Quartermaster

PROFESSIONAL BULLETIN

WINTER 1992

PB 10-92-4

LOGISTICS WARRIORS

eadquarters, Department of the Army

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"War is Hell..."

"We have devoured the land and our animals eat up the wheat and cornfields close. All the people retire before us and desolation is behind. To realize what war is, one should follow our tracks."

From the journal of General William T. Sherman, June 26,1864, march to Atlanta, GA

Winter 1992 Theme:
Nondivisional Supply Support

Highlighted Inside:
Battle Labs
Class IX

Quartermaster
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Logistics Warriors

2 **From the Quartermaster General**
Brigadier General John J. Cusick
3 **NCO Chain of Leadership**
Command Sergeant Major Milton B. Hazzard
4 **Supplying Hell: The Campaign for Atlanta**
LT Nick Overby
8 **Confederate Supply at Appomattox: Lee and His Logisticians**
CPT Scott T. Glass
11 **Gettysburg: Logistics As the Key**
CPT Chounce E. Russell
13 **Supply Support During *Operation Provide Comfort***
CPT Bruce E. Cox
15 **How Do We Support With Less?**
CPT Kelly J. Lawler
17 **From Germany to Saudi and Back**
CPT Christine L. Sherman
20 **Fuel and Water Operations in Northern Iraq**
LT Wayne Murphy
22 **Supporting Force Development: The Logistical Challenge**
CPT John G. Romero
23 **Combat Service Support Synchronization Matrix**
CPT Russel A. Patishnock
26 **Resupply of a Heavy Corps: A Platoon Leader's Perspective**
CPT David B. Bailey
30 **Battle Labs for Power-Projection Army**
32 **Battle Labs, The Wave of the Future?**
CPT Willie Williams
38 **Universe of Repair Parts**
CPT William M. Wheatley
41 ***Operation First Step***
CPT Flem B. Walker, Jr.
43 **Supporting Military Operations in Today's UrbanTerrain**
CPT Thomas E. Stackpole
47 **AIT Command: Soldiers in Training**
CPT Daniel G. Grassi
49 **Class I Resupply in the LIC Environment**
CPT Dennis L. Schrecengast
53 **New Career Field for Quartermaster Officers**
CPT Kathryn A. Burba
54 **Warehouse Research and Training Tool**
WO1 David M. Peterson

COVER: Retouched historical photographs of Generals Robert E. Lee and Ulysses S. Grant designed by Military Editor, CPT Daniel G. Grassi.
INSIDE FRONT COVER: General William T. Sherman's eyes illustrated by professional artist Richard D. Grassi.

72 **Directory**
58 **Professional Readings**
59 **Civilian Supply and Services Personnel**
56 **Safety**
60 **Total Force**
63 **Quartermaster Update**

The Quartermaster Professional Bulletin (ISSN 0896-9795) is published quarterly by the U.S. Army Quartermaster Center and School, Fort Lee, VA 23801-5032. The views expressed herein are those of the authors, not the Department of Defense or its elements. The content does not necessarily reflect the official U.S. Army position and does not change or supersede any information in other U.S. Army publications. Use of news items constitutes neither affirmation of their accuracy nor product endorsement. This professional bulletin is approved for official dissemination of material designed to keep Quartermasters knowledgeable of current and emerging developments to enhance their professional development. Use of the masculine pronoun is intended to include both genders where appropriate.

By Order of the Secretary of the Army:
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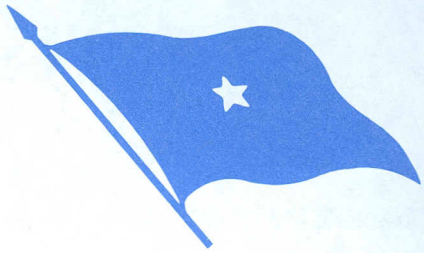
02734

Distribution: Special

DISTRIBUTION: Approved for public release. Distribution is unlimited.
POSTMASTER: Application to mail at 2d class postage rates is pending at Petersburg, Virginia 23804-9998, and additional mail offices. Send address changes to Quartermaster Professional Bulletin, ATTN: ATSM-QMG-B, Fort Lee, VA 23801-5032.

From The Quartermaster General



Brigadier General John J. Cusick

Lee versus Grant! Look into the eyes of General Robert E. Lee and General Ulysses S. Grant and you see outstanding and astute tacticians as well as commanders who understood the importance of logistics throughout the campaign lines. Identify the rear supply bases and routes of the enemy, destroy them completely, and you have effectively crippled your opponent. Establish secure rear logistics bases of your own and your soldiers will be ensured of sufficient support throughout the battlefield. The success on the battlefield relies on the strength of your logistical support: valuable lessons for today's leaders challenged with providing the best support from front to rear. We can learn a great deal from looking back in time.

This edition of the *Quartermaster Professional Bulletin* has a definite historical look as we focus on the efforts to provide support to soldiers outside the divisions. Nondivisional supply support takes on many connotations and this edition touches on several. From the campaigns of Generals Lee, Grant and Sherman to *Operation Provide Comfort* in Iraq, and reconstitution of corps assets **From Germany to Saudi and Back**, soldiers in all echelons of the Army have in the past, and are today, providing the best support to the soldier on the ground. Take a close look at the **Combat Service Support Synchronization Matrix** and its usefulness to your unit.

The importance of our Quartermaster Reserve Component is emphasized by two articles in the Total Force section. Reserve Component information continues as a permanent part of our bulletin. The Quartermaster Corps is truly a total force Corps with 60 percent of Quartermaster Logistics Warriors in the Reserve Component as well as 77 percent of our units. Also highlighted in this edition are the Battle Labs with two articles detailing the efforts of the U.S. Army Quartermaster Center and School (USAQMC&S) in that area. Battle Labs are truly **The Wave of the Future** and everyone should be aware of this new management program.

The rest of this edition provides interesting information on a wide variety of topics to include operations in urban areas, logistics in low intensity conflicts, and a closer look at one of our Quartermaster-sponsored universities, Texas Tech, by LTC Frank W. Miller. Take a good look at the article on advanced individual training (AIT) by our military editor in this edition. It gives firsthand insight for future commanders as well as for all Logistics Warrior leaders on the character of the fine young soldiers coming out of AIT to your units. They are our Army's future: know them well.

The following short summaries of significant actions update a few of the projects underway in the USAQMC&S:

• **Battle Labs** - The Quartermasters' two designated Battle Lab Task Forces are cranking full bore. The Supply Support Task Force is off and running with four separate initiatives: Split Operations, Central Distribution Activity, Express Repair Parts Store and Model Direct Support Unit. The 1st Corps Support Command, Fort Bragg, NC, is host to these important supply initiatives. The Force Provider Task Force will provide an environmentally controlled, enhanced quality-of-life staging complex for up to 3,300 soldiers. Equipment for field tests of this concept is being procured by Natick Research, Development, and Engineering Center in Massachusetts.

• **Army Field Feeding** - The field trials for the Army Field Feeding System-Future, approved by the Chief of Staff of the Army in June 1992, began in December 1992 with the 82d Airborne Division. Subsequent field trials are programed for the 24th Infantry Division, 101st Airborne Division and the 49th Armor.

• **Hall of Frame** - We had the honor of inducting four great Quartermasters: LTG Eivind H. Johansen, MG Joseph E. Pieklik, COL Frederic E. Johnson, SGM John C. Marigliano on duty. All four attended the ceremony with family members - a super ceremony and historic day for the Corps.

• **Colonel of the Regiment** - LTG Kenneth E. Lewi has accepted the position of Honorary Colonel of the Quartermaster Regiment. The Quartermaster Corps could not have a better leader for the Regiment during the challenging years ahead. MG Pieklik, our first Honorary Colonel of the Regiment and recent inductee to the Quartermaster Hall of Fame, will pass the colors to LTG Lewi during a change of command ceremony at the May 1993 General Officers Conference here at Fort Lee. MG Pieklik has served the regiment in a totally outstanding manner for the past five years and will continue to serve as Honorary Colonel of the Regiment, Emeritus, and President of the Quartermaster Foundation. Congratulations to both of these outstanding Quartermasters.

All for now, but please remember your special importance to the U.S. Army as "Sustainers of Soldiers." No soldier has a more direct, one-on-one, support relationship with the U.S. soldier than do we Quartermaster Logistics Warriors. When we succeed, our country's most precious assets - her uniformed sons and daughters - succeed. Be proud of this critical mission, but fully understand the responsibility to do our job correctly. You're all doing great—keep up the good work!

Brigadier General John J. Cusick, the U.S. Army Quartermaster General, has held a wide variety of command and staff positions before his current assignment. Other key assignments include duty as Commander, Defense Personnel Support Center, Philadelphia, Pennsylvania; Commander, First Corps Support Command, XVIII Airborne Corps, Fort Bragg, North Carolina; Commander, Division Support Command, 82d Airborne Division, Fort Bragg, North Carolina; and Commander, 407th Supply and Service Battalion, 82d Airborne Division.

NCO Chain of Leadership

Command Sergeant Major Milton B. Hazzard

How often have you heard this or a similar philosophy: "a chain is only as strong as its weakest link." I will briefly talk about the linkage of noncommissioned officer (NCO) professional development and the strength of the NCO chain of leadership.

In 1989 the Department of the Army (DA) approved an initiative to make graduation from the Primary Leadership Development Course (PLDC), the Basic Noncommissioned Officer Course (BNCOC), the Advanced Noncommissioned Officer Course (ANCOC) and the U.S. Army Sergeants Major Course (USASMC) a prerequisite for promotion. Linking those particular courses to promotion helps to ensure NCOs have an opportunity to prepare for the next highest rank by participating in structured academic and tactical training programs. The Noncommissioned Officer Education System (NCOES) also reinforces the doctrine of training before promoting and using as appropriate.

The Quartermaster Corps is a vital combat force multiplier. Because Logistics Warrior skills, abilities and contributions are so critical to all units, it is not unusual for leaders to interfere with the NCOES process. BNCOC is the most frequent target.

The following information is a kind of overlay of NCOES and the associated standards:

- **PLDC.** Effective 1 Oct 89, graduation from PLDC became one of the mandatory standards for promotion to the rank of sergeant. Corporals and specialists who reach a promotion point cutoff score, but have not completed PLDC have their promotion delayed. On the first day of the month following PLDC graduation, promotion is authorized if the soldier is otherwise qualified.
- **BNCOC.** Effective 1 Oct 92, BNCOC graduation became one of the mandatory standards for promotion to the rank of staff sergeant (SSG). To appear before a unit promotion board, NCOs must be PLDC graduates. NCOs who reach a promotion cutoff score, but have not completed BNCOC have their promotion delayed. On the first day of the month following BNCOC graduation, promotion is authorized if the NCO is otherwise qualified.
- **ANCOC.** Effective 1 Oct 93, graduation from ANCOC will become one of the mandatory standards for promotion to the rank of sergeant first class (SFC). SSGs will not have to be ANCOC graduates for consideration by a centralized SFC/ANCOC selection board. However, they will have to graduate ANCOC before promotion to SFC. SSGs who are selected for promotion and have a DA promotion sequence number but have not graduated from ANCOC will have their promotion delayed. If otherwise qualified, promotion may be authorized on the first day of the month following ANCOC graduation.
- **USASMC.** Effective 1 Oct 93, USASMC graduation will become a prerequisite for promotion to sergeant major (SGM). Master sergeants (MSGs) who are selected for promotion and have a DA promotions sequence number but have not graduated from USASMC will have their promotion delayed. If otherwise qualified, promotions may be authorized on the first day of the month following graduation. Currently, graduation from the USASMC is a perquisite for appointment to command sergeant major (CSM). Individuals selected for appointment to CSM who are not USASMC graduates are automatically enrolled in the course.

The Quartermaster Corps is a vital combat force multiplier. Because Logistics Warrior skills, abilities and contributions are so critical to all units, it is not unusual for leaders to interfere with the NCOES process. BNCOC is the most frequent target. If we are sincere about making all links in the chain strong, in my opinion, the only exception that should be considered would be to make a sacrifice to support the NCOES process. That comment is made with the understanding that decisions will be mission, enemy, terrain, troops and time available (METT-T) driven.

CSM Milton B. Hazzard is the Command Sergeant Major of the Quartermaster Regiment and of the U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

Supplying Hell: The Campaign for Atlanta

LT Nick Overby

"War is hell" - the famous quote attributed to Major General William T. Sherman - was an understatement for the time and a reality for the soldiers of the Civil War. Unfortunately, historians and others have primarily highlighted the tactics of war without considering the logistics. In other words, people have ignored how an army got to the field and survived. This article will examine the supply system of General Sherman's army in his campaign for Atlanta, GA.

In March 1864, Ulysses S. Grant received a promotion to Lieutenant General and Commander of all Union Armies. At the same time, he placed the Armies of the Cumberland, the Tennessee and the Ohio under the command of General William T. Sherman. Grant instructed Sherman and his army to invade the South through Georgia and destroy the Confederate forces and inflict damage to their war resources. Sherman realized that the nature of his armies' campaign would be a matter of supply and mobility and that his operations through hostile territory would be difficult. He faced a mammoth task of supplying his soldiers on the march. His maintenance of supplies and transportation would be difficult. He was now facing an enemy to his front plus hostile partisan guerrillas and cavalry to his rear. Sherman immediately began planning and supervising his logistics system for the coming campaign.

Exceptional Leaders

The base of operations for the campaign for Atlanta was set up by Brigadier General Montgomery C. Meigs, Quartermaster General of the Union Army. Meigs set up the principal depot at Louisville, KY, with an advance base of operations at Nashville, TN. General Meigs made sure that the western theater of operations had exceptional Quartermaster leadership by assigning his best Quartermasters to restore an efficient logistics system. The Quartermaster Department command for the Atlanta campaign was set up with Brigadier General Robert Allen as chief Quartermaster and his base of operations at Louisville, KY. LTC James Donaldson was the commander of the advance depot at Nashville, TN. Each army had a chief Quartermaster. The Army of the Cumberland's chief Quartermaster was Major Langdon Easton. The Army of the Tennessee's chief Quartermaster was LTC J. Condit Smith, and the chief Quartermaster of the Army of the Ohio was LTC C.W. Schofield. Each division of these armies also had chief Quartermasters. The bulk of the supplies were carried in the supply trains of the various divisions and supervised directly by the division

Union General Ulysses S. Grant

Simultaneously with Sherman's march to Atlanta in 1864, General Grant ordered the creation of a major supply depot at City Point, Virginia, to support Union armies in that area.

Quartermasters. General Sherman took a special interest in the supply of his armies. He directed the organization of his trains to the point of managing down to the depot level to ensure the sustainment of supply of his armies.

The procurement activities for the Atlanta campaign had their basis in the open markets of large cities, for example, Louisville, KY, and St. Louis, MO. The Subsistence Department, a separate entity from the Quartermaster Department, controlled all procurement of rations. Joseph P. Taylor was the Commissary General of the Subsistence Department until he died in June 1864. By promotion, Amos Eaton took over as the head of the department. During the Atlanta campaign commissaries procured supplies in bulk. The supplies would then be packaged and the Quartermaster Department would transport the supplies to the warehouses and depots in field locations such as Nashville and Chattanooga. Beef on the hoof was an exception. Cattle were purchased under contract and then delivered to gathering points by drivers or other means of transport. The cattle would then travel along with the armies.

Supply Focus

The focus point of the union supply system for the western theater was in Louisville, KY. Supplies flowed from the northern industrial and agricultural areas primarily via the Ohio River to Louisville. The logistics then moved from Louisville on the Louisville and Nashville Railroad to Nashville, location of the main supply depot where the union army constructed warehouses for storage. These warehouses covered whole blocks, with corrals and stables by the acres, but supplies were still stored outdoors on raised, covered platforms. The next stop was the advance depot at Chattanooga, TN, via the Nashville and Chattanooga Railroad or the Cumberland River by steamboat or barge. Here the storage of supplies and the availability of services for an army was necessary before moving to the front lines via the Western and Atlantic Railroad to temporary field depots. These depots existed along the way closer to the front.

They helped to ease supply problems when lines of communications or supply were temporarily cut off, because Quartermasters would store supplies, equipment and maintenance materials along with maintenance teams. Wagons could upload from the depots and deliver to the front lines. Sherman himself pushed the depots up to the rear of his army to facilitate supply and to guarantee readily available maintenance services.

Railroad System

The railroad system in the South was not adequate for a large-scale logistics system necessary to maintain effective tactical operations against the South. The three major railroad systems in the western theater of war were the Louisville and Nashville, Nashville and Chattanooga and Western and Atlantic. Brigadier General Daniel McCallum was the head of the Office of Military Railroads for the Union army. His department fell under the supervision of the Quartermaster Department. Under the U.S. Military Railroad Department were the Construction Corps and the Transportation Corps. The function of these two corps were to run, maintain, construct and repair railroads for the government. By mid-1864, most of General Sherman's railroad capacity was completed either by construction or repairs. Sherman established a major supply depot at Ringgold, GA, the farthest point of union occupation at the time. Along the routes he established small detachments of soldiers to protect track, depots and communications. With the garrisoned detachments were construction corps personnel to maintain and repair the railroads. As the army moved farther south, the detachments moved with it. These detachments stockpiled such repair equipment as spikes, bridge timbers, cross ties and rails. The construction personnel would repair from both ends by carrying construction cars with the repair equipment. The railroad network helped the forward movement of supplies to the front. Without the sufficient rail operations and railroad maintenance, the distribution of supplies would have been impossible.

Sherman's next project was getting railcars. Sherman's goal for logistical sustainment was 130 loads of supplies forward to the front daily. He had only 600 cars and 60 locomotives to achieve his goal. This was estimated as insufficient. So Sherman issued orders to acquisition railcars and locomotives for the army coming from Louisville to Nashville. This method acquired a fleet of some 1,000 cars and 100 locomotives. General Sherman's line of communications ran along the single track of the Western and Atlantic Railroad. Sherman ensured protection of this line of communications. He left garrisons of soldiers along the way. At all times Sherman could communicate with his rear headquarters to respond to any message except when disrupted by partisan guerrillas or cavalry.

Steamboats

In link with the rail network were the steamboats. Steamboats and barges carried bulk supplies down the Ohio River and Cumberland River. LTC Lewis Parsons was the Chief Quartermaster of western river transportation. The efficiency of the steamboat system contributed to the success of Sherman's army. Steamboats transported bulk supplies to Louisville and Nashville where railcars carried the supplies to the depot for storing or transporting to the front.

The last link in the supply line of Sherman's army was the mule and wagon. The wagon payload was normally forage, baggage, rations, medical supplies and ammunition. The average load was about 2,500 pounds per wagon pulled by six mules or oxen. Sherman was aware of the problems of marching a heavy army. He understood the hindrance of too much unnecessary baggage. He set up guidelines for the coming campaign for the army to ensure the lightest maneuver elements for mobility. Each regiment was allowed one wagon of baggage and one ambulance for the wounded. The officers of an infantry company could have one mule for personal effects. Other soldiers and officers could have clothing, rations and ammunition to be brought with themselves. Foraging for the Atlanta campaign was used to supplement supplies received along the lines of supply. Brigadier General Meigs had urged Sherman and others to use foraging of the countryside to aid in sustaining their soldiers. Organized foraging parties would be sent out to gather meat and vegetables for soldiers and forage for animals as the armies marched. Foraging became handy, especially when bad weather or the enemy slowed supply transport to the troops.

Protection and Repair

Logistically, General Sherman's primary problems were in the sustainment, protection and repair of his supply line and line of communications. Sherman's task to keep his supply and communications lines open was monumental. Sherman's army was attacked daily from the rear by mostly partisan guerrillas. These factions would destroy railroads, bridges or trains. Sherman began a training program for construction crews, emphasizing railroad and bridge repairs and rapid reconstruction. These crews acted quickly in repairing or rebuilding. Sherman then created a separate division under Major General James Steedman to systemize communications under one authority. This division's mission was to keep the railroad and telegraph communications open with railroad garrisons for protection. Weather was another problem that Sherman's armies encountered on their march towards Atlanta. The heavy rains the Union army endured caused transportation problems for mule- or oxen-pulled wagons. Sherman remedied the problem by ordering the armies to keep a 20-day supply of rations on hand and

beef on the hoof to compensate for any delays caused by weather or any other disruptions.

