

ARMY LOGISTICIAN

MAY-JUNE 2003



Strategic Mobility Triad

ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

PB 700-03-3
VOLUME 35, ISSUE 3
MAY-JUNE 2003

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Cover: Getting forces and equipment to the right place at the right time is a challenge. The strategic mobility triad, which is made up of airlift, sealift, and pre-positioned stocks, ensures that forces and equipment are available when and where they are needed (see article on page 2). The cover photos represent the three legs of the triad, starting at the top with the pre-positioned afloat crane ship *SS Gopher State* and moving clockwise to a C-17 Globemaster aircraft and the new theater support vessel *Spearhead*.

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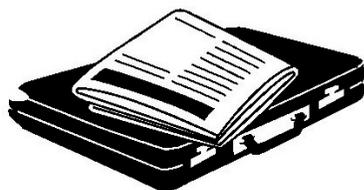
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A LOG NEWS

MTMC TO GET NEW TRANSPORTATION MANAGEMENT SYSTEM

The Military Traffic Management Command (MTMC) has awarded a \$67 million contract to Accenture for development of the Surface Transportation Management System (STMS).

Under the 9-year award-term contract, Accenture LLP of Reston, Virginia, will develop an integrated system that will use commercially available products to provide end-to-end domestic and international distribution solutions and enable MTMC to implement leading supply chain business practices. (An award-term contract is modeled after the award-fee contract. However, instead of rewarding a contractor for excellent performance with additional fee, it rewards the contractor by extending the contract period of performance without a new competition.)

Initially, the STMS will replace MTMC's Global Freight Management and Integrated Booking Systems. According to Navy captain Ed Horres, MTMC's Director of Glo-

bal Distribution, other MTMC operational systems, such as the Worldwide Port System, will be reviewed for inclusion in STMS in the future.

"MTMC's ultimate goal is to provide customers with one system for distribution planning and execution," Horres said.

DESIGN SPECIALIST RETIRES

Joyce W. Pawlowski, a member of the *Army Logistician* staff for 16 years, retired on 3 April after 35 years of Government service. Ms. Pawlowski played a critical role in moving *Army Logistician* into the digital age of magazine production. This issue, the last one she completed as Design Specialist, reflects her commitment to excellence and her relentless efforts to improve the magazine.

The *Army Logistician* staff will miss her skill and talent for layout design and the optimism and enthusiasm that she brought to the job.

(News continued on page 39)



LOG NOTES

Dear Editor:

My compliments to Major Kenneth E. Hickins and *Army Logistician* for the November–December 2002 article, "Strategic Mobility: The U.S. Military's Weakest Link." Major Hickins' analysis continues and advances many of the findings and recommendations of the 1999 Army Science Board study of strategic mobility issues. Intellectually and practically, it is reassuring to know that military sealift continues to receive attention even in spite of the visual aesthetics of the C17.

As Major Hickins notes, high-speed ships are far less costly than aircraft, and I will add, when measured on a "ton knot" basis, far faster. By this same measure, the LMSR is faster than the HSV-X1—thus the complexity of the deployment speed issue and the need for a balance of short- and long-haul aircraft and short- and long-haul sea craft. As young officers such as Major Hickins attain greater responsibility,

they will continue to struggle with this balance. Would that the world's greatest economic and military power had a commensurate fleet of commercial ships to aid in their struggle.

Sincerely,

Walter L. Stewart

Major General (retired)

Army National Guard

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

Transforming Strategic Mobility

by Lieutenant Colonel Kenneth E. Hickins

Over the past two decades, the security environment of the world has changed immeasurably. The United States has become the undisputed world leader militarily, diplomatically, and economically. As the United States moves into the 21st century, it finds itself not only fighting a war on terror but also losing political credibility because of the Israeli-Palestinian conflict, its policy toward Iraq, and a floundering world economy. The Bush administration faces an unstable and unpredictable world in which the United States is a country others want to either emulate or target.

Stung several times over the past decade by its inability to project forces swiftly to scenes of conflict, the Army now is engaged in one of the most remarkable and critical transformations it has ever undertaken. The heart of the transformation is to increase the speed at which the Army can project the combat power of brigades and divisions to any point of conflict around the globe.

Since the United States reduced its forward presence overseas at the end of the Cold War, the centerpiece of U.S. defense strategy has been power projection—the ability to rapidly and effectively deploy and sustain military forces in dispersed locations. Complementing overseas presence, power projection strives for unconstrained global reach. Global power projection provides our national leaders with the options they need to respond to potential crises.

Joint Team Projection Limitations

Except for the Army, the U.S. joint team—the Navy, Air Force, Marine Corps, and Special Operations Forces—needs little adaptation to be able to deploy in a short time. Together, the Navy and Marines make up an expeditionary force capable of projecting fighting power onto land from a base of operations at sea that is free of the operational constraints imposed by the need for air and sea ports of debarkation. Moreover, they are configured, organized, trained, and employed as a combined-arms force—a small joint force in itself—capable of independent operations for a limited period. With forward positioning at sea near potential conflicts, they provide combatant commanders a means of applying military power to influence a crisis from its inception.

The Air Force also has adapted itself into a versatile

force designed for expeditionary operations and the application of air power in virtually any set of conditions around the globe. The Air Force, while dependent on the U.S. Transportation Command, has adapted to meet the demands of rapid force projection required to meet a combatant commander's expectations despite constraints caused by limited availability of bases and basing rights within various regions. Special Operations Forces have been configured and designed for rapid force projection from the outset.



□ Military Sealift Command crane ship *SS Gopher State* offloads equipment onto the pier during Exercise Cobra Gold 2002.

The author proposes a force planning option that uses available or easily acquired assets to solve the strategic mobility dilemma he identified in his November–December 2002 article.

The Army is completely dependent on the Navy and Air Force (including the Civil Reserve Air Fleet) to project its forces into the fray. Moreover, the Army's speed of deployment is a function of several factors—

- The current size and weight of Army units and warfighting equipment.
- The availability of large transport aircraft.
- The availability of large cargo ships.
- The availability of secure air and sea ports of debarkation.



□ Air Force loadmasters on a C-17 Globemaster III double-check the cargo nets securing medical supplies being delivered to Uzbekistan in support of Operation Provide Hope.

- The availability of secure air and sea lines of communication inside and outside the joint operational area.

These factors, individually or combined, have limited the joint team's ability to get land power into the fight at a speed that allows a combatant commander to influence the crisis before the actual conflict and post-conflict stages.

The Army offers little to a combatant commander in his efforts to forestall, deter, de-escalate, or contain a crisis. Yet, inevitably, the Army must be deployed to achieve any decisive outcome on land. Although the growing number of stability operations around the globe amply demonstrates this, the Army's full coercive and persuasive value remains unrealized. The discouraging fact is that a combatant commander cannot put all of the joint team on the field. This condition limits his options and denies him the ability to employ the full combat potential of the joint team.

Strategic Mobility Problems

Strategic mobility has many diverse problems across the strategic mobility triad, which comprises airlift, sealift, and pre-positioned equipment. Each leg of the triad depends on the others, and each has inherent weaknesses. Strategic airlift is composed of military airlift and commercial aircraft. The 2001 Annual Report to the President and the Congress projected that, by the end of fiscal year 2001, the military airlift fleet would comprise approximately 90 C-17s, 88 C-141s, 104 C-5s, and 418 C-130s. The C-17 is replacing the C-141. Currently, 120 C-17s are funded and 180 C-17s are authorized, with a goal of acquiring 222. The General Accounting Office and the Air Force agree that the military is 17 to 30 percent short of its required airlift. All of the combatant commanders list strategic airlift in their top five priorities.

Other factors, such as maintenance posture, airfield throughput capability, and level of airfield modernization, exacerbate the strategic airlift problem. While it is true that the C-17 can land on airfields that are well below optimal standards, the unloading capabilities of these airfields must be closely scrutinized.

For example, the Army conducted an internal study to determine the time it would take to deploy the new Stryker brigade combat team (SBCT) from McChord

Air Force Base, Washington, to Pristina Airfield in Kosovo. The study determined that it would take 12.7 days to deploy an SBCT. With perfect weather, increased maximum-on-ground at intermediate airfields, and a 24-hour all-weather capability at Pristina, the best-case scenario was 7.5 days for the unit to close on its objective. More importantly, to accomplish this mobilization, all available military airlift would be in use. During a crisis, competition for available airlift is intense, thereby limiting the Army's ability to build land power within a theater.

It is clear that the U.S. military will fight as a joint force in any future operations. The Air Force has its own requirements that must be considered along with the Army's. The Air Force has stated a desire to move five aerospace expeditionary forces in 15 days, which will impose an even greater constraint on the Army's ability to deploy solely by air. Availability and competition for airlift assets will further limit the combatant commander's ability to deter, contain, or quickly and decisively resolve a regional conflict.

The second leg of the triad, sealift, has proven that it can move tremendous amounts of materiel; but it moves it slowly, and modern ports are needed to discharge cargo.

The final leg of the mobility triad, pre-positioning, is composed of the afloat pre-positioning force (APF) and land-based pre-positioned equipment. The advantage provided by the size of the ships in the APF is also a disadvantage because it limits the choice of ports. In addition, the amount of equipment these ships carry must be taken into account; the space needed for reception, staging, onward movement, and integration is immense. Land-based pre-positioning programs are maintained in Europe, Southwest Asia, Korea, and the Pacific. The problem with land-based pre-positioned stocks is that they are difficult to move to other geographic locations.

Analyzing the Strategic Mobility Problem

To make the Army more responsive, each leg of the triad must be analyzed. Moving forces, repositioning equipment, and increasing airlift with the use of the C-17 are components of the solution to the strategic mobility problem. High-speed lift is the key component that allows the Army to become more responsive and bridges the strategic mobility gap.

Each leg of the triad has its own proponents who believe that, given enough money, they can fix the strategic mobility problem. The proponents of airlift propose buying as many as 222 C-17s to fix the problem. Proponents of sealift want more fast-ship sealift and more high-speed sealift. Proponents of pre-positioning want more land-based and afloat pre-positioned stocks. However, an analysis of the problem that extracts the correct criteria from the combatant commanders and the serv-

ices' requirements quickly reveals that no one leg of the triad can solve the dilemma.

The criteria developed from this analysis are speed into theater, readiness of forces on arrival in theater, force mix into theater, and logistics footprint of the forces. To meet these criteria, a combination of means and assets from all three legs of the triad is required to deploy all of the joint forces to a theater of operations and build combat power effectively and quickly.

Army Strategic Mobility Needs

The Army is the military service that is hurt most by the current state of the mobility triad. The Army is composed of 10 divisions—6 heavy, 3 light, and 1 air assault. It currently is transforming a portion of its forces into seven medium-weight brigades to be located as follows: two at Fort Lewis, Washington; one in Hawaii; one in Alaska; one in Pennsylvania (National Guard); one in Europe; and one medium cavalry regiment at Fort Polk, Louisiana.

The Army is designed around power projection that relies heavily on pre-positioned equipment. Currently, the Army's afloat pre-positioning is designed to provide equipment to establish a land logistics base and support heavy ground forces that can operate ashore along extended lines of communication. Equipment for two mechanized infantry battalions and two armor battalions is loaded on large, medium-speed, roll-on-roll-off vessels (LMSRs). Pre-positioned stocks also include port-opening watercraft and containerships loaded with all classes of supplies. The Combat Pre-positioning Force is located primarily at Diego Garcia, with some assets in Guam aboard LMSRs. The Army's goal is to have eight brigade sets pre-positioned afloat.

A look at each area of responsibility reveals that the U.S. Central Command (CENTCOM) has, in addition to the afloat pre-positioned equipment, a brigade set in Kuwait and one more with equipment in Qatar. The U.S. European Command (EUCOM) has three heavy brigades' worth of equipment; two are located in central Europe and one in Italy. The U.S. Pacific Command (PACOM) has a heavy brigade set in Korea.

Restructuring the Army

To become a viable and relevant option for the combatant commanders, the Army must continue to restructure itself to be more responsive. To do this, the Army must not only become lighter but it also must take another look at the placement of its pre-positioned equipment and its forward-deployed forces.

One possible way to become more responsive would be to deactivate the two forward brigades in Central Europe, move the equipment to LMSRs, and station them in the Mediterranean Sea off the coast of Italy with the brigade that is already there. The pre-positioned brigade



□ A Stryker infantry carrier vehicle departs a C-17 Globemaster aircraft.

set in Italy also would be uploaded onto LMSRs. The brigade sets that are already in Europe would remain there to provide assurance to the European Union and North Atlantic Treaty Organization (NATO) that the United States is not moving out of the region. The medium brigade proposed for Europe should be located in Italy. This would provide the EUCOM combatant commander a division's worth of heavy equipment afloat capable of moving anywhere in his area of responsibility quickly and provide quick access to this equipment to CENTCOM should the need arise. In addition to the afloat equipment, there are still the two heavy brigades of pre-positioned equipment in Central Europe and a medium brigade in Italy that can react anywhere in the EUCOM area of responsibility within hours.

The PACOM commander will benefit greatly from the Army's transition to medium brigades since two will be at Fort Lewis, one will be in Alaska, and one will be in Hawaii. To provide the PACOM combatant commander even greater flexibility, two brigade sets should be loaded onto theater support vessels (TSVs) off the west coast of Australia and another brigade set should be loaded on TSVs off the coast of Japan. Diego Garcia should retain the brigade set it already has on LMSRs, and an additional set uploaded onto TSVs should join it.

CENTCOM would retain the flexibility it currently enjoys but also would benefit from the proposed changes in PACOM and EUCOM.

The last unified command to be affected would be the U.S. Southern Command (SOUTHCOM). The Army's transition places a medium cavalry unit, the 2d Armored Cavalry Regiment, at Fort Polk. By placing seven TSVs in the Gulf of Mexico, the SOUTHCOM combatant commander would gain a heavy punch throughout Central and South America that would complement the light forces available from the continental United States. This heavy option could move anywhere within the Caribbean basin within 48 hours.

The results of the changes would leave land pre-

positioned heavy brigade sets as follows: two in Central Europe, one in Korea, one in Kuwait, and one in Qatar. The afloat pre-positioning stocks would have one heavy brigade set on LMSRs and one on TSVs at Diego Garcia, three heavy brigade sets on LMSRs off the coast of Italy, two heavy brigade sets on TSVs off the west coast of Australia, and one off the coast of Japan. Additionally, the medium brigades located in Hawaii, Italy, and at Fort Polk and one medium brigade at Fort Lewis would have TSVs collocated to facilitate movement to any hot spots. This configuration results in five brigade sets on land, eight afloat brigade sets (compared to one currently), and four medium brigades equipped with TSVs. The military will need to procure 12 LMSRs and 56 TSVs to get these forces afloat.

Plan Limitations

As with any concept, this one has limitations. Secure sea lanes between sea ports of embarkation and disembarkation would have to be a precondition for employment. Protection from air, surface, and subsurface threats would have to be provided, to include mine-clearing operations, particularly at strategic chokepoints, at port approaches, or in the vicinity of coastal landing sites. Rendezvous and refueling of TSVs at sea also may be required. Ports or landing sites would have to be secured and cleared before disembarking a brigade, much like the critical tasks associated with Marine amphibious operations.

Repositioning either actual forces or pre-positioned forces has diplomatic implications both at home and internationally. Moving the two heavy brigades out of Europe could send the wrong message to U.S. allies and enemies. The point must be made that NATO is strong enough to meet the military needs of Central Europe, but the United States still has two brigade sets that it quickly could fall in on. A strong message also should be sent reaffirming the United States' intentions to stay engaged in the region with the three brigade sets afloat off the



□ U.S. Army Vessel (USAV) theater support vessel (TSV-1X) *Spearhead*, a 98-meter wave-piercing catamaran, with an average speed of 40+ knots, will be used to maximize the Army's speed and flexibility in transporting troops and cargo. *Spearhead* currently is forward deployed in support of Operation Enduring Freedom.

coast of Italy and the medium brigade on the ground in Italy. These forces would show the world that the United States is involved and positioned to react quickly and decisively in Europe, Africa, the Balkans, the Black Sea, the Mediterranean, or the Middle East through the Suez Canal. The afloat pre-positioned forces in Diego Garcia would allow the combatant commanders the flexibility to react quickly at different locations and keep enemies off balance.

The changes proposed in and around the Pacific Rim would send three clear messages. First, the United States would remain engaged in its own backyard. Second, the changes would assure U.S. allies in that region that the Pacific Rim is a very important area and has the United States' utmost attention. Finally, it would deter and dissuade any regional power by overmatching any capability in the region. Keeping the afloat equipment near Japan and Australia would allow the PACOM combatant commander greater flexibility without provoking China.

The results of this force reconfiguration would allow the combatant commander to introduce a substantial amount of land power within 4 to 6 days of receiving a deployment order by decreasing the time required for reception, staging, onward movement, and integration and for transit. Not only special forces, rangers, or light infantry but also a hard-hitting mobile force of medium brigades could arrive ready to fight. As the medium brigades secured the air and sea ports of debarkation, the afloat brigades would arrive on the LMSRs and join the troops flown in, thereby achieving the Army Chief of Staff's vision—move a medium brigade anywhere in the world in 96 hours, deploy a division in 120 hours, and deploy five divisions in 30 days.

The biggest obstacle to achieving the Chief's vision is the services' self-interest. The Air Force is adamant about fielding 222 C-17s at a cost of \$237.7 million each. The Air Force would argue that this is the key to fixing the strategic mobility dilemma. However, the war in Afghani-

stan has shown that relying solely on airlift has severe limitations.

With the entire airlift fleet in use in Operation Enduring Freedom, what will happen if another contingency arises? Sixty percent of the politically significant urban areas around the world are located within 25 miles of coastlines, and 75 percent are located within 150 miles of coastlines. The cost of procuring enough C-17s to provide adequate lift is prohibitive. However, a theater support vessel will cost between \$65 million and \$85 million and have 12 times the cargo capacity of the C-17. Procuring 42 more C-17s than the 180 currently authorized would cost roughly \$9.9 billion. On the other hand, it would cost only \$6.5 billion to procure 56 high-speed TSVs and 12 LMSRs. Thus, adopting this force structure would result in saving over \$3 billion and create a much more flexible and robust force.

