uncoordinated actions.

DISCOM and G4 planners often used an abbreviated form of the logistics decisionmaking model during the BCTP Warfighter exercise. Using the synchronization matrix, the staff quickly formulated new plans, briefed the commander, and provided feedback to the G4. DISCOM planners were then able to affect the outcome of division wargaming by arming the G4 planner with logistics concerns related to the various COA's under consideration. Once again, by the time a COA was selected, the DISCOM had already developed an initial concept of support and was well on the way to completing logistics synchronization of the new operation.

Although I chose to discuss the model in terms of division-level planning, it has proven equally successful for fire support bases in support of brigade task forces. The logistics decisionmaking model combines the best of the conventional decisionmaking process with logistics planning techniques, and results in maximizing logistics unit efficiency and making logistics support a more potent combat multiplier. **ALOG**

Major Kenneth W. Carroll is an automation program manager for J8, the Joint Staff, in Washington, D.C. He holds a B.B.A. degree from Southern Arkansas University in Magnolia, an M.B.A. degree from the University of Arkansas in Fayetteville, and is a graduate of the Army Command and General Staff College.

Deploying a Contingency

The deployment of U.S. troops to Haiti for Operation Uphold Democracy marked the first time the Defense Logistics Agency (DLA) employed a contingency support team (CST) of military, civilians, and reservists during mobilization or wartime contingency operations. This is the story of Major Rodney Ward's experience working with fellow members of the DLA CST. He worked with DLA's contract administration services team and served as a liaison for the Army to the logistics civil augmentation program (LOGCAP) contractor. For a more detailed description of the DLA initiative, see the article titled "New Logistics Concepts Tested in Haiti" by Brigadier General Julian A. Sullivan, Jr., and Stephen D. Abney in the May-June 1995 issue of Army Logistician.
—Editor

When thousands of combat-ready American soldiers descended upon the Caribbean nation of Haiti in September 1994, they found themselves in a new role. Instead of engaging in combat, they had become peacekeepers.

Without having to execute a forcible entry operation, unit commanders immediately focused their attention on improving living conditions of their soldiers and expediting the return of combat service support units to the United States. To accomplish these seemingly incongruent tasks, the Pentagon sought help from private industry.

The Army's LOGCAP contract with Brown and Root Services, Incorporated, was used first to supplement and then to assume logistics operations for military units in Haiti. One of the contractor's first problems was identifying the needs and missions of their customers, the various troop units spread over the island. These units needed base camps with shelter, food, water, toilets, showers, laundry services, construction supplies, fuel for their vehicles, and a transportation system to provide delivery of supplies.

Major Rodney Ward [who has since been promoted], Patriot program integrator for the Defense Contract Management Command's Defense Plant Representative Office at the Raytheon plant, Andover, Massachusetts, was contacted by the Defense Contract Management Command-International (DCMC-I). Because DCMC-I provides contingency contract administration services (CCAS) to the Army for the LOGCAP contract, they asked if Major Ward would become the Army's liaison to the contractor in Haiti. Realizing that his background in Army logistics operations and his contract management experience could be just what was needed to get the job done, he accepted the mission.

Joining the DCMC-I team in Haiti, Major Ward found the chilly afternoons of autumn in New England replaced with the heat of the tropics, where a good night's sleep depended on mosquito nets and an occasional sea breeze. He immediately set to work and identified a need to translate mission requirements for the administrative contracting officer as well as the Joint Task Force J4 and the supported units. Additionally, he coordinated the mission handoff among active units and the contractor.

Major Ward was able to show the new team how the Army had special needs to support a field force, and that contracting operations would have to be tailored to meet unique supply requirements. Base camps had to be built, supply depots set up, cargo ships unloaded, materiel transported to stores, sanitation facilities established, and lines of communication connected. All of this would take time, funding, personnel, equipment, and materiel.

As he carried out the task of bringing all of these elements together, Major Ward acted as the "eyes and ears" to link services with customer's needs. He led supply convoys out to the military camps where he met the commanders and discussed their individual logistics requirements.

On the same day that Haitians greeted their new president, Major Ward arrived aboard an Army landing craft for which he had arranged. The craft was carrying trucks laden with supplies for the troops in the Cap-Haitien area. After a few hours of enjoying the sun and sea, he was back on shore walking through knee-deep mud in the new camps under construction. He then led a convoy through the crowded streets to the airport where the U.S. soldiers were bivouacked.

Within 60 days, more than 500 Brown and Root personnel were in Haiti supporting 15,000 soldiers. By 19 November (D+60), 13,867 troops were being fed from the new dining facilities, more than 150,000 gallons of potable water were produced and delivered daily, and 200 supply requests had been received for items ranging from pallets of sheet plywood to paper plates. There were more than 3.5 million gallons of fuel onhand, as the contractor pumped in excess of 40,000 gallons to customers. Contractor personnel

Support Team

by Mike Kelley

A soldier approaches one of the temporary shower facilities built during early operations in Haiti. The shower draws water from the 5,000-gallon reservoir seen in the foreground.

had received and laundered more than 8,000 bundles of laundry, built twenty-six 30-nozzle shower units, completed 12 kitchens, had 29 dining facilities in place, were servicing more than 800 portable toilets, and were removing mountains of trash.

All of this had been accomplished in spite of massive flood damage at Houston, Texas, the port of debarkation for supplying U.S. forces in Haiti, and the arrival of Hurricane Gordon in Haiti. The storm hit the island, killing approximately 200 Haitians and rampaging through Dragon, the primary base camp that housed nearly 4,000 U.S. soldiers. The hurricane washed out many of the main supply routes and devastated the infrastructure that had taken the engineers weeks to build.

Throughout these operations, Major Ward was continually tasked with new and difficult challenges. The mission required full use of his initiative and skills. He helped the contractor support the soldiers in the field and helped define and translate customer needs into contractual instruments. Asked what he thought of his trip to Haiti, Major Ward said, "I got to work with many different people and was able to apply my knowledge to real-world situations. It was rewarding and valuable!" ALOG

Mike Kelley is a public affairs liaison for the Defense Plant Representative Office, Raytheon, at Burlington, Massachusetts. Lieutenant Colonel Rodney Ward is an acquisition corps officer. Among his many assignments, he was a contracting officer for bombs and rockets at Rock Island Arsenal, Illinois, and the Patriot program integrator at Raytheon before his assignment in Haiti.

Logistics Situational Awareness

by Colonel Larry D. Harman

Future joint missions make situational awareness critical to the Army's ability to respond rapidly during a crisis.

In our "new world of disorder," the United States military is expected to respond rapidly to any crisis designated by the National Command Authority. There is a high probability that the responding force will be a joint force. This probability creates an acute need for superior situational awareness so that joint headquarters, participating services, and their respective commanders and staffs can function in all areas, including logistics, based on reliable information.

At the operational level of war (the theater in this case), logistics is critical to success in both combat operations and military operations other than war. In fact, at the operational level, classic military operations and logistics tend to merge; one becomes the other. Here, continued success depends on credible information that commanders and planners can use to make timely and accurate assessments and decisions. Reliable information, accessibility, and predictive capability are the centerpieces of situational awareness.

I believe that, for a number of reasons, logistics situational awareness at the joint operational level is woefully inadequate; it is difficult to achieve and maintain and may represent a catastrophic vulnerability—an Achilles' heel—that a shrewd adversary can exploit. There is, however, a solution. Technology and training can be leveraged so that any logistics organization can attain and maintain superior situational awareness.

Let's highlight briefly both the information needs and the considerations that contribute to situational awareness for operational-level logisticians. For starters, what is logistics situational awareness? Ideally, it has four key features—

- It is a multiple subscriber (strategic down to tactical level), information management architecture contributing to disciplined reasoning by commanders and their staffs under even the most trying circumstances.
- It accelerates logistics decisionmaking and anticipation of requirements by assisting in clarifying problems, identifying solutions, and eliminating or reducing uncertainty.
- It is a computer-aided system of systems.
- It is continuously updated at real or near-real time throughout its architecture (similar to the maneuver control system).

The Operational Level

At the operational level, senior logistics commanders and staffs receive, process, generate, and transmit tremendous amounts of information. Ideally, information flows top to bottom, bottom to top, and laterally. On occasion, information flow can intentionally skip an echelon.

One might suspect that information flow is a joint weakness since each service generally handles logistics internally, creating significant challenges for any logistics (J4) staff. But, after some analysis, it becomes obvious that the needed information is not found exclusively in logistics channels.

For instance, personnel-related information is the personnel (J1) staff's domain, intelligence matters are in the intelligence (J2) staff's arena, and force tracking is the operations (J3) staff's responsibility. Of course, the tactical commanders' activities and needs are quintessential to the process. Still, the J4 staff and the joint logistics headquarters must have ready access to these domains. I suspect that the timely transfer of critical intrastaff as well as interstaff information in a joint force is a major challenge.

Because of the sheer magnitude of information flowing into, within, and out of the theater, key decisionmakers and planners must have a situational awareness system that updates, stores, categorizes, monitors, prioritizes, searches, summarizes, distributes, and alerts in real or near-real time. Again, leveraging automation and other technologies is the material solution. Training military personnel to exploit the

This article expresses views of the author, not the Department of Defense or any of its agencies.

capabilities of these new information technologies is the human component of the situational awareness challenge.

The Human Aspect

In the November 1994 issue of *Military Review,* W. B. Cunningham and M. M. Taylor state that there are five modes of information. A responsive logistics situational awareness model must address each of these five modes—

- *Information for intent* establishes a subordinate's understanding of his superior's intent; it promotes a two-way exchange.
- *Control information* "addresses matters of primary and current attention" that require immediate action; control information is needed for continuous and unambiguous estimates and assessments.
- *Monitoring information* addresses matters that a commander (or staff principal) "is not currently controlling but which he may choose to control" if either danger or opportunity arises.
- *Alerting information* allows a commander or staff principal "to ignore vast amounts of information until it becomes important enough to demand attention." A detector, either machine or human, signals a requirement for attention by decisionmakers.
- *Sought information* provides specific information that either clarifies or reduces uncertainty; this information is most commonly found in the planning process.

The main point is that the essence of logistics situational awareness is disciplined information management that promotes judicious decisionmaking. This situational awareness model seeks a balance between too much and too little information reaching decisionmakers. Of course, the commanders and staffs must have training and confidence in the system for it to be employed effectively.

Recommendations

This all leads me to five recommendations. First, the services must procure and field a standard, or compatible, logistics situational awareness package.

Second, this package must be compatible with all current and future logistics-oriented information systems and feeder systems from other disciplines.

Third, because of the ever-increasing probability of joint operations, the training of logisticians from all services must stress more cross-training and cooperation. Service schools for company- and field-grade officers should be well represented by the other services' logisticians. The services also should establish a robust logistics exchange program; this will promote understanding of joint logistics early in an officer's career, and each exchange officer will receive credit for joint duty.

Fourth, the strategic level of logistics (the Department of Defense and service levels) should consolidate where possible and, most importantly, link information systems to promote seamless logistics support (especially supply and transportation) for customers, regardless of service. This will permit the operational-level logisticians to perform better their role as the synchronizing link between tactical-level and strategic-level logistics.

Fifth, there is a need for an active component, joint logistics command headquarters. This initiative will promote joint logistics unity of effort, logistics interoperability, planning, logistics synchronization, rapid force-projection of a contingency force package, and responsiveness to the joint force commander's plan and decisions. I understand that one or more services may balk at this idea. In my opinion, however, a joint logistics command headquarters has considerable merit.

Simply put, much remains to be done by logisticians from all services before they achieve situational awareness. My five recommendations, if implemented, will definitely enhance situational awareness at the operational level.

I want to start some serious discussion and debate on the challenge of improving situational awareness. Instead of just glancing at the problems and walking away, senior logisticians must take positive action. As military operations become more complex, our defense budgets decline, our potential adversaries become more sophisticated, and the tempo of expected operations becomes more compressed in time, the need of our logistics organizations for a state-of-the-art situational awareness system will only grow.

The movement toward better situational awareness is not revolutionary but evolutionary. However, this evolutionary situational awareness will accommodate rapid exploitation of revolutionary ideas, doctrine, technology, and processes. Finally, let's note the old adage that "thought is action in rehearsal." Take time now to think about logistics situational awareness.

Colonel Larry D. Harman is assigned to Headquarters, 21st Theater Army Area Command, Kaiserslautern, Germany. He holds a master's degree in business logistics from the Florida Institute of Technology, Melbourne, Florida, and a master's degree in military art and science from the Army Command and General Staff College. He also is a graduate of the Army War College and the School of Advanced Military Studies at Fort Leavenworth, Kansas.

Keeping M1A1's in Action

by Captain Jeffrey P. Kelley

A new way to employ the Army's M1A1 full-up power pack (FUPP) saves time and money and helps ensure a combat-ready tank unit.