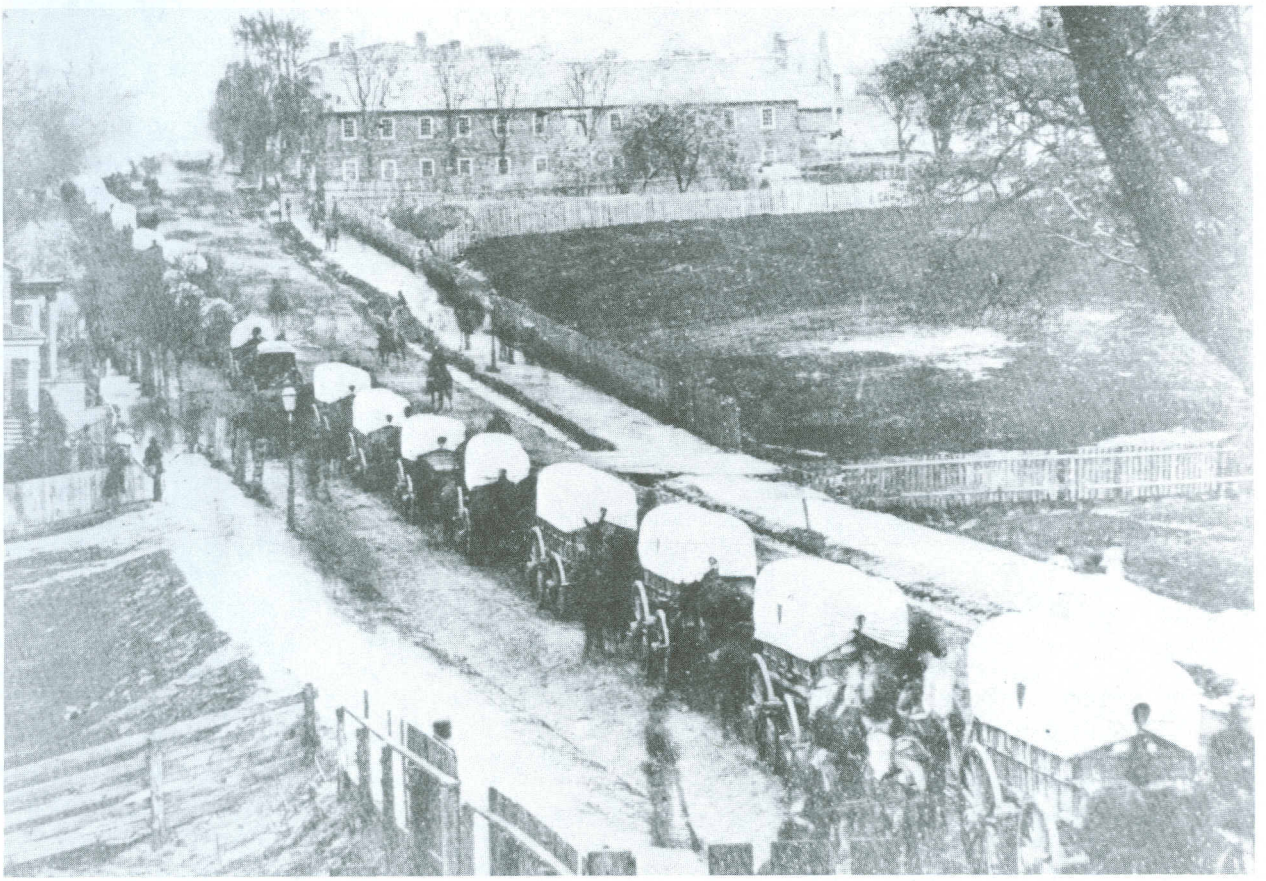
Threaten Quartermasters

General Sherman realized before the beginning of the campaign for Atlanta that the question of supply would determine his success or failure on the battlefield. As a commander, Sherman personally was involved with his supply system to ensure sustainment. On occasion, General Sherman would threaten his Quartermasters to emphasize the importance of their duties. In applying the imperatives of sustainment to Sherman's campaign, we can understand the success of his army. For anticipation, Sherman estimated correctly the problems he would encounter as his army marched into Georgia. He anticipated the need to protect his supply line and lines of communication and the need for a quick repairing capability to ensure sustainment. He successfully integrated his capabilities at the depot level to supply, maintain and repair at a one-stop shop. For continuity, Sherman made sure that the interruption of his supply line and lines of communication would be minimal by using fast construction crews to ensure less downtime of rail, bridge and telegraph. He responded to the mobility of his forces by pushing his depots to the rear of his army. For improvisation, he made sure that the field soldiers were full on a basic load of 20 days so that they would not go short during periods of interrupted sustainment.

Historical Implications

As time separates us from historic events, we can look back upon those events that influenced military history. For logisticians, only technology has changed for supplying the force: the thinking process stays the same. Making logistics happen for the soldiers in the field ensures success in battle, now as always. The commanders of today must take an interest, as did Sherman, to connect logistical sustainment and military success. All the factors of logistics, storage, procurement, security, communications and mobility are the same as in Sherman's time. We, as logisticians, must understand that soldiers in combat cannot wage war without our effectiveness. Planning and establishing the support of a force in the field has always affected armies. Sustained logistics does not just happen. Sustained logistics requires the detailed interest of the field commander and the coordination of all logisticians.

LT Nick Overby is a graduate of the University of Southern Mississippi in Hattiesburg. He is also a graduate of the Transportation Officer Basic Course and Quartermaster Officer Advanced Course. His previous assignments include Platoon Leader with the 786th Transportation Company, Mississippi Army National Guard (MSARNG). He currently is serving as Commander, Headquarters, Headquarters Detachment, 150th Quartermaster Battalion, MSARNG.



Union wagon train leaving a supply depot in 1864

Confederate Supply at Appomattox: Lee and His Logisticians

CPT Scott T. Glass

Most historical theories about Confederate General Robert E. Lee's surrender at Appomattox Court House on April 9, 1865, focus mainly on his proven logistical destitution. But could Lee's Quartermasters have better managed Class I (rations), II (general supplies) and III (petroleum, oils and lubricants) to support continued operations?

On March 25, Lee attempted to break the eight months of trench warfare around Petersburg, VA, that was slowly wearing his army down. Assault columns punched a hole in Union lines to allow follow-on forces to destroy stockpiled supplies at City Point depot. After initial success, the attack failed.

Sensing his adversary's desperate condition, Union General Ulysses S. Grant ordered attacks all along the trench lines on April 2. Lee's lines broke, and his Army of Northern Virginia (ANV) moved west up the Appomattox River Valley. Richmond garrison units joined in the retreat. Lee's tactical intentions hinged on outpacing pursuing Union troops and turning south to link with Confederate forces in North Carolina.

Rearguards

The ANV halted at Amelia Court House for 24 hours April 3-4 to issue rations, reorganize units and allow supply wagons to move further west. March resumed April 4 with Union cavalry and infantry closely pressing the rearguard. At Sayler's Creek on April 6, Confederate rearguards suffered a disastrous defeat, losing 200 supply wagons and close to 8,000 prisoners.

Lee crossed north of the Appomattox River at Farmville on April 7. Supplies could be picked up, and destruction of bridges here would have gained him time. Union forces pressed too close to allow adequate jobs of either.

ANV veterans shuffled westward and were finally brought to bay on Sunday, April 9. Believing he could ask his army to continue no further, Lee surrendered to Grant on unconditional terms.

Union infantry columns followed Lee's troops at a reenactment during the 125th anniversary of Appomattox.

Class I

ANV subsistence can be classified into two categories: food and water. Marching orders specified three days' cooked rations were to be carried in individual haversacks. Food items were drawn in bulk and cooked by single soldiers or a "mess" of two or more. Wagons moving with the army carried more bulk food items.

No formal water distribution or storage system existed. Resupply for soldier's one-quart canteens and water for draft animals came from creeks, rivers and ponds along a march route.

Soldiers' diets consisted of whatever was available. ANV commissary officers issued primarily cornmeal, flour, beef and pork. Supplements, as well as basic items, varied drastically in quantity and quality.

Trench Warfare

Throughout eight months of trench warfare, ANV troops were not fed at levels in the Confederate regulations. This slow decline coupled with the fast pace of operations forced Lee to fight with worn-out soldiers when he needed their maximum exertions.

Although embellished over the passage of time, hunger throughout ANV ranks during the Appomattox Campaign is documented fact. Ration issues at Amelia and Farmville did not reach many units. Federal pursuit disrupted ration preparation at both sites.

Confederates were so hungry that Lee asked Grant during surrender negotiations for any rations he could spare. The 25,000 rations Grant sent into Confederate lines provoked vicious brawls among famished troops.

This situation seems logistically unforgivable given the foodstuffs available to Confederate commissaries on the night of April 2:

City	Number of Rations	Type
Richmond	300,000	Bread & meat
Danville	2,500,000	Bread
Lynchburg	180,000	Meat
Farmville	80,000	Bread & meat

Class II

Basic ANV Class II items included leather accoutrements and clothing. Leather equipment such as cartridge boxes, percussion cap pouches, belts and scabbards enabled soldiers to carry ammunition and implements. Harnesses and saddles outfitted nearly every horse with the army. Blankets, tents, footgear and uniforms rounded out Class II.

Farmville had been a depot since early in the war. Numerous stocks of Class II sat unissued in warehouses while ANV troops tramped past, victims of inadequate logistical planning. The rearguard either burned or left them to Federals who followed.

Still, a shortage of Class II would not prove lethal to the ANV. Many regiments had been issued clothing from home state depots in late March. One Georgia brigade had been issued two pairs of socks, a set of trousers and two shirts per man. Richmond garrison troops with the ANV, as a rule, were wearing clothing unworn by hard campaigning. Although examples of tattered clothing did exist, the ANV was generally well-clothed at Appomattox.

Class III

Horses and mules provided motive power for ANV artillery, cavalry and supply wagons. Animals depended on forage, the Class III of armies before the advent of the internal combustion engine.

Forage consisted of oats, grain, hay or other vegetable matter. Although most forage is much higher in energy content than ordinary grass, it is extremely bulky and requires considerable wagon assets to move. Soldiers on horseback carried small forage supplies to last three to four days. After that was exhausted, army wagons brought up resupply. Riders collected forage locally and allowed horses to graze whenever time and operations permitted.

The ANV carried virtually no Class III forage to Appomattox. Little was left from a hard winter, and much wagon space was occupied moving documents and articles from the displaced Confederate government. Soldiers on the march shared forage corn with their animals. This did little to improve strength of worn horses and mules or the digestive tracts of the soldiers. Extremely fast operational pace ruled out grazing as a dependable source of forage.

A Georgia soldier from Lee's II Corps rests beside a stack of rifles during a reenactment of Appomattox.

Logistics Shortfalls

Had ANV logisticians adequately applied the five logistical imperatives of anticipation, integration, continuity, responsiveness and improvisation, Lee's surrender decision might not have been made at Appomattox Court House but further west and on much more favorable terms.

ANV Class I woes were unnecessarily severe. With nearly 3 million rations on hand in theater, Confederate logisticians failed to anticipate either the pace or location of operations. Lee had ordered planning studies, taking the ANV out of the Petersburg trenches, but planning stopped there. Additional supply distribution points were not established in the Appomattox River valley to augment Farmville and Lynchburg, should that have been required.

Apparently no thought was given to integrating the Confederate rail network in large-scale resupply of mobile operations west of Petersburg. Three trains attempting to reach Appomattox from Lynchburg carried many uniforms because no one had established a priority of resupply for Class I or III. (The logistician in charge of the trains was inexcusably out of touch with the tactical situation. The trains were captured by Union cavalry on the evening of April 8 at Appomattox Station.)

Confederate logisticians did not plan for uninterrupted combat support, forsaking the imperative of continuity. Critical supply points were not set up along march routes. Extremely inefficient planning forfeited extensive use of a wealth of supplies at Farmville.

Hunger

Poor maintenance of men and animals in the 1864-1865 winter robbed ANV leaders of the ability to respond quickly to changing tactical pictures. Horses that were moved away from the army to graze on pastures in central Virginia prevented fast consolidation in

face of Union threats. After suffering from hunger for months, ANV veterans simply could not produce the trademark lightning marches they had in past campaigns.

Despite operating in an area largely untouched by both armies, the ANV improvised no systematic gathering of subsistence from the local economy. Individual, regimental foraging parties, when allowed by the tactical situation, saw success during the Appomattox Campaign. However, this did not occur on a scale sufficient to feed the entire ANV.

Crippled Combat Power

Lack of efficient Class I management and planning helped cripple ANV combat power. Available stocks did not reach places of critical need. The inability to equitably distribute Grant's gift of food even after the suspension of hostilities is but mute testimony to a failed system. Hunger sapped morale and kept combat leaders from making accustomed demands on rank and file soldiers.

Class II shortages did not beat the ANV. The prospect of warmer weather and unit consolidations helped to lessen effects of shortages. However, overall lack of new stocks and close Federal pursuit effectively prevented equipping any new source of troops the ANV could possibly find, including freed slaves.

Class III stocks provided ANV troops with a nearly insolvable problem. Without stocks moving with the army, no system of gathering local forage supplies, and the rapid operational flow, it would prove a short time before ANV animals could no longer support the army. ANV horses and mules were dangerously near this condition on April 9.

Lee surrendered the ANV as a direct result of critical Class I and III situations without, as he saw it, any practical solutions. His official report cited "no subsistence for man or horse." Tactically, the ANV might have extricated itself from Union forces and continued operations, and indeed it had more than enough ammunition to attempt it. However, Lee realized that would be pointless in view of more bloodshed and his inability to support continued operations. This is ample proof his logisticians could have served him much better with Class I and III.

In defense of ANV Quartermaster and commissary officers, they did not have systematic logistical analysis procedures to assist them in sustaining projection of combat power. WE, however, have these procedures in our sustainment imperatives. U.S. Army logisticians must apply them to be on the winning side at the next Appomattox Court House in our military future.

Confederate General Robert E. Lee

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Gettysburg: Logistics as the Key

CPT Chounce E. Russell

The summer of 1863 saw the bloodiest and most costly fighting of the entire Civil War at Gettysburg, PA. Probably one of the most studied battles in history, the Battle of Gettysburg is a battle where the U.S. Army Quartermaster Corps proved itself as a sustainer of armies. This article is an attempt to highlight some of the key logistical elements that helped the Union Army repulse General Robert E. Lee's invasion of the North. This is important because it helped to lay the foundation of the Confederate defeat two years later and provides some insight into areas important to supporting the fighting forces on today's modern battlefield.

'I always shoot at privates. It was they who did the shooting and killing, and if I could kill or wound a private, why, my chances were so much better. I always looked upon officers as harmless personages.'

—From the diary of Sam Watkins, June 1864, member of Johnston's Confederate forces opposing Sherman during March to Atlanta.

Early in June 1863, General Lee moved from his encampment near Fredericksburg, VA, north and west to prepare for a possible invasion of Maryland and Pennsylvania. Union Quartermaster General Montgomery C. Meigs wasted no time preparing for the impending battle. On June 16th Meigs ordered General Rucker of the Washington depot to provide artillery pieces from the forces defending Washington, DC, to be sent to Baltimore, MD, and then Harrisburg, PA. The Assistant Quartermaster at Harrisburg ordered horses bought and even the governor of Pennsylvania requested uniforms issued to volunteer emergency troops. Meigs also ordered horses from the Washington depot, New York, Philadelphia and Indianapolis. The Union Army was trying desperately to get between Lee's forces and Washington. Accomplishing this meant moving a massive army along with all of its supporting wagon trains and stores. Lee, recognizing that the Army of the Potomac was trying to cut him off, sent out J.E.B. Stuart and his Confederate cavalrymen to ride around the Union Army and to gather information on their forces.

Unknowingly, Stuart started out on June 24 along the same route that the Union Army was advancing and began a series of small skirmishes with the Union rear guard. On June 28 a brigade of Stuart's cavalry attacked a supply train at Rockville, MD, that was heading for Hooker's Army but was traveling unescorted. The cavalry force succeeded in capturing about 900 mules, 150 wagons and great quantities of oats, corn, ham and even some whiskey. This is a prime example of how well-sustained the Union forces were and typical of the blunders that had caused them so many problems throughout the first few years of the war.

Meigs began to look for other means to transport supplies to the Army of the Potomac. He could push them by rail only as far forward as Frederick, MD, because Lee's forces controlled the Northern Central Railroad up into Pennsylvania. The only other choice was to rely on a small, inadequate Western Maryland Railway that ran from Baltimore to Harrisburg. It had only one line and could best supply the Union Army with about three or four trains a day when the Union needed about 30 to accomplish the mission.

The Quartermaster Department's Railroad Construction Corps, with an extremely capable railroad personality by the name of Herman Haupt, was called on to improve the line for maximum use. After requesting workers, train crews and rolling stock, Haupt began bolstering the rail lines with turnabouts, bringing up split wood for fuel, and using buckets to fill boilers from streams because there were no water towers. Haupt soon had the trains running in convoys of five every eight hours and providing more than enough supplies to keep the Union Army sufficiently stocked.

In fact, Meigs was pushing over 1,500 tons of supplies each day over these rail lines to Rufus Ingalls, Chief Quartermaster of the Army of the Potomac. Among these supplies was an order for

some 20,000 pairs of shoes, socks and foodstuffs. Almost a duplicate order was sent to Union Bridge, and these items along with grain and other necessities were to go toward refitting the troops after marching up from the Rappahannock. During and after the battle, the Union Army was able to evacuate 2,000 to 5,000 wounded each day because of the efficiency of the railroad.

The armies closed on each other the last week of June and the battle was fought from the 1st through the 3d of July. Ingalls kept the wagon trains assembled at Westminster, about 25 miles in the rear of the Army, to support the fighting at Gettysburg, but he never allowed any of the trains up front. Soldiers would go forward into the battle without tents and with only a small amount of food, giving them the advantage of traveling light and moving quickly. The Quartermasters would bring up to the rear of the Union forces the ambulances and part of the ammunition trains. Later, usually at night, the wagons would return to the rear and loaded ones could be brought forward. This way the wagons were not usually in the way of troops on the move and it made for a more orderly way of resupply that would not let enemy scouts get ideas of logistics capabilities or accurate locations.

During the battle Meigs contacted the Assistant Quartermaster at Philadelphia and told him to increase his supply of wagons and horses to prepare for the expected losses. Once the battle was over, Meigs then contacted Ingalls with a message signed by the Secretary of War telling Ingalls to use whatever means necessary to provide horses for the cavalry and the artillery of the Army of the Potomac to "improve the victory." Contacting the Assistant Quartermaster at Baltimore, Meigs sent word that all horses must be sent to Frederick with the utmost speed. By the evening of July 6th, Meigs wired Ingalls that no fewer than 5,000 horses were on the way to his army through Frederick to exploit the Confederate defeat at Gettysburg. At this point Meade failed to pursue Lee's Army and destroy it with one final blow. Meade was short of horses from the battle, but Meigs had done everything that he could to make sure of enough horses. Meade even attempted at one point to say that he could not pursue Lee for lack of ammunition and food. Ingalls later reported that there were so many supplies accumulated at the logistics base at Westminster that they had to be shipped back to Washington when the Army moved.

Ingalls provided much of the ideology that led to improvements on the idea of the self-sustaining corps. His use of the wagon trains and the importance of how they supplied the commander on the battlefield are still seen in the combat and field trains today.

Quartermaster General Meigs accurately forecasted the needs of the army throughout the campaign. Knowing that a critically important battle was going to be fought was only half the equation. The other half was knowing what the army needed to successfully carry the fight to the enemy, how to get these critical supplies to soldiers and how to keep the army resupplied during and after the fight. These are still important to the Quartermaster of today. Meigs used every asset available to him, particularly the efficiency of the railroad, to ensure that the soldier on the battlefield was always supported. By studying how he supported the armies of his time, we know what is important today. Supplying an army means pooling the available assets and putting them to the best use possible. Meigs was a master of this concept and learning what he did and how he did it provides us the information to support our fighting forces. The Gettysburg campaign is but one clear-cut example of an efficient fighting force being sustained by an effective support organization.

'We have shared the incommunicable experience of war. We have felt, we still feel, the passion for life to its top....In our youths, our hearts were touched by fire.'

—Oliver Wendell Holmes, Jr., May 1865

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Supply Support During Operation Provide Comfort

CPT Bruce E. Cox

At the end of *Operation Desert Storm*, many factions in Iraq rose up against their government. Principally, the Shiites from the southern region and the Kurds from the north rebelled to overthrow Saddam Hussein. Both rebellions were quickly crushed with Iraq's remaining military hardware. Because of political overtones, the United States quickly dedicated assets to aid in the survival of the repressed groups. The Kurdish effort, known as *Operation Provide Comfort*, took place in northern Iraq and southern Turkey and presented many strategical and logistical problems.

From late April to 16 October 1991, elements of the 21st Theater Army Area Command (TAACOM) were deployed from Kaiserslautern Germany, to support *Operation Provide Comfort*. I will focus on the second phase of the operation when members of the 21st were placed under the operational control of the 3d Infantry Division's 6th Brigade. This phase of *Operation Provide Comfort* spanned 16 July to 16 October 1991. The deployed task force with responsibility for this exercise was composed of miscellaneous units from six nations. The bulk of these troops were American forces. To support the supply and service needs of these units, a logistics support battalion was formed. The structure of the unit was a joint Army/Air Force responsibility. The Air Force was responsible for sustainment of the quality of life within the camp. The Army was responsible for supply and maintenance.

Supply Support

Supply support was provided by the 29th Area Support Group, also from Kaiserslautern: initially by the 66th Maintenance Battalion and then by the 51st Maintenance Battalion. Resupply operations were concentrated in Classes II (general supplies), packaged III (petroleum, oils and lubricants), IV (construction and barrier materiel), VII (major end items) and IX (repair parts). To achieve supply objectives, the 21st established a supply support activity (SSA) on Incirlik Air Base and a forward supply reception point in Silopi, Turkey.

To fully understand supply procedures for this operation, I must discuss procedures established during the first stage of *Operation Provide Comfort*. The SSA at Incirlik Air Base was equipped with a Standard Army Retail Supply System (SARSS) computer unit to process all incoming requisitions and cargo. This information, with other daily transactions, was transmitted to Germany by modem to complete the SSA daily cycles. Because of customers at Incirlik Air Base, all supplies had to be processed at Incirlik Air Base before sending them forward to customers or retaining them for local customers. This was necessary to avoid double transportation.