As reported by the National Defense Council Foundation, the top countries for conflict in 2002 were the embodiment of possible sudden regional wars. An examination of the list reveals that many of the countries border the world's oceans, have extensive coastlines, or are adjacent to strategic waterways. Unless the United States is granted assisted entry into these countries, which would seem unlikely in most cases, it would have to resort to unassisted or forced entry. The relevance of the Army and the influence of the entire United States military are at stake. Give the combatant commanders a wide range of options for tackling crises. Fill their toolboxes with tools they can use. Fix strategic mobility.

Lieutenant Colonel Kenneth E. Hickins is a plans officer in the Office of the J-4, U.S. European Command, in Stuttgart, Germany. He has a bachelor's degree from the University of Nebraska at Kearney and a master's degree in national security and strategic studies from the Naval War College's College of Naval Command and Staff. He is a graduate of the Armor Officer Basic Course and the Quartermaster Officer Advanced Course.

The Army Test and Evaluation Command



by Lieutenant Colonel Christopher L. Johnson

The Army is transforming rapidly to an Objective Force that will be able to deploy a unit anywhere in the world in 96 hours. The Army Vision Statement calls for a force that is lethal, survivable, and sustainable. This transformation requires an abundance of new equipment and systems to deploy the force, fight, and win future battles. Before these items are fielded to our soldiers, the Army Test and Evaluation Command (ATEC), headquartered in Alexandria, Virginia, and its subordinate commands—the Developmental Test Command at Aberdeen Proving Ground, Maryland; the Operational Test Command at Fort Hood, Texas; and the Army Evaluation Center, also in Alexandria—test them vigorously in an operational environment to ensure that our soldiers have the best possible equipment. ATEC conducts developmental and operational testing and independent evaluations that provide essential information to decisionmakers. (*Editor's note:* ATEC currently is assessing the potential consolidation and collocation of its headquarters. See “Army Announces Major Realignment” on page 38.)

ATEC's Mission

Title 10 of the U.S. Code requires that major acquisition programs undergo independent operational test and evaluation in order to proceed beyond low-rate initial production. The intent of the law is to establish a system of checks and balances that will ensure that soldiers in the field are equipped with the best possible equipment.

In 1999, in an effort to streamline operations and ensure continuity of effort, the Army consolidated its test and evaluation activities into a single command—ATEC. With this initiative, the Army is the only service that consolidates developmental testing, operational testing, and evaluation into a single command. As the Army's “tester,” ATEC determines the operational effectiveness, suitability, and survivability of new equipment and systems fielded by the Army.

Department of Defense (DOD) regulations also require each service to establish an independent test and evaluation activity that reports directly to its respective service chief. To meet this requirement, ATEC is aligned under the Vice Chief of Staff of the Army as a major command. ATEC follows test and evaluation policy set by the Office of the Deputy Under Secretary of the Army for Operations Research. Because of their cost or mission, certain systems require oversight provided by the Office of the Secretary of Defense's Director of Operational Test and Evaluation.

Testing all of the equipment the Army fields every year requires a lot of personnel, test equipment, and terrain. ATEC employs nearly 5,000 military and civilian personnel and 4,800 contractors at 28 locations in 17 states.

The Army Training and Doctrine Command, through its combat developments process, determines that a materiel solution is needed to fulfill an established requirement. ATEC reviews and comments on all documents pertaining to the requirement before it is submitted for approval by higher headquarters. After the requirement is approved, the materiel developer notifies ATEC that the acquisition process is set to begin and ATEC assigns responsibility to an ATEC system team (AST), which consists of representatives from its three subordinate elements. The ASTs coordinate ATEC's support of the acquisition process, routinely meeting with the materiel developer to ensure the best possible support from the developer's initial request for support to completion of the final system evaluation report.

Developmental Test Command

The Army Developmental Test Command (DTC) is the Army's lead organization for testing new or upgraded military weapons and equipment. Headquartered at Aberdeen Proving Ground, DTC has more than 7,000 engineers, scientists, technicians, and administrators at locations throughout the United States. DTC also



□ A load handling system-compatible water tankrack, or “Hippo,” is a hardwall system used for bulk and retail water distribution. At left, the Hippo is offloaded for testing by the Operational Test Command.

has one of the largest, most diverse arrays of test facilities and technologies in DOD. It tests all types of military hardware under precise conditions across the full spectrum of arctic, tropical, desert, and other natural or controlled environments on highly instrumented ranges and test courses.

DTC has three major test centers in the western United States: Dugway Proving Ground, Utah; White Sands Missile Range, New Mexico; and Yuma Proving Ground, Arizona. It also operates five other test centers: the Aberdeen Test Center at Aberdeen Proving Ground; the Aviation Technical Test Center at Fort Rucker, Alabama; the Redstone Technical Test Center at Redstone Arsenal, Alabama; the Electronic Proving Ground at Fort Huachuca, Arizona; and the Cold Regions Test Center at Fort Greely, Alaska.

Operational Test Command

Following developmental testing and issue of a safety release, a piece of equipment is delivered to the Operational Test Command (OTC) for independent operational test and evaluation involving representative soldiers and units. OTC assesses how the equipment performs in an operational environment in the hands of the ultimate user, the soldier. Before participating in a test, soldiers must undergo prescribed new equipment training and demonstrate proficiency on the tested equipment.

OTC’s 10 functional test directorates perform its operational testing mission. Five of the directorates are located with OTC’s headquarters at Fort Hood. The Advanced Concepts Transformation Integration Directorate leads OTC’s support of Army Transformation initiatives in which systems integration is a primary issue. The Aviation Test Directorate conducts operational tests for all Army aircraft, including the RAH-66 Comanche helicopter and special operations aircraft. The Com-

mand, Control, Communications, and Computers Test Directorate is responsible for testing the sophisticated communications and information systems that are crucial to the information-centered operations of the future Army. The Close Combat Test Directorate tests infantry and armor ground combat systems and equipment such as the Stryker family of armored vehicles. The Engineer and Combat Support Test Directorate provides quality control for transformation of combat support and combat service support in the engineer, chemical, military police, ordnance, quartermaster, transportation, and medical service branches.

Parachute testing and equipment airdrop certifications, as well as special operations equipment, are the responsibility of the Airborne and Special Operations Test Directorate located at Fort Bragg, North Carolina. This directorate also certifies aircraft for the airdrop of personnel and equipment. The Air Defense Artillery Test Directorate at Fort Bliss, Texas, performs operational tests of air defense weapon systems and live-fire testing of antitank and artillery missile systems. The Fire Support Test Directorate at Fort Sill, Oklahoma, tests field artillery systems and equipment such as the Advanced Field Artillery Tactical Data System. Information, surveillance, and reconnaissance; information assurance; and electronic warfare systems are tested by the Electronic Warfare Test Directorate at Fort Huachuca. The Ground Based Midcourse Defense Test Directorate at Huntsville, Alabama, provides the operational testing arm within the Missile Defense Agency’s program.

OTC also will perform operational tests on combat service support equipment, such as the load handling system-compatible water tankrack, the containerized batch laundry, tactical and lightweight water purification systems, the containerized watercraft maintenance facility, and the theater support vessel.



□ Forward repair systems undergo testing at the Operational Test Command. The FRS's two-man crew can replace the power pack in an M1 Abrams tank with ease and get it back in the battle quickly without having to tow the tank back to the unit collection point.

Army Evaluation Center

The third major subordinate command of ATEC is the Army Evaluation Center (AEC). AEC provides the evaluation portion of ATEC's test and evaluation mission. AEC evaluates new systems based on data collected during developmental and operational testing, contractor testing, and modeling and simulation events. AEC produces a final report, called the System Evaluation Report (SER), which is used by decisionmakers to determine if a system will be fielded. The SER provides information on the evaluation of each system's effectiveness, suitability, and survivability. AEC is involved throughout the acquisition process, and an AEC representative normally chairs the ATEC system team that coordinates the command's test and evaluation support.

ATEC, as a value-added partner with the acquisition and materiel development communities, will ensure that all new and enhanced equipment and weapon systems meet the needs of America's men and women in uniform. This is serious business that is vital to national defense.

ALOG

Lieutenant Colonel Christopher L. Johnson is a Quartermaster officer assigned to Area III, Korean Regional Office, Army Installation Management Agency, at Camp Humphreys, Korea. He was assigned to the Army Operational Test Command when he wrote this article. He has a master's degree in logistics management from the Florida Institute of Technology and is a graduate of the Marine Corps Staff College.

The Great Torpedo Scandal

In the opening months of World War II, Navy submariners found themselves armed with Mk. 14 submarine-launched antisurface torpedoes that routinely missed their target or failed to explode on impact. This dilemma, known as the Great Torpedo Scandal, was directly attributable to inadequate operational and technical testing under realistic conditions during the development of the Mk. 14. During the budget-starved years of the Great Depression, the Navy did not conduct full-speed testing of its torpedoes. Instead, it conducted its tests in a manner that avoided damage to the expensive torpedoes. These constrained tests did not expose the torpedo's critical design flaws, which, in turn, endangered the lives of numerous submarine crews during combat operations.

A robust system of testing under combat conditions would have easily discovered the Mk. 14 torpedo's shortcomings. In fact, within the first year of the war, problems with the torpedo were isolated when fleet commanders, on their own initiative, conducted tests and discovered problems with the torpedo's depth-control and impact detonator. Once these problems were identified, the Navy quickly modified its Mk. 14 inventory, which enabled submariners to fire their weapons with confidence.

Force Projection Information Center

by David G. Graham

A new repository provides authoritative information on all aspects of force projection and deployment.

On 11 September 2002, the Army Deputy Chief of Staff, G-4, and the Chief of Transportation launched the Force Projection Information Center on Army Knowledge Online—The Army Portal. Known by the acronym “FPIC,” this dynamic repository provides Web users easy access to unclassified information on force projection and unit deployment. It offers joint and service deployment planners, as well as combat and materiel developers, centralized access to authoritative sources of information on doctrine, operational guidance, training, military and commercial transportation references, and emerging technology initiatives.

The FPIC evolved from a longstanding teaming relationship between the cochair organizations: the office of the Project Manager, Force Projection, which is assigned to the Program Executive Office for Combat Support and Combat Service Support, under the Assistant Secretary of the Army for Acquisition, Logistics, and Technology; and the Science and Technology Branch of the Deployment Process Modernization Office at the Army Transportation Center and School at Fort Eustis, Virginia. The Chief of the G-4 Strategic Mobility Division exercises Army Staff oversight of the FPIC as a supporting deployment-automation tool. The core personnel and equipment assets for maintaining the information repository are stationed at the Deployment Process Modernization Office at Fort Eustis.

Where Does the FPIC Fit?

The FPIC supports the activities of the G-3/G-4 Power Projection Council of Colonels. The council provides recommendations to, and executes guidance from, a general officer steering committee to pursue significant improvements in the rapid projection of transforming forces and equipment around the world.

Army-specific information contained in the FPIC re-

pository directly supports operations and technology goals outlined in the Army Transformation Campaign Plan Line of Operation 9, “Deploying and Sustaining the Force.” [This is one of 14 lines of operation that constitute the Army Transformation Campaign Plan.] The main effort of the “Deploying” axis is the Army Power Projection Program, known as AP3. This new power projection strategy, centered on joint operations, was documented in the Master Plan approved in July 2002; it replaces the Army Strategic Mobility Program.

What Types of Information Are Available?

The FPIC repository architecture displays the authoritative information products of a diverse consortium of warfighters, service and joint staff elements, battle labs, combat and materiel developers, and research and development agencies. A partial list of primary sources include DefenseLINK, the Department of the Army Home Page, the Army Training and Doctrine Command, the Project Manager Force Projection, the U.S. Transportation Command (including the Military Traffic Management Command Transportation Engineering Agency, the Air Mobility Command, and the Military Sealift Command), the Army Forces Command, the G-4 Distribution Knowledge Center, the Joint Deployment Training Center, the Joint Deployment Process Owner Division of the U.S. Joint Forces Command, and the Deployment Process Modernization Office.

The online repository provides general and specific subject-matter information and selected organization and agency Web links. The key functional modules include—

- A consolidated calendar of force projection-related meeting forums and major events.
- The Power Projection Council of Colonels’ priority focus, briefings, and meeting minutes archive.
- The FPIC Summit briefings and minutes archive.

- Joint and Army transportation doctrine publications.
- U.S. Transportation Command infrastructure and policies.
- An airlift, sealift, and pre-positioned stocks “Deployment Toolkit.”
- Hazardous materials policies and procedures.
- A “Mobility Officers [military occupational specialty 882A] Support Site.”
- The Army Transportation School’s Deployment Exercise Facility.
- Family, soldier, and unit “Readiness and Mobilization.”
- Information pertaining to deployment automation tools (such as the Global Transportation Network, the Transportation Coordinators Automated Information for Movements System II, and the Intelligent Road/Rail Information Server) and Army Transformation.
- A “Message Center/Bulletin Board.”

Additional modules being refined for release in 2003 are a dedicated Army Power Projection Program section, a “Studies and Analyses Database” with search engine, and a “Technology Center” that will include experimentation information.

An open data call for additional material for the FPIC repository currently is underway. Warfighters and combat and materiel developers are requested to provide information for both new and existing modules through the online “Content Submission Form” located in the FPIC repository’s “Admin & Utilities” section.

How Do I Access the Repository?

Army military and civilian personnel may directly access the FPIC repository at <https://fpic.eustis.army.mil> and log on using their existing Army Knowledge Online full account user ID and password. Joint users must follow standard Army Knowledge Online protocols to register and request a guest account by selecting “I’m a new user” at the Army Knowledge Online main Web site (www.us.army.mil). Guest accounts are valid for 1 year and require sponsorship by an existing Army full account holder. The sponsor may authenticate and extend the guest account annually without formal reapplication.

As an adjunct to the ongoing program efforts of the

Power Projection Council of Colonels and the Project Manager, Force Projection, the FPIC is a valuable aid to the warfighter and the entire force projection community. By providing centralized availability of a growing, integrated repository of tailored force-projection information, such an innovative, Web-enabled tool directly supports deployment professionals in the critical early stages of training, planning, and initial movements by providing access to doctrinal references, maps, handbooks, and regulations. It also will be a practical way for materiel developers to inform decision-makers of potential high-payoff technology enablers that can achieve joint capabilities needed to overcome strategic mobility challenges.

These characteristics of FPIC are central to the support and execution of the Army Power Projection Program throughout the bold transformation to the Army’s Objective Force and the other services’ goals. The vision for this innovative and dynamic repository includes continued development beyond the baseline version, primarily targeted toward deploying Army forces, to increasingly provide support across the Department of Defense in a joint context. This critical evolution will be achieved through G-3/G-4 Power Projection Council of Colonels’ guidance and coordination with joint and service staffs and mobility organizations.

Uniformed warfighters and civil service professionals alike are strongly encouraged to contribute ideas, lessons learned, deployment checklists, standing operating procedures, local references, calendar events, and other unclassified materials to this dynamic repository.

For additional information on the repository, or to participate in the ongoing data call for force projection-related material, send an email to fpicweb@eustis.army.mil.

ALOG

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Force Projection Information Center
Repository and Knowledge Database Web Application

<https://fpic.eustis.army.mil/>
(Sign in with Army Knowledge Online Userid & Password)

Strategic Mobility Division
Office of the Deputy Chief of Staff for

PM Force Projection
PMO Casual Support & Combat Service Support

Deployment Process Modernization Office
Army Transportation Center

Improving Force Projection of the Transforming Force

Managing Materiel Distribution in the 21st TSC

by Mark S. Paun

The old saying, “Change is constant,” is a common thread that runs through every facet of the Army, and logistics support in the European theater is no exception.

The transformation of the 21st Theater Army Area Command (TAACOM) in Kaiserslautern, Germany, to a theater support command (TSC) began in October 1998. The Department of the Army authorized the command structure in October 2001. At the same time, the TAACOM Assistant Chief of Staff for Logistics position changed to the Chief of Support Operations (SPO). With that change, the command activated the theater’s first distribution management center (DMC) to be structured under the SPO.

The DMC acts as the distribution management support element for the Deputy Commander for Support Operations. The DMC supervises and synchronizes operation of the 21st TSC’s 200th Materiel Management Center, 1st Transportation Movement Control Agency (TMCA), and 37th Transportation Command, which are responsible for supply management, movement control, and military transportation operations, respectively. The DMC also provides distribution support to U.S. Army Europe’s (USAREUR’s) medical logistics management center. The DMC is responsible for controlling the theater’s Army supply chain management mission, roles, and functions by balancing the existing capabilities of the distribution infrastructure with day-to-day and projected operational requirements.

DMC Functions

Distribution management is the process of planning and coordinating for the time-definite delivery of units, materiel, equipment, personnel, and soldier support to, within, and from the area of operations. Effective distribution management applies the principles of managing distribution centrally, optimizing infrastructure, mini-

mizing stockpiles, maximizing throughput, and maintaining a seamless pipeline.

The primary functions of the DMC are—

- Managing the entire available distribution infrastructure and optimizing the pipeline flow to meet field commanders’ requirements and priorities.
- Providing an integrated battlefield distribution information network for establishing and maintaining total asset visibility (TAV) and intransit visibility (ITV).
- Projecting distribution pipeline volumes, flow rates, and contents and associated node and port requirements; adjusting pipeline flow; and responding to changing operational requirements.
- Monitoring reception, staging, onward movement, and integration and prioritizing unit and sustainment movement requirements.
- Monitoring distribution terminal operations and the flow of multiconsignee shipments.
- Synchronizing reception of Army combat service support (CSS) resources with theater movement control procedures.
- Ensuring effective cross-leveling of supplies and efficient retrograde and redeployment of equipment, personnel, and supplies.
- Establishing time-definite delivery schedules for the theater.
- Advising the TSC commander, the SPO deputy commander, Joint Forces Command distribution managers, and host-nation representatives and recommending changes to the distribution system.
- Supervising materiel managers and movement controllers.
- Maintaining visibility of the physical resources, communications, and automation networks within the TSC’s area of responsibility.
- Identifying capacity problem areas and actions to be taken within the distribution system.