A goal of a heavy division is to have as much combat power as possible available for immediate deployment. The M1A1 main battle tank, a centerpiece of that power, is always high on the list of what the combat arms commander needs to be ready to fight. Through its work on the M1A1, the forward support battalion's (FSB's) maintenance company is pivotal in keeping M1A1's ready for combat.

One of the most powerful tools the battalion has to influence combat readiness is the judicious, timely use of the M1A1 full-up power pack (FUPP). The mechanics of B Company, 26th FSB, in Germany, believe they have discovered the optimal way to resource the repair and maintenance of FUPP's.

The concept behind the FUPP program is the quick return of an M1A1 tank to the battlefield by having direct support maintenance repair a fault in its engine or transmission. A FUPP consists of an AGT 1500 turbine engine, which contains four modules, and an X1100-3B transmission. The idea is instead of fixing just the engine or transmission on site, direct maintenance soldiers can simply remove the faulty FUPP and replace it with an operable one. The unserviceable FUPP is then completely repaired by direct support maintenance personnel further to the rear on the battlefield.

B Company, 26th FSB, provides direct support maintenance to the 3d Brigade, 3d Infantry Division (Mechanized), which has a total of 116 M1A1 tanks. B Company has a FUPP repair section, recently created "out of hide," to provide that support. The FUPP repair section currently maintains six FUPP's for the brigade. This repair section enhances the readiness of a key component of the brigade's combat power and saves money, too.

Before B Company created its FUPP repair section, there was very little repair of FUPP's in the FSB's. Each armored battalion's direct support maintenance support team would troubleshoot and diagnose faults on either the engine or the transmission. Faults that could not be corrected quickly would normally result in replacing the entire FUPP. The FUPP would then

This soldier (left) is checking an engine for malfunctions before it is reinstalled in an M1A1 tank. A repaired FUPP (above) is being loaded for movement back to the front line.

be repaired, but only by replacing one of the engine's modules. Almost all repairs that involved more than the replacement of a module were completed at a higher echelon.

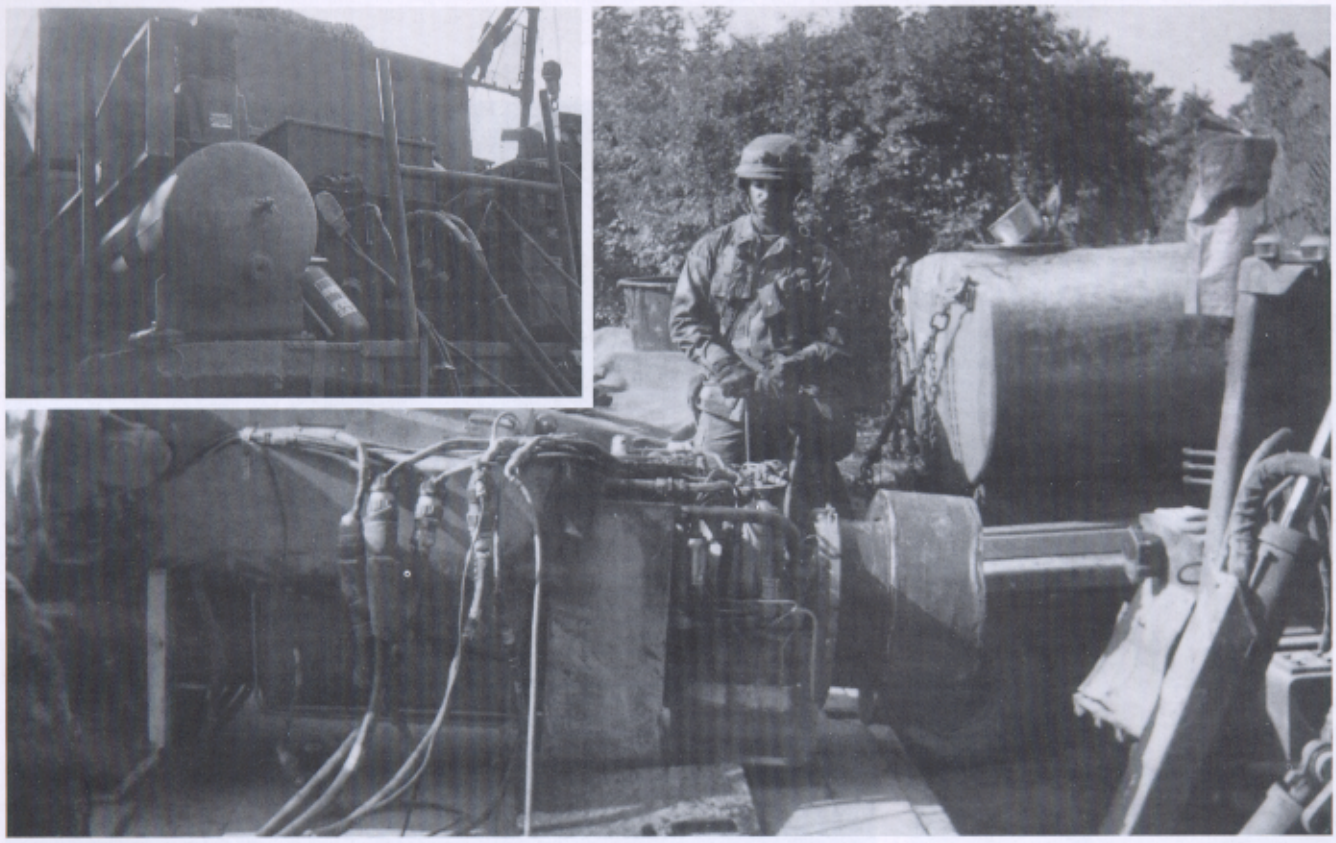
The direct support-plus (DS+) maintenance concept was instituted immediately following Operation Desert Storm. This plan essentially allowed more than 50 of the maintenance tasks previously permitted only at maintenance depots to be performed at the direct support level. However, the concept provided that DS+ tasks would be performed only in the main support battalion (MSB) in the division rear area.

When the 3d Infantry Division's MSB created a 12-week cross-training program, direct support mechanics were brought in from the FSB's to learn how to do DS+ tasks. The 26th saw an opportunity to do some of these tasks in the FSB, rather than only in the MSB. As a result of the 26th FSB's proposal, DS+ has expanded into the FSB's, bringing support forward and closer to the point where the maintenance and repair request originates. But, simple as the plan seems, it is easier said than done.

A FUPP repair section is not authorized in the FSB's modification table of organization and equipment. That didn't stop B Company. The company commander assigned three energetic sergeants, who were graduates of the DS+ training program, to the FUPP repair section and transferred to it an M750 repair parts van and an M931 tractor from the technical supply section and a 5-ton cargo truck from the base maintenance platoon.

They modified the van by mounting an air compressor to run air tools, mounting a 5-kilowatt generator to supply power, and attaching a ground-hop support set to the tongue of the van. Special tools were stored in the van. The company developed a 250-line stock of repair parts needed to repair M1A1 engine modules. The parts are stored inside the van on flex pallets and in storage cabinets.

Even with the van, parts, and tools, mechanics still had to figure out a way to actually work on FUPP's in a muddy, unlevel field environment. The answer



This soldier is using a ground-hop support set. The FUPP repair section is equipped with a ground-hop support set, an air compressor, and a 5-kilowatt generator (shown in the inset), all mounted and mobile, ready to deploy anywhere, anytime.

came when a unit supply company commander loaned B Company a 25-ton lowboy trailer. The lowboy is used by parking it perpendicular to the tongue of the M750 van and using it as a solid work stand on which to place the 10,000-pound FUPP. Then, to make the FUPP repair section fully functional, the company M88A1 recovery vehicle was used to move FUPP's out of their containers and onto the lowboy. Finally, a wrecker was provided for basic lift, and a 600-gallon fuel pod was provided on a 1 1/2-ton trailer to collect waste oil.

Although the 26th FSB's FUPP repair section will continue to improve, it accomplished its initial goal and became the first unit to provide FUPP maintenance support forward of the brigade rear boundary. While supporting two heavy armored task forces at the Combat Maneuver Training Center, in Hohenfels, Germany, in the fall of 1994, the FUPP repair section issued and repaired 13 FUPP's to help the 3d Brigade maintain a record number of tanks ready to cross the line of departure for each mission. Consequently, the armored task force commander had what he needed, when it was needed.

This accomplishment can be attributed to the ingenuity and drive of the sergeants assigned to the section, who were motivated to do the best job possible for the task forces they support. Since the 26th FSB FUPP repair section was formed in November 1993, it has swapped-out 83 FUPP's. The net result has been millions of dollars in savings and minimal downtime for the tanks of the Army's Phantom Brigade. **ALOG**

Captain Jeffrey P. Kelley is pursuing his master's degree from the Florida Institute of Technology, Melbourne, Florida. He commanded B Company, 26th Support Battalion (Forward), 3d Infantry Division (Mechanized), when he wrote this article, and thanks Chief Warrant Officer Tim Barker for his instrumental role in developing the FUPP program. Captain Kelley also is a graduate of the Army Logistics Management College's Logistics Executive Development Course.

Prepo Ashore

by Master Sergeant Debra D. Arden

The 21st Theater Army Area Command (TAACOM), Kaiserslautern, Germany, has been in the "getting rid of excess equipment" business for some time. As the drawdown in Europe comes to a close and the restructuring of the remaining force continues, a primary consideration is the retrograde of excess equipment in a way that will not be detrimental to force readiness.

Prepo afloat and prepo ashore are two programs that pre-position materiel conveniently close to where the potential or probable need is anticipated. In prepo afloat, equipment required for a heavy brigade and the initial theater logistics base is pre-positioned onboard 12 ships located at strategic locations at sea. This enables the Army to deploy rapidly to future hot spots when necessary. In prepo ashore, similar equipment is pre-positioned on land in Kuwait in Southwest Asia.

The final installment of equipment slated for pre-positioning in Kuwait was shipped last April. Additional equipment will be shipped only as needed to replace equipment already there.

Captain Robert Grundy was the 21st TAACOM prepo ashore project officer. "We were told by Department of the Army what to provide and what the timeline was for providing it," he said. "Most of this equipment is not new, but it is in perfect working condition."

The prepo ashore program pre-positioned 842 pieces of rolling stock, including everything from M1 tanks to Bradley fighting vehicles and M113 armored personnel carriers to trailers. Approximately 6,300 secondary items, such as burners for mobile kitchen trailers, .50-caliber weapons, and tents, were also shipped. In fiscal year 1994, costs for inland transportation, parts, and overtime associated with prepo ashore were $2.9 million. This figure was expected to drop to $1.1 million in fiscal year 1995.

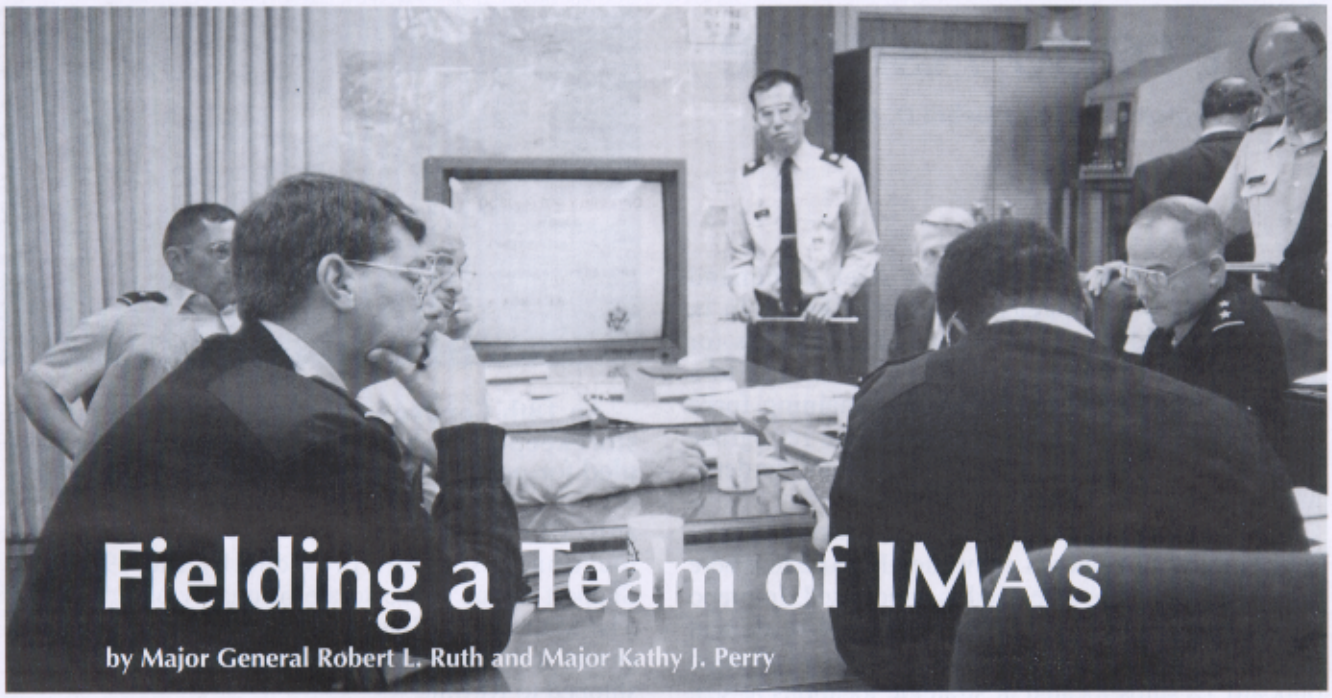
Some of the equipment in the prepo ashore program became available when corps units in U.S. Army, Europe, were deactivated. However, most of the equipment came from Combat Equipment Group, Europe (CEGE), and reserve storage activities (RSA) in Kaiserslautern and Germersheim, Germany. Once identified as excess, the corps and RSA equipment was moved to maintenance facilities at Germersheim and Kaiserslautern and repaired to meet Army standards. CEGE equipment was repaired at the storage location. Inspectors provided by the 29th Area Support Group's directorate of quality assurance and 51st Maintenance Battalion checked the equipment to ensure that it met the Army's standards before it was shipped to Kuwait.