Had only one SARSS computer been at Silopi, incoming cargo might have been processed and then sent back to Incirlik Air Base for customers stationed there. A point-to-point system was adequate but lacked sufficient communication within country to administer records between Silopi and Incirlik Air Base. The link between these two points was a modem connecting two laptop computers. Although this seemed to hint at automation between the two stations, the result was a manual system. All information transmitted across "laplink" was manually input into the SARSS, to

Kurdish refugees at a base camp in Silopi, Turkey, run past a UH60 Blackhawk to get to another helicopter filled with supplies.

include requisitions from customers located in Silopi. This was a reliable but time-consuming process.

Second Phase

During the second phase of *Operation Provide Comfort* when 3d Infantry Division became the controlling force in theater, the force structure demanded support for aircraft assigned to the theater of operations. The support for this unit originally was organic supply support. The 6th Brigade's I Company was the designated aviation SSA assigned to support aircraft requisitions from within the theater. After units exhausted their prescribed load list stockage levels, I Company was greatly affected by order ship time and other factors that made receipt of repair parts a serious problem. This was further complicated by the lack of timely reordering by unit supply personnel. In an attempt to centralize control, I Company took over as the main SSA and ordered their Class IX through the Department of Defense activity address code (DODAAC) used by the 29th Area Support Group's SSA on the ground, 5th Maintenance Company. The 5th Maintenance Company was not an aviation SSA by design. Therefore, growing pains were experienced because of the newness of aviation requisitions passing through an SSA not equipped with an authorized stockage list (ASL) to handle these requests. Since the ASL was not an aviation-specific ASL, passed requests errored out of the system because they were not part of the SSA catalog file. The ASL for this operation was slowly built and adjusted to handle the demands placed upon the system. With more time invested in the supply system, the system was able to support the requisitions placed upon it. Great strides were made with this supply program but not without costly downtime for maneuver units.

Recommendations

For future deployments, the most obvious recommendation would be to deploy organic supply activities with their maneuver units. However, with operations such as *Operation Provide Comfort*, this will not always be possible with the eclectic force structure that seems to dominate present deployment schemes. Therefore, supply support should consist of a deployable supply unit that could process and fill requisitions for all classes of supply. This is possible but not from a presently established unit. The unit structure should also be an eclectic structure built from elements of several units. There are several advantages to this support plan with regard to personnel, equipment and unit readiness.

A team for this type of operational supply unit would consist of teams from local area SSAs. The teams would function as a single SSA but process and control all classes of supply except ammunition and medical. For example, the SSAs from a supply and service company would be able to adequately process supplies in Classes I (rations), II, III, packaged III, IV and VII. From a Class IX SSA would come the soldiers to process the remaining Class IX supplies. This SSA would then be able to completely support any deployed unit and not drain a company of valuable personnel designated to perform the unit's "peacetime" mission.

Because of great strides in the supply automation field, the deployment of an eclectic supply platoon is now more feasible. Previously, units were limited greatly by their processing capability. As in *Operation Provide Comfort*, the SSA operated solely on the support of SARSS equipment. This equipment did not allow the SSA to properly perform the mission of an SSA. This operation would have greatly benefited by the deployment of a Decentralized Automated Combat Service Support Computer System (DAS3) computer van. The only connection necessary for the SSA would have been the Standard Army Intermediate Level Supply System (SAILS) interface. This, however, is not always possible with hardware shortages. With the advent of the desktop Direct Support Unit Standard Supply System (DS4) program that runs on a standard personal computer with extensive memory, the unit's deployment can be complete and cost effective. The DODAAC for this unit could be stored in the SAILS system and unblocked when the unit is deployed to support an operation, enhancing timely requisition processing and speeding the assumption of ship-to addresses. The ASL catalog for the computer could be tailored for the type of operation and stored on removable hard drives, making the transition fast and efficient. The ASL stocks could follow the POMCUS (prepositioning of materiel configured to unit sets) concept and be set aside for the supply unit to draw and deploy with. With current drawdowns, the ASL could be built quite easily.

This concept would finally benefit training requirements and the readiness of individual units. Commanders are held responsible for the readiness of their personnel. This "standby" test would constantly remind the commander of the need to have personnel ready to deploy on a moment's notice. The requirements for soldiers to be proficient at job tasks as well as medically and financially ready to deploy would be an everyday operation instead of a last-minute preparation for exercising units.

From the lessons learned in *Operation Provide Comfort*, supply support operation involving deployment will be a little easier for the trained forces of the 21st TAACOM. This logistical opportunity provided many insights into supply problems associated with the support of units normally serviced by designated SSAs. However, this exercise also provided many important teaching and learning situations that will benefit future operations.

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How Do We Support With Less?

CPT Kelly J. Lawler

Forty miles north of Hafar-Al-Batin, Saudi Arabia - 20 January 1991

The supply team had just arrived at their new site at Log Base Echo, 60 miles north of their first position at Log Base Alpha. A log base during the Persian Gulf War was a logistics base for all classes of supply and support.

"Lieutenant, I need a Class III (petroleum, oils and lubricants) retail point to support the corps storage ammunition point. The point will be 5 miles away from your position and must be operational on a 24-hour basis and established in one hour. Secondly, see that Class IV (construction and barrier materiel) over there, take charge of it. Thirdly, I want Class I (rations) and water on the ground now! Fourthly, there has been a border skirmish, a company on patrol from the 2d Armored Cavalry Regiment (ACR) has pulled back and your team is their support. Lieutenant, you have a lot of work to do to be ready to support this log base as it matures. Can your team handle it?"

"Yes, Sir!"

"Oh, Lieutenant, ensure your team sets up a good defensive perimeter and start digging bunkers now. You are not in the Patriot arc. . . . Are you sure, lieutenant, you and your little team can handle this?"

"Yes, Sir!"

The Vision

As I stepped back and looked at my soldiers, only one thought went through my mind. I have 48 of the best soldiers in the U.S. Army. These Logistics Warriors could do these missions, plus more. How was I sure? I was sure because the soldiers were a tailored supply team, a team that has an origin that many logisticians are unaware of. In many of the Army's modification tables of organizations and equipment (MTOE), there are designated teams that are often overlooked. The 13th Supply and Service Battalion in Stuttgart, Germany, had in its MTOE a designated team in the 226th Supply and Service Company. My battalion commander's vision was to detach these soldiers from the supply and service company and employ them for what they were designated for. The concept was to build from this MTOE authorization a ready contingency force, a force able to provide the same support as the supply and service battalion. The force had to be prepared to perform all functions incorporated into their own mission-essential task list. The bottom line: be prepared to deploy into conflict, support up to a brigade-size element, survive the battle and return victorious.

The Beginning - August 1990

Before deployment of the VII Corps from Germany to Southwest Asia, the supply team was given an opportunity to perform its mission in a real world requirement. The team was alerted for deployment to Southwest Asia six months before the start of *Operation Desert Storm*. The mission called for a supply team to deploy to Southwest Asia to support a brigade-size force. The order was given with limiting factors placed on it. The first was a maximum of 36 soldiers. The equipment was limited to two 2 1/2-ton trucks, two CUCV and four 4,000-pound rough terrain forklifts. Another requirement was that the team had to be ready to deploy within 48 hours.

To meet the suspense, the team's framework was tailored for the mission. For the first time, we as logistical planners were packaging a team of soldiers and equipment to deploy into a potential combat zone.

My battalion commander was given this mission under unusual circumstances. His battalion executive officer, along with key noncommissioned officers (NCOs) were at a training exercise in the continental U.S. (CONUS). The logistics operations major was at an Army training and evaluation program (ARTEP) evaluation, and his supply and service company was undergoing ARTEP evaluation four hours away from home station. The skeleton staff at the headquarters worked for 48 hours straight to produce the tailored team.

The team continued on alert status for seven days. The mission for the team during this time was to support the deployment of the 11th Combat Aviation Brigade (CAB), VII Corps, to Southwest Asia. The mission for the 11th CAB was canceled by higher headquarters on day seven. Therefore, the team was taken off alert status. Before the team disbanded, my battalion did some collective training for the team. The team went through extensive nuclear, biological, chemical (NBC) training and weapons qualification. If needed in future operations, the team would be ready. Following the training phase, the team members returned to their companies.

The important lesson learned was that we took a team often

overlooked, tailored the team to perform a very broad mission, mobilized, equipped and prepared it for overseas movement (POM) in 48 hours. Equally important: the battalion met the standard and transitioned to war efficiently.

Supply and Service Missions

In December 1990, the 13th Supply and Service Battalion deployed to Southwest Asia to support *Operation Desert Shield.* My battalion's first mission was to set up the general supply support base (GSSB) at Log Base Alpha. Initially, many problems were involved with this major task:

- Immature Theater.
  - Bare base.
  - Limited established supply lines.
- Size of Base and Desert Environment.
  - Magnitude of mission.
  - Harshness of desert on 24-hour operations.
  - Limited training (size of supported forces).
  - New area of operations.
- No Doctrinal Guide.
  - First time since Vietnam era.
  - Limited experience of leaders.

These factors obviously made fluid logistical transactions throughout the log base difficult initially.

The battalion provided Class I, II (general supplies), packaged III, III, IV, VII (major end items) and IX (repair parts) to VII Corps from Log Base Alpha. This was both a leadership and logistical challenge for the soldiers and officers of my battalion.

Supply Team Missions

While my battalion operated at Log Base Alpha, planning was underway to establish Log Base Echo. This would mean that all combat service support units occupying Log Base Alpha, to include the general supply support base, would move about 40 miles north to Log Base Echo. A small supply force was needed to provide support to the immature Log Base Echo during its start-up phase. The small supply force that was chosen was my supply team. We were alerted and ready to move in 48 hours. We had trained for this six months earlier, so the idea was not new to the battalion.

The mission was put on hold, primarily because the VII Corps commander did not want to alert the Iraqis that U.S. forces were repositioning. While further planning continued, I took this time to ensure the team went through extensive collective training in our platoon area.

I was alerted that my team was to move 14 days after my initial briefing. We were all anxious because everyone understood the significance of this move.

We transported Class I and water for 1,000 soldiers, five full diesel 5,000-gallon tankers, and two CUCVs. The battalion was to resupply the team from their location at Log Base Alpha, using organic transportation.

After arriving, I will never forget the proud feeling I had. The group logistical operations officer met with me and informed me that my priorities were the following:

- Move to the corps storage ammunition (CSA) point and place a Class III retail operation there. The site should be functional 24 hours a day and ready to fuel 100 five-ton tractors a day.
- Position more Class I and water on the ground.
- Establish another Class III retail point in this area.
- Be ready to receive Class IV.
- Ensure my team had a good defensive perimeter and start to dig bunkers, because the Patriot arc was still over Log Base Alpha only.

The officer gave me these orders in a clear and concise manner. I knew my soldiers could perform, and so did he.

The Transition

The supply team performed the mission well for approximately two weeks until a larger task force took over the mission. My opinion is that the supply team, if needed, could have stayed and provided the support as they had been. The supply team was an important part of the transition of all units from Log Base Alpha to Log Base Echo. The supply team proved it could work and should not be overlooked in future operations.

Capabilities/Structure

The following is a list of the team's capabilities:

- Stock control for all classes of supply, direct support (DS) only.
- Redistribution of supply operations.
- DS resupply operations.
- General resupply operations.
- Class III fixed site operations, wholesale or retail.
- Forward area refuel equipment (FARE) operations.
- CSA Trailer Transfer Point (TTP) operations.

CPT Kelly J. Lawler was the leader of this tailored supply team during Operation Desert Shield/Storm. He was a student in the Quartermaster Officer Advanced Course when he wrote this article.

CORRECTION: In the Autumn 1992 edition we published information about the field trial for the 5,000-gallon water trailer on page 59. We have been notified this field trial never occurred because of unforeseen circumstances. We apologize to our readers for any confusion this may have caused.

From Germany to Saudi and Back

CPT Christine L. Sherman

On November 10, 1990, Secretary of Defense Richard B. Cheney directed the VII Corps to deploy from Germany to Saudi Arabia. Today, the whole world knows how successfully VII Corps accomplished the unprecedented move from one forward-deployed theater (Europe) to another (Southwest Asia). Military scholars will study the deployment to write doctrinal guidance for the Army to follow in the future for similar scenarios. I would like to offer my experiences as a Class IX (repair parts) accountable officer in a nondivisional supply support activity which moved from Nuernberg, Germany, to Saudi Arabia in December 1990. The challenges my soldiers and I met and the solutions we found to our problems may benefit those who receive a mission such as ours. I will cover my experiences in three phases: deploying from Germany, supporting in Saudi Arabia and returning to Germany.

Military scholars will study the deployment from one forward-deployed theater (Europe) to another (Southwest Asia) to write doctrinal guidance for the Army to follow for similar scenarios in the future.

Deploying From Germany

From the time of the announcement to the day we had wheels up at the airport, the 317th Maintenance Company Supply Support Activity (SSA) had only 30 days to prepare to move. Those days went by very quickly and were filled with backbreaking work. Our first task was identifying the combat-essential items that we needed. Because we did not know for certain what types of units our future customers would be, we worked closely with the direct support (DS) maintenance shop in determining the quantities of items we should stock and carry. The parts on the authorized stockage list (ASL) that had essentiality codes of A, C, E and J were given first priority. These items were guaranteed a location in the mobile parts vans that were organic to the SSA. Once those vans were full, we put all the remaining required items into the SeaLand containers we were given to load. We then filled the rest of the container space with parts that the DS shop identified as crucial to the maintenance mission.

We concentrated next on our customers. We had many questions about how the transition of support would occur. We passed on all information to the customers as soon as we received it so they could make appropriate arrangements. Over half of our customers were remaining in Germany once we flew out, and they needed to know who would take our place in supporting them. The answer was a reserve unit from Michigan, the 1072d Maintenance Battalion. The question we could not answer before we left was when the 1072d would arrive and start supporting. Our responsibility to all of our customers was to give them the unit demand history tape for them to give to their next supporting SSA. The units' past demand history was crucial for them to establish the most seamless support flow possible.

When we were planning how to move the major assemblies (MAJ As) to Saudi Arabia, we knew that the organic stake and platform (S&P) trailers would not hold the entire ASL. The battalion S4 promised we would receive enough additional S&Ps to move the assemblies, but could not predict which day. To increase our flexibility to respond to the last-minute arrival of transportation assets, we uploaded all the MAJ As our organic S&Ps would hold. The remaining assemblies were preconfigured on the ground as they would be loaded on the promised trailers. Regardless of when the trailers did arrive, we were ready to load them. Each load of MAJ As was a cross-section of different essential items so that one trailer not making the trip for any reason would not wipe out an entire commodity from our inventory. The trailer load plans became the on-hand inventory control documents and allowed us to issue assemblies right up to the time the trailers were hauled away for shipment.

Supporting in Saudi Arabia

When we arrived at our support base in the desert, we set up our computer van right away. We did not have automated requisitioning of parts immediately, though, because the next higher level, the Standard Army Intermediate Level Supply System (SAILS), was not set up to receive our automated tapes. Since we were using the manual method, our supply of DD Form 2765 (Request for Issue or Turn-In) to order parts was depleted very quickly. We overcame this

problem by having customers fill out the 80-card column computer input sheets for their requests. This saved our resources and ultimately our computer operators' time when automation did begin.

Once the 317th SSA was fully operational, we had the mission of area support for any unit nearby in need. Several units came just to see if we had anything they needed in stock. This practice depleted our stocks of commonly requested items unnecessarily. Our higher headquarters, the 7th Corps Support Group (7th CSG), corrected this problem by allowing us only to support customers they approved. That system worked well because the 7th CSG had a larger picture of support relationships in the area and could direct the needy customer to the proper supply point. To help the process along, I required customers to bring signature cards and assumption of command orders to establish accounts with us: the same procedure as in garrison. This discouraged unauthorized shoppers who were in the area and gave the 7th CSG the information it needed to research the unit for approval.

As a fully operational DS maintenance company tasked originally with area support, the 317th was very busy repairing combat vehicles in preparation for the movement on line into Iraq. The unserviceable MAJ As piled up rapidly. The next logical question was "Where do we turn in these unserviceables?" I was given the unit that should handle this and went to visit them for a customer-relations meeting. The unit did not know they had been designated to receive my MAJ As, and we made some phone calls to clear up the discrepancy. Their support was established and we hauled numerous loads of unserviceables to them. We were rewarded for pushing to establish that relationship when we unexpectedly received word that we would be moving forward with the 1st Armored Division into Iraq. That move would have been much more difficult if we had not turned in so many MAJ As early on. We had no last-minute unserviceables to haul away and our trailers were available for immediate uploading of serviceable assemblies to carry into the fight.

Before the invasion of Iraq, the 7th CSG commander saw a potential problem and moved quickly to head it off. Many of the 7th CSG nondivisional Class I (rations), II (general supplies), III (petroleum, oils and lubricants), IV (construction and barrier materiel) and IX SSAs were chosen to move forward on the invasion as backup direct support to the divisions. Because the SSAs were not 100 percent organically mobile, some assets had to remain behind in Saudi Arabia. The commander set up a management cell in the rear area logistics base to act as an umbrella over all the supplies left back. The warrant officer who was the 7th CSG supply technician commanded the management cell from inside two joined general purpose medium tents. He directed each SSA to set up a warehouse computer terminal in the tent complex. The benefits of co-locating all the computer terminals were numerous. The cell had immediate control of all assets left behind on the ground. Requisitions that were not filled by the primary SSA were hand-carried to another terminal for an on-hand balance check. Lateral transfers of items to fill requests took only a few minutes. Communication was excellent between the asset managers. The cell operated 24 hours a day for customer support.

With the mobile assets deployed forward, the Materiel Management Center (MMC) had to rely completely on the Transportation Corps to push replenishments and dedicated customer issues forward. This became a problem when priority for transportation trucks was given almost entirely to ammunition, fuel and water. The units who went into Iraq then depended on the mobile vans for all issues. In this case, the combination of a rear area management cell and forward-deployed vans worked very well to cover the requirements.

After the ceasefire, the Pentagon began to deactivate and redeploy units from Saudi Arabia according to the original drawdown plan before the Persian Gulf War. Those units left behind equipment and supplies. Many units can sign for authorized equipment and absorb it into the property books. Only SSAs can receipt and store supplies, and I received four additional ASLs in a short time. The vans that carried the supplies stayed within the parent battalion if at all possible. The supplies for which I had matching space went into my parts vans. We packed the rest in the commercial SeaLand vans which we were using to pack ourselves out of the desert for our return to Germany.

Returning to Germany

The day we had all been waiting for finally arrived. When we flew out of Saudi Arabia, we were looking forward to rest and relaxation after the cheering crowds let us pass through. Imagine our surprise when we got off the plane and saw all of our old customers we had left behind waiting for us on the tarmac! Right behind them were the Michigan reservists who wanted to go home. The only thing standing in their way was my signature on the inventory of the prepositioning of materiel configured to unit sets (POMCUS) stockage they had drawn to support in our absence.

Many other challenges awaited us in Nuernberg. Because the VII Corps and the 2d Corps Support Command (COSCOM) were deactivating, we came under new management. One of our most basic elements of communication had been rendered null and void. We did not know the phone numbers of our MMC to ask questions about supporting customers! We became part of V Corps and 3d

COSCOM in Wiesbaden. I drove up to meet the people in the offices that corresponded to the ones I had dealt with in 2d COSCOM. I gathered phone numbers and names in each office where I thought I might need help someday. It was not long before I did have to call, and it was much easier to talk to people I had met on my visit.

War may be controlled chaos, but post-war has its own brand of turmoil. My warehouse space was quickly filled with the POMCUS ASL the 1072d Reservists had signed for, the parts from the vans that were packed to overflowing, the parts from the SeaLand vans that had no locations on the computer, and the parts from requisitions that were diverted to us from Southwest Asia. We had quite a bit of excess, obviously, and our mission to account for it and turn it in was a monumental task. The computer determines what is excess based on the history of customer support over a 12-month period. The problem was our customer base had changed again after we returned to Germany. The 317th SSA inherited a larger area of support because of the closure of the other SSAs whose supplies I had to sign for in the desert. We went from 44 to 102 customers in 6 months. Judging excess became much more complicated.

Transportation to take away the parts was difficult to arrange. The priority for the transportation units in Germany was to clear the ports of returning equipment, move regular supplies from Rhein Main Air Base to the requesting units, and assist deactivating or deploying units to meet their deadlines. The European Redistribution Facility at Boeblingen was slated for closure, so all of the excess for turn-in had to go to Hanau. Hanau quickly became swamped. The excess problem is currently a challenge to those I left behind in Germany.

The fluctuating customer base gave us many challenges in support. One problem came to light when our customer requisitions were not registering at the SAILS level. After verifying we had done our part in the process correctly, I went to the MMC in Wiesbaden to get some help in solving the mystery of the missing requisitions. The answer was in the computer data base that shows the customer support relationship. Not all of our customers were loaded under our SSA for support, and the MMC computer would not recognize their requests as valid. The face-to-face visits were extremely beneficial in clearing up this and many other problems.

After Every War

After every war the people involved with logistics analyze what went right and wrong to make improvements. *Vietnam Studies: Logistic Support* by LTG Joseph M. Heiser, Jr., offers a detailed look at the lessons learned by those logisticians. Many of the points in LTG Heiser's book were mistakes we did not make in Saudi Arabia because we benefited from his experience. I offer my own observation to ease the way for others who may follow me.

'War may be controlled chaos, but post-war has its own brand of turmoil.'

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Quartermaster Stays in Saddle

CPT Philip G. Smith

As Quartermasters and as fighting soldiers, we have a rich history. This soldier is a distinguished part of it.