□ A Falcon Express truck awaits approval to cross the border into Macedonia.

- Managing and controlling the distribution pipeline flow by anticipating support requirements and synchronizing materiel management and movement control.

DMC Organization

The DMC consists of three sections: the office of the chief, the distribution operations branch, and the distribution plans branch.

The distribution operations branch works closely with, and synchronizes the operations of, the materiel management center, TMCA, and medical logistics management center. It maintains CSS situational awareness, including TAV, ITV, and CSS command and control information. The distribution operations branch also monitors established theater priorities and maintains a liaison with TSC directorates and specialized commands to ensure the uninterrupted flow of materiel, units, personnel, mail, and other goods to support deployed forces and retrograde operations.

The distribution plans branch works closely with the SPO plans and policy office and the planning activities of the materiel management and movement control organizations to ensure adequate movement plans and orders. It develops the overall distribution plan and monitors and adjusts the plan as needed.

DMC Milestones

Since its inception, the DMC has accomplished several major milestones. In September 1999, the DMC transferred breakbulk container operations from the Rhine River terminal to the 37th Transportation Command Theater Distribution Center with no additional costs. The transfer eliminated the double handling of

cargo and reduced customer wait time. It also reduced Military Traffic Management Command manpower and saved \$500,000 annually in highway transportation costs.

In July 2000, DMC established the Eagle and Falcon Express—a closed-loop highway “pony express” system that moves cargo 7 days a week from the theater distribution center in Kaiserslautern, Germany, to U.S. forces supporting Task Force Eagle in Bosnia and Task Force Falcon in Kosovo. The Eagle and Falcon Express, operated by Halliburton KBR, provides the customer with a time-definite delivery schedule and costs \$2.5 million per year less than transporting the materiel by air.

As part of the original U.S. Transportation Command (USTRANSCOM) strategic distribution management initiative, the DMC is the only Army member of the joint service theater distribution management cell at Ramstein Air Base, Germany. Established in August 2000, the cell is the first of its kind and has made a major impact on onward movement of cargo headed for Bosnia and Kosovo. The theater distribution management cell captures inbound military air cargo and then selects the best mode of transportation for final delivery to the customer. This has freed up premium intratheater airlift at crucial times and cut the cost of transporting cargo downrange. The program has been expanded to cover Aviano, Italy, and Mildenhall, England, and is a highly successful joint effort between the Army and the Air Force that meets customer requirements at significant cost savings to both services.

In March 2001, the DMC began using the Eagle and Falcon Express truck services for the surface movement of class VIII (medical supplies) to both Task Force Eagle

and Task Force Falcon. That initiative has saved the Army Medical Materiel Center-Europe over \$500,000 in annual transportation costs, reduced shipment hold times, and increased customer satisfaction.

In the spring of 2001, the DMC rewrote the joint transportation and traffic management regulation for U.S. European Command (EUCOM) movement control, which had not been updated since 1986. The changes to the regulation revamped the customs program's duty-free movement of military cargo, simplified the process for obtaining transportation, and made major changes to procedures developed during the Cold War.

Strategic Distribution Improvements

By working very closely with the 200th Materiel Management Center Velocity Management (now known as Distribution Management) team, the Defense Logistics Agency (DLA), USTRANSCOM, and EUCOM, the 21st TSC has been able to assist in the following strategic distribution improvements—

- Customer wait time (CWT) in Europe for air-delivery shipments has dropped from 16 days to 11 days—a 31-percent decrease.
- Forward-stocking of high-demand items has reduced CWT from 12 days to 5 days—a 41-percent de-

crease—at the DLA European facility in Germersheim, Germany.

- The percentage of cargo transported by air to Bosnia and Kosovo has been reduced from 90 percent to 30 percent since 2000. CWT for Bosnia alone has been reduced 27 percent—from 15 days to 11 days, resulting in a dramatic reduction in transportation costs.

- CWT for sea deliveries to European military customers has been reduced an average of 27 percent—from over 55 days to less than 40 days.

A CWT reduction of 1 day saves U.S. taxpayers about \$4 million.

RLOC Establishment

To provide better logistics support for Operation Enduring Freedom in Afghanistan, the 21st TSC's DMC teamed up with the 1st TMCA and DLA to coordinate and establish the first-ever rail line of communication (RLOC) from Germany through Poland, Ukraine, Kazakhstan, and Russia to Uzbekistan. Early in December 2001, the 1st TMCA, assisted by the DMC, obtained approval, all customs documentation, and rail authority for a test of the RLOC to Uzbekistan, which was successful. Transit time now averages less than 26 days, with containers moving over 4,000 miles before



□ The 37th Transportation Command Theater Distribution Center is responsible for the deployment of Kosovo Force unit equipment, such as this engineering asphalt-paving equipment.



□ Breakbulk containers are offloaded at the 37th Transportation Command Theater Distribution Center, thereby eliminating double handling and reducing customer wait time.

reaching their destinations.

The 21st TSC used an ITV system called VISTAR to track the trains by satellite, thereby providing the capability for hourly updates from TMCA headquarters in Kaiserslautern, Germany, to the U.S. Central Command and EUCCOM. The RLOC established an alternative resupply route for Operation Enduring Freedom, eliminated the need to consume strategic airlift for mission-essential items, and served as an excellent example of what a forward-deployed logistics organization with unique theater expertise can accomplish.

The DMC also assisted the 1st TMCA in opening the first RLOC between Kosovo and the central region of Europe, thus establishing a corridor that routinely moves trains through Germany, Hungary, Romania, Bulgaria, Greece, and Macedonia into Kosovo. In the last two Kosovo Force transfers of U.S. authority alone, in which the Chief of the DMC was the officer in charge for deployment and redeployment, the 1st TMCA provided guidance for moving over 50 trains carrying thousands of vehicles and pieces of equipment in both directions.

The DMC has accomplished much over the past 4 years. It has designed and implemented a theater-wide TAV tracking system and assisted with the deployment and redeployment of U.S. forces in support of Operation Enduring Freedom. DMC also has facilitated the rotation of Army forces into and out of Bosnia and

Kosovo and the stationing of transportation units to expedite the movement of cargo, equipment, and personnel into, out of, and around the USAREUR area of operations and EUCCOM-sponsored humanitarian efforts.

Since its implementation, the DMC not only has had a major impact on the theater in general, but its accomplishments also have been felt in areas as far away as Afghanistan. The DMC is at the leading edge of developing and implementing sound supply chain management policies, practices, and procedures. It is constantly looking at ways to streamline processes, creating an efficient but effective logistics distribution pipeline while cutting costs, manpower, and infrastructure.

Although change may be a constant, the importance of the DMC is not likely to change—certainly not in the foreseeable future. The 21st TSC DMC will continue to be a mainstay of logistics support. It has only touched the tip of the proverbial iceberg in providing logistics support to U.S. forces, no matter where they are deployed.

ALOG

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Restructuring the Division Support Command

by Captain Christopher R. Liermann

Today's Army and the Army of the future must operate on the premise that, because it is based in the continental United States (CONUS), the Army must be able to deploy faster with a reduced logistics tail. As Joint Vision 2020 states, "The joint force, because of its flexibility and responsiveness, will remain the key to operational success in the future. Today's capabilities will become dominant maneuver, precision engagement, focused logistics and full dimensional protection."

The current division support command (DISCOM) is built around a force structure designed to fight a Cold War enemy that relied heavily on massing troops and equipment in waves in order to overwhelm U.S. forces in the European theater. With the changing threat, the current force must increase its flexibility and responsiveness and focus its logistics. To do this, the logistics force must be restructured into a smaller, increasingly multifunctional element that can maintain its lethal-

ity and deliver better information to the maneuver brigade commander.

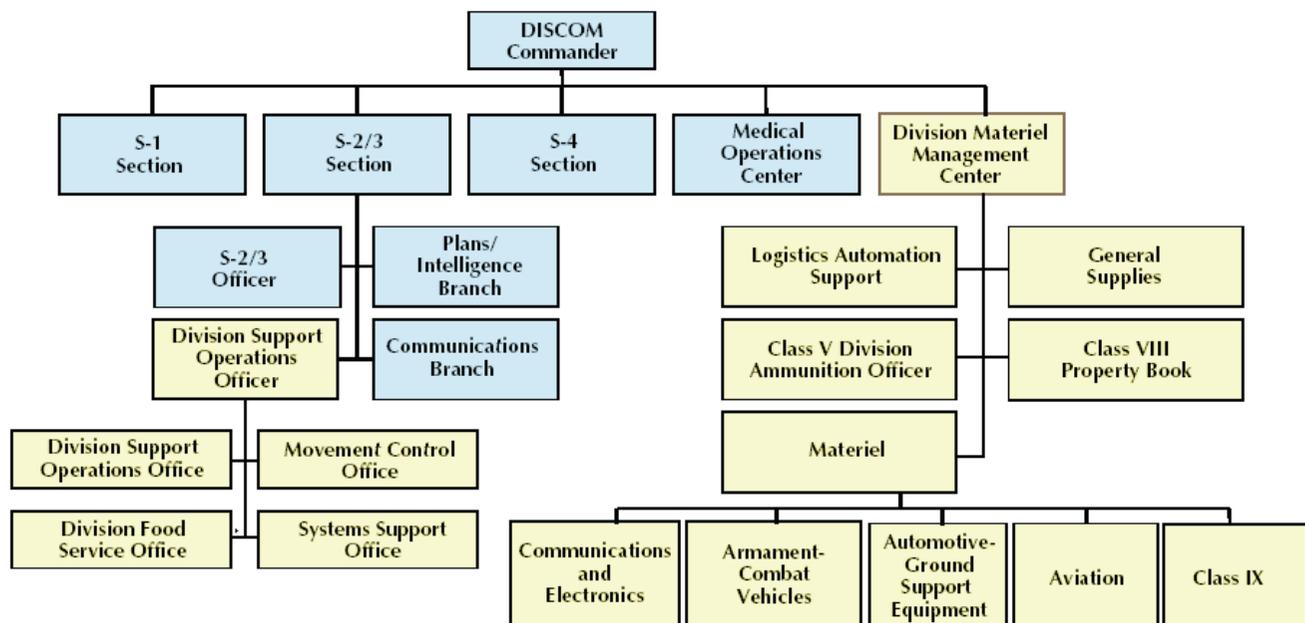
Achieving the Vision

I believe the current visions expressed by the Chief of Staff of the Army and in Joint Vision 2020 can be supported by replacing the current DISCOM with significantly smaller logistics cells that support regimental-style brigades while increasing the logistics capabilities of the force.

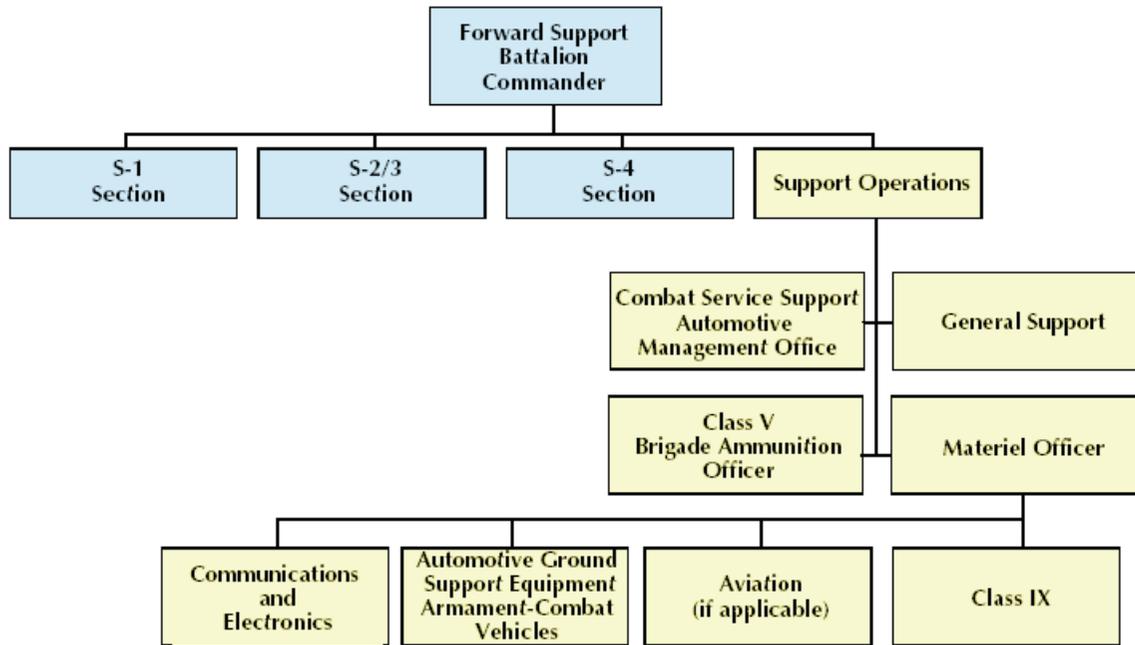
The current DISCOM structure is shown below. The blue boxes represent the headquarters elements required in a typical brigade-sized organization. The yellow boxes represent organizations unique to the DISCOM—the materiel management center (MMC) and support operations office (SPO). The subordinate forward support battalions (FSBs), main support battalion (MSB), and area support battalion are not pictured.

Under my proposal, the basic organizational struc-

Current DISCOM Structure



Proposed Materiel and Distribution Management Structure



ture for these battalions will remain the same. However, my proposal includes changes in the DISCOM MMC and SPO and in the FSB support operations office at the maneuver brigade level. Both the DISCOM and the FSB currently have support operations staffs—a built-in redundancy. With increased communications and more effective Standard Army Management Information Systems (STAMIS), there no longer will be a need for this redundancy. In fact, the DISCOM SPO and MMC can be eliminated under my proposal.

The chart above shows a proposed materiel and distribution management structure reconstituted at the FSB level. The yellow boxes represent the significant organizational changes. The functions of the movement control office (MCO) in the existing DISCOM SPO would be absorbed by the division transportation office (DTO) in the division G-4 with the addition of movement warrant officers assigned to the division G-4 and some augmentation. The FSB SPO would be responsible for distribution management in his area of operations and for transportation coordination in the maneuver brigade. The committal authority for divisional assets would transfer from the MCO to the DTO, which would be responsible for overall planning and coordination in the division area. A medical officer or noncommissioned officer in the FSB SPO section currently oversees the class VIII (medical materiel) requisition and casualty evacuation processes. With augmentation (one to two

additional medical soldiers), the FSB support operations officer could oversee this mission.

By eliminating the DISCOM and increasing the capabilities of the SPO at the FSB level, the maneuver brigade commander will be able to tailor his force for more flexibility without deploying a huge logistics infrastructure to support his operation.

Command and Control

Transformation to a more quickly deployable force requires transformation of the command and control logistics structure. The Stryker Brigade Combat Team (SBCT) provides a prime example of the transformation in command and control that is necessary to support a more quickly deployable force.

For the SBCT to be as quickly deployable as mandated, it cannot carry the initial logistics tail that the Legacy Force does. The SBCT's structure is basically regimental, closely resembling a separate armored brigade structure. A light, tailored, and effective logistics cell is crucial for its success.

Management of all the battlefield logistics functions takes place in the supporting brigade support battalion (BSB) SPO. The BSB SPO, armed with advanced communications, real-time STAMIS, and highly trained individuals, is responsible for supporting the SBCT in its area of operations.

Can the logistics mission be accomplished as skill-

fully in a Legacy Force brigade as in the SBCT? I believe it can. If new information technology hardware, upgraded communications equipment, and real-time or near real-time STAMIS are used, a Legacy Force brigade can possess the same logistics prowess as the SBCT. Although the deployment timelines will be different, a similar logistics infrastructure can be used to support a heavy Legacy Force brigade.

A Lesson From the Marines

The Army is not the first service to experiment with a small logistics tail. The Marine Corps already has learned the benefits of a smaller logistics force and infrastructure. In an article in the April 1995 issue of *Marines*, John F. Luddy II notes—

The CSSE [combat service support element] strikes a delicate balance between having enough Marines to perform these sustaining functions efficiently and responsively, without getting so large that it loses the inherent mobility that enables it to rapidly deploy. The CSSE operates on a shoestring—one support Marine for every three combat Marines. This so-called “tooth-to-tail” ratio keeps the MAGTF [Marine Air-Ground Task Force] fast, light, and lethal.

The Marines are able to maintain a small tooth-to-tail ratio because they receive offshore support from the Navy and land support from the Army after the theater develops. Although the Army’s footprint will always be larger than that of the Marines, the Army can incorporate Marine lessons learned into developing doctrine.

The Army is moving away from a commodity-based logistics structure to one that is distribution based. Its ability to requisition, track, and change the destination of materiel while in transit will allow the Army to reduce the number of people it needs to manage the mountains of materiel still stocked in theaters of operations. Certain driving factors, or enablers, are required, however, for the Army to transform to a distribution-based logistics structure.

Information Technology

The largest enabler is, and will continue to be, information technology and the STAMIS with which we harness it. Most logisticians will agree that some of the STAMIS currently in use need updating. When that happens, the need for an MMC will be reduced if not nullified. Transportation systems such as the Movement Tracking System will increase the support operations officer’s situational awareness and allow him to flex assets throughout the battlespace.

Sophisticated inter- and intratheater transportation

systems that will allow a logistics manager, while using a single terminal in real time, to change the destination, distribution, and allocation of supplies in transit to anywhere on the battlefield probably will play the biggest role in the future of distribution-based logistics. Replacing commodity management with distribution management will mean that fewer people can do the same mission. A small logistics support structure, armed with new technology, can replace an entire management center. All of these systems will use commercial off-the-shelf (COTS) technology, so costs will be small when compared with other information technology systems.