An 18th Combat Equipment Company, Europe, storekeeper checks retrograde materiel scheduled for pre-positioning at Camp Doha, Kuwait.

Critical to the success of the prepo ashore program is maintaining the operational readiness of the equipment so that it will be immediately available for use by combat commanders during contingency operations. The equipment is stored at Camp Doha, Kuwait. A civilian contractor maintains the equipment according to Army standards and issues it to units that rotate to Kuwait for maneuvers. When their maneuvers are completed, unit maintenance personnel repair damaged equipment, if possible, before turn-in. However, the civilian contractor is ultimately responsible for maintaining the equipment in combat-ready condition.

Captain Grundy believes that having the equipment pre-positioned in Kuwait will undoubtedly serve as a deterrent against Iraqi aggression. "They know we have a brigade's worth of equipment that is in a high state of readiness," he said. "That is one part of this mission that has never been secret," he added. "We want the whole world to know that we have a lot of equipment in Kuwait, and we are prepared to use it if anything flares up." **ALOG**

Master Sergeant Debra D. Arden is assigned to the Office of the Chief of Public Affairs, Department of the Army, Washington, D.C. She was previously assigned as Chief of Media Relations for the 21st Theater Army Area Command, Kaiserslautern, Germany. Master Sergeant Arden has a bachelor of science degree in psychology from the University of Maryland in College Park. *The author thanks Captain Robert Grundy for providing the photo accompanying this article.*



Fielding a Team of IMA's

by Major General Robert L. Ruth and Major Kathy J. Perry

The tempo during the planning phases of Operations Uphold Democracy (Haiti) and Vigilant Warrior (Southwest Asia) was increasing rapidly. The Army logistics operations center (LOC), collocated with the Army operations center in the Pentagon, was running out of personnel because the two operations were executed simultaneously. The high visibility and complexity of both operations required the LOC to operate 24 hours a day. Clearly, the LOC was understaffed to function around the clock. But where, on relatively short notice, could the Office of the Deputy Chief of Staff for Logistics (ODCSLOG) find highly motivated and trained professional team players for the LOC? No problem. They decided to field a team of individual mobilization augmentees (IMA's).

IMA's are reservists who are preassigned to active component organization, Selective Service System, or Federal Emergency Management Agency billets that must be filled on, or shortly after, mobilization. IMA's train on a part-time basis with these organizations to prepare for mobilization (Joint Pub 1-02).

The initial ODCSLOG strategy was to meet augmentation requirements with IMA volunteers on temporary tours of active duty (TTAD). However, TTAD funding was not available, so mobilization of eight IMA's was requested under the Presidential selective reserve callup (PSRC) authority. While awaiting allocations under the PSRC authority, ODCSLOG staff elements were advised to selectively schedule tours of annual training (AT) for their IMA's during this crisis period. On 25 October 1994, the PSRC request was approved for six IMA's. All six IMA's performed their tours of duty in the LOC as efficiently as their troop program unit counterparts in response to the Army mission surge.

The LOC operates day and night in times of crisis to assist the ODCSLOG staff in satisfying logistics requirements worldwide. During Operations Uphold Democracy and Vigilant Warrior, the LOC became the focal point for receiving logistics information from a multitude of sources on logistics readiness and requirements. At the peak of the operations, there were more than 16,000 soldiers deployed in 105 countries. The LOC staff intensively managed Army-level logistics requirements to ensure the right support was provided in the right quantities at the right time.

The IMA team members quickly became familiar and proficient with all the missions and functions of the ODCSLOG's operation and with their duties in the LOC. The IMA's were responsible for coordinating and integrating current Army logistics operations with the Army Staff, Joint Staff, major Army commands, and other Federal agencies. Specifically, the IMA's were responsible for obtaining and collating real-time operational information, analyzing data, and organizing and disseminating the information.

The IMA's met the diversified challenges and became very proficient in analyzing a considerable amount of operational logistics data and synthesizing only the pertinent facts that were required. With the high level of political interest in the operations, developing and presenting comprehensive briefings to the

☐ At left, an individual mobilization augmentee briefs the Army DCSLOG and his directors on logistics operations in Haiti and Southwest Asia.

Army DCSLOG and other senior logisticians was an important part of the job. These briefings required use of the latest computer software products to create high quality presentations from raw data. After a couple of briefings, the IMA's became experts at anticipating what information would be required and what questions would be asked. Many important proactive decisions were made by the Army DCSLOG based on the information provided during these daily briefings. These decisions critically impacted the Army's ability to project logistics support and sustain the finest military forces in the world.

The IMA's also performed other significant duties in the LOC such as preparing and maintaining operational maps and charts and retrieving, reviewing, and disseminating messages from the Army message handling system. One tasking required an IMA to research and provide information to the DCSLOG on past logistics lessons learned for application to current operations.

Because of the expertise the IMA's acquired, they were asked to assist other DCSLOG personnel on the use of computer software programs and were tasked to prepare numerous staff actions (executive summaries and information papers). During their 6-month tour the IMA's were also involved in Operations Safe Haven (Panama), Sea Signal (Guantanamo, Cuba), United Shield (Somalia), and Provide Promise (Bosnia).

The IMA's who worked for ODCSLOG were completely integrated into the organization. They were expected to aggressively assume integral responsibilities. The IMA's quickly learned that being part of the team meant unconditionally surrendering their time, working under stressful conditions and constant scrutiny, and participating in high-level discussions with the Army's leaders. The contributions of the IMA's to the LOC during this time were critical. Their presence and acceptance personified the "one Army" concept. They transitioned smoothly from civilian to active-duty roles, even though the tasks were very demanding initially.

The DCSLOG's concept of using IMA's as part of its team is a good example of how the Army's IMA program is intended to operate. Trained and ready soldiers are prepared to do whatever it takes to be part of the Army team.

The next time you need to field a fully functional team, consider using IMA's to help accomplish your mission. Give them tough, demanding jobs, fully integrate them into your organization, and the success you achieve will validate the "Total Army" concept.

Lieutenant General Johnnie E. Wilson, Army Deputy Chief of Staff for Logistics, best summarized the importance of IMA's to the Army when he said—

> The ODCSLOG IMA's played, and continue to play, an absolutely essential role in the logistics readiness of America's Army. The six IMA's worked in the logistics operation cell during a period of intense pressure and heightened tensions around the world as events in Somalia, Korea, Rwanda, Bosnia, Haiti, and Southwest Asia unfolded. We simply could not have handled the diverse and fast-paced logistics requirements of those contingencies without the professional abilities and dedicated work of the IMA's. Our Nation, our Army, and, specifically, the ODCSLOG family, owe each of these great soldiers a huge debt of gratitude for a job well done. **ALOG**

Major General Robert L. Ruth is Deputy Commanding General for Reserve Affairs, Army Materiel Command (AMC), Alexandria, Virginia. When this article was written, he was the Assistant Deputy Chief of Staff for Logistics (individual mobilization augmentee). General Ruth has been a quartermaster officer for 30 years. His assignments include Deputy Chief of Staff for Logistics, 81st Army Reserve Command; and Deputy Commanding General for Security Assistance, AMC. He has an undergraduate degree from Ohio State University, Columbus, Ohio, and master's degrees from Boston University in Massachusetts and Central Michigan University, Mount Pleasant, Michigan. General Ruth is also a graduate of the Harvard Senior Executive Program, Cambridge, Massachusetts, and the Army War College.

Major Kathy J. Perry is a professor of installation management, Army Management Staff College, Fort Belvoir, Virginia. She is an individual mobilization augmentee assigned to the Office of the Deputy Chief of Staff for Logistics, Washington, D.C. She served as a logistics staff officer in the Army operations center and was involved in supporting Operations Uphold Democracy, Vigilant Warrior, Safe Border, and Provide Comfort. Major Perry holds a bachelor's degree in education from East Stroudsburg University of Pennsylvania and is a graduate of the Quartermaster Officer Advanced Course, the Army Management Staff College, and the Army Command and General Staff College.

CSS Automation in a Heavy

by Major Charles A. Radke

The 3d Infantry Division Support Command's new CSSAMO has sparked interest throughout the Army. This article may help answer questions about how to structure similar automated information management offices in other Army units.

What does a combat service support automation management office (CSSAMO) do? What personnel should be assigned to it? Debates surrounding these questions rage on.

As a new organization, the CSSAMO suffers from a lack of precedence upon which to base its mission and structure. Although FM 54-30, Corps Support Groups, describes CSSAMO in detail, FM 63-2, Division Support Command, Armored, Infantry, and Mechanized Infantry Divisions, only describes a logistics automation systems support office (LASSO). The success of LASSO's has been overtaken by the fielding of new information systems that require available systems functional managers to fix functional problems.

Automated information systems are no longer collocated. They're now in every maintenance, supply, personnel, and administrative area throughout the division. Every unit in the division depends on these systems to support the mission and expects to take them along when it deploys.

Gone also are the days of simply completing a Department of the Army form as a way of doing business. Floppy disks, hard disks, and streamer tapes transmit data over communication links in a stream of zeros and ones called bits, replacing mountains of paper. We can send and receive information faster and with less chance of error than ever before in history. And that's exactly why the CSSAMO is so important.

In order for the Army's information system to work smoothly, every link in the chain must operate at maximum efficiency. From the system operator's first-time data input through that data's travel along the information highway, every system must operate well. Any failure in the system will cause the information flow to stop, and ultimately some unit will not receive the support it requires.

The CSSAMO mission is to keep these systems operating at maximum efficiency and provide the proper information flow to the units. Whether it's repairing a damaged system, fielding a new system, or finding a better way of delivering the data, the CSSAMO is responsible for delivering results.

That brings up another question: What kind of personnel are required for this undertaking? The answer is, Each information system needs a permanently assigned systems expert to keep it operating. That person must be proficient in operating the system and fully understand what makes an automated system function. Although systems managers need to make the systems do everything they are designed to do, they also must be able to go beyond the information system level and work within the operating systems that drive them. Without successful administration in both of these areas, the systems will fail.

For example, look at the unit level logistics system-ground (ULLS-G). There are more than 100 ULLS-G systems in a heavy division with two maneuver brigades. Each day from two to six ULLS-G systems fail to process information as designed, and the operator or local experts are unable to find the source of the problem. The system is designed with only one operator-level tool to fix all problems, and it has a procedure to re-index the data base when a problem is encountered. Unfortunately, the re-index option only fixes a few of the problems encountered. After the operator exhausts the only option available to solve a problem, the next step is for him to ask his "unit expert" for assistance. Since this is an additional duty for unit experts, who often lack the training to be functional systems managers, they seldom find a solution to the problem. As a final option, they turn to

Division

the CSSAMO for help.

If the CSSAMO has a fully qualified systems manager, the system will be repaired and running again within a short period of time. It's the expertise, availability, and experience of the systems manager that makes the CSSAMO capable of this kind of support. Equipped with a vast storehouse of knowledge, the systems administrators in the CSSAMO keep the automated information systems operating.

Examples like the ULLS-G system scenario are plentiful in a heavy division. Other systems that keep the division operating are just as important and require the same kind of maintenance. The full list of systems supported by the CSSAMO is extensive; but a few of the major ones include the ULLS-G, the unit level logistics system-aviation (ULLS-A), the unit level logistics system-S4 (ULLS-S4), the standard Army maintenance system-level 1 (SAMS-1), the standard Army maintenance system-level 2 (SAMS-2), the standard Army retail supply system (SARSS), the direct support unit standard supply system (DS4), the Department of the Army movements management system (DAMMS), the transportation coordinator automated command and control information system (TC ACCIS), the standard Army ammunition system (SAAS), the Army medical management information system (TAMMIS), and the standard property book system (SPBS).

Add to this list the many requests by higher level managers to manipulate the data needed to make decisions and allocate resources, even though this is not an approved CSSAMO mission. Again, this is another mission that can be accomplished only by skilled personnel who can develop unique programs to sort through the massive amount of data in the system.