1LT John W. Clark - Served as the Regimental Quartermaster, 6th Vermont Infantry, during the Civil War. On 28 July 1863, near Warrenton, VA, 1LT Clark organized and led the defense of the division trains (supplies) against a numerically superior Confederate force. During the fighting he was severely wounded by enemy fire, but he remained in his saddle for 20 hours, leading a successful defense and routing the Confederate attackers. 1LT Clark was awarded the Medal of Honor for his heroics in the battle.

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Fuel and Water Operations in Northern Iraq

LT Wayne Murphy

As the world celebrated the victory of *Operation Desert Shield/Storm*, the logistician faced another challenge. On April 5, 1991, President George H. Bush mounted what was to become the largest international military relief effort since the Berlin Airlift in Europe. *Operation Provide Comfort* in Southwest Asia became the largest logistical support operation ever. This operation's logistics were mind-boggling. Over 700,000 refugees along the Turkish and Iranian borders into Northern Iraq received humanitarian aid and service. The logistics efforts of the armed forces and nongovernmental and private volunteer organizations helped keep pace with the demand.

The 51st Maintenance Battalion was alerted in Mannheim, Germany, for deployment to Northern Iraq. The mission was to establish a logistics base and to provide fuel and water support in Zakhu and Sirsenk, Iraq.

Zakhu, Iraq

Zakhu was one of the first camps for the Kurdish refugees. Within days, tents and latrines covered empty fields. Members of the 51st Maintenance Battalion Task Force from Mannheim began arriving at Zakhu on 30 April. They took over the fuel support mission from the 66th Maintenance Battalion. A fuel system supply point (FSSP) and two 5,000-gallon tankers supported the operation, using the Refuel on the Move (ROM) concept. Fuel support was provided to all U.S. and Allied forces in the area. The 527th and 284th Military Police Companies were the largest customers, because of their security mission and continuous patrols of the main supply route (MSR). Fuel was transported from Turkey by civilian trucking fleets, owned by Turks and Iraqis. At times, problems at the Turkish-Iraqi border impeded fuel resupply. The goal was to maintain a four- to seven-day fuel supply to prevent running out of fuel if deliveries were not on time.

Sirsenk, Iraq

Sirsenk Airfield was an airport used by enemy leader Saddam Hussein until the U.S. B52 bombers put it out of commission during *Operation Desert Storm*. Located 50 kilometers east of Zakhu, Sirsenk supplied the coalition's easternmost sector. Sirsenk Airfield was later repaired and used as an air base to fly in troops, equipment and supplies. Additional members of the 51st Maintenance Battalion Task Force came to support the operation at Sirsenk. Task Force members arrived at Sirsenk on 20 May and began taking over the water and fuel support mission from the 66th Maintenance Battalion.

Fuel support in Sirsenk was similar to Zakhu. An FSSP, one 5,000-gallon tanker and one tank and pump unit (TPU) supported the operation. A problem, the FSSP had to be relocated because it was on a busy traffic route and also too close to the living area. The defueling of the old fuel point and the establishment of the new location took one day. We used the "leap frog" method in order to continue providing support to our customers. The Petroleum Supply Specialists (77Fs) from 51st Maintenance Battalion worked around the clock to get the FSSP into full operation. Fuel support was provided to all U.S. and Allied forces in the area. The TPU's main job was to refill all generators in the area at the beginning and end of the day. Fuel was transported to Sirsenk from Turkey by civilian trucking fleets. We accounted for all fuel with DA Form 3643 (Daily Issues of Petroleum Products) and DD Form 3644 (Monthly Abstract of Issues of Petroleum Products and Operating Supplies). A fuel report and request went to higher headquarters on a daily basis.

Water

Many camp sites were selected because the engineers located water sources to support the refugees. Many refugees, mostly children, were dying every day of exposure, starvation and dehydration. Disease ran rampant due to the lack of sanitation facilities and clean water. Water purification was very important during *Operation Provide Comfort*. The engineers also played an important role in water support. They helped run pipes up the mountain from nearby wells to supply camps with clean water.

At Sirsenk, the water purification platoon was able to use a stream near the airfield. Three ERDLATORs (Engineer Research and Development Laboratories) and 15 forward area water point supply systems (FAWPSSs) supported the mission. Two ERDLATORs operated while one provided backup. This also made maintenance easier when one system was removed and replaced by another. Water supply points were based on the location of the water source and the location of the refugee camps. The unit produced 10,000-15,000 gallons per day of potable water. The large amount of bottled water on hand also augmented the water system. Water was delivered to local refugee camps by former East German water trailers, along with FAWPSSs tied down on the back of five-ton cargo trucks. Airlift operations were also used to sling load FAWPSSs to Batufa,

Mangesh, Bamirni, Kani Masi and Deralok. The terrain of these areas does not allow easy access by ground equipment. The Air Force provided water for the latrines, showers and laundry for the U.S. forces at Sirsenk.

Lessons Learned

- Equipment readiness is very important to make sure equipment can deploy on a minute's notice. Practice taking all of your equipment to the field. This will enable you to see how your load plans work and, most importantly, the serviceability of your equipment.
- Plan now for deployment. Look at factors that could delay the deployment of your personnel such as wills, powers of attorney and family care plans. You must have a good family support group in place and working. Get involved and prepare for future deployments.
- Develop a physical training program to increase muscular endurance and strength. This combination enables the soldiers to perform a wide range of lifting and carrying functions closely related with combat service support tasks. Soldiers need endurance and strength when setting up and breaking down an FSSP, for example.
- Carefully plan your FSSP's location based on future operations and busy road networks.
- Plan and train for continuous support for an extended period of time. You must be prepared to support 24 hours a day if needed. Develop a good sleep plan to incorporate into your support plan.

Success

Operation Provide Comfort presented great challenges to the logistical system. The logistics operation during *Operation Provide Comfort* reflects the quality and high performance level the Army has built into today's equipment. The overall logistics support in Northern Iraq was a big success. The Army is fielding new equipment for water and petroleum, oils and lubricants (POL) that will give units virtually unlimited capability for quality support in any situation.

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Supporting Force Development: The Logistical Challenge

CPT John G. Romero

Force integration introduces, incorporates and sustains doctrine, new organizations and new equipment into an existing force structure. This is a multiechelon process that affects every logistical level of an organization. The division's traditional logistical tasks are more complex today with the modernization of doctrine, force structure and equipment. The challenge facing any division, particularly the 4th Infantry Division (Mechanized), Fort Carson, CO, is to maintain internal logistical operations as a constant.

Force integration is a major task facing the 4th Infantry Division in FYs 1992 and 1993. Earlier experiences in fielding new equipment, such as the M1 main battle tank, revealed that the vertical distribution of functions in a traditional staff made it difficult to separate the need to focus all aspects of force development from traditional staff functions. As a result, many key aspects of fielding, such as an authorized stockage list (ASL) and/or a prescribed load list (PLL) that require collaboration of one or more staff agencies, must be planned.

As in a tactical plan's development, a logistical concept of the operation must be detailed in the force modernization planning phase. Given the mission and objective, planners must come up with a sequence of time-phased logistical actions. The key factor is information that is readily available, complete, confirmed and stabilized at the critical point in time. This allows logistical support units to plan in relative certainty. Those logistical support units in the fielding process already have a changing and turbulent environment.

For new equipment fielding, the informational base is the Army Force Modernization Master Plan that establishes the broad scheme of maneuver for key fieldings, basis of issue plans and detailed material fielding plans. These plans normally contain distribution plans, fielding schedules, published table of organization and equipment (TOE) and modified table of organization and equipment (MTOE) changes and information on training programs for operator and maintenance personnel.

To support and sustain operations using the new equipment, modernized logistical support guidance must be available. Repair parts and maintenance guidelines also must be on hand. If maintenance guidelines are unavailable, planners must establish them before the scheduled fielding date for a smooth fielding. These well-recognized needs for new equipment have been formalized into the following policy of Total Package Fielding:

Total Package Fielding

- End item.
- Prime mover, if required.
- Support equipment - For example, trailer-mounted generator.
- Ancillary equipment - For example, test measurement and diagnostic equipment and tool sets.
- ASL and PLL issued as part of the fielding.
- Publications - Technical manuals, lubrication orders, soldier's manuals and field manuals.
- Ammunition.
- Manpower spaces.
- Designated primary military occupational specialty requirements.
- Qualified personnel.
- Fielding funds.
- Documentation - TOE and MTOE authorizations.
- Military construction and Army facilities available.
- New equipment training, training plans, school schedules, training teams, introductory briefing team and material fielding team.
- Training aids.

I believe the Army needs a sliding, 12-month window to permit unclassified discussions of fieldings so that we can complete detailed planning with all the affected agencies in a timely manner. Other requisitioning actions, mission support plans, local maintenance contracts, and unit master training plans can be formalized.

In my division, we found a fielding coordinator necessary to plan long-range fielding, to monitor execution and, most important, to identify problems, resolve conflicts and provide resources for solutions. Thus, a new equipment fielding coordinator, an additional responsibility for the deputy division property book officer, was created in the 4th Infantry Division Materiel Management Center (DMMC).

Initially, other staff sections tended to force development of planning actions that were not of immediate concern to that particular staff section. However, it is important to acknowledge that this new equipment fielding coordinator was not and is not organized to do the work of other staff sections. The new equipment fielding coordinator lets other staff sections know when they should act during a particular fielding. The new equipment fielding coordinator was also involved with coordinating, planning and monitoring divisional new equipment fieldings to comply with the Army's Total Package Fielding concept. Coordination focused on the division's Force Integration Office, Directorate of Logistics, G4, division support command units, and sections within the DMMC. Planning efforts concentrated on accountability, general supplies, ammunition, maintenance and repair parts.

The new equipment fielding process has no place for surprises. New equipment must never arrive at division unheralded. Open and continuous communication both horizontally and vertically at all levels is the best insurance against an unsuccessful fielding of new equipment.

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Combat Service Support Synchronization Matrix

CPT Russel A. Patishnock

"The Brigade Commander!"

"Take your seats. Before the S3 provides an order brief, I want to summarize our deployment. We will deploy to Germany as a player unit in REFORGER 91. Our port of embarkation will be Amsterdam, Holland. We will draw the majority of our tactical equipment from POMCUS (prepositioning of materiel configured to unit sets). The task force will then deploy by road convoy into a staging area where we will conduct essential training. We will then move into a tactical assembly area from which the task force will conduct an infiltration. Following the infiltration, we will conduct ground, rail and air movements to the Combat Maneuver Training Center (CMTC) at Hohenfels, Germany. During our CMTC rotation, I plan to conduct an air assault and MOUT (military operations in urbanized terrain) operations. Following our CMTC rotation we will turn in our POMCUS equipment and redeploy to Fort Drum, NY."

Needless to say, following the detailed orders brief by the brigade staff, the forward support battalion (FSB) support operations officer's head was spinning. Not only was he faced with the mission-essential and implied tasks, but he also felt his mind blur as he tried to focus on the logistics imperatives — ANTICIPATION, INTEGRATION, CONTINUITY, RESPONSIVENESS, IMPROVISATION. Never having participated in a major deployment, it was especially difficult to visualize how to integrate the mission-essential tasks and the implied tasks for synchronization and depth of combat operations. There was no doubt that extensive coordination would be required throughout the deployment. COORDINATION, SYNCHRONIZATION - COORDINATION, SYNCHRONIZATION - there had to be a system, a logical method to ensure all the logistics bases were covered, but how? How do the combat arms leaders ensure timely execution to support the scheme of maneuver? They use an execution matrix!

Why don't we have a logistics matrix? It would guide the synchronization of all logistics required to support combat operations. It became obvious that we logisticians needed a Combat Service Support Synchronization Matrix (CS3M).

The Division Support Command (DISCOM) Commander, 10th Mountain Division, and his logistics officers developed just such a tool. The intent was to identify, quantify and time order logistics requirements to fully support the combat commanders' scheme of maneuver, while facilitating continuity of operations across the broad spectrum of the modern battlefield.

The beauty of this tool is its simplicity. The format of the matrix is as flexible and varied as the imagination of the developer. The matrix format shown on the next page is horizontal and vertical (Figure 1. Battalion Combat Service Support Synchronization Matrix). Along the horizontal border, display the time line or mission phases. Along the vertical border, display the general area of support. To be effective, show all the units supported and the last known grid coordinate location (field use). Show significant factors affecting relationships with supporting organizations. For example, is the supported unit under operational control (OPCON) or is it attached? Is it receiving general or direct support? When dealing with a mission-organized, brigade-sized task force, the matrix should pay particular attention to the support relation-

Acronyms for CS3M

A-M-A	- A-Ration; Meal, Ready to Eat; A-Ration
AMMO	- Ammunition
ASL	- Authorized stockage list
ASP	- Ammunition supply point
ATP	- Ammunition transfer point
AUG	- August
CASEVAC	- Casualty evacuation
CEGE	- Combat Equipment Group Europe
CL I	- Class I (rations)
CL II	- Class II (general supplies)
CL III	- Class III (petroleum, oil and lubricants)
CL IV	- Class IV (construction and barrier materiel)
CL V	- Class V (ammunition)
CL IX	- Class IX (repair parts)
CMTC	- Combat Maneuver Training Center
co	- Company
CS3M	- Combat Service Support Synchronization Matrix
COSCOM	- Corps support command
DACG	- Departure airfield control group
GS	- General support
LRSD	- Longrange surveillance detachment
MAINT	- Maintenance
MED	- Medical
MEDCOM	- Medical Command
MILVANS	- Military owned demountable containers
MOUT	- Military operations in urban terrain
MRE	- Meal, Ready to Eat
OCT	- October
PMCS	- Preventive maintenance checks and services
POMCUS	- Prepositioning of materiel configured to unit sets
RECON	- Reconnaissance
SEP	- September
SSSC	- Self service supply center
TAA	- Tactical assembly area
T-M-T	- T-Ration; Meal, Ready to Eat; T-Ration
TRANS	- Transportation
w	- With
10K	- 10,000 pounds
4K	- 4,000 pounds
VILSECK	- Vilseck, Germany

ship of slice elements, such as Air Defense Artillery, Military Intelligence, and Engineers. For they may not normally receive support from the FSB.

The CS3M is easily tailored to meet the specific needs for different levels of command. At the brigade and battalion levels, it is most easily used to provide a broad command guidance and an overview checklist for monitoring critical or time-sensitive support commitments. Also, it can serve as an appendix to the service support annex of a brigade or battalion operations order. When used in this capacity, create it around "trigger points" that are even-driven and not specifically time-managed. However, this is not an execution matrix. Do not lock in on events to drive execution or you will fail to provide the flexibility needed to synchronize the logistics imperatives.

At the company level, it can also be used to develop training schedules, manage personnel and equipment, and serve as a suspense tool for critical support mis-

	PREDEPLOYMENT 1 -30 AUG 91	MARSHALLING AREA 25 AUG - 25 SEP 91	STAGING AREA 2 SEP-9 SEP 91	TACTICAL ASSEMBLY AREA 10 SEP - 14 SEP 91	CMTC 14 SEP - 22 SEP 91	REDEPLOYMENT 22 SEP - 4 OCT 91
MANEUVER UNITS		DRAWING POMCUS	LRSD DEPLOYS SCOUTS DEPLOY	INFILTRATION BEGINS 10 SEP	AIR ASSAULT OPERATIONS MOUT OPERATIONS	BATTLEFIELD RECOVERY POMCUS TURN-IN
MEDICAL	COORDINATE W/7TH MEDCOM PLAN TO FILL OXYGEN	HOST NATION MEDICAL SUPPORT PICK UP OXYGEN	C CO BEGINS MED SUPPORT CHECK ON HOST NATION SUPPORT RECON CASEVAC LOCATIONS	HOST NATION SUPPORT C CO PREPARES FOR MASS CASUALTIES	COORDINATE WITH HOST NATION FOR MEDICAL SUPPORT C CO PROVIDES MEDICAL SUPPORT	HOST NATION SUPPORT
MAINT	COORDINATE CLASS IX ASL SUBMIT SIGNATURE CARDS FOR CLASS IX COORDINATE FOR OXYGEN AND ACETYLENE	PICK UP CLASS IX AT CEGE PICK UP OXYGEN AND ACETYLENE INVENTORY TOOL SETS	OPEN CLASS IX ACCOUNTS B CO BEGINS MAINTENANCE SUPPORT	B CO PROVIDES ROAD MARCH MAINTENANCE SUPPORT	PREPARE CLASS IX FOR TURN-IN CLASS IX SUPPORT AT VILSECK ON ORDER MOVE FORWARD CONTACT TEAMS	TURN-IN OF CLASS IX AUGMENT CEGE MAINTENANCE
TRANS	COORDINATE FOR MOVEMENT OF 10K AND 4K FORKLIFTS PREPARE PERSONNEL MANIFEST	CONVOY TO STAGING AREA 2 SEP	TRUCK PLATOON ARRIVES PROVIDE VEHICLES FOR TROOP MOVEMENT MOVE FORKLIFTS	ON ORDER-EXFILTRATE MISSION RESUPPLY MISSION FOR TASK FORCE FORKLIFT MOVEMENT STANDBY TRUCKS FOR AIR	PROVIDE CLASS V TRANSPORTATION STANDBY TRUCKS FOR AIR ASSAULT FORKLIFT MOVEMENT	PROVIDE RECOVERY SUPPORT OF CLASS IV TURN IN VEHICLES TO POMCUS
SUPPLY CL I CL II & IV CL III CL V	SUBMIT REQUEST FOR CLASS I, II, III, IV COORDINATE FOR CLASS V SUBMIT SIGNATURE CARDS PREPARE HAND RECEIPTS FOR EQUIPMENT	ISSUE MRES (1 DAY) RECEIVE SSSC STARTER PACK CONTACT ASP REPRESENTIVE FOR CLASS V PUSH MEAL CYCLE A-M-A	RECEIVE GS PUSH FROM COSCOM RECEIVE CLASS IV PUSH MEAL CYCLE T-M-T RECEIVE CLASS V PREPARE CLASS V PUSH	ISSUE MRE FOR INFILTRATION PREPARE FOR CLASS III SUPPORT DURING ROAD MARCH ISSUE TASK FORCE TWO-DAY SUPPLY OF CLASS V PREPARE CLASS IV PUSH PACKAGE CLASS I CYCLE T-M-T	CLASS I CYCLE T-M-T CLASS III RESUPPLY AT MOUT PUSH CLASS IV TURN IN CLASS V RESIDUE	RECONCILE WITH ASP HOST NATION PROVIDES SUPPORT IN ALL CLASSES OF SUPPLY TURN-IN CLASS II & IV
REMARKS	ENSURE DRIVER LICENSING SOLDIER'S READINESS CHECKS PREPARE MILVANS FOR SHIPMENT	RECEIVE MILVANS HAND RECEIPT EQUIPMENT TO USER	RECON TAA ROUTE RECON TO TAA	RAIL OPERATIONS DACG OPERATIONS	PREPARATION OF EQUIPMENT FOR TURN-IN	TOURS SEND ADVANCE PARTY TO CEGE

Figure 1. Battalion Combat Service Support Synchronization Matrix (CS3M)

sions. The basic format remains the same but much more detail is required (Figure 2. Battalion Combat Service Support Synchronization Matrix). The company commander inserts tasks that must be completed to accomplish the near-term missions. He is analyzing the mission, inventorying his equipment, directing training and rehearsals, and is conducting map reconnaissance.

Continuing the backward planning process, the logistics synchronization matrix can be used to guide the training requirements or mission preparation of the platoon leader. When the platoon leader looks at what the commander wants to accomplish, he can use the information from the company CS3M to develop a platoon-level CS3M. His main focus is his implied tasks to ensure that he is prepared to support the commanders' plan. Figure 3. (Company Combat Service Support Synchronization Matrix) shows an example. By evaluating what the commander wants to complete, the platoon leader defines his matrix in more detail, such as ensuring the ambulances are mechanically prepared to perform.

The platoon leader now directs the squad leaders to look at what he wants to complete. The squad leader could then create a matrix showing even more detail. What he might include is who will perform each task and when it will be completed. As you can see, the matrix started out at the battalion level and now has worked its way down to the squad level. It could even go down to the team leader.

Shown in Figure 1 is the CS3M that the 210th Forward Support Battalion, 10th Mountain Division (Light) used for its preparation for REFORGER 91. The CS3M allowed us to see the whole scope of our requirements. Although it has the appearance of an execution matrix, it should not be used just in that manner. The key word is synchronization. The matrix data should be looking into the future toward the next one or two phases. When the maneuver units are ready to execute a mission, it is too late to coordinate for the needed material.

Through the CS3M, the 210th Forward Support Battalion provided continuous and responsive logistical support which helped ensure the success of the maneuver commander operations. The 210th anticipated future missions, improvising when necessary. On 13 Sep 91, the maneuver battalion was to deploy to Graffenver. After the first aircraft left, the following air missions were canceled. Using the matrix to plan for contingencies, the alternative plan for movement of the remaining chalks was implemented. Again, the maneuver commanders' mission accomplishment was ensured through the use of the CS3M. Based upon my experience, I can highly recommend use of this management tool. However, as all management tools, the CS3M will only be as effective as information that you place in it.