These new distribution systems will play a crucial role. However, they must be integrated with currently fielded STAMIS, such as the Integrated Logistics Analysis Program (ILAP), Total Asset Visibility (TAV), and Joint Total Asset Visibility (JTAV). These existing systems are designed to increase asset visibility, but their usefulness is limited. For example, in-transit visibility is virtually zero with these systems. However, if the asset visibility STAMIS are integrated with the movement STAMIS, they will become an invaluable tool for managing materiel strategically, operationally, and tactically.

Other systems currently under development are the Global Combat Support System-Army (GCSS-Army) and the Combat Service Support Control System (CSSCS). GCSS-Army offers a Web-based solution for integrating all STAMIS under one user interface, with different “modules” at various levels of the management structure. CSSCS provides detailed logistics information from multiple sources in order to provide a better analysis of the overall logistics picture from strategic to tactical levels.

Although many available STAMIS offer the support operations officer information he needs to better manage his area of operations, the Army needs to determine which STAMIS are effective and which are not. According to a recent participant in a Prairie Warrior command post exercise, “Students [using CSSCS] could see 1½-hour-old unit location data down to the battalion and company levels and the known enemy location data.” At first glance, the visibility of CSSCS appears adequate; however, relying on 1½-hour-old data on the battlefield could be dangerous.

I am not proposing that the development of CSSCS be stopped. Nor am I arguing against its incorporation into the Army’s logistics STAMIS structure. Rather, I am suggesting more careful scrutiny of existing and developing STAMIS to determine which systems will best achieve the Army’s vision.

Communications

The second transformation enabler is communica-



□ Using the load handling system modular fuel farm significantly cuts setup and teardown time at a fuel distribution point.

□ The authorized stockage list mobility system fully containerizes ASL repair parts for use in garrison and field environments.



tions. Communications will allow visibility not only throughout the theater of operations but also back to the continental United States. Without a DISCOM-level MMC, it will be critical for maneuver brigades to communicate with each other in order to cross-level supplies on the battlefield, determine maintenance requirements across their areas of responsibility, and re-allocate resources as needed in real time. Without the aid of a DISCOM MMC, the support operations officer must be able to communicate with theater managers on the status of supplies coming into their theaters of operations. The SPO must have built-in communication system redundancy so that if one system fails, a backup system with virtually the same capabilities is available. Tactical satellite systems currently provide this capability, but future communication systems will add information technology functionalities that will allow better data transmission by STAMIS.

Mobile subscriber equipment, an outdated line-of-sight phone system currently in use, must be replaced because it is extremely difficult to “BLAST” [blocked asynchronous transmission] information through its communications networks. The tactical satellite (TACSAT) and mobile subscriber equipment (MSE) offer a current, fielded technology to aid communication on the battlefield, but newer, more advanced systems, such as the Joint Tactical Radio System (JTARS), are needed to bring effective communications to the battlefield.

Modularity

The third enabler, modularity, is a fairly new concept that is being implemented slowly in today’s logistics structure. Modularity allows logistics planners to tailor their force to better suit the mission they will support.

For the support operations cell to manage its distribution assets more easily, modularity plays a significant role. Several concepts currently in testing and production phases will increase efficiency and decrease the logistics footprint.

For example, the load handling system modular fuel farm (above) will reduce significantly the time needed to set up and tear down a fuel distribution point. The authorized stockage list (ASL) mobility system (above), a system of standardized, side-opening, expandable storage containers for ASL repair parts, will reduce the logistics footprint by 60 percent.

The current DISCOM is not necessary in the chain of command. With better functioning STAMIS, increased communications ability, and modular vehicle implementation, a robust SPO in the FSB, with minimal augmentation, could take the place of a DISCOM SPO and MMC without detracting from the Army’s ability to deploy rapidly, thus achieving Joint Vision 2020’s goals for the Army.

ALOG

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CSS: A Collection of Teams

by Colonel Christopher R. Paparone

The author believes that the Army can manage combat service support units best if it sees them as they really are: a collection of mission-focused teams.

While we may consider combat service support (CSS) to be a unit-based capability, I believe that, in reality, the Army's CSS capability is provided by a collection of diverse CSS teams that are "cared for" by a unit structure. You might ask, What's the difference between CSS teams and units? I think the difference is huge. I also believe that thinking of CSS capability as provided by teams instead of units requires a paradigm shift in how we command, lead, and manage people, equipment, training, and overall readiness.

Fuel teams, maintenance teams, medical teams, transportation crews, ammunition transfer teams, and supply teams all determine the capable delivery of logistics. The main reason for a unit structure is to provide administrative control over these teams and to position them in the right place to render support as close as possible to the point where support is needed.

Not only is the realization that the Army operates primarily through teams important to today's Army, but it also is important to achieving the Objective Force concept of how things must be done in the future Army. Much of the creative writing on the Objective Force has focused on the need to integrate all functions into combat formations that are dispersed over a noncontiguous battlespace. Under this concept, CSS teams will be working hand in hand with units that are in contact with the enemy, not enjoying the positional safety once afforded by an echeloned, linear battlefield. Layers of logistics headquarters in theater will be replaced with delivery of logistics to the point of needed support by small teams that reach as far back into the communications zone as possible.

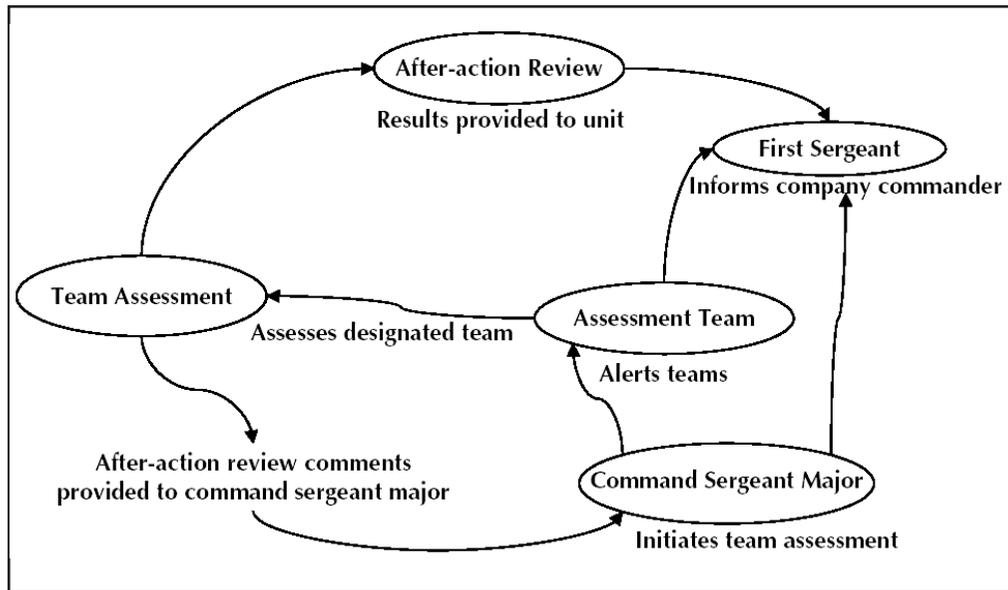
One technique for commanding, leading, and managing teams is to focus battalion-level systems on those teams rather than on company-sized units. For example, assessing readiness and developing training schedules should focus first on the team, not the company. When I commanded the 47th Support Battalion (Forward), 1st Armored Division, in Germany, we developed this team-based mentality and operated ac-

ordingly. Our battalion weekly training meetings, quarterly training briefings, and unit status reporting process were oriented on our CSS (and later our command and control) teams.

We developed the chart below to track the current and projected readiness of our teams. The color ratings used in such a chart can be determined locally; we saw black (labeled "B" in the chart below) as ineffective,

| Team Status | | | | | | | | |
|-----------------------------|--------|---|---|---|--------|---|---|---|
| Team | Nov 97 | | | | Mar 98 | | | |
| | P | E | T | C | P | E | T | C |
| Class II Team | A | A | A | B | A | A | A | R |
| Class II/IV Team | R | B | G | G | B | R | G | G |
| Class V Team | B | A | A | A | A | A | A | A |
| Armament Team | R | A | A | A | R | A | A | A |
| Missile Base Team | R | A | G | A | B | A | A | A |
| Auto Base Team | B | A | G | G | B | B | A | A |
| EMS Team | B | A | G | A | B | A | A | A |
| TSO | A | A | A | G | R | A | A | G |
| Ground Support Team | B | R | A | G | B | R | A | G |
| Service and Recovery Team | B | A | A | G | B | A | A | A |
| 1-6 IN MST (Rear) | G | G | A | G | R | A | A | B |
| 1-6 IN MST (TF Able Sentry) | G | G | G | G | G | G | G | G |
| TF 2-6 IN MST (SFOR II) | G | G | G | G | G | G | G | G |
| 1-35 AR MST | R | R | A | A | B | B | A | A |
| 40 EN MST | A | A | G | A | R | A | A | A |
| 4-27 FA MST | A | A | G | G | A | A | G | G |
| Area Treatment Squad | B | A | A | A | R | G | R | G |
| Patient Holding Squad | B | A | R | A | A | G | A | G |
| Area Support Squad | G | G | A | G | G | G | G | G |
| Treatment Team 1 | B | A | B | A | A | G | A | G |
| Treatment Team 2 | B | A | B | A | B | G | B | G |
| Ambulance Squad Wheel 1 | G | G | G | A | G | G | G | G |
| Ambulance Squad Wheel 2 | B | A | B | A | G | R | R | G |
| Ambulance Squad Track 1 | B | B | B | A | B | G | B | A |
| Ambulance Squad Track 2 | A | G | B | A | R | G | R | A |
| Ambulance Squad Track 3 | G | G | G | G | G | G | G | G |

□ These color-coded charts were used by the 47th Forward Support Battalion to assess the readiness of its CSS teams.



□ This chart illustrates the battalion command sergeant major's team readiness assessment process.

red (R) as minimally effective, amber (A) as partially effective, and green (G) as totally effective. We looked at the current status based on team reporting and projected the status based on "PETC" team forecasts and staff analysis. ("PETC" stands for personnel gains and losses, equipment maintenance projections, individual and collective training, and team cohesion.) We eventually added the "headquarters team" (not indicated on this chart) for companies and the battalion to indicate command and control ratings. This chart became our mainstay for both quarterly training briefings and unit status reporting.

In addition to the battalion's use of the charts, our command sergeant major developed ad hoc noncommissioned officer (NCO) teams that conducted monthly assessments of designated teams within the unit. The NCO teams were made up of rotating NCOs from above the platoon level and from multiple companies. The NCO teams scheduled the monthly assessments on company and battalion training calendars. The assessment process involved visiting and talking to soldiers. The NCO teams would ask such questions as, Do you have what you need to do your job? How is morale? Do you have any issues concerning your command, leadership, or the management climate? The NCOs who served on these teams learned a lot about the capabilities of the battalion and a lot about coaching and leadership. (See the chart above)

These assessments were based on a command, leadership, and management philosophy. They were not inspections, nor were they used to lay blame on sergeants or officers. As battalion commander, I did not require a written report or formal oral feedback on these assessments, just a qualitative confirmation of current and pro-

jected status. The assessments were designed to assess systemic problems that blocked the teams from achieving "green" status. The results influenced, and most of the time validated, the color-coded charts.

The color-coded charts were very useful in demonstrating to higher headquarters the status of personnel, equipment, training, and morale in our battalion's teams. When the teams' status was presented in one chart, it was possible for higher headquarters to gain an overall impression of their capabilities. This made resource decisions at higher levels easier to make: Do we accept risk, or do we do something about these issues?

I believe that looking at CSS capabilities in terms of teams is an important step toward attaining the Objective Force vision. In our battalion, this concept eventually empowered team leaders and followers with a voice they never had before. On the whole, soldiers were delighted with the focus on teams because it got the attention of unit commanders and staff. While some in the chain of command at first thought focusing on teams disrupted the traditional Army hierarchy, they soon learned that, to be effective, their roles had to shift from "authoritative direction" to "servant leadership." I commend this philosophy and these tools to all commanders because they reflect the kind of organizational image we need for a transformed Army.

ALOG

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Ground Assault Convoys at the JRTC

by Captain Dean J. Dominique

You are stuck at an intermediate staging base in Cortina. Your brigade is getting ready to move into its area of operations, and you have been tasked to organize the “GACs.” First, you wonder what a GAC is. You learn that GAC stands for “ground assault convoy” and is simply a nondoctrinal term for a tactical road march. Field Manual (FM) 3–0, Operations, defines a tactical road march as “a rapid movement used to relocate units within an area of operations to prepare for combat operations.”

Next, you wonder how to organize an entire brigade combat team’s equipment to flow according to the tactical plan. When deploying to the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, a brigade combat team (BCT) must conduct reception, staging, onward movement, and integration (RSO&I) into the area of operations (AO) as the initial phase of the tactical training. The RSO&I focal point is the intermediate staging base (ISB) in Alexandria, Louisiana. The BCT receives its mission 4 days before D-day, and the GACs

then assemble in a staging area at the ISB while the rest of the brigade prepares for combat.

GAC Command and Control

The GAC, an integral part of the tactical plan, is a major movement of personnel and equipment. Command and control (C2) of the GAC is essential to ensuring that the BCT properly moves into the AO. In most cases, an officer or noncommissioned officer in the forward support battalion is responsible for GAC C2. However, one or two personnel cannot effectively coordinate the staging and control the execution of a GAC, which can last 48 hours. In one case I observed, one lieutenant was placed in charge of the entire operation. In another, the medical company commander was placed in charge according to the unit’s tactical standing operating procedures (TACSOP) and did not leave the ISB until the trail party left. Although this may have worked at the home station, it does not make sense when the BCT is deploying into a hostile area and could begin



□ A 10th Mountain Division (Light Infantry) soldier clears a path in order to extract mine-strike casualties.



□ The OPFOR (opposing force) initiates an ambush.

taking casualties immediately.

Instead of assigning a single officer or noncommissioned officer to handle GAC C2, the following actions should be taken—

- Establish a GAC control team responsible for planning, coordinating, and executing the GAC movement out of the ISB to the release point. A well-organized GAC team has personnel responsible for staging, preventive maintenance checks and services, load plans, and march unit manifests and is resourced for 24-hour operations.

- Establish a communications node between the release point and the ISB. Thus, if the GAC is backing up, the control team can be told so it can slow the flow of vehicles into the AO if needed. This communications node also facilitates tracking combat power into the AO.

Staging

The ISB has a staging area for preparing BCT vehicles for GAC operations. When units deploy to the ISB, many initially will park in the staging area in a disorganized manner. Once the order of march is established as part of the tactical plan, units must reorganize into march units to prepare for onward movement. Often, no staging plan exists, which results in confusion and waste of the limited land available for staging. Reorganizing vehicles consumes massive

amounts of time and resources.

To avoid this confusion and to conserve time and resources, the unit should—

- Establish a tentative order of march before deploying to the ISB, convoy to the ISB in that order, and then park accordingly.
- Send a staging team to the ISB early to facilitate parking.
- Establish a priority vehicle list (PVL) as part of the TACSOP. Having a BCT PVL gives the BCT a planned



□ A convoy reacts to civilians on the battlefield.

JRTC GAC - CBT/LOG POWER MATRIX

| OOM | BMP # | VEH TYPE | UNIT | TRAILER | # Pax | CBT EQUIP | LOG EQUIP | SIG PERS | COMMO | GUNTRUCK | MRE CASE | 5GAL H2O | CBT L/S & BAG | WATER BUF | REMARKS |
|---|-------|----------|-------------|---------|-------|-----------|-----------|------------|-------|----------|----------|----------|---------------|-----------|-------------------|
| EXAMPLE | | | | | | | | | | | | | | | |
| 1 | HQ3 | HMMWV | HHC, 3d BDE | X | 4 | | | BDE CDR | X | | 1 | 2 | | | LTC R. Davis |
| 2 | A12 | ROWPU | A CO, 21FSB | X | 2 | | X | | | | 1 | 1 | X | | |
| 3 | HQ51 | HMMWV | HHC, 3d BDE | X | 3 | | | Convoy CDR | X | | 2 | 2 | | | CPT Hollingsworth |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | |
| TOTAL VEH _____ PAX _____ CONVOY BRIEF TIME _____ SP TIME _____ | | | | | | | | | | | | | | | |

This form can be used to track combat and logistics power by march unit at the JRTC.

order of march that is known or can be referred to by all. Changes to the PVL may be needed to match the tactical plan, but the impact is lessened because the basic vehicle order of march will have been set up.

- Plan for only 18 vehicles per march unit in case vehicles have to be “bumped” forward. The maximum number of vehicles allowed in a march unit at JRTC is 20.

- Avoid creating arbitrary “unit blocks” for staging. For example, do not arbitrarily designate three march units for a unit that has only enough equipment to fill two march units. Creating more march units than needed means that some march units will be empty. These “ghost” march units will affect the estimated time of departure.

- Place placards in the windows of vehicles with the march unit listed on them, and mark the staging area with the spot where each march unit will stage to avoid confusion at the staging site.

Tracking Combat Power

Often, the control team knows only which unit is in each convoy and not where the vital equipment or personnel are. This lack of knowledge may result in key equipment being destroyed and key personnel being killed during initial entry operations. If the BCT develops a tracking mechanism for locating personnel and key equipment, the GAC flow can be manipulated to impact the fight. For example, if an Avenger is destroyed, a second Avenger can immediately be placed in the next departing GAC. See the example above of a form used at the JRTC to maintain this information by march unit.

Tools for Success

Here are some tools that will aid in making the GAC successful—

- GAC rehearsals. Include GAC rehearsals as part of the combined arms rehearsal. Often, GAC rehearsals are conducted separately and are not linked to the tactical plan.