With all of these mission-essential requirements, the personnel structure of the CSSAMO should include an automation management officer, a data processing technician, a maintenance system technician, a supply system technician, an aviation maintenance technician, an information systems chief, an automation logistics specialist, an aviation systems specialist, a motor transport operator, a unit supply specialist, a software analyst, an information systems operator, a medical supply specialist, and an ammunition specialist. Even so, any addition of more automated systems could require additional personnel.

With the proliferation of automation on the battlefield, we have the ability to deliver critical information on time to the place it is needed most. The information delivered will only be as good as the information provided to the system by the operators. These operators must be fully trained for the job. Without CSSAMO, automation repair personnel, and a toolbox full of specialized tools, breakdowns will slow the system and may eventually cause dangerous information blockages.

The CSSAMO concept is great. Now let's implement it and let it work. ALOG

Major Charles A. Radke is a combat engineer currently serving as chief of the Combat Service Support Automation Management Office, 3d Infantry Division Support Command, in Germany. He is a graduate of the Systems Automation Course at Fort Gordon, Georgia, and has served twice as a company commander, twice as a battalion maintenance officer, and as a small group instructor for the Engineer Officer Advanced Course.

Logistics in Haiti

by Major Gerald A. Dolinish

These fuel tankers (above) in the assault echelon are fuel storage site (below) was at the Haitian America Sug

From 22 September until 10 November 1994, the 46th Corps Support Group (CSG) (Airborne) participated in Operation Uphold Democracy. But the road to Haiti actually began long before at Fort Bragg, North Carolina; Fort Eustis, Virginia; and Camp Lejeune, North Carolina. At these installations, during the XVIII Airborne Corps' Super Thrust I and Super Thrust II exercises in April and June 1994, the group formed its concept of logistics support for operations in Haiti. These exercises laid a framework for synchronizing critical operations tasks.

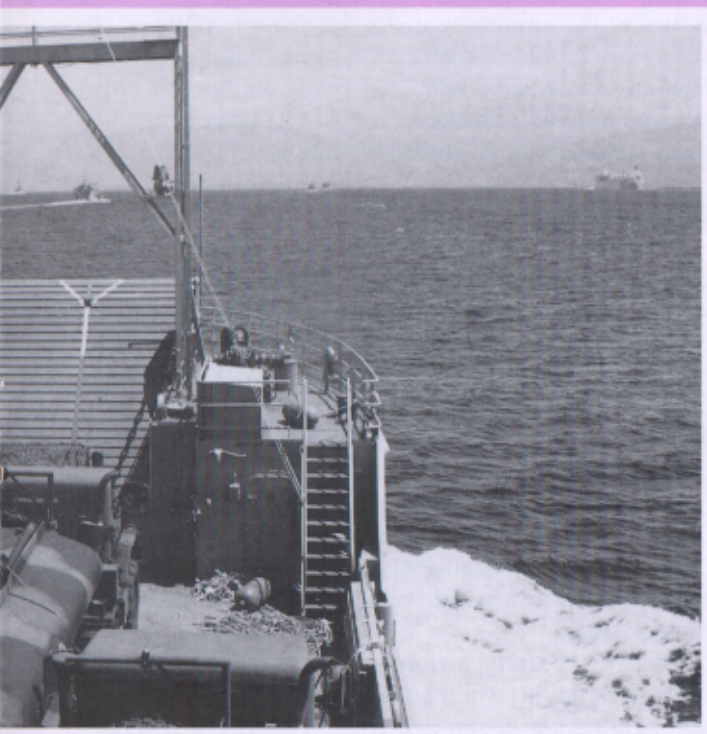
The 46th CSG began planning for Operation Uphold Democracy in August. The group had to simultaneously plan for two contingencies: a permissive entry in Haiti (Operation Uphold Democracy) or a forced entry (Operation Restore Democracy). Crisis action planning for Operation Restore Democracy stopped when former President Jimmy Carter's negotiations with Haiti's General Raoul Cedras proved successful.

Preparing for Permissive Entry

The 46th CSG's primary logistics concern was obtaining facilities. The facilities the group planned to use during a forced-entry operation now had to be obtained through contracting.

The group's support of Joint Task Force (JTF) 190 and the 10th Mountain Division (Light Infantry) presented no unusual problems. The 10th Division's requirements and support base did not differ significantly from the 82d Airborne Division's, and the corps base units participating in the operation were principally from Fort Bragg—the 46th's usual customers.

One major difference between Operation Restore Democracy and Operation Uphold Democracy was the projected end-strength of the theater—a personnel increase from 10,000 to 20,000. This meant modifications to the time-phased force deployment list (TPFDL) for both personnel and equipment. Major units added to the 46th CSG Task Force (TF) organization and the TPFDL were the 548th Corps Support Battalion (CSB), Fort Drum, New York, and the



bound for Port-au-Prince, Haiti. The operation's main ar Corporation in Port-au-Prince.

189th CSB (-), Fort Bragg. These units significantly increased the group's support capabilities.

Critical combat service support units and equipment had to be slated for early arrival. During crisis action planning, the need for a viable intermediate staging base surfaced. After careful evaluation, Brigadier General John M. McDuffie, commander of the 1st Corps Support Command (COSCOM), selected the island of Great Inagua in the Bahamas for this purpose. (See General McDuffie's article in the July-August 1995 issue of *Army Logistician.*)

Great Inagua

Before the entry of ground forces into Haiti, TF 189th CSB (-) left Fort Bragg for Fort Eustis to load its equipment onto 7th Transportation Group landing craft utility (LCU's). The TF then proceeded to Great Inagua to establish a key theater logistics node. The Joint Logistics Support Command directed TF 189's movements to coincide with the movement of the 2d Brigade Combat Team, 10th Mountain Division, to Cap-Haitien.

An element of the 101st Corps Support Group—the 102d Quartermaster Company—departed Fort Campbell, Kentucky, for Fort Bragg while TF 189 was en route to Fort Eustis. The 102d would eventually link up with TF 189 on Great Inagua and provide the petroleum, oils, and lubricants (POL) storage and distribution that were essential to TF 189's mission of providing water and POL.

Lines of Logistics Into the Theater

While TF 189 was en route to Great Inagua, critical water production and fuel storage and distribution equipment was being moved from Fort Eustis through the Port of Wilmington, North Carolina, and on to Port-au-Prince, the Haitian capital. Arrivals in Haiti included four 5,000-gallon water and six 5,000-gallon fuel tankers, emergency rations, and water-production equipment.

The assault echelon of the 46th CSG TF meanwhile was preparing for air transport to Port-au-Prince International Airport. The assault echelon contained command and control personnel for the operation, a 3,000-gallon-per-hour reverse-osmosis water purification unit (ROWPU), a fuel system supply point to refuel aircraft on the airfield, and a 5,000-gallon fuel tanker. With the addition of TF 548 (the 548th CSB), TF 46 significantly added to its transportation, maintenance, and field service capabilities and quickly reached an end-state that would allow the group to provide a support base for the theater of operation.

POL and Water

Establishing fuel operations was a high priority for TF 46 and the COSCOM. The 1st COSCOM selected two key logistics nodes to support the theater: the refinery at the Haitian America Sugar Corporation (HASCO) in Port-au-Prince and the airport. HASCO was the main petroleum reception facility in Haiti and had a total fuel storage capacity of 350,000 gallons. This facility, operated by the 110th POL Supply Company from Hunter Army Airfield, Georgia, used petroleum barges as the main means of providing fuel

to the JTF. One of the fuel barges was compartmentalized for the storage of both JP5 and motor gasoline (MOGAS). MOGAS was essential to refueling operations for mobile kitchen trailers and the Coast Guard's patrol boats.

Initially, a 3,000-gallon-per-hour ROWPU production site established adjacent to the airport served as the backbone for water production; two additional 3,000-gallon-per-hour ROWPU's were added to meet increasing demands and reduce distribution requirements.

Water distribution operations, on the other hand, were not without challenges. The primary consumers of water were the two field service companies operating the laundry and bath sites, but as many as 21 3,000-gallon onion-skin bags were dispersed throughout the area of operation to provide water to customers by geographical area. During Operation Uphold Democracy, TF 46 produced more than 4 million gallons of potable water.

Rations

An emergency resupply of 27,000 rations arrived on D-day. Initially, the bulk of the rations for the theater arrived by sustainment barges. However, for some period of time the theater relied on the air line of communication (ALOC) for rations to increase the ration support base.

Sixteen refrigerated vans for rations, fresh fruits and vegetables, and ice were deployed. Perishable rations also were to be transported by intratheater aircraft. However, palletizing the rations in advance of aircraft arrival at the airport created some risk of spoiling. To solve this problem, reefer vans were shuttled to Cap-Haitien. Eventually, when Air Force intratheater airlift became routinely available, the ALOC became the primary means to move perishable rations.

Transportation

Transportation support also was essential to successful logistics operations in Haiti. TF 46 used a variety of transportation modes to distribute materiel. Initial ground transportation support was provided by the 546th Transportation Company. With the arrival of TF 548 and the 57th Transportation Light Medium Truck Company, TF 46's capabilities increased tremendously.

The LCU's assigned to the 7th Transportation Group were instrumental in projecting logistics support out from Port-au-Prince. These boats allowed logistics to flow reliably to Cap-Haitien and other remote areas.

Part of the early arriving transportation resources were two rough-terrain container handlers. Once sustainment barges began to arrive, in excess of 250 containers per ship needed processing. This volume of containers required the establishment of a container-holding yard at the airfield to call containers forward as needed.

Ammunition

Ammunition, though not as essential in a permissive environment, proved to be a difficulty nonethe-

Haitians (top) sandbag ammunition magazines at a theater ammunition field storage site. Soldiers (right) process weapons seized in raids and turned in under the arms-for-cash program.

less. The challenge in ammunition was created by the JTF's very active and successful program of raiding suspected arms caches. The raids, combined with an aggressive arms-for-cash program, reduced the number of weapons held by Cedras supporters. It also produced a tremendous amount of ammunition. Unserviceable ammunition was temporarily stored until the JTF could provide disposition instructions and a location to destroy it. In early November, approximately 2,000 pounds of unserviceable ammunition were destroyed using four explosive shots.

The JTF also was extremely active in explosive ordnance disposal (EOD) incident response calls and area sweeps—particularly in the vicinity of the Presidential Palace in Port-au-Prince; nearly 3 tons of unserviceable explosives were removed from there alone. In total, the 48th EOD Detachment had more than 100 missions, or 1,000 response hours, in the first 30 days.

Maintenance Support

Maintenance support to TF 46 was provided initially by the 503d Maintenance Company from TF 264. The 514th Maintenance Company, from TF 548, later provided TF 46 a more robust maintenance capability. Mechanized units assigned to the theater deployed with their habitual maintenance support base, thereby eliminating the need for TF 46 to support equipment not traditionally supported at Fort Bragg. During the operation, TF 46 received more than 1,000 ground and 150 aviation maintenance jobs.

Mortuary Affairs

Mortuary affairs support was provided by the 54th Quartermaster Company from Fort Lee, Virginia. Although the TF was operating in a permissive environment, mortuary affairs personnel were essential to the theater. From late September until early November, the company processed the remains of 20 persons, only 2 of which were the remains of U.S. soldiers.

General Supplies

General supplies initially arrived in the theater by push packages that primarily consisted of sandbags, concertina wire, and other construction material and supplies for force protection. The push packages were developed jointly by TF 46 and the 2d Materiel Management Center. The 364th Supply Company (Direct Support) processed all general supplies entering the theater.

Storage space quickly became a major issue. TF 264 stored much of the general supplies in a warehouse adjacent to the airport. However, military-owned demountable containers (MILVAN's) often became temporary storage sites for general supplies and push packages.

Laundry and Bath Facilities

The locations of laundry and bath facilities were determined by the geographical location of units and population density. Both the 259th and 590th Field Service Companies supported the entire theater of operation. Laundry sites operated by the 590th were located at Bowen Airfield, the international airport, and Cap-Haitien. The 259th operated a large consolidated laundry point at the airport and another at the seaport. Shower points also were at these same locations and at the light industrial complex in Port-au-Prince and Camp Dragon.

Field Sanitation

Field sanitation presented TF 46 with one of its greatest challenges. TF 46 contracted for 10 waste management trucks and 650 portable latrines with chemicals. Local civilian contractors were used to operate the trucks and assemble the latrines. Though the group received only 7 of the 10 trucks, the waste management mission was still accomplished. But the field sanitation mission needed intensive operational and maintenance management, contracting support, and the almost total dedication of two noncommissioned officers.

Terminal Service

As the theater stabilized, JTF 190 began to redeploy units that were no longer essential for continued logistics operations. The 7th Transportation Group

A 3,000-gallon-per-hour reverse-osmosis water purification unit at Port-au-Prince International Airport provides fresh water for the joint task force.

returned to Fort Eustis, leaving behind the 10th Terminal Service Battalion (TF 10) to provide essential services at the seaport. TF 10 was then organized under TF 46, making it JTF's prime mover of all materiel in country. TF 10 continued to maintain the sea lines of communication throughout the theater and simultaneously support the retrograde of equipment from the theater of operation.