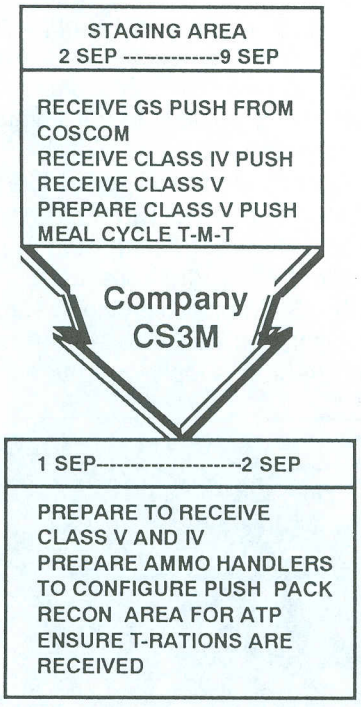

Figure 2. Battalion CS3M

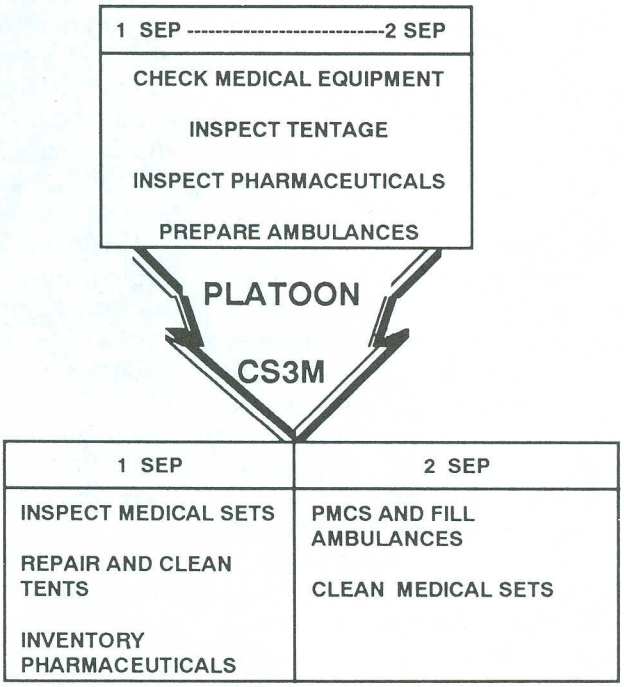

Figure 3. Company CS3M

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Resupply of a Heavy Corps: A Platoon Leader's Perspective

CPT David B. Bailey

The VII Corps never fully reconstituted during *Operation Desert Storm* because of the brevity of conflict and the lack of destroyed friendly forces. However, a major resupply operation did occur, and extensive preparations were made in advance of the VII Corps departure from Germany. I was a general supply platoon leader and supply operations officer (XO) for the 75th Combat Supply Company (General Support (GS)), 13th Supply and Service Battalion, 2d Corps Support Command (COSCOM). In these positions, I learned many valuable lessons for junior logisticians who may follow me.

VII Corps had considerable materiel in prepositioned war reserve materiel stocks (PWRMS), primarily Class I, Class II, Class III, Class V and Class IV stocks. This materiel was to be issued at the beginning of European hostilities to predesignated units in VII Corps according to a positioning directive. The Assistant Chief of Staff-Material (ACofS-MAT, COSCOM), developed this directive with the respective G4 (Logistics Officer) of each supported division or separate element. The requests and requirements were then consolidated and submitted to the Theater Army Materiel Management Center (TAMMC). The TAMMC then requested or released the appropriate materiel to remote sites called prepositioned stockage points (PSPs). This materiel remained the property of the theater accountable officers and was considered a theater asset. PWRMS does not come under the control of the Corps Materiel Management Center (CMMC or MMC) until hostilities begin and accountable records transfer to the CMMC from TAMMC.

GS Units Maintain

For VII Corps, GS units maintained the materiel. My unit, the 75th Combat Supply Company (GS), handled the Class I, II, IV and some limited VII (bridges). The 101st Ordnance Battalion handled Class V. Remaining units in the 13th Supply and Service (S&S) Battalion (now the 13th Corps Support Battalion), handled various other commodities.

When VII Corps was notified for deployment, units in the corps wanted to draw their PWRMS stocks. These assets actually still belonged to theater, and the 200th TAMMC had to release them to the MMC (800th MMC) before corps units could draw anything. PWRMS regulations in Europe were designed for intra-theater deployments and were not suitable for inter-theater requirements.

In my case, the 75th GS Company received instructions directly from 200th TAMMC and conducted storage activities according to the positioning directive. Apparently, at the time of deployment, the 75th GS Company retained the only copy of the PWRMS war plan. Units either had not kept their master copies or had copies so out-of-date that they were inadequate for deployment needs. For instance, with barrier material (Class IV) requirements, many units requested fence posts and fencing for perimeters but did not show a need for sand bags that were an authorized item for stockage according to war plan guidance. Sand bags are necessary to construct bunkers and to use as general reinforcing walls and hold-downs with tents and tarpaulins. Upon deploying to Saudi Arabia, all units requested to increase their allocations by at least 100-500 percent. This was not initially possible due to stockage constraints: only those items originally requested for PWRMS, wartime unit defense materiel, were stocked.

Initial Delay

The initial delay in coordination between the MMC and TAMMC resulted in many units not getting the items they needed in a timely fashion. Many units had already shipped the bulk of their transportation assets to Southwest Asia, preventing units from transporting their supplies to their unit areas. The 1st Armored Division was the only unit receiving almost all of their allocated fill. This was primarily due to the division's closeness to their requested PSP. However, quantities and types of items requested were still not completely appropriate to divisional needs. Cross-leveling with another unit's chemical gear was necessary to fulfill critical requirements, for example.

Units transferred to VII Corps from another command were issued material designated for a nondeploying VII Corps unit. The 75th GS Company provided transportation assistance to some units and 24-hour supply operations to

Classes of Supply as Discussed

Class I - Subsistence (includes packaged water in this discussion)
Class II - Organizational clothing and individual equipment textiles, items such as tent canvas
Class III - Petroleum, oils and lubricants; (P) is for packaged products
Class IV - Generally construction and barrier materials
Class V - Ammunition and explosives
Class VI - Personal needs/soldier support items
Class VII - Major end items such as trucks
Class VIII - Medical equipment
Class IX - Repair parts and major assemblies that lose their identity when installed

all units, especially those units notified late to draw material. A major problem our company experienced with supply issue was that we were ordered to ship all of our organic equipment (including forklifts) to ports for shipment before completing PWRMS issue to deploying units. We obtained temporary assistance from 3d COSCOM to help move some materiel.

However, the support was not coordinated for the long term, our facilities were being taken over by the installation, and insufficient transportation assets were available to move the remainder of stock out of PSPs. Therefore, substantial PWRMS approved to move with the Corps were left behind and did not reach the Southwest Asia general supply support base (GSSB).

Log Base Alpha

Once in Southwest Asia, the 13th S&S Battalion deployed to a location known as Log Base Alpha, along Tapline Road, near a facility called ARMACO (Arabian-American Oil Company). There we took over GS operations from the 1012th GS Company Army National Guard (ARNG). These operations included Class I through Class IX. The GS units in the battalion ran a GS base while the corps rear, nondivisional retail outlet was run by the 229th S&S Company. I will follow the GS trail only.

At the GS base, materiel was received from the port and from theater bulk breakdown points in 20/40-foot (SeaLand type) containers, on Air Force 463L pallets and standard wooden pallets. Our initial problem was that the supplies started to arrive before our forklifts. Full 463L pallets require a 10,000-pound forklift (a 6K forklift with fork extenders will do) to download, and a full 40-foot container requires a Rough Terrain Container Handler (RTCH) or heavy crane.

Limited Equipment

The battalion had a total of four to six companies, each running a significant supply activity. there was only enough materiel handling equipment (MHE) for each company to have about one each of any type in the deployment's initial stages. The battalion solved this problem by assigning all forklifts to a maintenance detachment led by an Ordnance lieutenant from the 75th Corps Support Group (GS). This allowed efficient daily scheduling of equipment by coordination with company operations officers, coupled with better maintenance. Centrally located to all companies, the maintenance detachment was easily accessible by foot. Companies conducted consolidated training in this area for forklift (especially RTCH) operators, thereby making the most of limited equipment.

Until the bulk of the battalion's MHE arrived, GS assets were used. This created unavoidable wear on some equipment and also decreased the time that the unit to receive the lift assets could use the equipment before the equipment needed maintenance or services. A better solution would have been to POMCUS MHE in a distribution that could augment a corps support battalion upon deployment. Such a GS battalion would need about 14 M10A 10K forklifts, 16 M4K rough terrain forklifts, 4 RTCHs, and 1 or 2 40-ton cranes (optional) total for their mission. These lift assets could be sent to theater immediately and could be on the ground when the corps support battalion arrives.

We used variable reach forklifts for awhile before they were assigned to ammunition companies), but they did not do the job as efficiently as either a 4K or 10K. Variable reach forklifts were prone to damage (stuck in crab mode, shearing on fork base plate, and electrical ailments) and could neither extend fully into the rear of a 40-foot container nor enter a 40-foot container. The extendible boom creates an enormous blind spot down the entire righthand side. The fork tines also were not sufficiently long and large enough to safely pick up a loaded 463L Air Force pallet without fork extenders.

Major Pilferage

Once sufficient equipment was on the ground and we began to establish locations with stock, we noticed a major pilferage problem with the stocks we were receiving. The bulk of materials shipped to us in cardboard boxes were not weather-proofed. As a result, they came apart easily after exposure to sun and rain. The supplies could then be easily taken while holding areas or while in transit. We occasionally also received boxes from the continental U.S. (CONUS) that were unopened but empty. Container seals were seldom intact by the time we received them. The seals had been broken during loading and offloading operations, inspection, and by acts of theft.

The 75th GS Company took some very effective measures to deal with the pilferage problem at the company and supply point level. First, we established a sensitive item area by using ISO (20- and 40-foot shipping containers) containers as secure storage. We treated this area as a restricted one where no more than five personnel had access. This area was placed close to the company perimeter, inside an earthen berm with guards manning it 24 hours a day. The ISO containers were secured with serial-numbered locks and only two personnel had access to the keys. All shipments and issues were recorded in a binder and receipt was acknowledged by signature, DA Form 2765-1 (Request for Issue or Turn-In), and a signed release from the controlling MMC.

Pilferage stopped once the item was in this area. Class II storage areas originally were not fortified, but night raiding by neighboring units, and pilferage by personnel within the base, led to erecting triple-strand concertina wire on a 1/2-mile by 1/2-mile perimeter when the company moved to Log Base Echo.

Escorted Shipments

Pilferage was also a problem during supply transport. Stealing supplies during transportation could

have been reduced by escorting shipments with responsible personnel from the shipping unit. The immediate control and security of supplies at holding areas such as trailer transfer points, ports and ALOC areas, might have prevented some pilferage. During turn-ins from our storage areas to theater-level supply units, noncommissioned officers who are supply specialists from my unit (or myself) personally escorted shipments.

Another way we reduced pilferage during shipment was to reverse the shipping containers on the trailer beds. The container could not be opened unless removed from the trailer bed by a unit with a crane or RTCH. This proved efficient and practical, and reversing the container was our primary retrograde and lateral supply transfer method.

Once supplies were on the ground, issuing them became a serious concern. The pilferage not only reduced inventory, but also made the stock extremely vulnerable to weather (broken packaging) and very hard to inventory and stock. At the GS level, we did not have adequate shelving space or shelves to individually stock everything. For instance, we had over 125,000 chemical suits at one time. Items in broken packaging were grouped by like item, separated by national stock number (NSN), counted and repackaged into available boxes. This made inventory extremely difficult with boxes of different sizes with varied counts. One recommendation for packaging would be to pack war reserves in more durable containers than cardboard boxes or to possibly "shrink wrap" the boxes to prevent water damage. A number of uniform items were damaged or destroyed by water and mildew before they could be issued.

Automation Lack

Issue of supplies to customer units was hampered also by the lack of automation in storage units at the GS base. Obtaining forms was very difficult, and inventory counts took an extremely long time. With an automated system, inventory adjustments, receipts and issues could have been posted immediately by company personnel, instead of manually batching/sorting DA Forms 2765-1, and then transporting the paperwork over 100 miles to the MMC. The Class II yard alone supported over 50 customers a day (on average) from companies up to division main support battalions (MSBs). A Standard Army Retail Supply System (SARRS)-type system would have speeded up most administrative procedures, especially if this system could produce Army supply forms on its own printer (primarily for the use of customers). A floppy disk could then have transferred all stock information, greatly reducing staffing and manual computation requirements.

Once inventoried, the supplies could then be issued to customer units. The GS customer units should have been division MSBs, separate command supply support activities (SSAs), and other major subordinate command supply activities. In practice, the direct support (DS) supply units moved too much to get established, or their authorized stockage list (ASL) was not adequate for Southwest Asia, so the bulk of supply actions came straight to the GS base for items such as desert camouflage uniforms (DCUs). Units were diverted by the DS SSA straight to the GS base, creating situations where we had over 100 customer units waiting in line in one day. Then, the base served units ranging in size from teams (Special Forces) to divisions. This lessened somewhat later in the conflict, but the diversion to the GS base significantly slowed supply flow by circumvention of the system and an enormous flow of customers into the base. The GS base was configured by modification table of organization and equipment (MTOE) to handle bulk transactions only.

Better Method

A better way to achieve supply demand satisfaction would have been for the division MSB or other SSAs to consolidate the requirements for their customer units, prioritize them, and come to the GS base for a bulk issue. The supplies could then be broken down in the SSA area for respective units. This would eliminate unnecessary traffic for customer units and overall greater demand satisfaction. A lot of units would "lose out" on certain items because of the "first come, first served" nature of supply. If not properly developed in the chain of command, the requirements were not identified to the GS company in time to prevent issue to lower priority units or units that may have already received an initial issue.

The 3d Armored Division demonstrated a sound concept in their Class IX operation. They split their Class IX operation into two portions: a main and a forward. The forward deployed behind the FSBs and had the bulk of equipment. The main was almost within the perimeter of the GS base and could rapidly respond to division needs, procuring the supplies as soon as available in the base. This element was light on equipment, but could borrow necessary equipment from the base temporarily to get the desired part, move it into THEIR holding area, and offload it. They could also time their supply flow and get to the base during non-peak periods to minimize waiting time and tying up transportation assets. This was a very symbiotic relationship that seemed to be more efficient than other methods.

Some divisions would identify their requirement, have it placed into holding within the GS base, and not pick it up in a timely manner. This stock was often returned to GS stockage or issued to another unit based on changing mission priorities. Unclaimed supplies were returned to GS stockage to regain visibility over stock assets and to prevent pilferage by GS base customers.

Supply Lanes

Materiel arriving at the base from the theater units came into the central receiving and shipping area. It was identified by Depart-

ment of Defense Activity Address Code (DODAAC) (customer or base), item type (class of supply) DODAAC and then broken out to the applicable "lanes." These "lanes" were rows of supplies identified by known unit DODAACs or supply class storage areas. The supplies in the lanes designated for classes of supply were then transported by internal battalion transportation to the respective storage area. Cooperation between the companies for transportation assets allowed companies to move significantly more material on the back of trailers than possible with forklifts alone. This freed forklifts for materiel handling missions and increased the speed at which items were identified and put into locations. The only available alternative to "line haul" trailers (for cross-country transit of supplies to supply areas from the CRP) were warehouse tractors and trailers. These proved totally inadequate for rough terrain use. Maintenance on the tractors themselves was virtually impossible because all engine and major components were made by different manufacturers. We had four tractors, and each one had an engine built by a different manufacturer. The wheels were also unsuited to rough terrain and became mired readily. An M4K forklift could have successfully replaced the tractor, but the warehouse trailers were not designed to attach to the M4K rough terrain towing attachment. This use also tied up a valuable lift asset that could not be spared. The trailers themselves did not have a wide enough wheelbase to remain stable when going over small bumps and rills on the desert floor and often lost unsecured cargo. The trailers and warehouse tractor assets potentially could have improved our internal supply flow and freed our truck assets for other internal missions. Later, a transportation platoon was augmented to the base, freeing up company trailers for internal missions and allowing the base to provide line haul and "push" supply practices.

Customer Problems

Once our own internal logistical problems lessened, we had several problems with customer units. Customer units often could not provide correct, rolled-up quantities for issue actions and often did not realize the degree of customer satisfaction they were expecting. Accountability for issued items was not maintained down to the company level so items were constantly being exchanged for different sizes and types. As a result, some units did not receive an issue while others in the same command did. Identification of supported units and DODAACs is especially critical to GS units breaking out unit supplies for issue. Often units had been attached or assigned to different commands without coordination with the respective supply activity. This resulted in supplies misrouted to the wrong supply support activity (SSA) or misidentified and put into general stockage. Also, some units that had been cross-attached, such as Military Police units, fell into "gray" areas with the unit they were supporting. Each major unit thought the other was taking care of the unit, when actually requirements had not been submitted by either. As an MSB or SSA accountable officer, you must ensure the GS units at the supporting supply base have your customer lists and any updates or changes. This is especially true for the unit running the central receiving point (CRP). This allows the CRP to group all units within a command together, preventing disrupted stockage lines and unidentified stock.

Overall, units in Southwest Asia did an outstanding job of supporting their customers. Proper training and supervision was the key to our companies' success. Seldom is there the opportunity to practice resupply operations of a corps or remote site operation. We used our personnel subsystem processes during field exercises to simulate separation of units and supply bases. We configured platoons differently at each remote site depending on the class of supplies at the site and the geographical size of each remote site. This training made us aware of our unit strengths and weaknesses for deployment, allowing us to use them to our advantage. It also made our junior leaders capable of independent action and handling large amounts of responsibility. Establish strong training programs in peacetime for your junior NCOs and senior specialists, and they will be able to perform the required tasks. Deployment training is too late to develop leaders. They will not have the practice and confidence to be as successful as that soldier who has had the opportunity to lead, plan and execute in normal training. Positioning the battalion and dispersing the COSCOM in Germany allowed the battalion to rapidly adapt to the unit dispersion in Southwest Asia. Our soldiers were trained and ready to expect this dispersion and handled it well.

Upon redeployment to Germany, we faced many problems similar to those in Southwest Asia. Namely, where do we put all the stuff being shipped in-country? Units were deactivated straight out of Southwest Asia, V Corps in Northern Germany still had a training mission, and unit equipment had not yet arrived from Southwest Asia. That is a story, however, best told by someone who worked in Theater Army Area Command (TAACOM) or at the European Redistribution Facility.

CPT David B. Bailey has a bachelor of arts degree in chemistry from the University of Louisville where he was also the Distinguished Military Graduate. He is also a graduate of the Quartermaster Officer Basic Course. His previous assignments include Platoon Leader and Executive Officer/Supply Operations Officer, 75th Combat Support Company, Germany; Class IX Accountable Officer, Supply/Service Company, 7th Corps Support Group, Germany; and, most recently, Project Officer/Proponency Analyst, Office of the Quartermaster General, Fort Lee, Virginia. He is currently a student in the Quartermaster Officer Advanced Course.

Battle Labs for Power-Projection Army

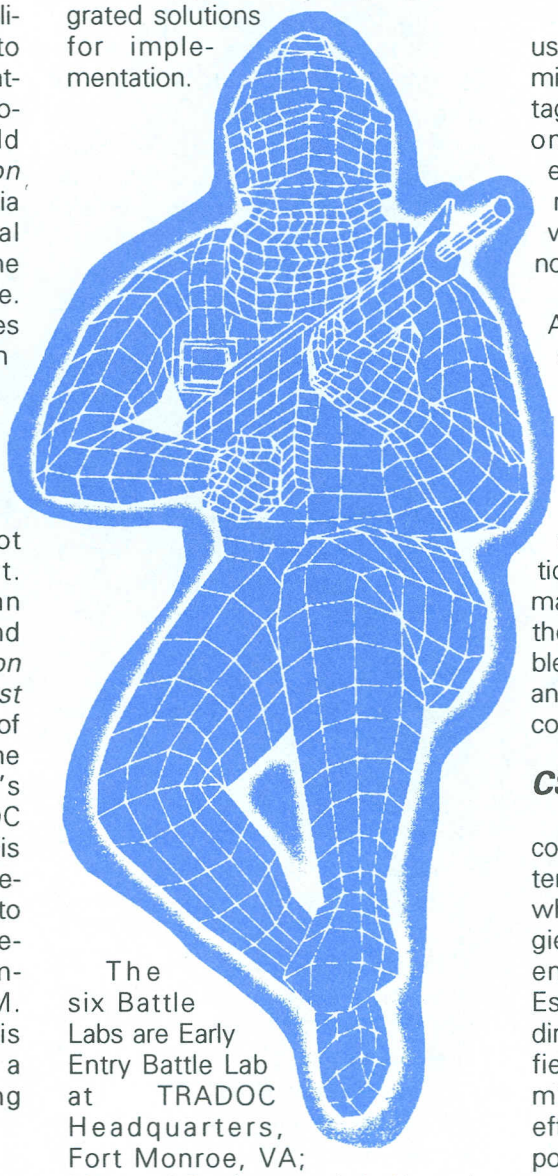
The U.S. Army Training and Doctrine Command (TRADOC) organized six Battle Labs to experiment with concepts and equipment for a new power-projection Army, an Army with some forces stationed overseas but the bulk of soldiers stateside.

Battle Labs use computer replication and virtual simulations to take a close look at emerging battle dynamics and new technologies. With the end of the Cold War, the lessons of *Operation Desert Storm* in Southwest Asia and the reshaping of national strategic and budget priorities, the Army had to reshape its doctrine. Battle Labs will analyze capabilities and requirements rather than depend on comparisons against a firm threat, such as the former Soviet Union.