- GAC control team. Train and fully rehearse a GAC control team. Make this part of your TACSOP.

- PVL. An established PVL simplifies movement. It is a plan that can be changed easily.

- Communication. Communication with the release point is critical if the GAC control team expects to be able to control the convoys and impact the fight. If retransmission equipment is not used, the C2 element will not know if GACs are backed up because of enemy interference.

- Detailed strip map. Often strip maps are unreadable and have no basis in reality. However, a good strip map will help any driver find the release point.

- Web site: <http://geocities.com/tacticalconvoy>. This site contains tools to help the tactical convoy commander prepare to execute his mission properly.

The GAC does not have to be a difficult and challenging operation. Units that practice proper GAC procedures as part of home-station training can do well when conducting GAC operations at the JRTC or in combat.

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The NATO Movement and Transport Working Group

by Major Thomas D. Little

This group's experts constantly review and update transportation doctrine and search for new and innovative transportation practices.

The North Atlantic Treaty Organization (NATO) Movement and Transport (M&T) Working Group brings together transportation doctrine experts to face a huge logistics challenge: standardizing and simplifying NATO transportation doctrine. This is not an easy task, but the experts charged with the task are making remarkable progress.

The M&T Working Group is one of several NATO working groups that are standardizing doctrine in their respective fields. Each group concentrates on a specific area, but all have the same goal: improving NATO's ability to deploy troops and equipment more rapidly and effectively.

Group Composition

The M&T Working Group is made up of representatives of 24 nations. (That number includes a representative from each of the 19 current member nations and from 5 of the 7 nations that have been invited to join.) Iceland does not have an Army and does not participate, and Belgium represents Luxembourg. Representatives of six of the Partnership for Peace (PfP) nations (Austria, Azerbaijan, Moldova, Sweden, Switzerland, and Ukraine) also attend the meetings, but they do not have voting rights. Some of the PfP nations were part of the former Soviet Union, and their citizens are eager to modernize and westernize their transportation infrastructure and doctrine. Several of the PfP nations also are looking forward to gaining NATO membership and will join the M&T Working Group with full voting rights when their membership is approved. The M&T Working Group is looking at ways to integrate the PfP nations fully and work together within the context of the PfP Program.

The seven new nations invited to join NATO at the Prague Summit in November 2002 have brought a wealth

of new knowledge to the M&T Working Group. The seven nations (Latvia, Lithuania, Estonia, Romania, Bulgaria, Slovenia, and Slovakia), all former Soviet Bloc countries, are in the process of converting their armies to NATO standards. To do this, they must align their transportation doctrine with NATO transportation doctrine. The M&T Working Group is actively involved in making this happen.

The M&T Working Group convenes semiannually at NATO Headquarters in Brussels, Belgium. During the year, two smaller planning meetings are held in one of the NATO countries. All M&T Working Group meetings are conducted in English and French, and all participants are required to have a working knowledge of one of those languages. The current chairman of the M&T Working Group is from Germany.

Allied Movement Publications

In an effort to standardize movement and transportation doctrine for NATO, the M&T Working Group is consolidating the NATO Standardization Agreements (STANAGs) for movement and transport into five Allied Movement Publications (AMovPs).

A custodian from a NATO country is appointed for each of the AMovPs. The custodian maintains a database and posts changes to the AMovP. To assist the AMovP custodians, a chapter custodian is appointed for each chapter of each AMovP. The M&T Working Group submits the AMovPs to the Standardization and Military Committee for approval before they are released to ensure that they are consistent with NATO policy. The Group also reviews each AMovP at least once every 3 years and reports any updates to NATO.

A recently implemented initiative assigns a PfP representative to work with each NATO custodian on the AMovPs. This initiative illustrates how the M&T Work-



□ A military train departs a rail yard in Germany.

ing Group is integrating the PfP nations into developing NATO transportation doctrine.

The Group has reduced 19 STANAGs into 5 AMovPs—

- **AMovP 1: Regulations and Procedures for Road Movement and Identification of Movement Control and Traffic Control Personnel and Agencies.** This AMovP consolidates all basic military road traffic regulations, including operation orders, tables, and graphs for road movements. It also contains the methods and procedures used on military routes and road networks. AMovP 1 provides the basic regulations for military road movement by wheeled and tracked vehicles, the marking of military vehicles, and the methods of identifying movement control personnel. The custodian for AMovP 1 is from the Netherlands.

AMovP 1 includes the provisions of six STANAGs: 2025, Basic Military Road Traffic Regulations; 2027, Marking of Military Vehicles; 2041, Operational Orders, Tables, and Graphs for Road Movement; 2154, Regulations for Military Motor Vehicle Movement by Road; 2159, Identification of Movement Control and Traffic Control Personnel and Agencies; and 2174, Military Routes and Route/Road Network.

- **AMovP 2: Procedures for Surface Movements Across National Frontiers.** AMovP 2 was developed to address how the provisions of the London Agreement of 19 June 1951, commonly called the Status of Forces Agreement (SOFA), apply to NATO forces moving through NATO countries and to provide guidance on maintaining and respecting each country's integrity. It standardizes the regulations, procedures, and forms that apply to NATO and PfP forces when traversing NATO countries for the purpose of transporting military equipment and personnel. The custodian for AMovP is from

France.

AMovP 2 consolidates STANAGs 2171, Procedures for Military Trains Crossing Frontiers, and 2176, Procedures for Military Road Movements Across National Frontiers.

- **AMovP 3: Movement and Transport Documents and Glossary of Terms and Definitions.** This AMovP standardizes movement requirements and surface movement requests and notification of movement documents in NATO. It also contains a terms and definitions section for the benefit of movement specialists. The custodian for AMovP 3 is from Germany.

AMovP 3 incorporates information from five STANAGs: 2026, NATO Travel Order; 2155, Road Movement Bid and Credit; 2156, Surface Transport Request and Reply to Surface Transport Request; 2165, Forecast Movements Requirements—Rail, Road, and Inland Waterways; and 2166, Movements and Transport Documents Used for Movements by Ship.

- **AMovP 4: Technical Aspects of the Transport of Military Materials by Railroad.** AMovP 4 consolidates the documents and technical rules that apply to loading and transporting military equipment on railcars in European NATO countries. The custodianship for AMovP 4 is shared between Belgium and the Planning Board for European Surface Transport, a NATO civil-military body.

AMovP 4 is a very detailed document on European rail movements and includes maps and sketches of the different NATO country railways. It consolidates information from six STANAGs: 2152, Loading Ramps; 2158, Identification of Military Trains; 2173, Regulations for the Securing of Military Tracked and Wheeled Vehicles on Railway Wagons; 2175, Classification and Designation of Flat Wagons Suitable for Transporting

□ A U.S. military convoy enters the autobahn in Germany.



Military Equipment; 2832, Dimensional Restrictions for the Transport of Military Equipment by Rail on European Railways; and 2943, Regulations for the Lateral or End-On Loading and Unloading of Wheeled or Tracked Military Equipment Transported on Railway Wagons.

• **AMovP 5: Multimodal Movement and Transport Matters.** This AMovP, the latest to be developed, addresses emerging multimodal transportation doctrine in NATO. AMovP 5 consolidates and standardizes the movement of freight containers within NATO and establishes national points of contact for moving dangerous goods. The custodian for AMovP 5 is from the United Kingdom. AMovP 5 does not replace or consolidate any STANAGs. It was an initiative of the M&T Working Group to consolidate all multimodal information in one AMovP.

U.S. M&T Working Group Representative

The Army Combined Arms Support Command at Fort Lee, Virginia, provides the U.S. representative for the M&T Working Group. This representative is a transportation doctrine expert from the Directorate of Combat Developments-Transportation and is responsible for presenting U.S. transportation doctrine to NATO. Working with combat service support proponents such as the Transportation Corps and the Quartermaster Corps, the U.S. representative ensures that NATO doctrine is considered when U.S. doctrine is formulated.

The U.S. representative to the M&T Working Group has a unique challenge. Since the majority of the NATO nations are in Europe, European transport standards are more relevant, and it is sometimes difficult to understand the terminology used. For example, Europeans call railcars “wagons” and measure distances in kilometers. These differences cause a lot of discussion and

debate at M&T Working Group meetings. The U.S. representative must be diplomatic and keep U.S. interests in mind while helping to maintain unity in NATO. The chairman makes the final decision if the Group cannot reach a consensus.

The M&T Working Group helps promote interaction among the 15 other working groups in NATO, which facilitates information flow among the groups. A representative of the M&T Working Group usually attends the meetings of the other working groups as a liaison. The U. S. representative acts as a liaison with the Asset Tracking, Air Transport, and NATO Shipping Working Groups and presents liaison reports on those groups’ activities at the M&T Working Group meetings, often generating debate and exploration of new ideas.

The constant review and update of transportation doctrine and the search for new and innovative practices by the M&T Working Group ensures that NATO will be able to project its forces throughout its area of responsibility and complete its mission for years to come. **ALOG**

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Modularity: Reducing the Logistics Footprint

by Captain Gregory A. Manns

The force deployment standard that requires a brigade combat team to be on the ground in 96 hours, a warfighting division in 120 hours, and five divisions in 30 days presents specific challenges to combat service support (CSS) units. Although the Army currently is unable to meet this standard, all Army branches are making a substantial effort to transform in order to achieve a force that is more strategically responsive. Focused Logistics, the emerging CSS doctrine, emphasizes modularity in the structure, deployment, and employment of CSS units and a reduced logistics footprint. The concept of modularity serves as the basis for developing doctrine, organizations, training, materiel, leadership

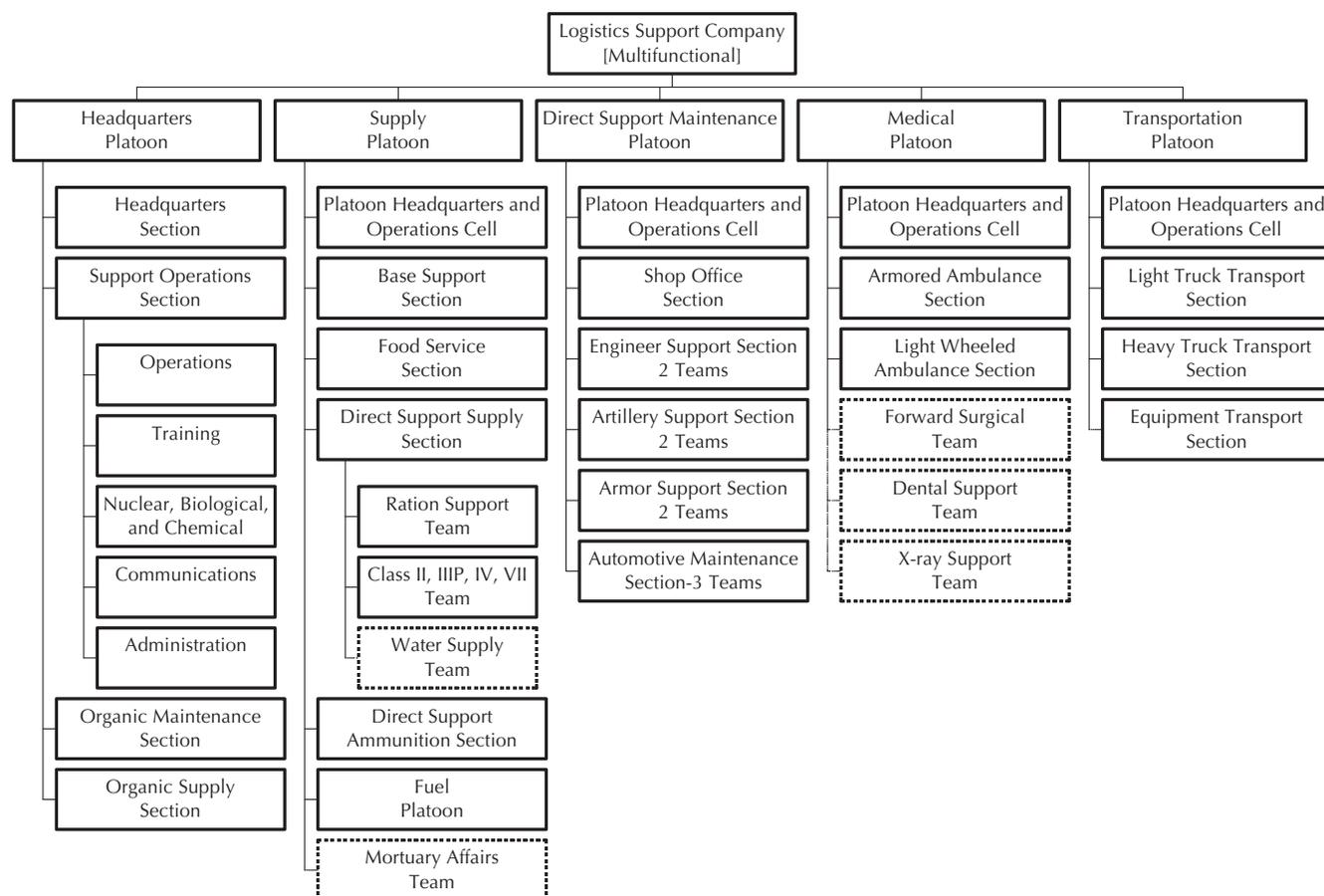
and education, personnel, and facilities (DOTMLPF) requirements.

Modularity Concept—Basis for Change

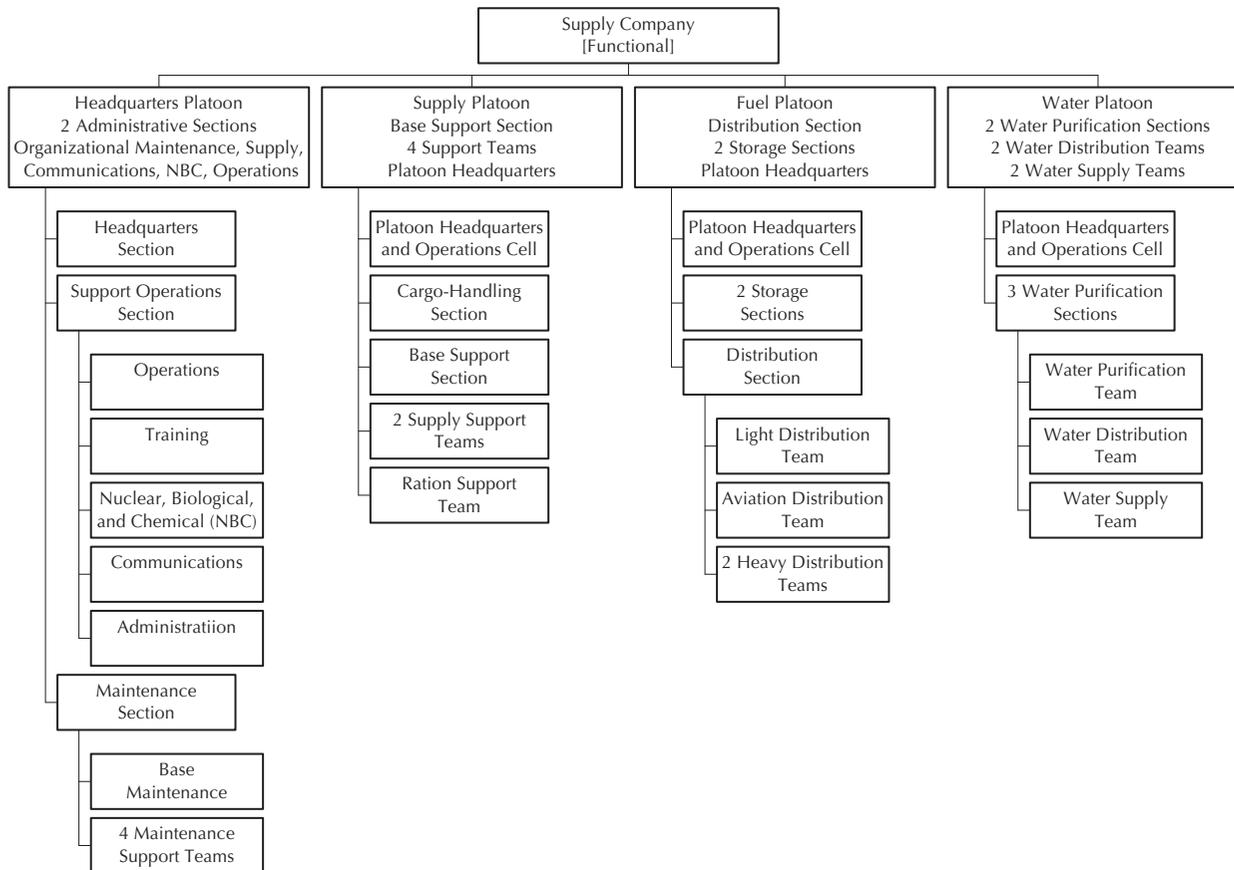
Army Training and Doctrine Command (TRADOC) Pamphlet 525-68, Concept for Modularity, defines modularity as “a force design methodology which establishes a means of providing force elements that are interchangeable, expandable, and tailorable to meet the changing needs of the Army.”

The pamphlet provides two ways to achieve modularity. The first is through functionally emulative increments, which are increments of an organization that are

Modular Support Company



Modular Supply Company



□ The author has developed organizational charts to represent possible organizational structures of a unit that could function as a whole (left) or as separate modules (above).

created to emulate the functions and capabilities of the whole. An example of this might be a water battalion with companies or platoons trained to function either as integral parts of the battalion or as distinct units apart from the battalion. The second way to achieve modularity, according to the pamphlet, is by designing organizations that are able to “replicate, increment, or vary discrete functional capabilities that allow the unit to operate as an entity in one location or as self sustaining parts of that entity at a different location.” An example would be a forward support battalion whose companies have diverse functions.