Humanitarian Assistance

One of the great rewards of military operations other than war is providing humanitarian assistance. TF 46 was one of the JTF's prime agents for this mission. Initially, TF 46 became involved through Operation Restore Power—a program dedicated to providing fuel and packaged POL products to power plants in Port-au-Prince. In total, the TF delivered nearly 100,000 gallons of JP5 fuel to the Varreux and Carrefor power plants in Port-au-Prince. TF 46 provided 5,000-gallon tankers to deliver fuel and provide packaged POL products (turbo oil) to Jacmel, Les Cayes, Jéréme, Gonaives, Port-Liberté and Cap-Haitien. TF 189 and TF 548 provided nearly 150,000 gallons of fuel to the power plant at Cap-Haitien alone. TF 46 also supported the delivery of 54 MILVAN's of United Nations-procured supplies for schools in Cap-Haitien and the delivery of fuel to public works vehicles in Port-au-Prince.

LOGCAP

The transition to Brown and Root Services, Incorporated, under the logistics civil augmentation program (LOGCAP) began before the 1st COSCOM's departure for Haiti and continued throughout the deployment. In mid-October, representatives of Brown and Root and the JTF began to develop a timeline for the transfer of logistics missions. In early November, TF 46 missions such as rations; retail fuel operations; class II, III and IV supply; and arrival and departure airfield control group (ADACG) operations transferred to Brown and Root control. By mid-November, Brown and Root had assumed all TF 46 missions except ammunition and mortuary affairs. TF 548, because of its routine support relationship with the 10th Mountain Division, received attachment of the 8th Ordnance Company (-) and the 54th Quartermaster Company. Along with the attached units and their assigned maintenance, transportation, and field service units, 548th CSB formed the support base for all corps units remaining in Haiti.

By the end of TF-46's mission in Operation Uphold Democracy, it had successfully transitioned from the support planning of a forced-entry operation with the 82d Airborne Division to the execution of an operation in support of the 10th Mountain Division in a permissive environment. During the operation, water, fuel, and rations were never a problem for units in the field, and, though there were logistics challenges, TF 46 soldiers contributed to the JTF's success in a difficult operational environment. The group now is fully recovered and prepared for its next logistics challenge. ALOG

Major Gerald A. Dolinish is the executive officer, 264th Corps Support Battalion, 46th Corps Support Group (Airborne), 1st Corps Support Command, Fort Bragg, North Carolina. He has served in a variety of positions in both the 101st Airborne and 3d Armored Divisions and as an instructor at the Army Command and General Staff College. He holds a bachelor's degree from Rollins College, Winter Park, Florida, and a master's degree from Kansas State University, Manhattan.

Reengineering Maintenance Management

by A. Michael Richardson

Process reengineering and its application to the development of maintenance policies within the Army maintenance management system (TAMMS) will soon be reflected in changes to DA Pamphlet 738-750.

You may be thinking that process reengineering sounds like just another puzzle palace buzzword. Well, maybe not this time. It is being used to make some very real improvements in today's Army.

Process reengineering is really nothing new. The terminology may have changed, and the tools available to perform the analysis may have improved with automation; but it is still nothing more than applying basic, fundamental industrial engineering principles to new problems.

How can a function be performed in the most efficient and effective way? This is the same question that first generated the need for the industrial engineering discipline. Process reengineering, as it is applied today, provides the opportunity to harness the power of automation to track the mind-boggling number of separate processes, their inputs, outputs, and interactions.

The popular question to ask these days is, "What is the value added?" If you ever have cursed one of our automated logistics management information systems, either because you were told to key in data already in the system or to manually intervene for a management decision that should have been completed by the computer, then you have your answer. These situations, and many others, occur primarily because of the way we have been designing automated systems for years; that is, to perform a single function in isolation. By now it should be obvious to all of us that we can no longer live and work in isolation.

Although we have continued to design automated information systems as single-function entities, we have attempted to compensate for their "stovepipe" nature by having them communicate with each other through interface transactions. This approach worked as long as the system processed data in a batch mode on a regular cyclical basis.

As the magnitude and complexity of functions continued to grow, the need for up-to-date information grew even faster. Even though the available hardware was faster and smaller, that need still outran our ability to provide it. This is where process reengineering entered the picture.

Integrated Definition Language

The Defense Management Review (DMR) established the corporate information management (CIM) initiative. Among its many by-products was Department of Defense (DOD) approval of a specific methodology to "process reengineer" the business-oriented functions of DOD and the military services. That methodology is the integrated computer-aided manufacturing definition language, known in the Army by the abbreviation, IDEF.

IDEF focuses on processes and data instead of organizations and information. Organizations are unstable by nature, while processes tend to remain constant, regardless of which organizations are performing them. IDEF uses automation to support development of what is known as a process model in industrial engineering; in IDEF it is called an activity model.

An activity equals a process and usually results in transforming the input in some way. Modeling an activity answers the following questions about the process–

- What is done?
- How is it done?
- Which controls impact it?
- Who or what does the work?
- What initiates the activity?
- Which activity depends on another for its functional ability?

The primary characteristics of an activity model are that it provides a structured format and syntax to facilitate user communications; it is hierarchical in nature to support increasing levels of detail; and it illustrates the nature of the interrelationships between activities.

IDEF activity modeling is conducted in two stages. The first produces an "as-is" model of the current situation. Analysis of that model results in identification of shortcomings in the process. These are identified as "opportunities for improvement" and are further analyzed to determine whether the improvement requires an automated solution or not.

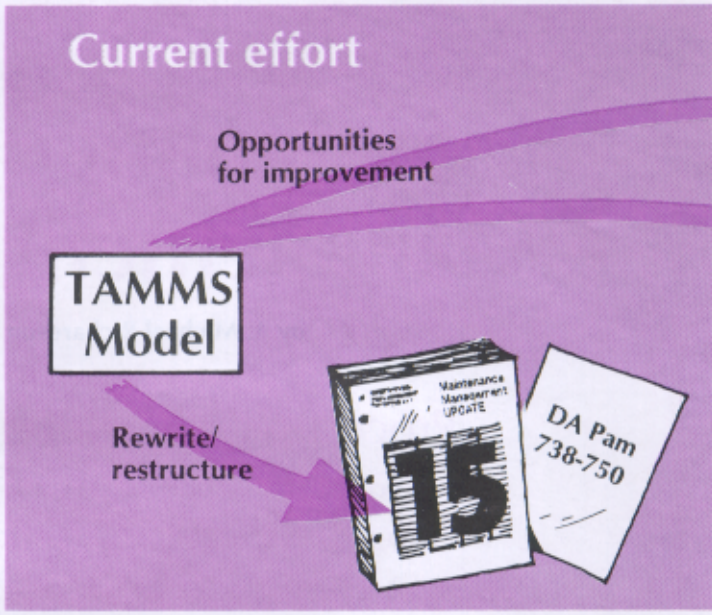
The second stage involves incorporating process improvements that analysis has shown to be feasible into a revised version called a "to-be" model. The "to-be" model will reflect not only the process improvements identified in the "as-is" model but also process modifications needed to implement new concepts and operational doctrines, such as the single stock fund (SSF), split operations, integrated sustainment maintenance (ISM), and total asset visibility (TAV).

Complex processes in an activity model are progressively separated into greater and greater levels of detail. Much of the IDEF activity modeling previously accomplished within the Army and in the joint forces arena in support of CIM has been done at a high level. High-level models are good for setting the stage and defining the environment, but to realize the full potential of IDEF modeling (that is, to make process improvements, drive automated system change or development, and guide data base design), the models must be separated to a detailed level. Doing so enables functional experts to identify problems inherent in the existing process and opportunities for improvement.

The IDEF methodology also supports development of a data model. To fully understand the concept of a data model, a distinction must be made between the terms "information" and "data," which are often used interchangeably. Information is a manipulation of data to make it meaningful in a specific situational context, and it can change with every new situation. Conversely, data, from which information is derived, change very rarely. The data model aids in the management of fundamental facts and their meaning. It represents the relationships among data rather than information. The data model also provides a glossary that defines the data entities and their attributes. This is particularly useful in identifying redundant data that are collected under different names in different systems. Data models from various processes are then merged to provide a single source for data standardization.

TAMMS

The application of process reengineering to Army maintenance began in April 1993. The Logistics Evaluation Agency (LEA), a staff support agency of the Office of the Deputy Chief of Staff for Logistics (ODCSLOG), was tasked to lead a project to determine



This chart illustrates the changes that will appear in future revisions of maintenance publications.

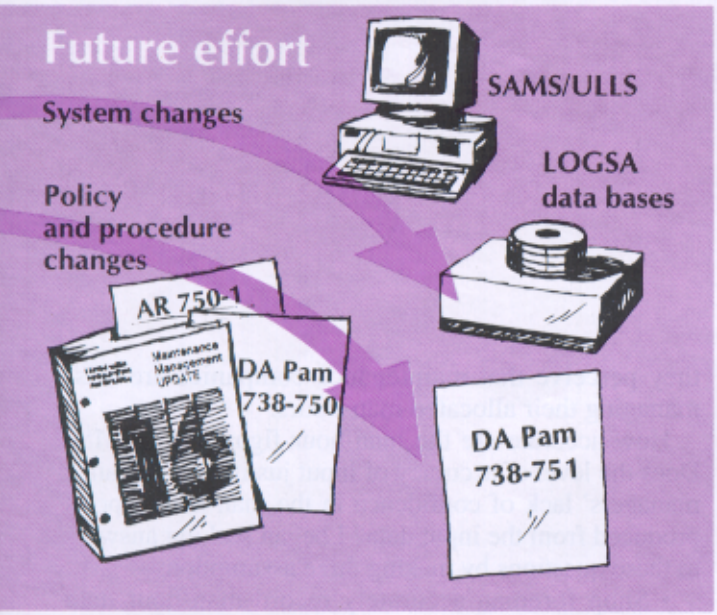
the requirements for rewriting and restructuring DA Pamphlet 738-750, The Army Maintenance Management System (TAMMS). [In September 1995, the functions of the LEA were combined with those of the Strategic Logistics Agency (SLA), Alexandria, Virginia, and the new activity has been designated the Logistics Integration Agency.] This project was jointly sponsored and supported by the ODCSLOG staff directorates of Supply and Maintenance and Plans and Operations, the Aviation Logistics Office, and the SLA.

The primary purpose of the rewrite and restructure was to correct long-recognized shortfalls in the procedural document. The project resulted from the 1991 Maintenance Master Plan Conference, which recognized and documented that TAMMS, in its current form, exhibits the following deficiencies—

- Procedures focus on the completion of forms reporting a maintenance action, rather than process performance.
- Forms are cumbersome and redundant.
- Concentration on forms has created a breakdown in management procedure.
- Unilateral in focus, the document contains no guidance for integrating the maintenance management function with functions such as supply, finance, transportation, and personnel.

The objectives of the project, as defined in the original tasker to LEA, were to—

- Increase the efficiency of maintenance operations at field level.



- Increase the accuracy of data collection.
- Provide direction to doctrinal and systems developers.
- Provide a complete draft rewrite of the TAMMS document.

LEA recognized the value of IDEF activity and data modeling in reaching these objectives and resolving recognized shortfalls. This project will produce the Army logistics community's first tangible product of IDEF modeling: the restructured version of DA Pam 738-750.

The IDEF modeling efforts were orchestrated by a contractor and involved active participation by maintenance functional experts from numerous organizations, including SLA; Army Combined Arms Support Command; Army Reserve Command; Army Ordnance Center and School; U.S. Forces Command; Army Materiel Command (AMC); and AMC's Logistics Support Activity (LOGSA). These experts gathered for several IDEF modeling sessions facilitated by the contractor. The contractor's job was to extract knowledge from the assembled maintenance experts and translate that knowledge into the model.

IDEF modeling is a repetitive process; after many reviews, the work group was satisfied that they had accurately captured the essence of the maintenance operations management function, broken down to the levels needed to identify and make the required changes. The resulting "as-is" model was staffed to all major commands for review and comment.

For the "to-be" model, the functional experts agreed on the following principles to guide their progress–

- Identification of customer, operational, and regulatory requirements.
- Reduction of soldier burden.
- Standardization of data.
- Addition of management procedures.
- Integration of data bases.
- Exploitation of information technology.
- Elimination of redundant data collection.
- Addition of decision support and "what if" capabilities.
- Use of parallel initiatives and studies.

The primary changes that will appear in the next TAMMS document, DA Pamphlet 738-750 (UPDATE 15), will reflect the shift toward a procedural alignment and incorporation of management functions (planning, organization, direction, and control) as they apply to each element of the maintenance process.