Since the collapse of the Soviet Union and the Warsaw Pact, the U.S. military does not face one monolithic threat. Instead, several sources can threaten American interests and allies simultaneously. *Operation Desert Storm* and *Operation Just Cause* in Panama are examples of the types of combat operations the Army envisions. As the Army's architect of the future, TRADOC must assess the meaning of this revised posture, identify requirements and determine priorities to develop a fully effective home-based stance. TRADOC Commanding General Frederick M. Franks, Jr., began charting this new course when he formed a Battlefield Dynamics Working Group in March 1992.

Revolutionary Concept

The group focused on five categories of issues: early entry lethality and survivability, depth and simultaneous attack, command and control and battle tempo, battlespace, and logistics. From these issues came six battlefield laboratories that are "high-tech test beds" designed to revolutionize the Army's concept of operations in the post-Cold War battlefield. The Battle Labs will provide a means of defining requirements, giving soldiers organized settings to identify new ideas, experimenting with emerging concepts and technology, and developing integrated solutions for implementation.



The six Battle Labs are Early Entry Battle Lab at TRADOC Headquarters, Fort Monroe, VA; Mounted Battlespace Lab (Armor), Fort Knox, KY; Dismounted Battlespace Lab (Infantry), Fort Benning, GA; Depth and Simultaneous Attack Battle Lab, Fort Sill, OK; Battle Command and Control on the Move, Fort Leavenworth, KS, and Fort Gordon, GA; and Combat Service Support (CSS) Battle Lab, Fort Lee, VA.

The Early Entry Battle Lab will work with the Navy, Marines and Air Force to ensure initially deployed forces are large and lethal enough for success in any circumstance. This battle lab will tackle issues related to the first stages of power projection.

Armor and Infantry forces will use the battlespace labs to determine the best ways to take advantage of time, distance and space on battlefields. The goal is to engage an enemy outside enemy range of capabilities, day or night, while dispersing Army forces but not their effectiveness.

The Depth and Simultaneous Attack Lab will work on ways to detect and, at the same time, strike an enemy throughout the battlefield. The Battle Command and Control on the Move Lab is developing techniques and equipment to give commanders at all levels situational information and intelligence to best command forces. The premise is that the battle command must be capable of varying tempos of operations and not be fixed geographically in command posts on the battlefield.

CSS Battle Lab

CSS Battle Lab members are committed to refining logistical systems to supply soldiers effectively while incorporating new technologies and improving automation to ensure near total asset visibility. Established in May 1992 under the direction of LTG Samuel N. Wakefield, the CSS Battle Lab is committed to developing versatile, effective and efficient logistics support at all levels. The lab will determine the sustainment requirements to support the full spectrum of military operations from mobilization back to demobilization.

The CSS Battle Lab operates with a small core structure and then assigns task forces to address issues requiring resolution. Each of the 11 U.S. Army Combined Arms Support Command (CASCOM)

school commandants and MG Ronald E. Brooks, Jr., commander of the Soldier Support Center at Fort Harrison, IN, are members of the CSS lab's core board of directors. Once an issue arises, one of these commandants is identified as the task force leader and develops his study group to prepare an action plan. Using a matrix management approach, the task force leader can tap resources from outside agencies with the technical expertise to resolve that issue.

When the board of directors approves the action plan, the task force works the issue and presents its findings to the board for TRADOC approval. Battle labs emphasize participation from all affected activities and also horizontal integration and coordination between battle labs.The CSS lab staff is striking out in a whole new way to tackle several issues identified from the recent *Operation Desert Storm* deployment. Some of the CSS Battle Lab's initiatives are Force Provider, Personnel Source Data Information, Supply Support, In-Transit Visibility of Cargo, and Force Design procedures.

Quartermaster General

The Quartermaster General, BG John J. Cusick, is currently working the Force Provider and Supply Support initiatives. Force Provider will use nondevelopmental, off-the-shelf items or equipment to provide billeting facilities with heating/cooling, kitchens, latrines, showers, laundries, power generation and water purification to sustain soldiers once they deploy. The Supply Support initiative combines four supply distribution programs:

- Split Operations—intended to perform CSS management with fewer resources in theater, such as a database that would remain in the continental U.S. for access by laptop computers.
- Model Direct Support Unit (DSU)—will identify an Active Component supply support activity at Fort Bragg, NC, and bring it to a level of operation in keeping with the latest policy, standards and procedures in Army doctrine. This DSU would then serve as a test bed for new innovations.
- Central Distribution Activity—should establish a corps central distribution point to receive wholesale shipments and deliver selected items to both collocated and dispersed or deployed units.
- Express Repair Parts Store—intended to establish a one-stop shopping supply support activity to accommodate corps requirements for high volume, fast-moving, expendable items to both collocated and dispersed or deployed units.

For more information or to submit ideas to the CSS Battle Lab, write Commander, CASCOM, ATTN: ATCL-B (CSS Battle Lab), Fort Lee, VA 23801-6000 or call DSN 687-0208, Commercial (804) 734-0208.

TRADOC located Battle Labs at installations with soldiers, units and ranges for maneuver, firing and air space. However, before soldiers in the field try any concept and equipment, Battle Labs will have tested new ideas through simulations and virtual prototyping. Battle Labs bring together technologists, combat developers, materiel developers, industry and academic personnel to build prototypes for simulation. Virtual prototyping allows Battle Lab members to look at different combinations of things on different pieces of equipment, such as what a new tank barrel can do on a tank.

Battle Lab task forces will work with industry to develop new technologies and equipment for the modern Army. However, with the tight military budget, technological "insertions" will be the primary method to enhance battlefield capabilities. "Tech insertion" means placing existing technologies on available equipment. One tech insertion is the intervehicular information system (IVIS) in M1A2 Abrams tanks. IVIS allows armored forces to communicate digitally on the battlefield. The Fort Knox lab has been looking at ways to expand IVIS to include aircraft, artillery and infantry to get the entire combat team on the same communications network. When IVIS prototypes have been made, soldiers and leaders will try it out in the field.

Louisiana Maneuvers

Battle Labs will also support the modern Louisiana Maneuvers, the Department of the Army's program to study capabilities and various preparedness issues. The maneuvers will be largely simulations built on top of current exercises used by warfighting commanders-in-chief. For example, Louisiana Maneuver directors may want to know how a changed piece of equipment can affect outcomes of scenarios. Battle Labs can find out how that equipment will change the overall capabilities of an organization.

The original Louisiana Maneuvers helped prepare the Army for World War II. In the fall of 1941, the Army staged the largest exercises in its history, involving more than 400,000 soldiers and covering an area from east Texas into central Louisiana. Now the Army is preparing for modern-day Louisiana Maneuvers, but the exercises will not require the numbers of soldiers, equipment or the land used in the historic predecessor.

In 1994, The Louisiana Maneuvers will employ advanced computer simulation technologies for war games. The similarities between the 1941 maneuvers and the 1994 experiment go beyond their names. Both exercises preceded periods of transition in the Army. In 1941, the Army was moving toward combat readiness in anticipation of U.S. involvement in World War II. Today, the Army faces another difficult transition preparing for potential dangers in a changing world.

TRADOC's Commanding General feels that a statement by Michael Howard, a British historian, describes what TRADOC and the Army are doing now: "When preparing for the next war, armies almost never get it totally right. But the real issue is not to get it totally wrong. What armies must attempt to do is get it nearly right before they again go into battle."

Battle Labs, The Wave of the Future?

CPT Willie Williams

In response to the world's changing threat environment, Army leadership embarked on an innovative approach to exploit technology through a "battle dynamic" focus. A battle dynamic is a major grouping of activities that affect the conduct of operations at the strategic, operational and tactical levels of war. A "Battle Lab" is tailored to work each defined battle dynamic. (See Figure 1, Battle Lab Structure.)

The U.S. Army Training and Doctrine Command (TRADOC) Commander instituted the Battle Lab process to examine, experiment with and evaluate concepts and technologies for high payoff projects in a timely manner. Battle Labs also will create an institutional link between emerging technologies and warfighting ideas. The goal of the Battle Labs is to expedite innovations that enhance warfighting capabilities to support the Army's evolving post Cold War responsibilities and missions. The following are the six Battle Labs as defined in the TRADOC Battle Lab Operating Principles and Policy.

- **Early Entry, Lethality, and Survivability:** The initial opposed or unopposed projection of forces or capabilities into a theater to deter aggression or protect U.S. interests.
- **Depth and Simultaneous Attack:** The application of combat power against an enemy throughout the depth of the battlefield.
- **Mounted and Dismounted Battlespace Labs:** The area in which opposing forces engage in combat actions. This area is closely associated with ranges of detection, acquisition, identification, engagement and destruction in the direct fire and maneuver battle.
- **Command and Control on the Move:** The commander's control of the rate or pace of combat activities over time.
- **Combat Service Support (CSS):** The entire spectrum of support at all echelons of command. The functions (arm, fuel, fix, move, and sustain the soldier and his systems) are required throughout the operational continuum. (See Figure 2, Operational Continuum).

The Commander, U.S. Army Combined Arms Support Command and Fort Lee (CASCOM&FL) serves as the Chairman of the Board of Directors for the CSS Battle Lab. The U.S. Army Quartermaster Center and School (USAQMC&S) is playing an important role in the Battle Lab process. The Quartermaster General, as well as the other CSS Commandants, is a standing member of the CSS Battle Lab Board of Directors. These directors are responsible for providing Battle Lab guidance, approving key CSS issues and initiatives, and assigning task force leaders to conduct analyses.

The USAQMC&S has established two task forces to support the CSS Battle Lab. The Quartermaster General is the task force leader for each. The first is the Supply Support Task Force (SSTF) of four initiatives to improve supply distribution in a force-projection Army. (See Figure 3, Supply Support Task Force (SSTF) Organization). The second is the Force Provider Task Force that has materiel and force structure implications for improving living conditions for soldiers in the field. Both task forces have representatives from several Department of Defense agencies and field users. A matrix support methodology will be used to manage these projects. This methodology will enhance coordinated effort from industry, combat developers and the user community.

The SSTF includes representation from USAQMC&S, CASCOM, Program Evaluation Office Standard Army Management Information System (PEO STAMIS), XVIII Airborne Corps (1st Corps Support Command (COSCOM)), Transportation Center and School, and other commands/agencies as required. The SSTF charter includes four initiatives: Split Operations, Model Direct Support Unit (DSU), Express Repair Parts Store (ERPS) and Central Distribution Activity (CDA). All initiatives will be evaluated in field trials with the 1st COSCOM at Fort Bragg, NC.

- **Split Operations.** The Split Operations initiative will support a five-plus division corps with a nondeployed computer based in the continental United States (CONUS) and an in-theater, portable support system. (See Figure 4, Split Operations Concept). The Standard Army Retail Supply System-Objective/Corps/Theater Automatic Dataprocessing Service Center II (SARSS-O/CTASC II) Major Information System Review Council (MAISRC) has approved the split operations concept for evaluation in processing corps-level SARSS-O transactions. Pending hardware procurement and software modification, evaluation of this initiative will begin third quarter, FY 93 in 1st COSCOM Materiel Management Center (MMC).
- **Model DSU.** The Model DSU initiative will bring the 503d Maintenance Company DSU (1st COSCOM) to a level of operation on line with current doctrine, policy, standards and procedures. The unit will then serve as a test site for the latest in technology and management innovations. The Model DSU evaluation will begin sec-

ond quarter, FY 93.

- **ERPS.** The ERPS concept initiative will explore ways to reduce divisional authorized stockage list/prescribed load list (ASL/PLL) size through stockage of noncombat critical and nondemand supported lines in a corps general support unit. Support will be further enhanced by using a rapid delivery system for colocated, dispersed or deployed corps units. Demonstration of this initiative will begin third quarter, FY 93 in the 249th Repair Parts Company at Fort Bragg.
- **CDA.** The CDA initiative will establish a corps central distribution point to receive wholesale shipments and deliver selected items to both colocated and dispersed/deployed corps units. The CDA will be conducted in two phases. The first phase will establish a central receiving and shipping point on Fort Bragg from existing Directorate of Logistics and COSCOM assets to provide daily deliveries to customer units. The second phase includes establishing a central receiving and shipping point at all corps installations and using developing supply and transportation automation to control all distribution and cross-leveling between corps installations. Implementation of the first phase will begin in third quarter, FY 93.

The USAQMC&S is also the lead agent for the Force Provider Task Force. The USAQMC&S is working closely with Natick Research, Development, and Engineering Center, Natick, MA, and other agencies to provide this personnel support package complex designed to improve living conditions for soldiers in the field. The Force Provider will improve climate-controlled tentage; containerized laundry, shower and kitchen facilities; and morale, welfare and recreation facilities. Intended for force reception and movement requirements, the Force Provider also could be used in a noncombatant disaster relief role, as in shelter for displaced victims of a natural disaster such as last summer's Hurricane Andrew victims in Florida and Louisiana.

Currently envisioned are two Force Provider complex designs: a static 3,300-personnel support package and a more flexible 500-personnel support package. Testing and demonstration will occur in fourth quarter, FY 93.

While the USAQMC&S has the lead on these CSS initiatives, Quartermasters are integral players in each of the other Battle Labs. Quartermaster missions of fueling, providing repair parts for fixing, and sustaining the soldier contribute to the success of the charters for all the Battle Labs.

CPT Willie Williams has a bachelor of science degree in finance from Hampton University in Hampton, Virginia, and a master of science degree in logistics management from Arizona State University, Tempe. He is also a graduate of the Quartermaster Officer Basic and Advanced Courses, and the Combined Arms and Service Staff School. His previous assignments include Motor Officer and Supply Platoon Leader in Headquarters and Headquarters Company, 2d Infantry Division; Main Supply Platoon Leader in A Company, 2d Supply and Transport Battalion, Camp Casey, Korea; Platoon Leader and Executive Officer in the 600th Airdrop Equipment Repair and Supply Company; Commander, 364th Supply and Service Company; and S2/3 of the 530th Supply and Service Battalion, Fort Bragg, North Carolina. He is currently assigned to the Directorate of Combat Developments, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

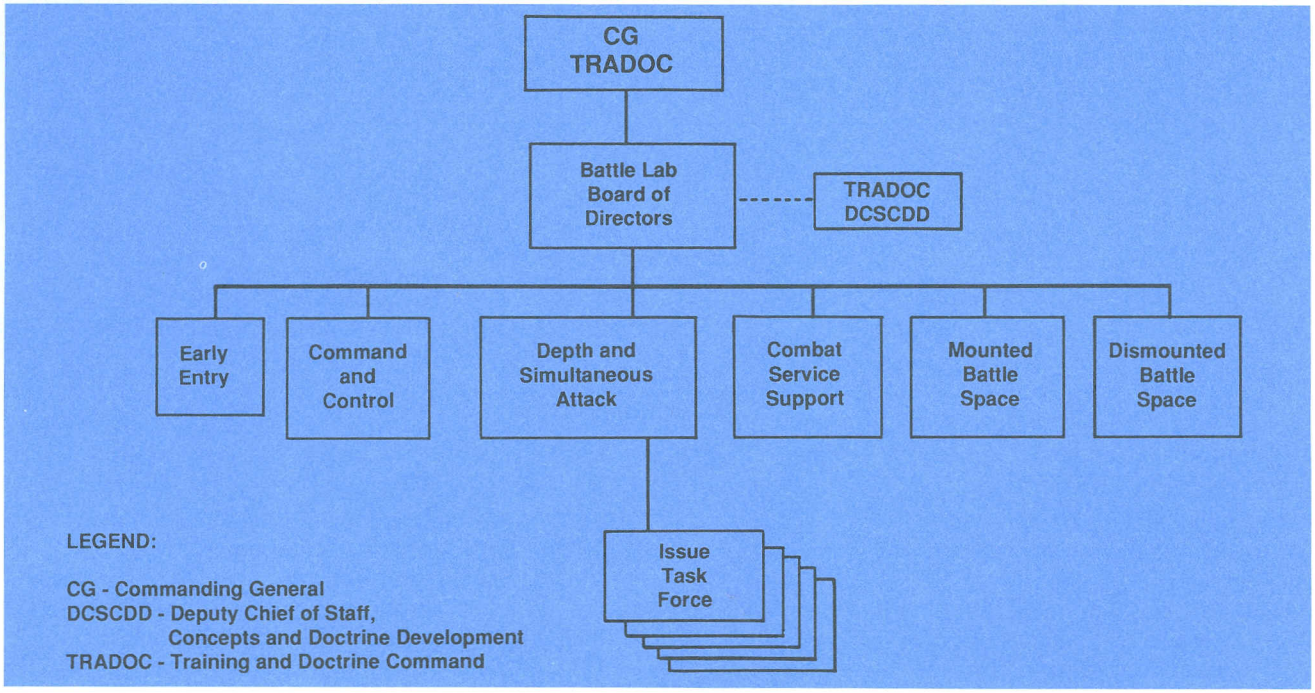


Figure 1. Battle Lab Structure

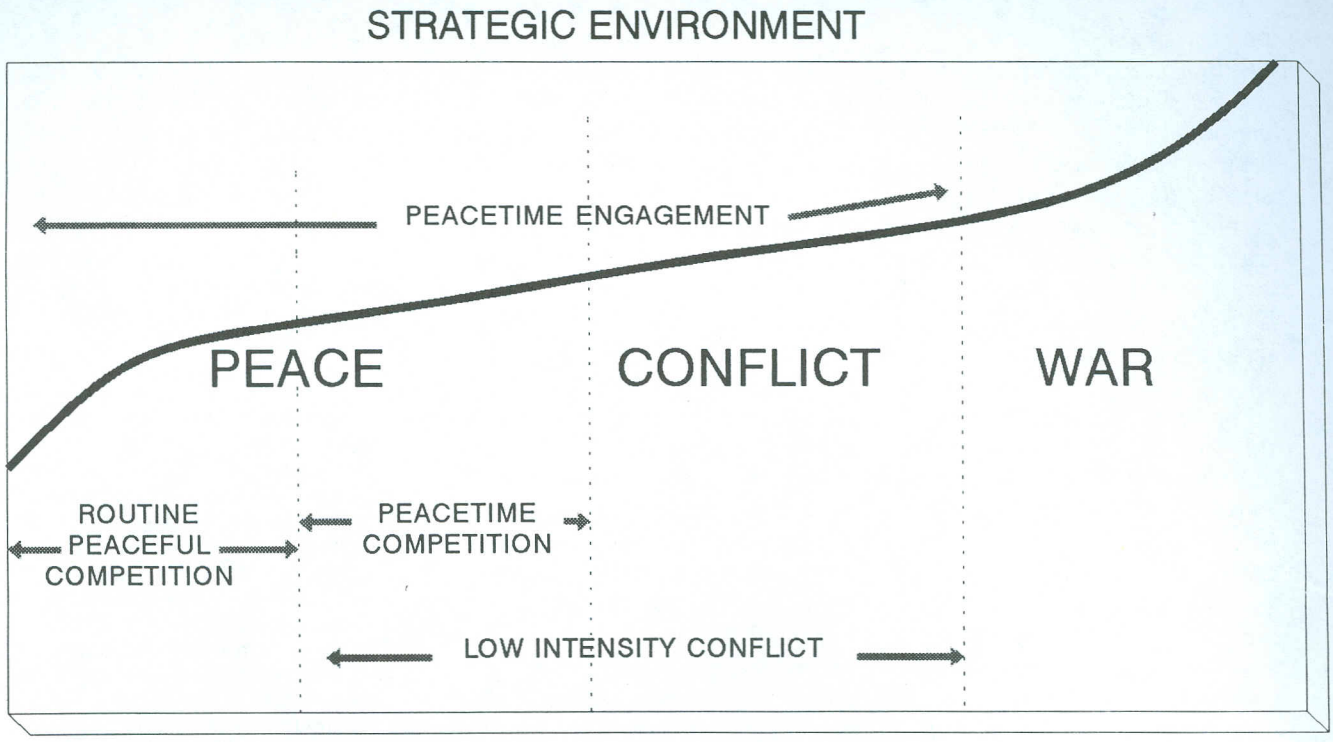
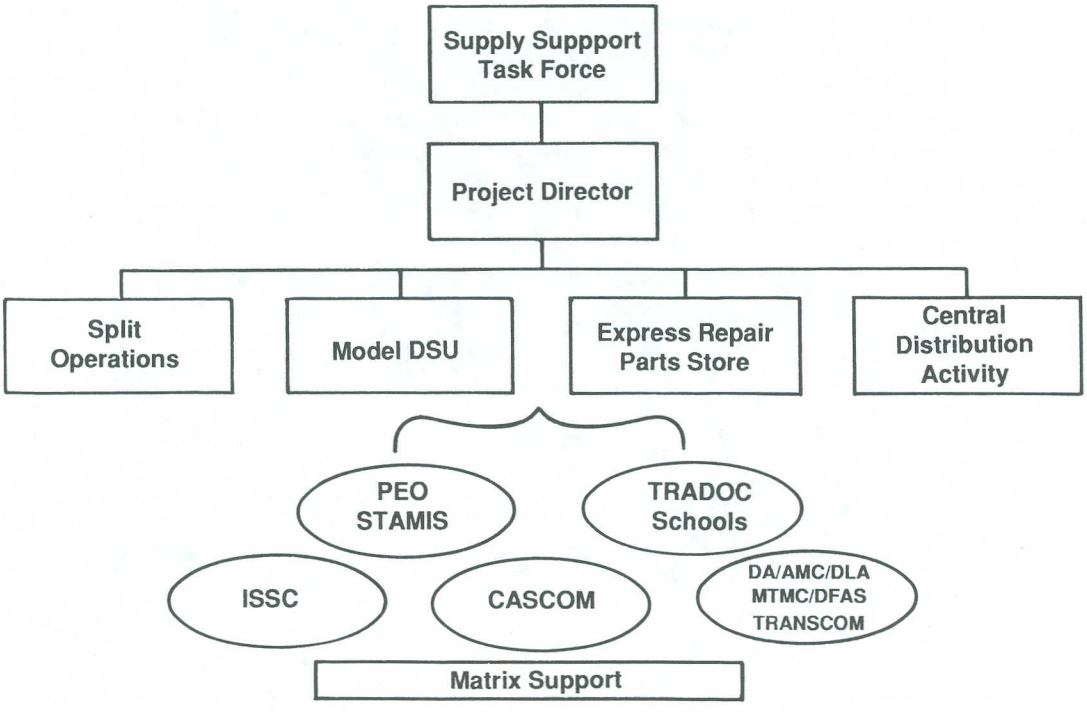