Benefits of Modularity

For force projection, a modular structure means that support capabilities can be phased into a theater of operations by sending modules independently of the parent unit until the support requirements grow. Units designed under the modularity concept give the strategic planner the tools to make support elements responsive, economical, effective, flexible, selective, and identifiable. The basis for selecting a module, a group of mod-

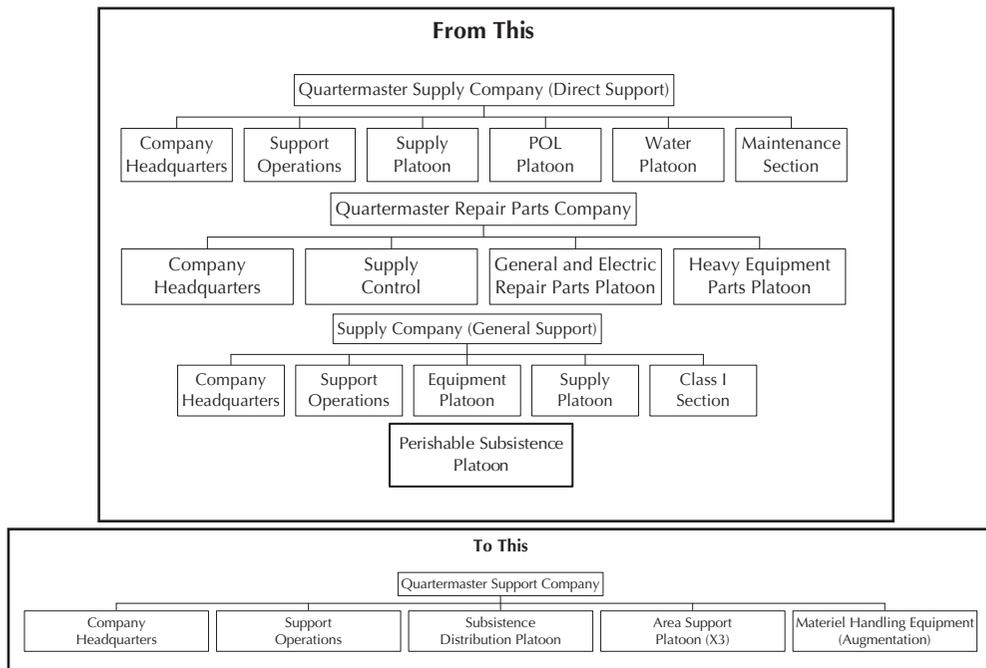
ules, or a whole unit for a particular mission depends on the mission profile criteria.

Deploying only the capabilities needed under the mission profile criteria instead of a whole unit reduces the requirement for personnel and equipment coming into or operating in a theater. This reduces the footprint in the battlespace.

Prelude to Modularity

Before the advent of modular requirements, some missions dictated split-base operations. Under the concept of split-base operations, when the supported force moves, the logistics force must be prepared to provide uninterrupted support to ensure success. The techniques, tactics, and procedures for providing continuous support require the support unit to split its capabilities.

A common way to move a brigade support area (BSA) is to send out a quartering party to establish a new operating area before moving the main body. While the purpose is to prepare the new BSA for the oncoming equipment, small quantities of support assets are included to provide continuous support.



□ This design of the quartermaster supply company is scheduled for implementation in 2011.

Similarly, a forward logistics element is established from the elements in the BSA and moves forward behind the supported force to maintain the stretched lines of communication, achieving continuous support even when the unit is split. Once the forward logistics element reaches its destination, it becomes a forward logistics base until the parent logistics units located in the BSA are given the order to move to the new BSA location. Thus, a Legacy Force unit can split up based on mission support requirements and still operate efficiently.

Modularity Under the Current Force Structure

Some units already have taken heed of the guidance in TRADOC Pamphlet 525-68. The 29th Support Group, under U.S. Army Europe's 21st Theater Support Command, has developed deployment modules designed around the capabilities of its assigned units. These Legacy Force, Army of Excellence units restructured themselves as modular units.

The 51st Maintenance Battalion has water purification modules, fuel storage and distribution modules, maintenance modules, and an emergency evacuation center module. The 191st Ordnance Battalion has aerial delivery modules, ammunition support modules, and explosive ordnance disposal modules. The 29th Support Group also has designed a command and control module for use in the event it must conduct split-base operations or provide command and control for CSS units supporting a contingency operation. The modules can be deployed separately to support a task force outside of the 29th Support Group, or they can be task-organized under a

subordinate headquarters as a logistics task force.

Ammunition and explosive ordnance disposal units already have a modular-like organization and are easier to deploy or employ as modules.

Challenges to Modularity

Some modules experience problems once deployed. They may need pieces of equipment that are included in a module that was not deployed, or they may require support found in the parent organization.

The intent of modularity is to allow parent units to deploy modules, but the parent unit still should be able to perform all of its mission functions. However, this is not always the case. Task-organizing and force-tailoring often require the de-

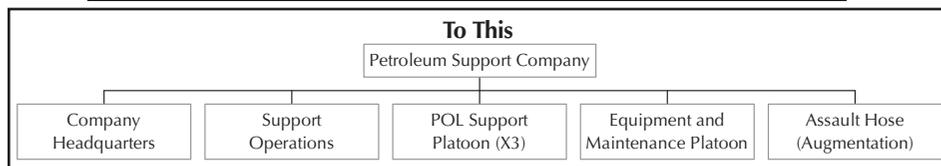
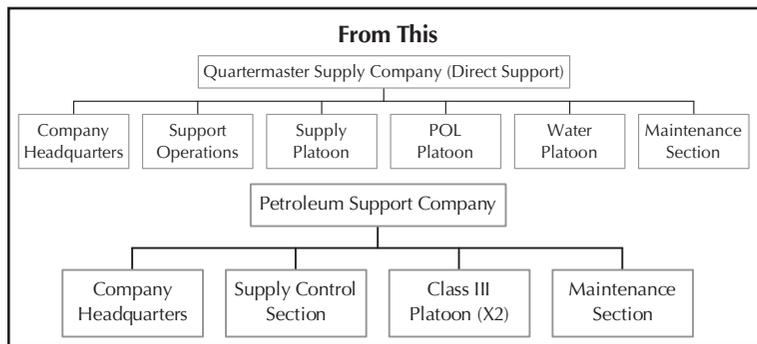
ployment of "slices" from organizations. This frequently renders the residual portion of the "sliced" unit incapable of continuing its full spectrum of missions because of the loss of key personnel or equipment.

Another challenge for the modular concept is how to plan for contingencies that require CSS modules. A water purification module can operate on its own for a short period, but it will require support after its basic load runs out or if it experiences maintenance problems. Even if an organizational mechanic deploys with the module, unit planners must consider how the module will order parts, which unit will perform direct support maintenance, which unit will provide command and control, how the module will order chemicals when it runs low, and so forth. If this is not done, the company commander or the battalion support operations officer will find himself trying to assist the water purification module's leader from the home station.

Alternatives and Caution

It may be easier for a large force to change slowly to prevent confusion among the leaders and planners who have not been trained on doctrinal changes in how to employ the modularly designed units. Careful planning must go into developing new organizations to ensure that the modules can function properly.

Good ideas become dangerous if the soldier factor is not weighted heavily in decision-making. Any changes that occur must ensure that the infantryman on the front line has bullets on hand before he runs out of them. The Army cannot adopt a just-in-time concept without hav-



□ **Proposed redesign of the petroleum, oils, and lubricants (POL) company.**

ing the supplies and support nearby and the infrastructure to deliver them.

An equally important consideration is the force protection of the soldiers in modules deployed without the parent unit. All modules must be attached to or under the operational control of a headquarters unit to ensure all force protection measures are considered and all life support requirements are met.

Material Development

One factor competing with organizational redesign is materiel development. In order to achieve full-spectrum dominance, the Army is funding technology to lighten its force, provide better protection and more lethal firepower, improve power projection, and gain information dominance. New materiel developments in the logistics arena also will make CSS units more mobile. The new equipment being developed will improve CSS responsiveness, flexibility, and effectiveness.

One system under development, the load handling system modular fuel farm (LMFF), will replace the fuel system supply point (FSSP) in the division and also could be used for echelons-above-division and echelons-above-corps units providing direct support. The units owning the LMFFs will be more mobile and will deploy faster because LMFFs are easier to relocate and have their own transportation, whereas units that have the FSSPs need external lift to transport the systems. The LMFFs last longer than the soft-sided storage tanks currently used, and the fuel tank racks can be used for storage or distribution.

In the water treatment arena, new water equipment improves the distribution capability. The load-handling system, which resembles the palletized load system, improves the mobility of water purification units.

Another new system, the container roll-in/roll-out platform—a 20-foot container that holds a flatrack—will carry a strategic-configured load. This will allow the receiving

unit to upload the flatrack and shorten the upload time normally experienced when unloading a large container.

These and other new designs for CSS equipment will enhance the Army's support capabilities. Funding materiel changes generates more tangible feedback regarding the validity or usefulness than reorganizing unit structures to be modular does. Materiel development and force redesign should be combined to impact CSS units and the way the Army does business.

DOTMLPF Impact

Although modularity focuses on the reorganization of a unit's table of organization and equipment, it will have a moderate impact on doctrine, leader training, and materiel. A doctrinal rewrite should include functionally emulative increments and modular elements. It also should address how use of these units will apply to mission, enemy, terrain, troops, and time available.

Institutional training, from noncommissioned officer (NCO) to field-grade officer levels, will need to incorporate the roles of the respective levels in using modularity. Warrant officers, NCOs, and platoon leaders will need to take on greater roles, both in training their subelements to operate independently and in maintaining the readiness of each module. Training at battalion level and higher in a warfighter exercise will test an organization's ability to apply the modularity concepts.

Leaders at all levels should be familiar with the modularity concept and how to employ modules. Integrating the modules into their organization is key to successfully implementing modularity.

Potential CSS Unit Redesigns

Any design to reorganize a unit must be balanced against many levels of bureaucracy for good reason. Vast amounts of experience, study, and testing are invested in redesigning a unit. The diagrams on pages 28 and 29 represent an attempt to build an organization capable of functioning as a whole or separately as modules to sup-



□ Soldiers connect hoses to the pumping module of the load handling system modular fuel farm. A fuel farm can be set up in 1 hour once the tankracks and the pumping module have been placed on the ground.

port the range of direct support (DS) or general support (GS) requirements faced in opening a theater of operations.

By creating a DS multifunctional support company (shown on page 28) and listing it early on the time-phased force deployment list, a commander may solve the lack of support early in a deployment.

The DS supply company (shown on page 29) in the theater support command or the corps support command might serve the same purpose as the multifunctional support company if it is part of a larger support task force that has both modules and the new materiel developments.

Redesigned Units and Their Potential Savings

A more reliable design for a quartermaster (QM) support company has been developed and approved by the planners at the Army Combined Arms Support Command (CASCOM) at Fort Lee, Virginia. This design, which will not take effect until the year 2011, eliminates the DS and GS distinction found in echeloning support. The new design replaces the QM supply company (DS), the supply company (GS), the QM repair parts company, and the perishable subsistence platoon (shown on page 30). Under this design, the Army's inventory will go from 75 companies and 15 perishable subsistence platoons to 30 QM support companies. This will represent a reduction of 1,806 personnel and \$70.8 million in equipment costs.

The petroleum, oils, and lubricants (POL) company and the POL platoon of the QM supply company (DS) will be redesigned as a petroleum support company (PSC) (shown on page 31). The petroleum support company will have consolidated modular platoons with storage and distribution capabilities that perform both DS and GS in the division rear area for nondivisional troops or in the corps support area. Echelons-above-division units will be capable of distributing 1.2 million gallons of bulk fuel per day, and echelons-above-corps units will be capable of distributing 1.9 million gallons per day. The

redesign will reduce the Army's inventory of 54 POL companies and 45 POL platoons to 36 petroleum support companies, saving 4,752 personnel and \$209 million in equipment costs.

The proposed water purification and distribution company design will turn 22 units and 96 platoons, teams, and detachments into 28 companies, saving 506 personnel spaces and \$99 million in equipment costs. The load-handling system, water tankrack, and tactical water purification system are key materiel developments that will make this new design a success.

Since the publication of the modularity concept in 1995, the CSS community has made great strides toward reorganizing CSS units and reducing the logistics tail in a potential theater of operations. The new organizations and materiel developments will go a long way toward making CSS units easier and quicker to deploy. The results of materiel developments are more tangible than the results of unit reorganizations. Therefore, materiel development has taken a front seat to force development. Modularizing the Army's supply, fuel, and water companies would save 7,064 personnel and \$378.8 million in equipment costs. If the reorganizations were implemented on a faster timeline, the savings could be used to fund materiel development; they also could be used to make CSS assets rapidly deployable and thus better able to compete with combat arms units for a spot on the time-phased force deployment list. **ALOG**

Captain Gregory A. Manns is assigned to the 1st Corps Support Command at Fort Bragg, North Carolina. He has a B.A. degree in education from Fairmont State College in West Virginia and an M.S. degree in logistics management from the Florida Institute of Technology. He is a graduate of the Quartermaster Officer Basic Course, the Combined Logistics Officers Advanced Course, the Combined Arms and Services Staff School, and the Army Logistics Management College's Logistics Executive Development Course, for which he completed this article.

Performance-Oriented Packaging

by Stacy L. Umstead

When you hear “POP,” do you think of the latest hit single from a trendy boy band? A carbonated beverage? One third of a trio that also includes snap and crackle?

Well, in the Department of Defense (DOD), POP stands for “performance-oriented packaging,” which is packaging designed especially to transport hazardous material. POP markings are applied to packaging that has passed a series of tests that simulate the stresses of transportation. These tests, which are prescribed by the U.S. Department of Transportation in Code of Federal Regulations (CFR) 49, are based on United Nations (UN) recommendations and are compatible with worldwide standards. They include drop, hydrostatic pressure, leakage, stack, and vibration tests.

POP was introduced into international packaging regulations in 1989 and was made a requirement for U.S. shipments outside the continental United States (OCONUS) on 1 January 1991. POP was phased into Federal regulations over the ensuing 5 years and, in 1996, became the law of the land for packaging of all regulated hazardous material shipped both OCONUS and in CONUS.

The Defense Logistics Agency’s (DLA’s) Defense Distribution Center (DDC) at New Cumberland, Pennsylvania, manages the Packaging Design and Testing Program for DOD, as well as a DOD-wide computer-based program called Packaging for United Nations Conformance-POP. The latter program consolidates the results of tests completed by the military services into one database. Once a packaging design passes POP testing, the DDC POP team enters it into the automated program, and all DOD employees responsible for packaging hazardous materials use the program to obtain tested, approved packaging configurations. The DDC designs and arranges testing for all hazardous materials except hazardous ammunition and explosives. Each military service managing class V materiel designs and tests the packaging and submits reports to the DDC for inclusion in the POP program.

POP includes a requirement to make labels compatible in size and format with UN specifications. Current

participants include the Army, Navy, Air Force, Marine Corps, Coast Guard, DLA, numerous Reserve component units, and the General Services Administration. The Web version of POP at www.ddc.dla.mil/pop is updated daily. A stand-alone, downloadable version (without the graphics features) also is available on the same Web site for use during deployments and at times of Internet nonavailability. The downloadable database is updated monthly to ensure access to the most current packaging information.

The DDC POP team offers comprehensive training for all DOD packaging personnel on how to use the POP program. The POP training curriculum includes general packaging requirements, package markings, selective testing variations, exemptions, approvals, hazardous materials identification, and the markings required by the UN and Military Standard 129, Marking for Shipment and Storage. Since 1998, the team has trained more than 750 people.

A new initiative in POP training is interactive video teletraining via satellite broadcasts on the Government Education and Training Network. Training schedules can be viewed on the Web at http://getn.govdl.org/GETN_schedule.htm.

Members of the POP team serve as instructors and administer the testing program for DOD personnel. They are available for consultation and technical assistance on POP issues. To schedule POP training or to have your site included in a future satellite training broadcast, call the POP team at (717) 770-8238 or (717) 770-5449 (DSN 771) or send an email to popsupport@ddc.dla.mil. **ALOG**

Stacy L. Umstead is a public affairs specialist at the Defense Logistics Agency’s Defense Distribution Center in New Cumberland, Pennsylvania. She is a corporate etiquette and international protocol consultant and currently is enrolled in the Business Logistics Certificate Program of Pennsylvania State University.



Logistics Problems on Attu

by Major Robert E. Burks

The World War II attack on Attu in the Aleutian Islands would have been easier if logistics planners had anticipated the effects of weather and terrain.

“The battle of Alaska has ended, and it may be reasonably contended that the Japanese won it.” This statement, spoken over five decades ago by the Governor of the Territory of Alaska, expressed the sentiment of many who were involved in the World War II Aleutians campaign from June 1942 until August 1943.

The campaign was of virtually no strategic value to either combatant and was fought as much to maintain national honor as for any other reason. The Japanese invasion of the Aleutian Islands chain was the first occupation of American soil by a foreign army since the War of 1812. By the campaign’s conclusion in 1943, 8,500 Japanese soldiers had engaged over 144,000 U.S. soldiers, sailors, and airmen and vast amounts of U.S. materiel and equipment and had embroiled the Americans in one of the costliest assaults in the Pacific theater, on the island of Attu. The attack on Attu was a force-projection operation that provided logisticians with many lessons on the effects of terrain and weather on military operations and on soldiers and their equipment.