Although the modeling process identified many "opportunities for improvement," only those that could be implemented immediately will be reflected in the revised pamphlet. Other improvements will require automation or policy changes and will be incorporated in subsequent updates of DA Pamphlet 738-750 and AR 750-1, Army Materiel Maintenance Policy and Retail Maintenance Operations. DA Pamphlet 738-751, TAMMS-Aviation, will also be reviewed as part of this effort.

The first draft of the rewrite was completed in April 1995. A final draft of the restructured document was turned over to LOGSA, the executive agent for the document, for formal staffing after a field validation.

The TAMMS IDEF activity model and the combined DOD data model hold promise for significant future benefits far beyond the restructuring of DA Pamphlet 738-750. The Army may at last have the beginnings of a road map to remedy the "stovepipe" nature of current automated systems.

The ultimate objective of this, and all other process reengineering projects, is to achieve a fully integrated system, driven by standard data, to facilitate decision-making at all levels of operations. With this project, the Army logistics community is out front and leading the way. ALOG

A. Michael Richardson is Executive Officer for Analysis and Evaluation, Integration Division, Logistics Integration Agency, New Cumberland, Pennsylvania. He is a graduate of ALMC's Logistics Executive Development Course, holds a bachelor's degree in business administration from the University of North Texas in Denton, and a master's degree in public administration from Pennsylvania State University, Harrisburg.

SAMS Man-Hour Data—Ho

System maintenance managers should complete a man-hour-da about accuracy of the data.

Today's automated Army uses a management tool called the standard Army maintenance system (SAMS) to reduce labor costs. To reduce labor costs and maintenance backlogs, SAMS tracks individual and aggregate work orders, repair parts, and man-hour-data trends.

As the Army develops systems to do business better and save money and resources, maintenance managers must have confidence in the accuracy of available man-hour data. In the September-October 1994 issue of *Army Logistician,* Lieutenant Colonel John R. Hills, Jr., and Lieutenant Colonel (Retired) Michael J. Mannion described integrated sustainment maintenance (ISM), which helps to provide that confidence.

One ISM objective is the factual accounting of work center costs to reflect the true costs of doing business for sustainment maintenance. Because ISM relies on man-hour data uploaded to it from SAMS and other existing systems, the SAMS man-hour accounting process must be accurate for ISM to be successful.

Maintenance officers lack confidence in the accuracy of man-hour accounting data because of errors shop foremen make when they record man-hour data on the work order forms (DA Form 5504) and perceived errors clerks make when they manually transfer man-hour data from the work order forms into SAMS. The reporting of inaccurate man-hour data has several repercussions. First, maintenance managers cannot reduce their backlogs with man-hour schedules adjustments when they lack accurate man-hour data upon which to base decisions. Managers normally shift backlog among shops to expedite repairs. However, if they cannot quantify each shop's backlog by man-hours, managers cannot schedule work efficiently.

Second, inaccurate input, consolidated by the Department of the Army (DA), gives DA a false picture of the man-hours required to repair each type of equipment. These inaccurate man-hour data will cause sustainment maintenance managers at all levels to make inefficient work-load decisions. Also, DA officials may cut or reallocate assigned personnel if they perceive that maintenance companies are mismanaging their allocated man-hours.

How accurate are the man-hour figures in SAMS? Does the level of accuracy of input justify maintenance managers' lack of confidence in the man-hour reports produced from the input data? I began seeking answers to these questions by making three assumptions—

- Shop foremen accurately record man-hour data on the work order form.
- The SAMS system accurately processes the data.
- All data transfers between SAMS-1 and SAMS-2 occur in the proper sequence.

Having made these assumptions, I started my examination of man-hour data. First, I collected man-hour data found on randomly selected work order forms from the 557th Maintenance Company's completed work order file for 1 January through 24 September 1993. To have enough data to be representative of the man-hours on all the work orders, I needed data from nearly 200 work orders.

To ensure a random selection of data, I asked a stranger to pick a number between 1 and 21. He selected the number 10, so I removed the tenth work order from the closed work order file and proceeded to remove every 21st work order until I had about 200 work orders. From these work orders, I consolidated all the man-hour data on a chart.

Next, I collected SAMS man-hour data corresponding to the random sample of forms I had used and consolidated all these data on a chart. This chart made it easy to enter the data into a computer program in card-column sequence. I used a social science computer software program to help organize and analyze the data. For purposes of this study, I grouped equipment repaired into four types: communications equipment; heater equipment; wheeled automotive equipment; and tracked equipment.

I compared the total man-hours recorded on the forms with the total man-hours in the SAMS system. I then subtracted the total SAMS man-hours from the total man-hours recorded on the work forms. If the deviation was zero, the clerks had input the data accurately. If the deviation was a negative number,

w Accurate Are They?

by Captain George C. Martz, Jr.

ta checklist. It will reveal surprising results

the clerks had made an error. A negative value meant SAMS showed more man-hours than the shop foreman recorded on the work form. If the deviation was positive, SAMS showed less man-hours than the shop foreman recorded on the work form. This error would cause DA to reallocate man-hours from the company.

My study showed that, although the difference between SAMS man-hours and work form man-hours ranged from -35 to +9 man-hours, the variation was statistically insignificant. The mean difference in man-hours was -.249 hours. On average, the clerks erroneously added about 15 minutes per job.

Further evidence of the clerks' accuracy in inputting the data was shown by where the frequency of error fell. Approximately 60 percent of work orders examined showed that the clerks made no mistakes inputting man-hours. For another 20 percent of the work orders examined, the deviation between SAMS and the work orders was plus or minus 1 man-hour.

As a former shop officer, I doubted these findings—something must be skewing the figures. Maybe the mistakes the clerks were making could be linked to the type of equipment being repaired.

At this point, I ran a cross-tabulation between the deviation and the type of repair shop for each work order in the bottom and top 10 percent of the frequency range. Of the work orders in the bottom 10 percent, 81.3 percent were repaired by the communications shop. Conversely, for the work orders in the top 10 percent (the unfavorable errors), shops other than communications repair accounted for 80 percent of the unfavorable errors.

Not only is the relationship between type of repair and type of error interesting, but that relationship is statistically significant. Since it was significant, I took another look at the frequency, discounting any communications repair work orders. The mean now was +.272 man-hours.

This result indicates direction for further research. The clerks may be putting man-hour data into SAMS differently for communications repairs than for the combination of heater, wheeled, and tracked equipment repair. If this error is isolated, the shop officers can eliminate errors causing loss of man-hours.

My evidence suggests that the clerks input man-hours into SAMS on a relatively accurate basis, so maintenance managers should turn their attention to the shop foremen's man-hour accounting. While collecting man-hour data from the work forms, I noticed several inconsistencies that indicated that shop foremen do not record all man-hours.

First, there were work forms on which the shop foremen had recorded no man-hours. Even if the shop foreman had inspected and rejected the work order, he should have recorded some man-hours to account for the inspection. Second, there were work forms showing only initial inspection man-hours, tasks completed, and parts used that indicated more total man-hours than the shop foremen recorded. Third, I observed work order forms with initial, task, and final man-hours recorded, but the total was less than would have been required to complete the repairs.

For instance, someone had recorded a total of 4 hours to change an M728 engine. The Army's maintenance allocation chart (MAC) allows much more than 4 hours to change an engine. However, it might be possible to change an engine in 4 hours if three or four mechanics are working on the job. If four mechanics complete the engine change in 4 hours, the shop foreman should record 16 man-hours to change the engine and at least 1/2-hour each for the initial and final inspections. Instead of recording 4 hours for this job, the shop foreman should have recorded a total of 17 man-hours. This was not an isolated case. I found several instances of this type of error in all the shop records.

Considering these findings, there are several steps maintenance managers should take to make their man-hour accounting systems more effective. I recommend that maintenance managers repeat this research method with a recent sampling of work order forms for their maintenance companies. Repeating the research quarterly using up-to-date samplings will validate the clerks' accuracy. It also gives maintenance managers a current snapshot of their clerks' accuracy and what improvements the

clerks have made.

Next, I recommend that the support operations office examine the three areas I've discussed during the next battalion command inspection (BCI) for each of their maintenance companies. To do this, they should examine work orders to see if the shop foremen record the initial inspection man-hours, check to see if work orders show man-hours for tasks completed and parts used beyond the initial inspection, and compare the total man-hours used with the MAC to ensure that total man-hours recorded are comparable to standard repair requirements.

If the support operations office finds accounting errors similar to mine, maintenance managers will have to find and implement corrective actions. These actions possibly could include a better quality control process or man-hour accounting training for shop foremen.

I recommend that the support operations office take action from the lessons learned while inspecting the man-hour accounting process. They can use the man-hour accounting checklist I developed (at left) to help analyze my unit's accounting processes or create their own checklist to use during future inspections.

They also should develop a process that checks the data periodically. By institutionalizing the man-hour accounting inspection, support operations will force shop officers to successfully account for man-hours using the SAMS. The shop officers then can more effectively manage their backlog.

Remember, **DO NOT BLAME THE CLERKS!** They input man-hour data into SAMS with an acceptable level of accuracy. Although there is always room for improvement, the clerk's accuracy in recording data from the work orders is not significantly in error. Instead of blaming the clerks, shop officers and maintenance managers should study their input data to determine which shop clerks more accurately record data and then determine what caused the errors.

Maintenance managers also must examine the way shop foremen record man-hours. Managers may find that shop foremen inaccurately report man-hours. When shop officers have made appropriate changes to the man-hour accounting process, they finally will be able to reduce maintenance backlog using man-hours that are correctly recorded. ALOG

BCI Man-Hour Accounting Checklist ✓

☐ 1. Are soldiers correctly filling out man-hours on work order forms?

☐ 2. Does someone verify the accuracy of man-hours recorded? Who?

☐ 3. Do recorded man-hours match the parts and tasks recorded on the forms?

☐ 4. Are the SAMS clerks accurately recording man-hour data from the forms into the SAMS?

☐ 5. Are man-hours recorded daily or weekly? How? What is the flow?

☐ 6. Does someone check recorded man-hour input? Who?

☐ 7. Are quality controllers estimating man-hours during their initial inspection? If not, why? If yes, where are estimated man-hours recorded? Do clerks input these estimated man-hours into SAMS? If yes, when?

☐ 8. Are forms checked for actual man-hours during final inspection? If no, are they checked before they are closed out?

☐ 10. Do shops update their shop section personnel rosters in SAMS? When was the last update?

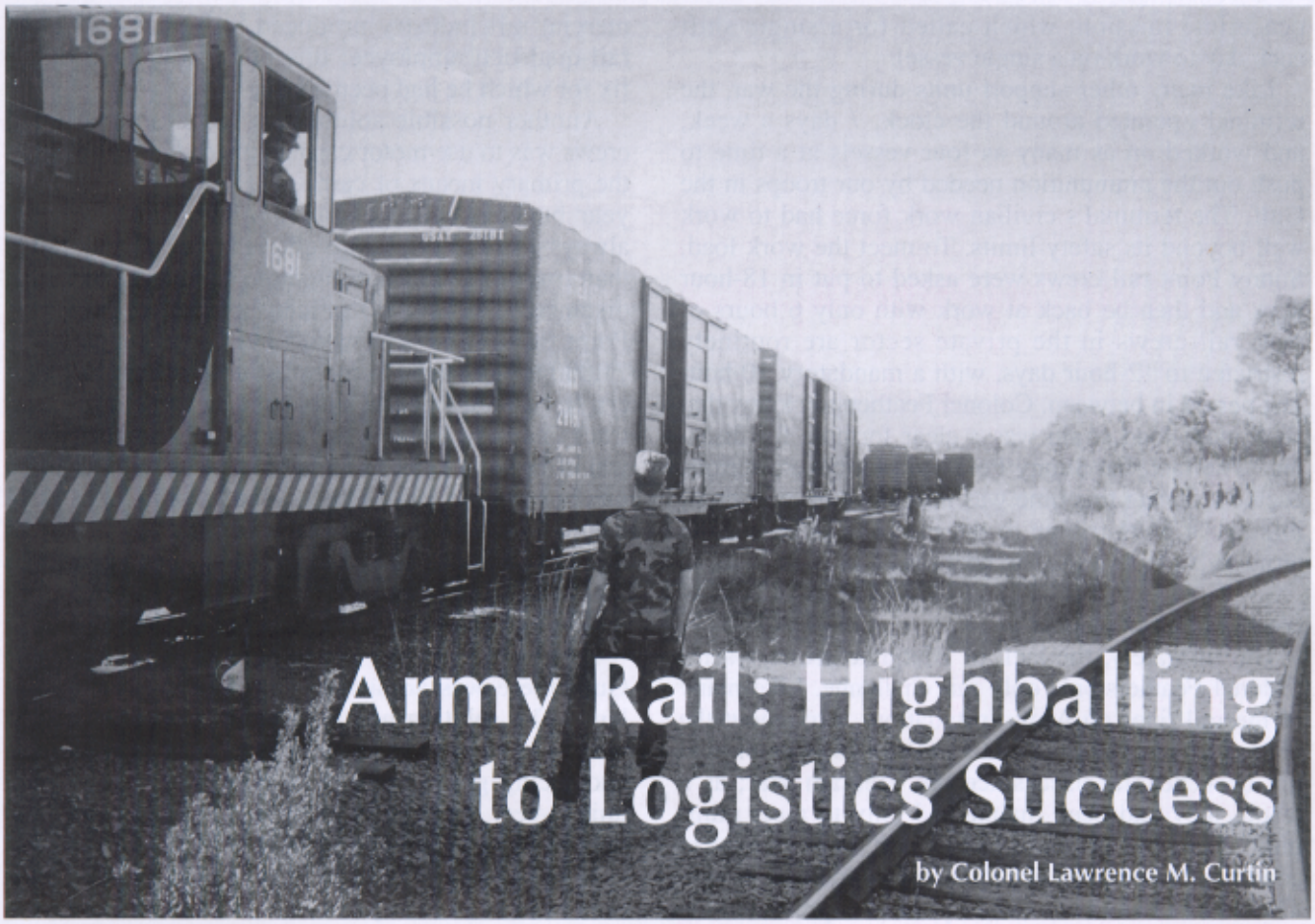
☐ 11. Do clerks change work center rosters when soldiers switch shops?