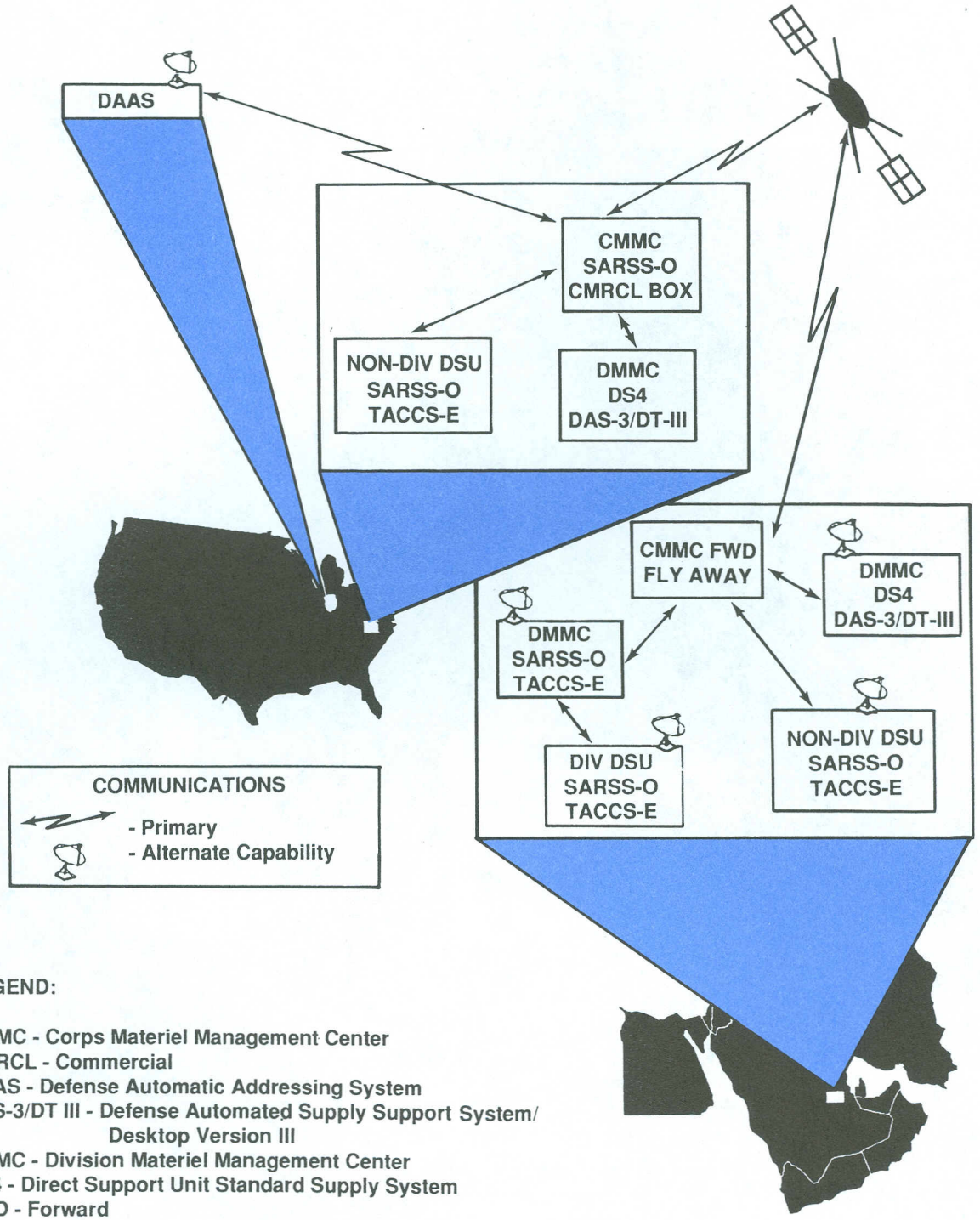
Figure 2. Operational Continuum



LEGEND:

AMC - Army Materiel Command
CASCOM - Combined Arms Support Command
DA - Department of the Army
DFAS - Defense Finance and Accounting System
DLA - Defense Logistics Agency
DSU - Direct support unit
ISSC - Information Software Systems Command
MTMC - Military Traffic Management Command
PEO STAMIS - Program Executive Office Standard Army Management Information System
TRADOC - Training and Doctrine Command
TRANSCOM - Transportation Command (Joint)

Figure 3. Supply Support Task Force (SSTF) Organization



LEGEND:

CMMC - Corps Materiel Management Center
CMRCL - Commercial
DAAS - Defense Automatic Addressing System
DAS-3/DT III - Defense Automated Supply Support System/
Desktop Version III
DMMC - Division Materiel Management Center
DS4 - Direct Support Unit Standard Supply System
FWD - Forward
Non-Div DSU - Nondivisional Direct Support Unit
SARSS-O - Standard Army Retail Supply System-Objective
TACCS-E - Tactical Army Combat Computer System-Expanded
"Fly Away" - Portable Computer System

Figure 4. Split Operations Concept

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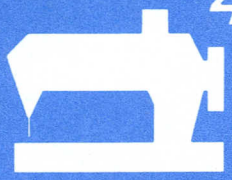
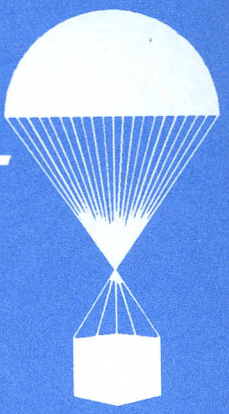
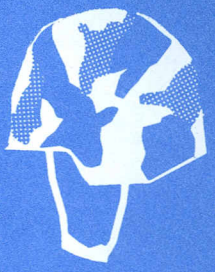
43M



43E



94B



92A

77F

77L

LEGEND

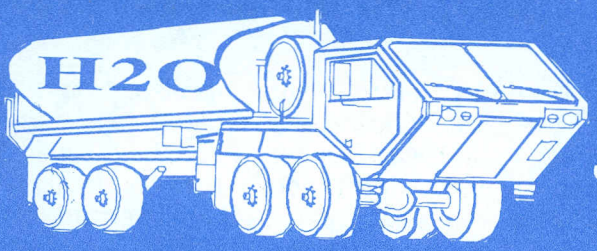
43E (Parachute Rigger)
43M (Fabric Repair Specialist)
77F (Petroleum Supply Specialist)
77L (Petroleum Laboratory Specialist)
94B (Food Service Specialist)

*The 92A MOS will become effective 1 May 93 with the conso
and Parts Specialist), 76P (Materiel Control and Accounting S
76X (Subsistence Supply Specialist).

**The 92Y MOS formerly was the 76Y (Unit Supply Specialist)

RPS ENLISTED MOSs

77W



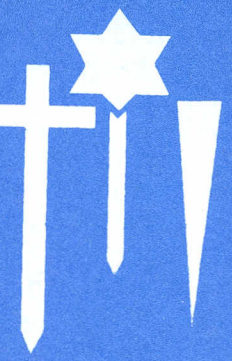
57E

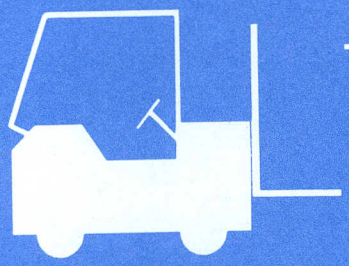
92Z

1

2Y

57F





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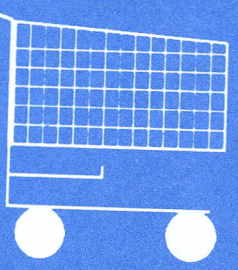

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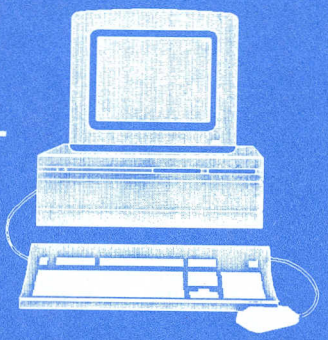

57E (Laundry and Shower Specialist)
57F (Mortuary Affairs Specialist)
77W(Water Treatment Specialist)
92A (Automated Logistical Specialist)*
92Y (Unit Supply Specialist)**
92Z (Senior Noncommissioned Logistician)

tion of these four supply MOSs: 76C (Equipment Records
cialist), 76V (Materiel Storage and Handling Specialist), and

S.

Universe of Repair Parts

CPT William M. Wheatley

Editor's Note: The Repair Parts System Redesign is a U.S. Army Quartermaster Center and School (USAQMC&S) initiative to improve the Class IX (repair parts) system throughout the Army. Because of the size and complexity of this project, a series of articles on Class IX is appearing in the Quartermaster Professional Bulletin.

As the complexity and technological sophistication of weapon systems increase, the number and types of repair parts required to support those systems grow proportionately. System operators, commanders and support personnel are increasingly interested in their "universe" of repair parts. A system operator wants to know how many parts are on a weapon system and which parts are operator-level responsibility to repair or replace. A commander needs to know how many repair parts are for all unit equipment, how many parts are for operator- or organization-level to repair or replace, and what parts the unit's prescribed load list (PLL) should stock. Support personnel from the forward support battalion (FSB) to the National Inventory Control Point (NICP) desire to know how many components are in the equipment they support, how often those items are ordered, which parts require stockage in authorized stockage lists (ASLs), and what spares demand exception management.

To answer some of these questions and help narrow the focus of the Repair Parts System Redesign, the USAQMC&S analyzed the universe of repair parts. The Army catalogs over 1,076,595 Class IX national stock numbers (NSNs) in the Army Master Data File (AMDF) (Figure 1, Universe of Repair Parts by Maintenance Repair Code, and Figure 2, Universe of Repair Parts by Essentiality Code). These one million NSNs represent spares and repair parts for all Army equipment, primary and substitute lines included. There are additional part numbers and local purchase parts not represented in these 1 million NSNs.

As shown in Figure 1, 88 percent of the parts are nonreparable, two percent are reparable at organizational level, three percent at direct support (DS) level, two percent at general support (GS) level, and five percent at depot level. Sorting by essentiality codes, Figure 2 shows that 42 percent of the parts are combat essential, less than 1 percent are safety items, another 1 percent are legal or climatic parts, and 56 percent are deferred maintenance or nonessential items.

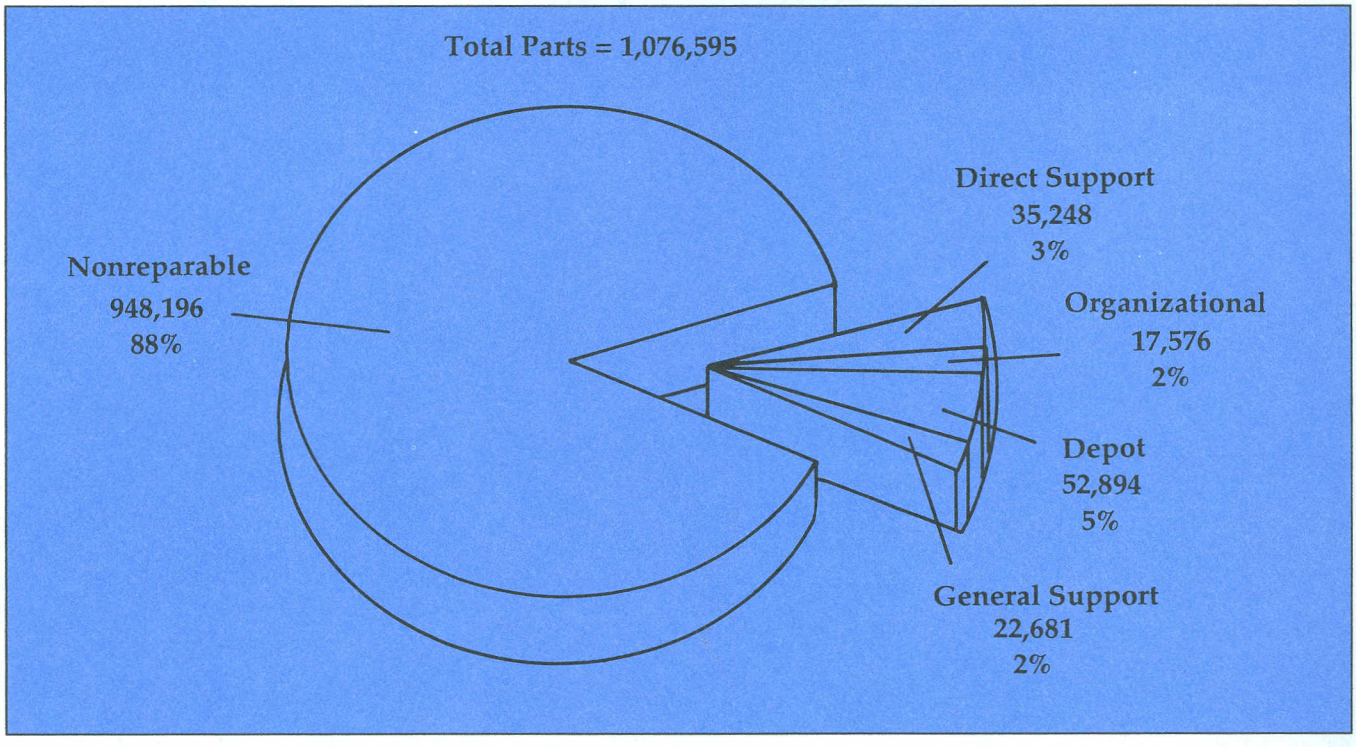

Figure 1. Universe of Repair Parts by Maintenance Repair Code

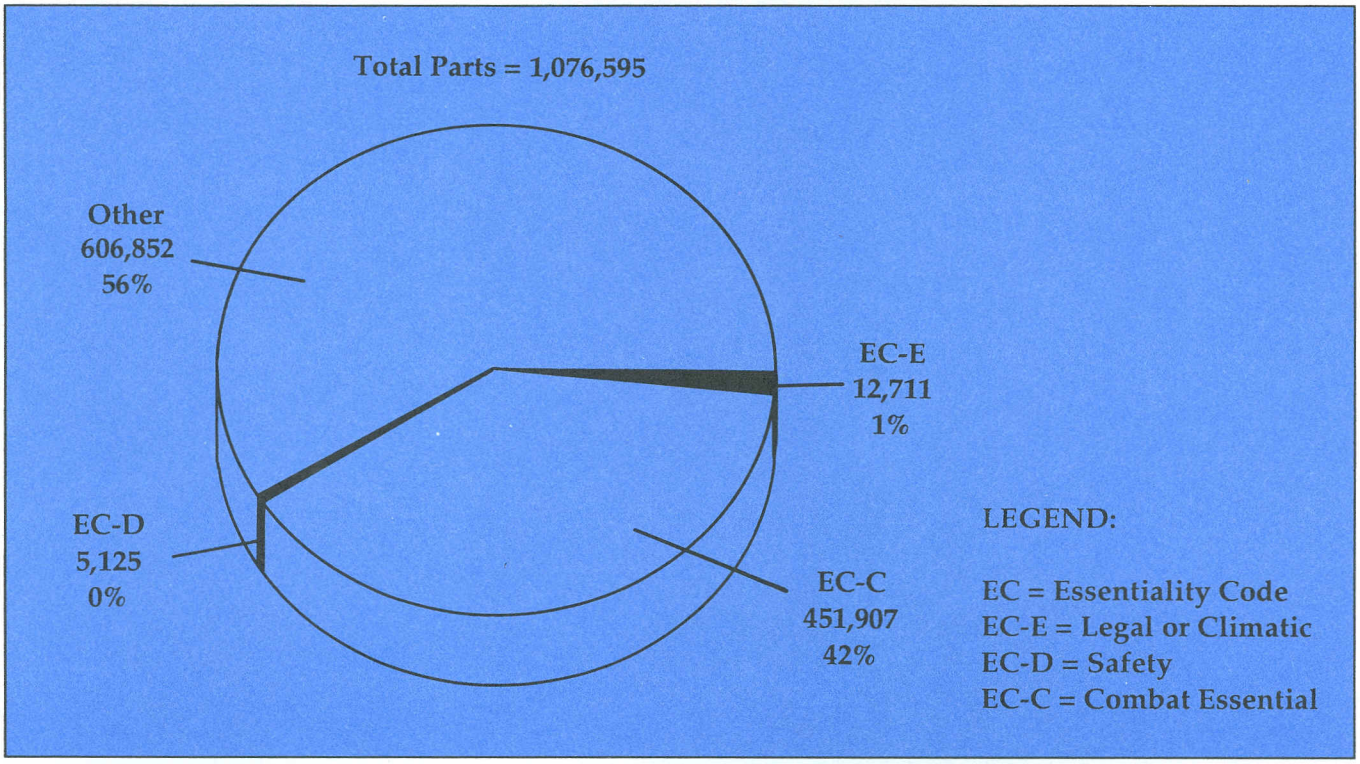

Figure 2. Universe of Repair Parts by Essentiality Code

Divisional Slice

The Materiel Readiness Support Activity (MRSA) helped determine what portion of the one million parts apply to weapon systems authorized in a heavy division. Using a forward-deployed mechanized Infantry division as a base case, analysis revealed 158,897 prime NSNs replaceable at DS level and below for all divisional equipment (187,788 parts for GS and below). Figure 3 displays a breakout of those parts by combat essentiality and by maintenance replacement levels for the essential lines.

Item managers require demand histories to determine which parts to emphasize and stock. Analysts extracted a two-year (1989 and 1990) demand history for the heavy division in the base case. Surprisingly, the 708,786 repair part requisitions submitted by the division during that time represented only 30,796 unique line items (19 percent of the 158,897 possible parts). This finding significantly narrowed the scope of stockage candidates. Only 15,436 (50 percent) of the requested repair parts represented combat-essential items, again narrowing the list of stockage candidates.

Similar analyses were performed for two other heavy divisions, one light Infantry division as well as the National Training Center (NTC). These supporting analyses used only one year (1990) of demand history. Results from the two heavy divisions verified conclusions drawn from the base case.

Follow-On Actions

This research effort successfully assisted in narrowing the focus of repair parts from the million possible lines to the 15,436 most essential division-level parts. The USAQMC&S is continuing these analyses to define the individual slices of the universe of repair parts for particular combat and combat support battalion and company-size elements. These data provide vital information for determining the appropriate size of ASLs and PLLs, successful fill rates for ASLs and PLLs, as well as assisting commanders and item managers in determining which parts to stock. These analyses also support Army and U.S. Army Forces Command (FORSCOM) efforts to develop enhanced GS ASLs with rapid, assured distribution to divisional and nondivisional customers in order to reduce DS ASLs, unit PLLs, and total Army inventory.

Other USAQMC&S initiatives effectively stratified divisional ASLs and demand histories to identify the most requested essential repair parts in an effort to reduce ASLs and PLLs. Those results will be presented in future articles. Contact the USAQMC&S Repair Parts System Redesign Task Force at DSN 539-3310/3302 for additional information on these or other Class IX initiatives.

CPT William M. Wheatley has a bachelor of science degree in business commerce from Rider University, Lawrenceville, New Jersey. He also holds master of science degrees in systems management and in logistics management. He is currently a Logistics Staff Officer in the Combat Developments Directorate of the U. S. Army Quartermaster Center and School, Fort Lee, Virginia.