A Matter of Honor

The Japanese attack at Midway Atoll, in the Central Pacific, in June 1942 was a disastrous setback after a long string of victories across East and Southeast Asia and the Pacific. Their only opportunity to save face at home rested on the success of what originally had been planned as a diversion from the attack on Midway. The

Japanese High Command had assigned a small task force the mission of attacking several islands in the Aleutians, more than 2,000 miles to the north of Midway, to deflect American attention from the main effort at Midway. The original plan did not call for the permanent occupation of any of the Aleutians, only a harassing threat to draw off American strength. However, with the major loss at Mid-

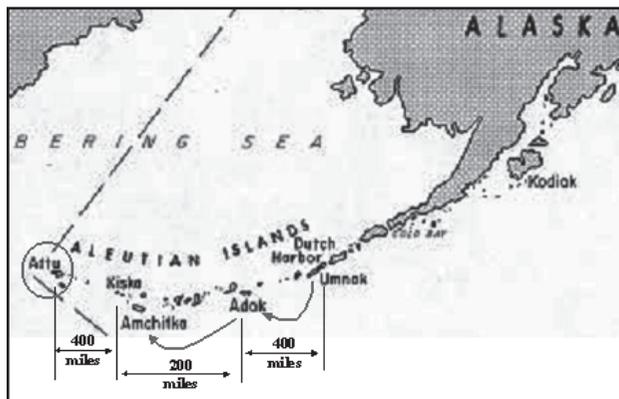
way, the Japanese Government decided to occupy two islands, Kiska and Attu, at the western end of the Aleutians and then declare victory back home.

This decision put in motion the beginning of the U.S. Aleutian campaign to expel the Japanese invaders from American soil. The primary objective of the campaign was to erase the psychological blot of having the Japanese occupy U.S. territory. The entire campaign lasted over a year and was conducted across 4 million

square miles of ocean and land. At its zenith, it employed over 144,000 men working together to expel the Japanese. These men would establish 13 bases in the Aleutians, from supply dumps to airfields; construct over 1 million square feet of runways; complete the Alcan Highway through Canada to Alaska; and conduct four amphibious landings, including the assault landing on Attu.

A Forbidding Battlefield

The Aleutians, in the North Pacific, form a chain of approximately 120 islands stretching about 1,000 miles from east to west. They are primarily volcanic in origin



□ The Aleutian Islands extend southwest from the Alaska mainland 1,000 miles into the North Pacific.



□ Attu is stark, barren, cold, and windswept, with steep slopes and boggy flats.

and generally rugged and mountainous. The island of Attu measures only 35 miles by 15 miles and is a most inhospitable location on which to conduct military operations. The island is uniformly rocky and barren of trees, brush, or any other cover. The land rises steeply from the water's edge to heights of over 3,000 feet. The lowlands of the island are blanketed with muskeg, a type of bog up to 3 feet deep with a hard crust on top.

Attu is shrouded year round with fog that varies in density and can cover the island from the bays to the mountains, creating extreme overcast conditions that limit sunshine to a few days a year. The island normally receives 40 to 50 inches of rain a year, but that rain total accumulates from a constant misting rain that falls 5 or 6 days a week. The temperature during the assault on Attu averaged 25 to 37 degrees Fahrenheit, depending on elevation.

These were the conditions that awaited American soldiers when they arrived to drive the Japanese from the island.

A Joint Operation

The operation for reducing and occupying Attu was a joint exercise featuring personnel from four commands. Admiral Chester W. Nimitz, the Commander in Chief Pacific Fleet, designated Rear Admiral Thomas C. Kinkaid, the Commander North Pacific, as the supreme commander of the operation and as the commander of Task Force King, the invasion covering fleet. Rear Admiral Francis W. Rockwell, the Commander Amphibious Force Pacific Fleet, was designated as the commander of Task Force Roger, the attack force, until landing operations were completed. The Western Defense Command provided the 7th Infantry Division, under the command of Major General Albert E. Brown, as the assault and reserve afloat force. The Alaska Defense Command provided the 11th Air Force as the air component of the operation and the 4th Infantry Regiment as the operational reserve.

Despite this impressive assembly of forces, the Aleu-

tian campaign and the Northern Pacific Theater ranked as Admiral Nimitz's third priority in the overall Pacific Theater for receiving materiel and support. As a result, only attack transport (APA) ships were assigned for the assault, instead of the more desirable attack cargo (AKA) ships. This created extreme logistics burdens for the invasion force because it resulted in considerable overloading of the transports with both men and equipment. To compound problems, these forces were not able to assemble or train together before executing the Aleutian invasion on 11 May 1943. Lack of equipment and training subsequently resulted in confusion during the landings on Attu.

The 7th Infantry Division was not experienced at conducting amphibious operations. In fact, it was originally designated for service in North Africa. Due to prioritization requirements, the division never had sufficient resources to conduct full-scale loading and landing operations. This may help explain some of the confusion that reigned during the loading process at the San Francisco docks in mid-April 1943. The division placed too much emphasis on loading supplies required for an army of occupation instead of loading only requirements for combat. Cargo was loaded without regard for consequences, explosives were loaded in the same hold with fuel, and items that were not requested kept arriving and were loaded wherever there was space. The result was overcrowded ships with no identifiable load plans.

Admiral Rockwell, upon witnessing the loading, commented, "The time has come for combat troop organizations to realize that landing on territory occupied by the enemy means a campaign and not an occupation." Unfortunately, loading conditions could not be changed in time for the planned invasion on 7 May. The transports departed San Francisco in their overcrowded conditions on 24 April to link up with Admiral Kinkaid and Task Force King at Cold Harbor, Alaska, on 1 May.

A Confident Plan

The invasion plan called for simultaneous amphibious landings at Holtz Bay on the north side of Attu and Massacre Bay on the south side. The forces then would link up in the center of the island at the Massacre Valley passes and turn east to drive the Japanese out of the mountains and seize Chichagof Harbor.

The northern force landing at Holtz Bay consisted of the 17-1st Battalion Combat Team, which was loaded on one assault transport, the *Zeilin*. The southern force, going ashore at Massacre Bay, consisted of the 17th Regiment (-) and the 32-1st Battalion Combat Team under General Brown, and it was loaded on three assault transports, the *Heywood*, *Harris*, and *J. Franklin Bell*. The reserve afloat force consisted of the 32d Regiment (-), which was loaded on the *Grant* and *Chirikof*. The 4th



□ Landing craft headed for two landing beaches on Attu.

Infantry Regiment, as the operational reserve, was located on the island of Adak, approximately a 10-hour sail from Attu.

The planners realized from the beginning that the troops would suffer from the weather, but they reasoned that the entire operation to clear the 1,500 to 2,500 Japanese off Attu would take only 36 hours. This reasoning proved fatal during the course of the invasion. Attu's weather and terrain had a profound impact on the invasion's reception, medical, and combat operations.

A Testing Environment

The amphibious invasion started off on the wrong foot, and the only saving grace was that the Japanese did not challenge the 7th Infantry Division on the beach. On the day of the invasion, the island was socked in by heavy fog, and it was difficult even to see the island from offshore. Massacre Bay turned out to be rockier than expected and had many underwater shoals that posed a problem for navigation. In fact, the assault ship *Predia* ran across a shoal on the first day and resources were diverted to beach the ship in an effort to save her cargo. The small landing craft bringing men and supplies from ship to shore took a beating from the shoals and rocks, with many suffering severe damage. By the second day, 10 percent of the landing craft fleet had been lost, primarily because of a failure to position repair parts forward to fix them.

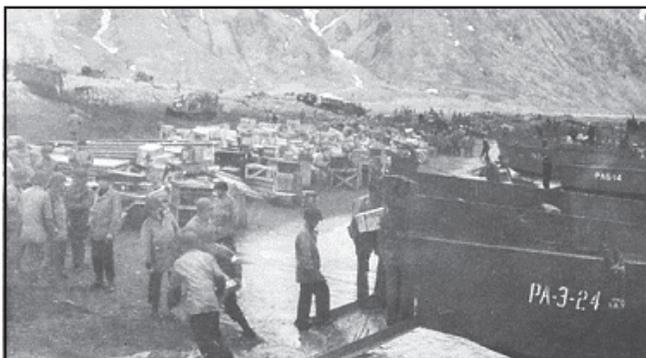
The reception operations at the northern landing site in Holtz Bay fared no better. The landing zone was restricted to receiving only two landing craft at a time. This created huge delays in throughput of both men and supplies. The delays in unloading the ships were so extreme that by 13 May—the day planners expected to conclude operations—the four assault ships were only half unloaded. It took another 3 days to complete the process.

As expected, the lack of rehearsals resulted in uncoordinated efforts in unloading supplies from the ships to the landing craft. The system used to establish supply points along the beach broke down, and a jumbled set of supplies began to build up along the beaches.

The vehicles brought ashore to clear the beaches and provide logistics support to combat troops inland could not operate over the terrain. Either the ground was too steep for the vehicles to traverse, or the vehicles proved too heavy for the top crust of the muskeg to support. Once the crust was broken, vehicles sank beyond their axles in the bog. The unexpected loss of these vehicles forced logisticians to unload landing craft and clear the beaches by hand. This created a drain on manpower, as large formations of combat troops were drafted to clear the beach manually and deliver supplies forward to their units. It was a common site to see a team of six to eight men pushing and pulling a wooden sled up the hill to deliver artillery ammunition.

The diversion of combat soldiers to perform logistics functions, coupled with the stubbornness of the Japanese defenders, forced General Brown to call for the reserve afloat troops to land on 12 May. However, the crowded conditions and inadequate throughput ability at the reception sites slowed the unloading operations, so that only 25 percent of the reserve force was ashore by 14 May.

Attu's terrain and weather also had an unanticipated impact on the medical evacuation plan. The medical evacuation of casualties became a second major reason for diverting combat soldiers. Much like the cargo ve-



□ Combat troops were needed to break down supplies on the beaches (left) and then manually move them inland when vehicles could not navigate across the muskeg (right).

hicles, the medical transport vehicles brought ashore could not operate over the muskeg or the steep slopes of the island. The division had to resort to four-man litters to move casualties to the shore hospital. The terrain conditions were so bad that litters took hours to move the injured and sick to aid that was only a few miles away.

The real logistics failure of the campaign began as early as 12 May, when the first seven casualties from cold-weather injury arrived at the shore hospital. The hospital continued to receive additional cold-weather casualties every day until the conclusion of operations on 30 May. Four days after the anticipated conclusion of operations called for by the planners, the shore hospital received 191 cold-weather casualties.

These casualties were the result of logistics failures. Logisticians failed to ensure that soldiers were equipped with appropriate cold-weather equipment. Most soldiers were issued only normal field jackets, not parkas, and leather boots, not footwear suitable for snow. The island's snow and constant rain, coupled with freezing temperatures, ensured that the soldiers were never dry.

Many soldiers went ashore without their sleeping bags, since the plan was for the bags to follow in a day. Unfortunately, the logistics problems on the beaches ensured that only those supplies critical to the warfight, such as ammunition, flowed from the beaches. Supplies soldiers needed to warm or dry themselves stayed on the beaches. The result was many cases of frostbite and trenchfoot. Cold-weather injuries would account for 31 percent, or 1,200, of the 3,829 total casualties suffered on Attu.

An Uphill Struggle

The extreme fog and rugged terrain of Attu also limited the effectiveness of artillery and naval supporting fire. The invasion of Attu demonstrated that indirect fire was useful primarily for neutralization and not for the intended destruction of enemy forces. The Japanese soldiers remained above the fog line, denying the shore fire-control parties the ability to provide accurate gunfire. The result of these factors was a higher expenditure of ammunition than anticipated by the logistics planners. By 17 May, the division was running low on 105-millimeter artillery ammunition and requested a resupply from Adak. The naval forces providing supporting fire

also had expended all available 14-inch ammunition. It was fortunate that the Japanese did not pose a naval threat to the American forces.

Strategically, the U.S. attack on Attu was not decisive to the war effort, but it did provide some key lessons for logisticians in areas that still are overlooked today. A clear understanding of the operational environment's impact on a campaign is critical to ensuring uninterrupted logistics. Weather and terrain can pose a deadlier threat to the combatant than the enemy does if planners fail to factor them into the operation. The presence of appropriate cold-weather gear in the hands of the soldiers on Attu would have reduced their casualties significantly.



□ **Small teams of soldiers delivered ammunition on wooden sleds they pushed and pulled up Attu's snowy slopes.**

The logistician who plans for equipment to operate as advertised, without regard to limitations imposed by terrain, is falling into a common trap. The failure of planners to anticipate that their tractors might not operate over the frozen muskeg of Attu resulted in large diversions of combat troops to carry supplies forward. The true impact of this on the battle will never be known, but combat troops were required to deliver bullets in-

stead of firing them at the enemy.

A final area often overlooked by today's logistician is the effect that terrain and weather can have on the warfighter's ability to execute the mission. The planners knew that Attu usually was covered in fog, but they failed to make the connection between the fog and the inability of spotters to call for effective indirect fire. A planner who made this connection would have realized that the operation would experience higher than normal expenditures of ammunition and would develop contingency plans accordingly.

The terrain and weather conditions on Attu placed the logisticians in a reactive instead of an anticipative mode throughout most of the operation. This is a failure that often must be paid for with soldiers' lives. **ALOG**

Major Robert E. Burks is a recruiting operations analyst with the Army Recruiting Command at Fort Knox, Kentucky. He has a B.S. degree in aerospace engineering from the U.S. Military Academy and a master of operations research degree from Florida Institute of Technology. He is a graduate of the Infantry Officer Basic and Advanced Courses and the Army Command and General Staff College.

Army Announces Major Realignment

Under a realignment announced by the Army in January, five major Army commands will report directly to Department of the Army staff principals—

- The Army Criminal Investigation Command will report directly to a new staff officer on the Army staff, the Provost Marshal General.
- The Military District of Washington will report directly to the Office of the Army Chief of Staff.
- The Army Medical Command will report directly to the Surgeon General.
- The Army Intelligence and Security Command will report directly to the Army Deputy Chief of Staff, G-2.
- The Army Signal Command will be realigned under the Army Network Enterprise Technology Command, which will report directly to the Chief of Information Operations, G-6.
- U.S. Army South will complete its move to Fort Sam Houston, Texas, from Puerto Rico and will continue supporting the U.S. Southern Command, although it will report to the Army Forces Command under the realignment plan.

Preliminary decisions about the realignment of other major Army commands will not be released until the commands review the proposals. Proposed changes will affect U.S. Army Europe, U.S. Army Pacific, Eighth U.S. Army in Korea, the Army Forces Command, the Army Materiel Command, and the Military Traffic Management Command. The Army Training and Doctrine Command (TRADOC), the Army Special Operations Command, and the Army Corps of Engineers will remain unchanged under the current realignment plan.

The realignments are a continuation of Secretary of the Army Thomas E. White's initiative started in June 2001 to assess all Army headquarters and supporting activities, properly align responsibilities, and eliminate redundancies. According to Secretary White, the realignment plan will incorporate better business practices and organizational concepts that have proven successful in major corporations. The realignments are designed to improve the control of resources and thereby provide tangible benefits to Army commands, installations, and soldiers and their families. Most of the initiatives will be effective during the next fiscal year after the affected organizations develop and submit implementation plans for approval.

Other decisions affecting Army agencies include the following—

- The Office of the Inspector General will integrate

10 Reserve component soldiers into its organization and consolidate its information technology activity with the Directorate of Information Management.

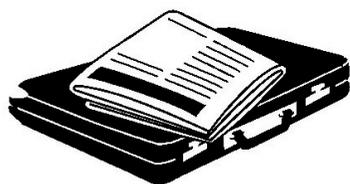
- The Army Legal Services Agency in the Judge Advocate General's office will eliminate one function and 22 personnel spaces, and the Judge Advocate General's School will eliminate 7 spaces.
- The Army Contracting Agency will eliminate 100 spaces. Further reductions are proposed over the next 3 years.
- The Simulation, Training, and Instrumentation Command (STRICOM)—now part of the Army Materiel Command—will be eliminated, and its acquisition functions will be transferred to the Army Acquisition Executive as a Program Executive Office. Research and development activities will be retained in the Army Materiel Command.
- The Logistics Integration Agency will eliminate 25 spaces. Consolidation will allow the agency to provide more integrated support to the Deputy Chief of Staff, G-4.
- The Army Physical Fitness Research Institute will be transferred from the Army War College to the control of the Surgeon General, and its personnel spaces will move to the Army Medical Command on 1 October.
- Command and control of the Army War College (AWC) will be transferred to TRADOC. The AWC's Peacekeeping Institute will be disestablished, and its missions and functions transferred to TRADOC. Twenty-six other spaces will be eliminated.
- Thirteen spaces in the Center of Military History will be transferred to Fort Belvoir, Virginia, to begin establishment of the National Museum of the U.S. Army.
- The Army National Guard Readiness Center will lose 164 spaces.

A study of human resources agencies, activities, and missions also has been completed. The Army will announce study decisions after the findings and recommendations have been briefed and approved.

The Army Test and Evaluation Command will assess the potential for consolidation and collocation of its headquarters and report recommendations in the spring.

Also as part of the realignment plan, the Army Central Personnel Security Clearance Facility, which grants security clearances for Army personnel worldwide, already has been realigned as a subordinate command of the Army Intelligence and Security Command.

—Story by Janice L. Simmons



NEWS

(News continued from page 1)

JOINT CREW TRAINS FOR HSV'S FIRST OPERATIONAL DEPLOYMENT

The Army's Australian-built high-speed vessel (HSV-X1) *Joint Venture* (below) and its crew of approximately 50 soldiers and sailors departed Naval Amphibious Base Little Creek, Virginia, on 25 January for its first operational deployment in support of Operation Enduring Freedom.

Almost all of the original crew that brought the *Joint Venture* from its original berth in Hobart, Tasmania, will remain on board for the duration of the deployment. Because their mission is yet to be determined, the crewmembers are training on everything from force protection to battle stations and rules of engagement.

"As an experimental vessel, we have the ability to change our operations with every mission," said Master Chief Boatswain's Mate (Surface Warfare Qualified/Air Warfare Qualified) Brian R. Lanear, command master chief of the *Joint Venture*. "We want the crew to be prepared for whatever may arise." The key is training, training, and more training. On any given day, you see two or three training sessions going on all at once."

Specialist Chad Worrall, a member of the Army contingent that remains on board when the Navy is operat-



ing the ship, trains side by side with his Navy counterparts as a completely integrated member of the crew. His duties parallel those of a deck seaman: manning mooring stations, handling cargo, and performing general upkeep of the ship's spaces.