☐ 12. Is the initial manpower set-up correct? Does shop code equal work center? (See SAMS User Manual, page 7-6.)

☐ 13. Does SAMS capture all overtime man-hours regardless of type (direct or indirect)?

☐ 14. Does the operation follow the manpower rules as listed in the SAMS User Manual, page 7-26?

Captain George C. Martz, Jr., is currently assigned to the 1st Cavalry Division, Fort Hood, Texas. He has held a number of company-level and battalion-level maintenance positions, including support operations maintenance officer, shop officer, and ground support equipment platoon leader. A recent graduate of the Army Logistics Management College's Combined Logistics Officer Advanced Course, he also has completed work for a master's degree in public administration from Golden Gate University, San Francisco, California.



Army Rail: Highballing to Logistics Success

by Colonel Lawrence M. Curtin

An Army Reserve rail unit came to the rescue when the demands of the Gulf War threatened to overwhelm the Sunny Point ammunition port.

"General, if we can't get the 1205th Transportation Railway Service Unit mobilized, I can't fully support the war effort, and we're going to have a mission failure."

Sounds like a statement out of a Tom Clancy novel, something that probably would make enjoyable reading. That is, unless you were Colonel Michael S. Featherston and, instead of reading a book, you were talking to the Military Traffic Management Command (MTMC) Eastern Area commander about a real wartime mission and a real possibility of failure on your watch. [Colonel Featherston is now retired from the Army.]

During the Persian Gulf War, Colonel Featherston commanded the 1303d Major Port Command (MPC) at Military Ocean Terminal Sunny Point, North Carolina. As the Army's only ammunition port in the United States, Sunny Point had the mission of transshipping over 90 percent of the resupply munitions sent to and from the Gulf during Operations Desert Shield, Desert Storm, and Desert Sortie. The 1303d MPC loaded and discharged 2.1 million tons of munitions from 186 vessels in support of those operations.

Needed: More Rail Crews

However, working on 186 vessels was the easy part of the unit's mission. The port reception and clearance of such vast amounts of cargo, in a relatively short period of time, were the most challenging and difficult tasks facing Colonel Featherston and his work force. Eighty percent of all ammunition that came to Sunny Point during the war arrived by rail, requiring the unloading of some 27,000 railcars. But the terminal's table of distribution and allowances provided only enough manpower for executing its

peacetime mission, which called for a single shift each day to work on a single vessel.

Like many other support units during the war, the terminal operated around the clock, 7 days a week, and worked on as many as four vessels at a time to push out the ammunition needed by our troops in the Gulf. The terminal's civilian work force had to work well beyond its safety limits. To meet the work load, Sunny Point rail crews were asked to put in 18-hour days and then be back at work with only 6 hours of rest; rail crews in the private sector are routinely restricted to 12-hour days, with a mandatory 10-hour rest period in between. Colonel Featherston knew that such work-load strain was a clear formula for disaster. "The fact that Sunny Point did not have a serious accident during this time was nothing short of incredible and a great tribute to the professionalism of the terminal's employees," he later observed.

Needed: Track Repair

Unfortunately, the lack of adequate crews wasn't Colonel Featherston's only rail challenge. Like many of the rail lines on Army installations throughout the United States, Sunny Point's 100 miles of track had not been heavily used since the Vietnam War; as a result, they had been maintained only to meet minimum standards. To put it simply, the track was not in condition to suddenly accept a tenfold increase in use. The sudden demand created by the war presented the commander with the real possibility of a serious derailment that could bring all cargo operations to a halt. Repair of Sunny Point's track had to be a priority.

Searching for Solutions

These two major challenges—acquiring more rail crews and initiating track repair immediately—confronted Colonel Featherston early in the war, right as the pressure to meet the theater commander's closure times for munitions was becoming critical. It simply was not feasible to postpone the vital MTMC mission until the Army could analyze the situation further. Therefore, like any good commander, Colonel Featherston looked for realistic alternatives. His first instinct was to "just contract it out."

As he worked feverishly with local rail companies and rail unions to obtain emergency replacement crews, Colonel Featherston soon realized that contracting for help would be easier said than done. The companies indicated that they might be able to assist, but only after they hired and trained additional qualified personnel. Downsizing had affected their personnel levels, and the trained labor pool that had previously existed was no longer available. Colonel Featherston's efforts to hire workers from the commercial rail industry produced only one additional rail-qualified employee; this obviously was not the fix for which he had been hoping.

Another possible solution to the shortage of rail crews was to use motor carriers instead of railroads as the primary means of carriage. However, as all first-year business college students learn, railroads are always significantly more efficient and cost-effective than trucks for transporting large quantities over long distances. The 27,000 railcars processed by Sunny Point during the war would have equated to some 71,000 trailer loads. Some substitution of motor carriers for rail did occur; but whether the commercial truck industry could have adequately supported our war efforts with the vast quantities of trailers required on short notice, or whether Sunny Point could have handled such a significant increase in trailer traffic, is highly questionable.

Reserve Rail Units to the Rescue

Fortunately for the Army and the soldiers in the Gulf, there was an answer for these pressing problems. The solution had its roots in the early 1980's, when the Army was undergoing major restructuring and facing great pressure to eliminate nonessential units—very much as is happening today. Army rail units were among the areas targeted for reduction.

Major General Michael "Iron Mike" Healey, then commander of Army Readiness and Mobilization Region V (a forerunner of today's Army Reserve regional support commands) at Fort Sheridan, Illinois, and his transportation coordinator, Lieutenant Colonel Robert S. Wilhelm, clearly understood the continued need for rail units. So they went to work selling Army rail, making sure that Army decisionmakers understood the need for rail transportation and the capabilities of rail units. Their vision and efforts probably saved Army rail as we know it from extinction.

Little could they have suspected at the time that their efforts would play a major role in avoiding a wartime mission failure for the Transportation Corps and the Army. For it was one of the Army Reserve rail units they saved that came to Colonel Featherston's rescue. The 1205th Transportation Railway Services Unit (TRSU) provided Sunny Point with the critical mix of manpower, skills, and training that ensured rail cargo operations would not be slowed or halted during the rest of the war.

The 1205th TRSU answered Sunny Point's shortfalls in the two critical areas of need. First, it quickly provided fully trained rail operating crews who, upon their arrival, were prepared to immediately conduct 24-hour operations. Second, it provided fully trained maintenance-of-way (track repair) personnel who,

Soldiers of the 1205th Transportation Railway Service Unit spread rock ballast while repairing a rail line at Sunny Point.

from day one of their activation and throughout the rest of the Gulf mission, identified and quickly repaired critically needed rail lines.

In the early stages of Operation Desert Shield, only volunteers from the 1205th TRSU worked at Sunny Point. While these soldiers significantly assisted in easing the terminal's manpower shortages, they were not enough. Even with additional manpower from the 757th Transportation Railway Battalion (Reserve Component) in West Allis, Wisconsin, more help was needed to get the job done.

That's when Colonel Featherston made his call to the MTMC Eastern Area commander, Brigadier General (now Major General) Hubert G. Smith, and asked for the activation of the full 1205th TRSU; that was accomplished on 15 January 1991. The unit responded with the "can-do" attitude that our Army Reserve units are known for, conducting both rail operations and track repair in an exceptionally professional manner until its deactivation 7 months later.

As Colonel Featherston put it, "My call to the MTMC Eastern Area commander was not a hard sell. He had been to Sunny Point many times during Desert Shield and knew and appreciated the severe strain put upon the civilian railway work force. We simply could not have accomplished what we were being asked to do without the reserves. Most importantly, they had the right skills and the right training to hit the ground running."

Ongoing Need for Rail Units

Today, as in the early 1980's, the Army is looking to deactivate units that have no viable mission in our declining force structure. The absence of a unit on any theater commander's operation plan (OPLAN) or time-phased force deployment list appears to be a major factor in this elimination process. A quick look through the family of OPLAN's reveals that Army rail units have not been slated against a major OPLAN. Yet, in a sense they *have* been slated, at least implicitly, because every major OPLAN requires ammunition support out of Sunny Point—and providing that support will depend on using Army rail units. Of the three highly valued Reserve battalions assigned as Capstone units to Sunny Point, the 1205th Railway Operating Battalion (parent of the 1205th TRSU) remains first on the priority list for activation in a major mobilization.

In today's Army—designed to be a no-notice, continental United States-based, power-projection force—it is more important than ever to take a hard, realistic look at every unit and the value it adds to our warfighting capabilities. Without question, the 1205th TRSU demonstrated its value during the Persian Gulf War and will do so again when called.

While Army rail is not a high-profile, glamorous, or exotic activity to some, it is a unique resource essential to supporting today's power-projection Army. As such, retaining Army rail in our current force structure may prevent another wartime phone call that begins with the words, "General, we are going to have a mission failure." **ALOG**

Colonel Lawrence M. Curtin is assigned to the Multinational Force and Observers in the Sinai. He was commander of the 1303d Major Port Command. He is a graduate of Tarleton State University in Stephensville, Texas, and earned a master's degree in logistics management from the Florida Institute of Technology. He also is a graduate of the Infantry Officer Basic and Transportation Officer Advanced Courses, the Army Logistics Management College's Logistics Executive Development Course, the Armed Forces Staff College, and the Army War College.

Logisticians Execute Peace Operations

by Lieutenant Colonel Calvin Pilgrim

Senior logisticians, logistics troops, and logistics organizations are uniquely skilled and configured to execute peacekeeping operations that require little or no combat force.

The U.S. peacekeeping strategy developed during the cold war era is obsolete in today's environment. The precepts that once guided the use of U.S. military force are no longer valid. The military has expanded its warfighting doctrinal focus to include solving social, environmental, and political problems that occur during peacetime.

Faced with smaller budgets and fewer troops, the Army is continually restructuring itself to execute its part of the national strategy. The purpose of the restructuring is to allow some of the resources formerly spent on maintaining military force to be diverted to such nontraditional missions as support to observers and diplomats, security assistance, humanitarian aid, drug enforcement, disaster relief, and medical assistance.

The U.S. military has participated in peace operations since the opening of the American West, when soldiers escorted wagon trains, protected settlements, and eventually negotiated peace with local Indian tribes. Later, the military was instrumental in the pacification of Vera Cruz, Mexico, the expulsion of Spanish forces from Cuba, and the pacification and administration of Haiti and the Dominican Republic.

The military becomes involved in peace operations whenever civilian authority becomes overwhelmed and requires massive help. Examples include disaster relief on the island of Guam following Hurricane Iniki and in Florida after Hurricane Andrew; resettlement of the Kurds in Northern Iraq during post-Gulf War hostilities; and temporary housing and quarantine of Haitian emigrants in Honduras and Cuba.

The drawdown of U.S. forces and the attendant reduction in the military budget make it obvious to even a casual observer that deploying combat arms troops to assist in peace operations may not be the best use of these soldiers. A full year is required to train combat arms soldiers. Their leaders must train with them to perfect performance of doctrinal requirements and adequately prepare for combat. When combat arms soldiers are deployed on peace operations, they are unavailable to train for combat situations.

Logistics organizations in the U.S. military have the resident expertise to accomplish peacekeeping operations more efficiently than combat troops. These organizations are flexible and contain modular units that can be reconfigured easily to support any mission. Embedded in these organizations are medical, distribution, supply, and communications assets, all of which are essential in the execution of peace operations.

I summarize the peacekeeping functions logistics troops can perform in four broad categories—

- Acquisition: Local international purchasing and disposition support such as feeding, laundry, and mortuary affairs.
- Distribution: Moving people and materiel and regulating traffic flow.
- Repair: Limited infrastructure repair and repair

and return of systems to users.

• Soldier support: All activities necessary to sustain soldiers.

Logistics organizations are largely self-sufficient and have their own command and control elements. They are configured to support combat elements at each echelon. A brigade has as its support base a forward support battalion. The forward support battalion has supply, maintenance, and medical companies. The division is supported by a main support battalion made up of medical, maintenance, supply, and transportation assets. Finally, at the corps level, there are support groups, a medical brigade, and management centers.

Logistics organizations link the national economic base to the operationally deployed logistics units. Among these organizations are the Defense Logistics Agency, the U.S. Transportation Command, and the materiel commands of the services. They perform requirements determination, acquisition, stockpiling, pre-positioning of materiel, and strategic mobility.

U.S. military logistics personnel know the capabilities of their people and have the equipment to provide initial support to people in need. They are accustomed to integrating the efforts of civilian contractors into those of the military to accomplish many tasks. Perhaps most important of all, they are adept at assessing situations, forecasting requirements, and improvising solutions to solve logistics problems.

Senior logisticians, logistics troops, and their organizations are uniquely skilled and configured to execute peacekeeping operations that require little or no military force. During peacetime, logistics troops execute operations similar to those they perform in war. They communicate information to Government officials, locate and distribute materiel, repair equipment, build roads, and provide medical assistance.

Logistics teams perform specialized functions when assisting civilian authorities. Specialized troops perform critical and timely initial damage assessment of the infrastructure and determine whether distribution and storage facilities are in good repair. They inspect seaports, airports, roads, and utilities for damage. Advance teams of leaders, engineers, and logisticians deploy to make initial assessments and to establish communications. They assess immediate problems, determine required assets, and communicate that information to the deploying headquarters.

Military medical units are uniquely trained to perform medical procedures in austere environments. They assist in triage, treatment, and evacuation of sick and wounded personnel; dispense preventive care; establish feeding facilities; and survey hygienic needs of the affected people and areas.

In areas where there are no local civilian police, military police assist in crowd control and local security and provide aid to displaced persons and refugees.

Transportation assets in logistics units are configured to move materiel and food to remote parts of an affected area. Materiel management centers resident in logistics organizations schedule movement of materiel. In the event that relief agencies such as the United Nations Humanitarian Relief Council require help from the military, logistics organizations step in to coordinate their relief efforts, provide damage assessments, organize materiel distribution, and track relief supplies, sometimes using computer technology. Because logisticians are accustomed to working closely with civilian contractors to integrate civilian efforts into military operations, they are able to effect similar arrangements to accomplish peacetime operations.

Leadership is the key to any successful operation. Senior logisticians have the experience, knowledge, and leadership skills required to supervise peace operations. They understand the capabilities and constraints of military equipment and can successfully provide logistics support to large organizations in austere environments. The skills which they use to direct medical, resupply, repair, and security operations in war enable them to successfully establish and secure forward logistics bases in more hospitable environments.

Dag Hammarskjold, United Nations Secretary General from 1953 to 1961, once said "Peacekeeping is not a soldier's job, but only a soldier can do it." I believe the soldiers do not have to be combat soldiers to execute peace operations. U.S. military logistics personnel possess the experience and all the skills necessary to successfully accomplish peacekeeping operations. **ALOG**

Lieutenant Colonel Calvin Pilgrim is an Ordnance Corps officer currently serving as Chief of the Command, Control, Computers, Communications, Intelligence, and Electronic Warfare Branch, Defense Intelligence Agency, Washington, D.C. He has held duty positions in the artillery, chemical, logistics, and nuclear communities. Colonel Pilgrim is a graduate of the Army Logistics Management College's Logistics Executive Development Course and the Army Command and General Staff College. He is a linguist and holds B.S. and M.S. degrees.

Reader Survey Results

Your responses to our *Reader Survey* in the September-October 1995 issue provided valuable feedback that will help us continue giving you timely, authoritative information on logistics subjects of greatest interest. We thank each one of you who took the time to complete the questionnaire and return it to us. In fact, as we go to press, we still are receiving a few responses but not enough to affect the statistical analysis.

One very significant change since our 1993 reader survey is the number of copies distributed. The July-August 1993 issue, in which we ran the previous survey, circulated 54,759 copies; the September-October 1995 issue, which contained the current survey, circulated 44,856 copies—9,903 fewer. This reflects the downsizing our Army has undergone in just 2 years.

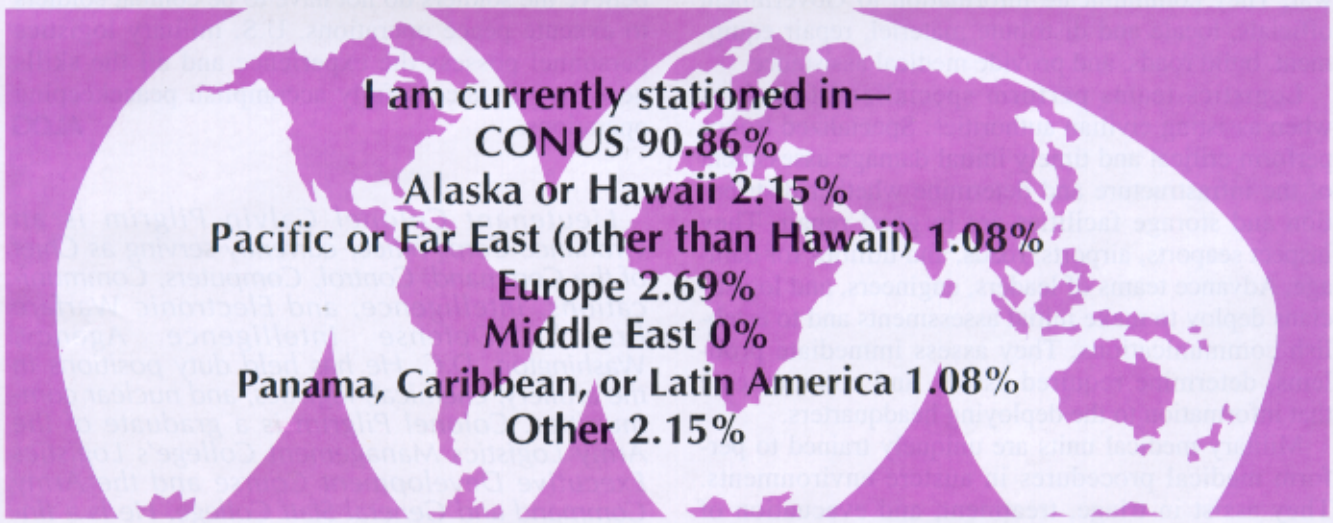
Statistically, the 1995 responses to most of our questions remained within a few percentage points—plus or minus 2 to 5 percent—of the 1993 responses. There were, however, some interesting differences. In 1993, 84 percent of you were receiving your issues before the cover date, or at least during the first-month cover date. Now, only 77 percent of you receive your copy during those timeframes.

We are *super* pleased that more of you are reading all or almost all of each issue, up 4 percent from 1993, with 77 percent of you reading more than half of each issue. How you get your copy remains about the same, although we are happy to see an increase in "personal" subscriptions. Our Department of the Army civilian readers increased by 6 percent, while our other "nonmilitary" readers increased by 4 percent since 1993.

In previous surveys, many of you took us to task for "lacking color" and found our covers "uninteresting." Both areas have been a continuing editorial concern, and we've worked hard to improve. In the current survey, you have told us we *have improved* in both areas, with 7 percent more of you finding our covers more attractive and 15 percent more of you finding our use of color more attractive. As a matter of information, our publishing charter limits us to using only one color ink, plus black ink, in printing each issue. Consequently, we cannot print "full color" covers or photos.

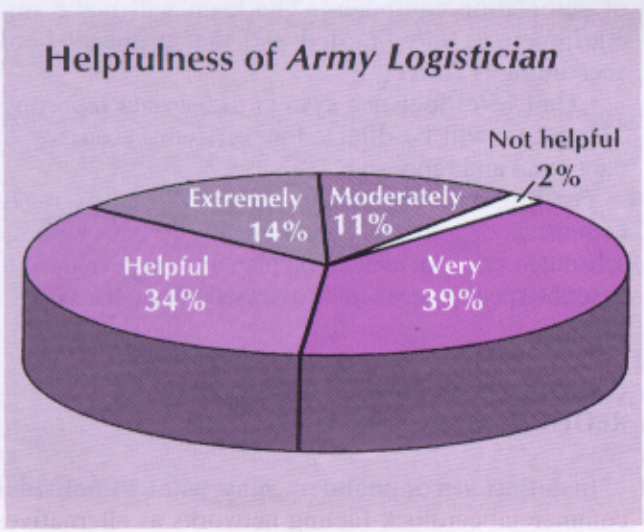
Our questions concerning the *informativeness, usefulness,* and *helpfulness* of content elicited almost identical responses to those we received in 1993. Nearly 70 percent of you rated our content in the top three categories of "more," "very," or "extremely" helpful and useful. ***Thanks!***

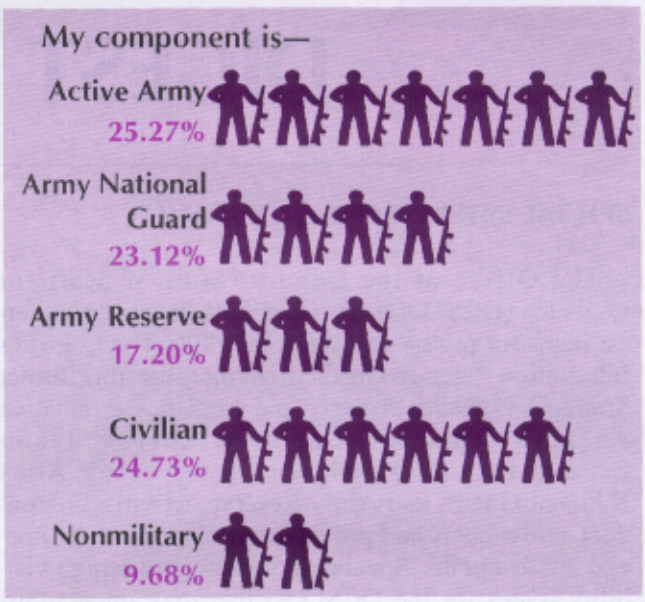
A surprising shift of interest in the "level" of the information you want has occurred over the last 2 years. In 1993, reader interest was almost evenly



divided among articles focused on unit-company; battalion-brigade; division-corps; major command; joint, unified-, specified-command; and department-secretariat levels. Seventy-five percent of you now ask for more articles to focus on company through corps levels. Also, about 25 percent of you said you would like to have a *calendar of events* added to our news columns. We would like to provide it, but there is one major difficulty: our frequency of issue as a bimonthly. For example, when you pick up your *March-April* issue, it will have been mailed to you on or about *10 February.* We had to submit that issue to our printer on *2 January,* which means we had to accumulate the information and write, edit, and prepare the material for printing during *December.* The total process extends over a 3-month period. Meetings and conferences of truly significant logistics interest—except for standing annual events—are seldom scheduled firmly more than 3 months in advance, making it very difficult for us to accurately report them to you. We will work toward getting events information and finding a way to compress the lead-times to provide you that information.

Only three demographic elements shifted dramatically: the number of active Army readers shrank by 10 percent, while the number of Army National Guard readers increased by 8 percent. Readers stationed overseas shrank 1 percent (now 9 versus 10.4 percent in 1993), while readers stationed in the continental United States (CONUS) now account for nearly 91 percent of our readers. We gained a significant number of readers among our sister services—Navy, Air Force, and Marine Corps—and we welcome them.





Our typical, composite reader, according to a statistical profile from the survey data, is described as a commissioned officer in the active Army, age 40 to 49, in grade O4 to O6, serving in a staff assignment at battalion or brigade level providing a logistics support function, and holding a master's degree plus a MEL4. The profile of today's typical reader is virtually unchanged from that of the typical reader in 1993.

Feedback from you is vitally important to us. You don't have to wait for 2 years to respond to a reader survey to keep in touch with us. You can "reach out and touch" us by phone, fax, e-mail, or regular mail—phone (804) 734-6400 or DSN 687-6400; fax (804) 734-6401 or DSN 687-6401; e-mail to tspeight@almc-lee.army.mil; or regular mail to Editor, *Army Logistician,* Army Logistics Management College, 2401 Quarters Road, Fort Lee, VA 23801-1705.

In the May-June 1995 issue, we tried to "revitalize" a letters-to-the-editor column by establishing Log Notes. That column provides the quickest, easiest way for you to share your thoughts, ideas, and opinions on any logistics topic. But, to keep that column viable, *you must let us hear from you.* Continue, too, to send us your logistics news items and feature articles so we can fulfill our fourfold purpose of increasing awareness, knowledge, and understanding of logistics and support functions; contributing to the professional development of logisticians; fostering original, innovative, creative logistics thought; and broadening the perspectives and understanding of logistics beyond the horizons of corps, branch, or function. —Editor

Index of *Army Logistician* Articles—1995

JANUARY-FEBRUARY

MARCH-APRIL

MAY-JUNE

JULY-AUGUST

SEPTEMBER-OCTOBER

NOVEMBER-DECEMBER