"This has been a great opportunity to broaden my horizons and get accustomed to working in a different type of setting," said Worrall. "The Navy is really easy to work with. I feel like I'm part of the crew in every way."

OFFICER EDUCATION SYSTEM TO BE REVAMPED

Three initiatives approved by General Eric K. Shinseki, Chief of Staff of the Army, in January will transform the Officer Education System. The changes, recommended by the Army Training and Leader Development Panel officer study, will focus on two formative periods in an officer's career: initial entry, when institutional training prepares the officer to lead small units, and selection to major, when institutional training prepares the officer for field-grade responsibilities.

In the first initiative, the Officer Basic Courses will be converted into a three-phase Basic Officer Leader Course (BOLC). The BOLC will provide lieutenants with rigorous, standardized, small-unit leadership training. BOLC I, the precommissioning phase, will be followed by BOLC II, initial-entry field leadership experience, and then BOLC III, the branch technical and tactical training phase. Plans are for BOLC to be fully implemented in the third quarter of fiscal year 2006.

Under the second initiative, the Captains Career Courses, which comprise the Officer Advanced Courses and the Combined Arms and Services Staff School, will be replaced, respectively, by the Combined Arms Battle Command Course (CABCC) for company, battery, and troop commanders and the Combined Arms Staff Course (CASC) for staff officers. These courses will provide captains with assignment-oriented training immediately before they assume their duty positions. CASC and CABCC should be fully implemented by the second quarter of fiscal year 2006.

The third initiative, Intermediate Level Education (ILE), provides all majors with 3 months of the same common-core operational instruction and additional education opportunities tailored to the requirements of each officer's specific career field, branch, or functional area. Currently, only 50 percent of mid-career officers attend resident instruction at the Army Command and General Staff College (CGSC) at Fort Leavenworth, Kansas,

while the other 50 percent complete the education through nonresident courses. Under the ILE concept, 100 percent of the majors will get tailored resident instruction that will prepare them for their next 10 years of service. "This program will produce field grade officers with a warrior ethos who are grounded in warfighting doctrine, and who have the technical, tactical, and leadership competencies and skills to be successful in their career field, branch, or functional area," said Colonel Mike Griswold, Special Assistant for Leader Development to the Commandant, CGSC.

When fully implemented in the fourth quarter of fiscal year 2005, the 3-month ILE common-core curriculum will be offered in residence at Fort Leavenworth for Ac-

tive and Reserve component officers in the operations career field, selected officers from the other armed services, and international officers. Information operations, operations support, installation support, and special branch officers will receive their ILE common-core training from qualified CGSC instructors at distance-education campus sites. Reserve component officers will be able to receive ILE common core instruction through The Army School System classrooms or via an advanced distributed learning course. Officers completing the ILE core curriculum will be military education level 4 and joint professional military education I qualified.

The follow-on 7-month Advanced Operations and Warfighting Course at Fort Leavenworth for officers in

LOGSA ESTABLISHES SINGLE MANAGER FOR CONTAINERS

The Army Materiel Command's (AMC's) Logistics Support Activity (LOGSA) will stand up an activity in June to act as the single manager for all Army-owned intermodal containers, flatracks, and container roll-in-roll-out platforms (CROPs). Known as the Army Intermodal Distribution Platform Management Office (AIDPMO), the new activity will be a part of the Packaging, Storage, and Containerization Center (PSCC) at Tobyhanna Army Depot, Pennsylvania.

AIDPMO responsibilities will include developing procedures for proper management and control of the Army's \$100 million container inventory. The activity will not handle the containers physically or have property book accountability for them, and containers will not be stored or processed at the depot. The activity will oversee the information system that manages the inventory, accountability, and condition data of the containers. The AMC Army Field Support Command, the accountable manager for the Army's flatracks and CROPs, will report their readiness status to PSCC for inclusion in the system.

Lieutenant General Charles S. Mahan, Jr., Army Deputy Chief of Staff, G-4, approved the decision to establish PSCC as the single manager last October, following a 2000 congressional inquiry that highlighted problems with container management. The inquiry revealed that the Army has inadequate procedures for determining the availability and readiness of assets to meet requirements.

"This new organization will give the Army better management reporting accountability on the . . . [containers and flatracks]—who has them, where items are located and whether or not the Army can account for the readiness conditions—so we can support the missions and meet the requirements," said Don Stump, chief of the Cargo Team, Transportation and Distribution Division, Force Projection and Distribution Directorate, Department of the Army. "The process will allow the Army to provide more than just a snapshot view, but a running management report and account of what the total Army owns."



the operations career field will focus on planning and executing full-spectrum operations at the tactical and operational levels. To complement the core training and obtain career-field credentials, officers in the information operations, operational support, and institutional support career fields will participate in functional area qualification courses. For some, the tailored education also will include advanced civilian schooling.

The ILE core-curriculum pilot course was presented at Fort Leavenworth last summer with 256 officers in the operations career field attending. Those officers now are attending the pilot Advanced Operations and Warfighting Course. The Army next will conduct a pilot of the distance-education campus site concept using the pilot core curriculum presented at Fort Leavenworth. Priority for attendance will be given to officers outside the operations career field who already have been board-selected for the Command and General Staff Officer Course. Pilot courses will continue to be offered until full implementation of ILE in fiscal year 2005.

PRESIDENT'S ARMY BUDGET SEEKS MORE FUNDS IN 2004

The President's Army budget for fiscal year 2004 calls for spending \$93.903 billion, an increase of about \$3 billion, or 3.3 percent, over fiscal year 2003. The budget also projects Army spending of \$98.376 billion in fiscal year 2005.

The 2004 budget is designed to win the war on terrorism, maintain readiness, take care of the Army's people, and continue Army Transformation. Planned spending on military personnel is \$37.389 billion. The spending request for operation and maintenance is \$31.128 billion, which will fund base operations support at 69 percent of requirements and sustainment, restoration, and modernization at 84 percent of requirements. The request for research, development, test, and evaluation is \$9.123 billion.

The amount sought for procurement is \$10.755 billion, which represents a reduction of 14 percent from fiscal year 2003. The missile procurement request of \$1.459 billion will fund purchase of 108 Patriot PAC3 air defense missiles, 786 multiple-launch rocket system rockets, 76 line-of-sight antitank (LOSAT) missiles, and 901 Javelin antitank missiles. The procurement request for ammunition is \$1.310 billion. The aircraft procurement request of \$2.128 billion (a decrease of 5 percent from fiscal year 2003) includes money to buy 10 UH-60 Black Hawk utility helicopters. Funding for weapons and tracked combat vehicles is projected to fall about 26 percent, to \$1.641 billion, with most of the funds going to buy 301

Stryker vehicles. Funding for other procurement also is slated to decline by 26 percent, to \$4.217 billion; that amount includes money to buy 1,160 trucks in the family of medium tactical vehicles.

In the other major Army budget accounts, \$1.772 billion is requested for military construction (including \$285 million for Army Transformation construction in Alaska, Hawaii, Louisiana, and Washington); \$1.402 billion for family housing; \$396 million for environmental restoration; and \$1.650 billion for chemical demilitarization.

AIRDROP OF FUEL SUPPORTS COMBAT OPERATIONS IN AFGHANISTAN

Parachute riggers from the 82d Airborne Division in February conducted the first airdrop of fuel to support Operation Enduring Freedom in Afghanistan. The riggers, from Company E, 782d Main Support Battalion, dropped 38,088 gallons of fuel to a forward area refueling point in the Bahgran Valley as part of Operation Eagle Fury.

The drop was a challenge because of rainy weather and the lack of a heavy-drop rigging facility like the one the riggers use at their home station at Fort Bragg, North Carolina. The riggers had to pack loads during breaks in the rain because parachutes cannot be allowed to get wet. The riggers also had to arrange for special transportation of the loads because the Air Force could not drive up to the company's improvised rigging area.

The 82d Airborne Division routinely trains to make heavy airdrops, but the Afghanistan fuel drop was the first combat drop in years (perhaps since the Vietnam War).



□ Soldiers of the 82d Airborne Division load fuel bundles on an Air Force transport for airdrop delivery to a forward area refueling point in Afghanistan.

CONTAINERIZED CHAPELS SUPPORT MULTIDENOMINATIONAL WORSHIP

The first completely containerized chapel, built at the Army Soldier Systems Center at Natick, Massachusetts, was deployed last July to a Force Provider base camp at Kandahar Air Base in Afghanistan. Two more chapels are set to deploy in support of Operation Enduring Freedom, and another is waiting for the order to move out.

Eventually, 40 of the portable chapels, developed by Product Manager-Force Sustainment Systems, will be positioned around the world and available for deployment with each Force Provider, the Army's deployable "tent city." Many of them were initially the chapel component of Force Provider and are being refitted into stand-alone containerized chapels.

The containerized chapel is transported in a single steel ISO container that provides a multifunctional religious facility for a 550-person base camp. From the outside, the only thing setting it apart from other tents is the chaplain's flag flying near the entrance of the tent. Inside are altars, lecterns, linens, candles, crosses and crucifixes, offering plates, communion sets, and several versions of the Bible to support Protestant and Catholic Christians. Jewish and Islamic supplies include yarmulkes, prayer mats, Torahs, and Korans.

Each climate-controlled chapel has its own generator, electrical outlets, lights, and seats for 100 people. Also included are a portable public address system, an electronic keyboard, and a digital hymnal programmed to play hundreds of hymns. Other support items are 6 months' worth of consumables such as communion wafers and wine, a TV/VCR, a microwave oven, a coffee pot, and folding tables.



□ The containerized chapel can accommodate 100 worshippers or be partitioned off into counseling or office areas.

DEPLOYMENT EXCELLENCE AWARDS EXPAND

The Army's Deployment Excellence Award Program has added a new category for short-notice operational deployments. These deployments involve short lead times; support operational missions such as war on terrorism, peacekeeping, and humanitarian relief operations; and include preparation and submission of time-phased force deployment data. This year, the Army Chief of Staff will recognize a brigade, battalion, and company that demonstrate excellence in short-notice deployments. The Army G-3, in consultation with the major Army commands (MACOMs), will select units to compete in the operational deployment category.

The operational deployment category joins the regular awards program that is open to all Active Army, Army National Guard, and Army Reserve installations and units with a deployment or deployment support mission. Categories of competition include large unit (battalion and

above), small unit (company and below), supporting unit, and installation.

To enter the competition, a unit or installation submits its nomination packet through its chain of command to its MACOM. The Chief or Vice Chief of Staff of the Army presents the awards.

The 2003 awards ceremony will be the third since the program was established. For more information, see the Deployment Award Program's Web site at www.deploy.eustis.army.mil/DEA/default.htm.

JOINT MUNITIONS COMMAND REPLACES OPERATIONS SUPPORT COMMAND

The Army Materiel Command provisionally established a new major subordinate command, the Army Joint

Munitions Command (JMC), to succeed the Army Operations Support Command (OSC) in January. JMC's formal establishment will take place on 1 October. Major General Wade H. McManus, Jr., the commanding general of OSC, will continue as JMC's commanding general.

JMC has two major missions. It serves as the Department of Defense's field operating agency to execute the Army's mission as the Department of Defense's Single Manager for Conventional Ammunition. JMC will work closely with the Program Executive Office for Ammunition (PEO-Ammo) at Picatinny Arsenal, New Jersey, in carrying out the complex mission of supplying the best possible ammunition to warfighters. PEO-Ammo will take the lead in areas such as research and development, acquisition strategy, and budget planning. JMC will manage the production, storage, issue, and demilitarization of conventional ammunition for all of the armed services. In all areas, the two organizations will coordinate plans and actions to ensure that customer requirements are met in a timely, cost-effective manner.

JMC also serves as a platform for projecting logistics power anywhere in the world through its subordinate Army Field Support Command (AFSC). AFSC maintains pre-positioned stocks of weapons and equipment stored at land-based sites around the world and aboard ships. As the "face to the field" for Army logistics, AFSC provides direct support to deployed combat units and operates sites such as logistics support elements near forward areas.

According to General McManus, JMC will focus on four "vectors"—

- Readiness reporting.
- Centralized management of ammunition.

- Planning for the future of the industrial base.
- Ensuring the success of the "ammunition enterprise" with PEO-Ammo and other partners in the public and private sectors.

JMC is headquartered at Rock Island Arsenal, Illinois. Its worldwide workforce includes approximately 220 military personnel, 5,100 Federal civilian employees, and 8,200 contractor personnel. The command manages an estimated annual budget of \$1.2 billion.

- Army Ordnance Weapons Command (OWC) 1955-1962
- Army Weapons Command (WECOM) 1962-1973
- Army Armament Command (ARMCOM) 1973-1977
- Army Armament Materiel Readiness Command (ARRCOM) 1977-1983
- Army Armament, Munitions and Chemical Command (AMCCOM) 1983-1994
- Army Industrial Operations Command (IOC) 1994-2000
- Army Operations Support Command (OSC) 2000-2003
- Joint Munitions Command (JMC) 2003-

□ Evolution of the Joint Munitions Command.

ARMY CREATES NEW CHEMICAL MATERIALS AGENCY

In February, the Army created the Chemical Materials Agency (CMA) (Provisional), combining the safe storage and elimination of the Nation's aging chemical weapons under a single director. Previously, the Army Materiel Command's Army Soldier and Biological Chemical Command oversaw chemical weapon storage and the Chemical Demilitarization Program oversaw chemical weapon demolition.



□ The *MV Cape Texas*, one of the Military Sealift Command's 33 roll-on-roll-off ships, battles choppy seas in the Mediterranean Sea. The ship sailed in February from Corpus Christi, Texas, for the Middle East in support of possible operations there. The *Cape Texas* is one of the 72 civilian-crewed, noncombatant ships in the Ready Reserve Force that the U.S. Maritime Administration owns and maintains to meet surge-shipping requirements for the Department of Defense. When activated, the Ready Reserve Force ships are under the operational control of the Military Sealift Command. More than 95 percent of all equipment and supplies for a war or contingency operation moves on ships controlled by the Military Sealift Command.

The CMA is part of the program reorganization directed by Secretary of the Army Thomas E. White, who requested that the Assistant Secretary of the Army for Acquisition, Logistics, and Technology assume overall responsibility of chemical demilitarization for the Army.

Safety of workers, the public, and the environment remains the Army's top priority in destroying the weapons held at eight stockpile sites and found at numerous other locations. The Army accomplished much in the chemical weapons destruction effort in 2002. Achievements include destroying GB (Sarin) at Tooele, Utah, constructing a destruction facility at Pine Bluff, Arkansas; completing testing efforts at a facility in Anniston, Alabama; selecting destruction technologies at Pueblo, Colorado, and Richmond, Kentucky; and accelerating the neutralization program at Aberdeen, Maryland, and Newport, Indiana. So far, the Army has destroyed 8,082 tons of chemical agent, which is equivalent to more than 25 percent of the stockpile in the United States.

The CMA is expected to become an official Army entity by October.

CULINARY EXCELLENCE AWARDS PRESENTED

The 2003 Philip A. Connelly Awards for culinary excellence in dining facilities and field kitchens were presented 13 April in Dallas, Texas. The Army Center of Excellence-Subsistence at Fort Lee, Virginia, and the International Food Service Executives Association from Las Vegas, Nevada, evaluated dining facilities at 29 installations on food preparation, sanitation, administration, training, and command support training.

Awards were presented in five categories. Winners in each category were—

- **Small garrison:** 16th Corps Support Group Dining Facility, V Corps, Hanau, Germany.
- **Large garrison:** Headquarters and Headquarters Company 2d Infantry Brigade, 4th Infantry Division (Mechanized), Fort Carson, Colorado.
- **Active Army field kitchen:** 8th Ordnance Company, 1st Corps Support Command, Fort Bragg, North Carolina.
- **Army National Guard:** 995th Maintenance Com-

CORRECTION

In the article, "Transforming USTRANSCOM: Is USSOCOM a Model?" in the March–April 2003 issue, the captions on the photos of ships on pages 35 and 37 were inadvertently switched. We apologize to our readers and to the author.

pany, Kansas National Guard, Smith Center, Kansas.

- **Army Reserve:** 75th Combat Support Hospital, Tuscaloosa, Alabama.



□ U.S. Army Vessel (USAV) theater support vessel (TSV-1X) *Spearhead* departs from a port in the U.S. Central Command's area of responsibility on 15 January. The *Spearhead* is currently forward deployed in support of Operation Enduring Freedom. The 98-meter USAV, with an average speed of 40 knots, is used to transport troops and cargo on missions that require maximum speed and flexibility. Photo © Richard Bennett.

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If you are interested in submitting an article to *Army Logistician*, here are a few suggestions that may be helpful. Before you begin writing, review a past issue of *Army Logistician*; it will be your best guide. Keep your writing simple and straightforward (try reading it back to yourself); attribute all quotes; avoid footnotes (*Army Logistician* is not an academic journal); and identify all acronyms and technical terms. *Army Logistician's* readership is broad; do not assume that those reading your article are necessarily soldiers or that they have background knowledge of your subject.

Do not worry too much about length; just tell your story, and we will work with you if length is a problem. However, if your article is more than 4,000 words, you can expect some cutting.

Do not submit your article in a layout format. A simple Word document is best. Do not embed photos, charts, or other graphics in your text. Any graphics you think will work well in illustrating your article should be submitted as separate files. Make sure that all graphics can be opened for editing by the *Army Logistician* staff.

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Army Logistician (ISSN 0004-2528) is a bimonthly professional bulletin published by the Army Logistics Management College, 2401 Quarters Road, Fort Lee, Virginia 23801-1705. Periodicals postage is paid at Petersburg, VA 23804-9998, and at additional mailing offices.

Mission: *Army Logistician* is the Department of the Army's official professional bulletin on logistics. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.

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Postmaster: Send address changes to: EDITOR ARMY LOGISTICIAN/ALMC/2401 QUARTERS RD/FT LEE VA 23801-1705.

☆U.S. GOVERNMENT PRINTING OFFICE: 2003-432-782-00022

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ISSN 0004-2528
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