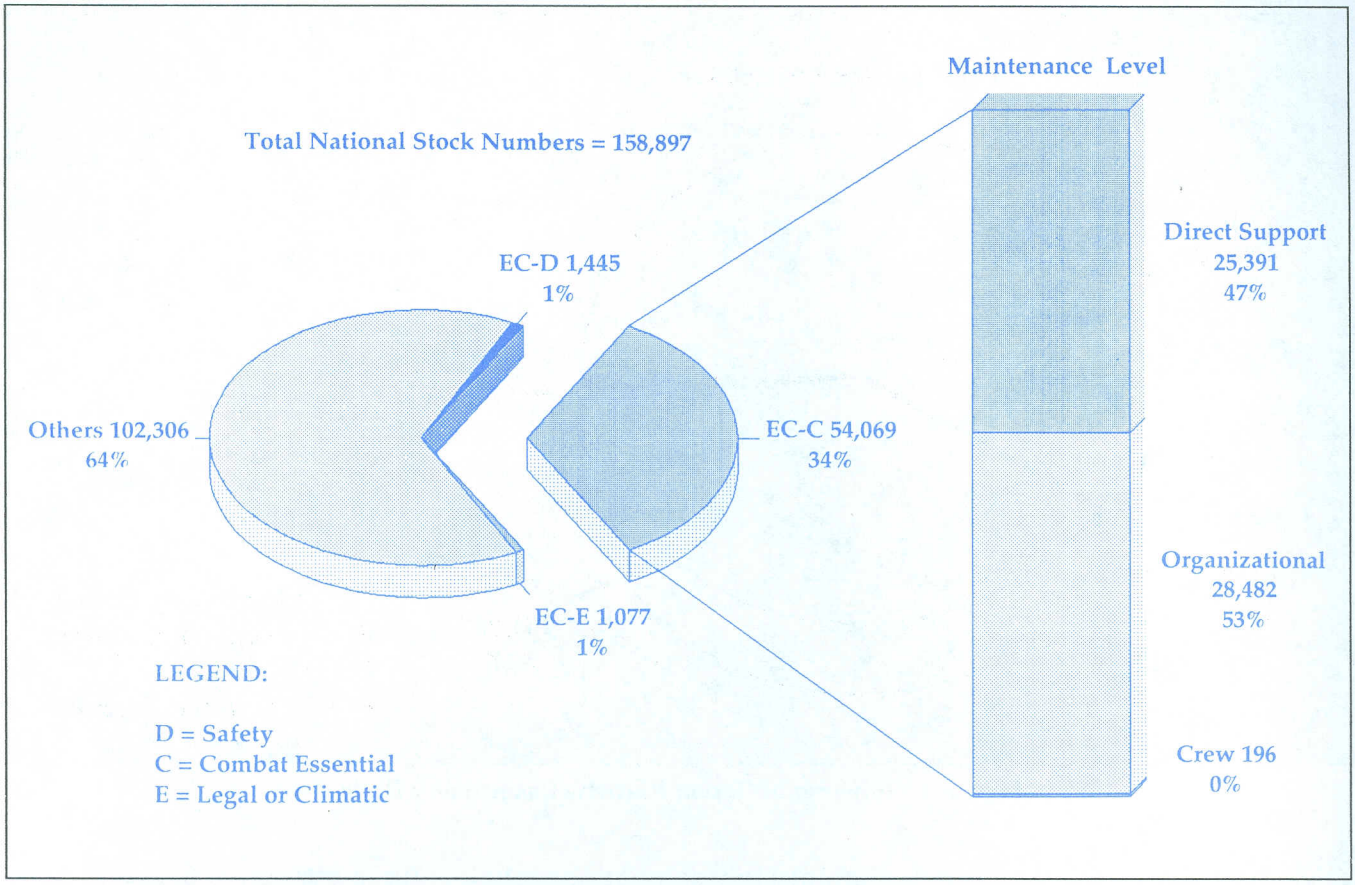

Figure 3. Divisional Class IX Universe by Essentiality Code, 3d Infantry Division Base Case

Quartermaster Sergeants/Heroes

CPT Philip G. Smith

SGT Harold B. Anthony - Served as a Supply Sergeant, Company D, 362d Infantry, 91st Division, during World War I. On 26 September 1918, near Bols-de-Vary, France, SGT Anthony, while leading a small detachment operating on the flank of his company, suddenly came under heavy enemy machine gun fire. Alone, he low-crawled up to the position, killed the gunner, and captured four prisoners. On 29 September 1918 at Eclisfontaine, France, Company D came under deadly enemy fire from a highly concealed position. SGT Anthony spotted the position and, under fire, attempted to reach an automatic squad to point out the enemy gun. During his movement he was shot and killed. SGT Anthony was posthumously awarded the Distinguished Service Cross for bravery.

SGT Vinton Pawel - Served as Supply Sergeant, Company M, 28th Infantry, 1st Division. On 18 July 1918, near Solssons, France, SGT Pawel voluntarily and fearlessly led a platoon of soldiers in an attack on St. Amand Farm at the Solssons-Paris road, spurring his men on to their objectives under heavy enemy machine gun fire. His company officers having been killed, wounded or transferred to other units, he assumed command of the company. On 20 and 21 July 1918, SGT Pawel led the company in an assault, inspiring his men by his sheer disregard for his personal safety after being seriously injured by shrapnel and refusing evacuation. On 22 July 1918, after securing the objective and successfully leading the company, SGT Pawel was relieved by a commissioned officer who assumed command of the unit. SGT Pawel was awarded the Distinguished Service Cross for his performance.

CPT Philip G. Smith is currently the Assistant Historian of the Quartermaster Corps, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

Operation First Step

CPT Flem B. Walker, Jr.

On 18 Dec 90 during *Operation Desert Shield,* the 407th Supply and Transport (S&T) Battalion, 82d Airborne Division received a warning order from the division support command to activate a logistical task force to pre-position division supplies near King Khalid Military City (KKMC), Saudi Arabia. KKMC was approximately 320 miles northeast of the 407th S&T Battalion's position at a place called Griffin Base, North of Dhahran, Saudi Arabia. The task force's mission, labeled Operation First Step, was to pre-position supplies to the division's intended area of operations for *Operation Desert Storm.* Pre-position operations were to begin 26 Dec 90, so time was meticulously managed. The operation was divided into five phases:

- **Phase I (Site Establishment)** - During this phase the task force was to conduct a tactical road march to KKMC and establish the pre-position site at an austere location.
- **Phase II (2d Brigade Ammunition Outload)** - 2d Brigade was located near the port of Dammam, Saudi Arabia. On 27 Dec 90, the Bravo Company, 407th S&T Battalion's Ammunition Transfer Point Section was to outload Class V (ammunition) , less 2d Brigade unit basic load (UBL), on corps transportation for movement to the pre-position site. Upon arrival, Bravo Company would then be attached to the task force to assist in follow-on operations.
- **Phase III (Champion Main Outload)** - Champion Main Base was located just north of Dhahran. On 29 Dec 90, the Headquarters and Supply Company (HSC), 407th S&T Battalion's Class V Section was to begin outload of Champion Main Class V (less UBL) using both Alpha and Charlie Company, 407th S&T Battalion's Ammunition Transfer Point Sections for assistance. All of the division's ammunition stocks (minus 2d Brigade) were at Champion Main Base. Transportation for this movement was also to be provided by corps, with the first movement beginning the night of 29/30 Dec 90. Nightly movement of ammunition was to continue until all stocks were pre-positioned.
- **Phase IV (Outload Completion)** - Upon completion of Phase III, the 407th S&T Battalion (-) was to outload Class I (rations) and bottled water; 307th Medical Battalion (-) was to outload the division's contingency of Class VIII (medical supplies) and 782d Maintenance Battalion (-) the division's Class IX (repair parts). All download operations were to be completed between 6 and 10 Jan 91.
- **Phase V (Storage Operations)** - During this phase, task force activities were to consist of site improvement, rewarehousing, package configuration and site security operations to prepare for future operations and movement to the tactical assembly area.

The initial deployment during Phase I consisted of 99 personnel. The task force, called Logistical Task Force Walker (LTFW), was divided into a security platoon and logistics platoon. These platoons consisted of soldiers assigned from throughout the division support command (DISCOM). Headquarters and Headquarters Company (HHC) DISCOM sent a communications team, 782d Maintenance Battalion provided personnel for the security platoon and for internal maintenance support, and the 307th Medical Battalion provided a medical team and personnel for the security platoon. Most of the task force originated from the 407th S&T Battalion. The 407th provided 70 personnel, dispatching elements from the HSC, Delta (transportation) Company and Echo (parachute rigger) Company at Griffin Base as well as from each of the forward supply companies at Champion Main Base.

The security platoon's mission was to provide security for a 25-square kilometer area. The platoon consisted of various military occupational specialties (MOSs) most of which were MOS 43E (Parachute Rigger). Primary firepower depended upon four M60 machine guns placed on the four corners of the perimeter and four roving patrol vehicles, one equipped with a .50-caliber machine gun.

The logistics platoon consisted primarily of Ammunition Specialists (MOS 55B). However, Class I (rations), Class III (petroleum, oils and lubricants), food service and maintenance technical experts were incorporated for internal support. Their mission was to receive, reconfigure and properly store the division's ammunition and general supply contingency in the forward area.

Before departing for KKMC, numerous coordination meetings pulled the task force together. Many soldiers had never worked together before and unit cohesion in a potentially hostile environment was a primary concern. Nevertheless, after key leaders were identified, the battalion operations order sent out and ultimate goals discussed, the task force began to take shape. The commander, logistics platoon leader and logistics platoon noncommissioned officer in charge conducted a ground reconnaissance of the KKMC area which later improved initial operational efficiency. Map and route reconnaissances were also conducted, resulting in a virtually flawless convoy to the objective.

The task force arrived on location shortly before nightfall. Vehicles were dispersed and 100 percent security was emplaced. Once the area was secured, key leaders quickly assessed the terrain available, exchanged information and determined an area suitable for the pre-position site. Use of sand dunes and other naturally built-up areas provided best placement of crew-served weapons at the best observation points. The limited road network in the desert meant creating an accessible route from the main supply route to the pre-position site. This route had to be determined quickly because the first push of 2d Brigade's ammunition was due later that night. Chemlights (chemical lighting) marked the route selected. They were every 50-75 meters along the access route to lead the ammunition truck convoy to the site while maintaining blackout drive. During periods with no moonlight, the chemlights were crucial because it was virtually impossible to maneuver

in the desert. Phase II continued for two days and ended on schedule with no significant problems.

Phase III was delayed for a few days because of shortage of corps assets to move divisional supplies. This gave the task force valuable time to enhance operational sites, strengthen security measures and further coordinate internal support.

Operational sites were selected through terrain association and marked with stakes to aid future engineer operations. Plans were developed to berm the ammunition and supply storage areas. Concertina wire was emplaced with trip flares around the base perimeter. Sleeping areas and operational areas were well dispersed. Each soldier had bunkers and dive pits nearby in case of aerial attack. Three landing zones were also selected in case sling-load missions were required for future operations.

Security standing operating procedures (SOPs) were stringent and closely monitored. The forward supply company's mission-essential task list (METL) and field SOP security annex were revised for the situation, proving beneficial in perimeter security operations.Also, as other divisions moved pre-position sites into the area, further coordination was made on flank security and base cluster defense.

Internal support had previously been coordinated with the 226th Area Support Group (ASG), Alabama National Guard. They provided area support from Log Base Bravo at KKMC. The 226th ASG provided the task force with Class I (T-rations with supplements, Meals, Ready to Eat (MREs) and bottled water), wooden latrines and showers, Class III, bulk water and Class IX repair parts.

Phase III resumed 3 Jan 91. Ammunition transfers were made from Champion Main as assets became available. The 407th S&T Battalion pushed a large majority of those supplies out with internal assets and civilian-contracted vehicles. Shipments were easily downloaded and stored with materiels-handling equipment previously deployed by the task force. Rainy days caused problems. When it rained in the desert, it rained. Civilian tractor trailers had numerous problems traveling on the wet desert terrain. The D-8 bulldozers and heavy equipment materiel transporter wreckers coordinated from other units in the area aided in the recovery of those vehicles.

Phase IV was deleted as the operation neared its 12th day. It was decided that all Class I and bottled water would be drawn from Log Base Bravo at KKMC using internal assets to transport. Coordination was also made to have bottled water transported by civilian contract and downloaded by assets at the preposition site. MREs presented no problems but bottled water was a different story. The cardboard boxes in which the bottled water had been prepacked were not very durable. Numerous problems arose. More water was lost than saved. Therefore, the 43Es devised a plan to compensate. Strong backs, constructed from 2 x 4s, 4 x 4s, 463-L pallets and plywood were built to store the bottled water (strong backs were also used in garrison by the 43Es to store T-10 parachutes). The strong backs could hold up to 3,500 bottles of water and were transported very easily. Class IX items were deleted from the original plan for storage.

LTFW remained self-sufficient for 53 days during which time it received, stored and transferred 6,678 cases of MREs, 13,500 cases of bottled water, 216 boxes of sundry items and various other equipment and supplies valued in excess of $5.5 million. The task force also maintained 100 percent accountability of the division's Class V contingency stock which consisted of 226.2 short tons of ammunition and encompassed 114 separate Department of Defense identification codes when totally outloaded. Just before closure the task force also coordinated, within 24 hours of notification, a successful staging plan for the division quartering party consisting of 200 vehicles and 700 personnel. The quartering party stayed at LTFW for 48 hours and was resupplied with rations before moving on to the division tactical assembly area near Rahfa, Saudi Arabia.

Phase V lasted for many more days than expected. Transportation assets were once again limited for moving such a large quantity of supplies. Also, task force personnel were drastically reduced because of mission requirements for the division elsewhere. Once the warning order was finally received to close LTFW on day 52, transportation assets were available. Ammunition was the major concern. The ammunition had already been reconfigured into brigade combat configured loads (CCLs). Each infantry brigade (1st, 2d, 3d) had a CCL as well as DISCOM. All additional ammunition that remained was labeled as excess and separated. Total transportation required for the outload was approximately 98, 40-foot stake and platform trailers. Soldiers worked around the clock to upload the ammunition trailers. By 1730 on day 53, LTFW was completely closed and assembled for convoy to Rahfa to join the 407th S&T Battalion in the tactical assembly area to prepare for the ground offensive.

As the commander of the task force, I learned many valuable lessons. Molding a loose confederation of DISCOM soldiers, pulled from various units, into a cohesive and responsive unit took a great deal of planning and work. These soldiers were able to successfully complete their mission of pre-positioning supplies near KKMC in support of future operations. The job was done smoothly thanks to the professionalism of the 99 DISCOM paratroopers who made it all happen.

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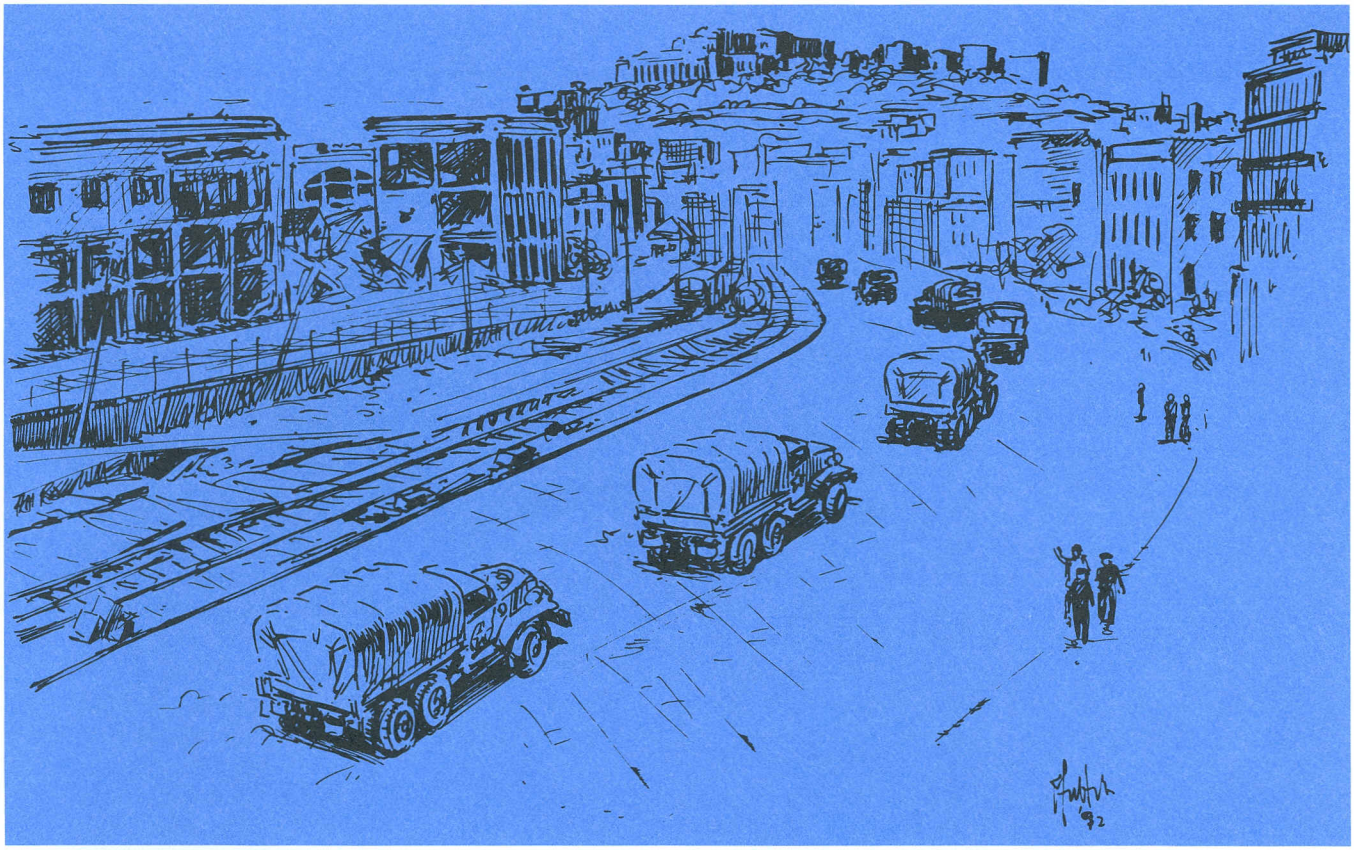

Army Convoy in Naples, Italy, 1943

Supporting Military Operations in Today's Urban Terrain

CPT Thomas E. Stackpole

During the Cold War, Berlin often became the focal point of tensions between East and West. Twice, the East attempted to block access to West Berlin, and twice the West responded. In 1948, the Allies staged the Berlin Airlift, reconnecting the city by air to the rest of the free world. Following the erection of the Berlin Wall in 1961, the Allies sent the 1/18 Infantry "Vanguards" down the Helmstedt autobahn to reinforce the Berlin garrison. In both instances, the peacetime contingency missions proved successful and access was restored.

I was fortunate to have been a member of the Berlin Brigade through what proved to be Berlin's last chapter as a divided city, the fall of the Wall in 1989 and re-unification in 1990. Our training in Berlin was unique. We concentrated on city fighting because, before November 1989, we had the real-life mission of defending the city. The political climate of the city was also tense, and dealing with that took a certain finesse. I found that support operations in an urban environment with a large population were far different than what I had experienced in a more familiar "field" setting. In some ways, the operations are more complex and challenging. However, some simple concepts can be explained easily and can serve as a foundation in understanding how to support operations in urban areas. In a world where we are facing an increasing number of conflicts in urban areas, it is important that we understand the basics of military operations in urbanized terrain (MOUT) and how they will apply to missions we will be faced with in the future.

Urban Terrain

The two key things to remember about urban terrain are that urban terrain, like a forest or jungle, is restricted terrain and is three-dimensional, meaning there are aspects of the terrain above, on and below ground level. Terrain is analyzed to see what effect it has on mobility, cover/concealment, observation/fields of fire, command and control, as well as another very important, but often neglected, planing factor: fire hazard.

The characteristics of a built-up area are much like those of a

house. One factor is size, which, for a city, consists of its population and area. Sizes of built-up areas range from small villages with populations under 3,000 to the larger cities with populations over 100,000. Strip areas also connect urban areas and have unspecified populations. Like the frame of a house, a city has its lines of communication. Lines of communication are roads, above ground rail systems, below ground rail systems and waterways. These networks form patterns and delineate how an urban center is built. One common pattern in Europe is the pie slice pattern. This is where the roads into the city converge in the oldest section of the town/city, which is where the greatest density of people and buildings usually are. In America, there is less of this pattern and more of a phenomenon referred to as *urban sprawl*. Urban sprawl is characterized by built-up strips, wide roads and spread-out communities. Attached to these road networks are different physical layouts, which are like the walls and floors of a house. The Army classifies these layouts into the following five categories (Types A - E):

- **Type A: Dense Random Construction** - oldest form of construction, consisting of buildings built closely together and narrow roads, usually found in the center of villages, towns and older cities.
- **Type B: Closed Orderly Block** - residential and commercial structures that form a continuous block and have inner courts, usually found in the central areas of medium- and large-sized cities.
- **Type C: Dispersed Residential Area** - more open residential area of single structures with yards set back off the roads, usually found in the outer regions and suburbs of towns and cities.
- **Type D: High Rise Area** - modern residential area of multistory apartment houses with large open areas, usually found in medium and large cities.
- **Type E: Industrial/Transportation** - commercial areas consisting of warehouses, storage yards, and transportation centers/terminals with low, flat warehouse-type buildings and large open spaces, usually found in the center of older cities and on the outskirts of newer ones.

Effects of Urban Terrain

The effects of urban terrain on operations are a function of its size, the frequency of its lines of communication, and characteristics of its physical layout. A key concept to remember is that urban terrain is never uniform and can have all of the previously mentioned physical characteristics in a relatively small area. The physical characteristics can also be changed quickly by the effects of war. In the terrain analysis of an urban area, these are some things to keep in mind when planning and executing logistics operations:

- **Mobility.** The great availability of infrastructure often aids in the external and internal transportation of troops and supplies. Planners have the options of a great many road networks, rail networks, inland waterways and even airports. For large built-up areas, the environment is truly three-dimensional, as most cities have large underground networks such as sewers and underground railroads. These, when secured, offer covered and concealed routes and are less likely to be changed by the warfare that occurs above ground. The more open areas of Types C, D and E layouts offer the best mobility. However, the downside of mobility in an urban environment outstrips the advantages. For the most part, urban terrain is restrictive. Roads are bordered by buildings which serve to decrease maneuverability and can be destroyed to form an obstacle. Raised rail and road networks can also be destroyed and the resulting rubble blocks the roads beneath. Waterways, as well as rail and road networks below ground, serve as obstacles when access is denied to bridges and other means of passage. The urban environment is always in a state of flux, whether in peace or war. Construction can change traffic patterns and deny access to areas, while "rubbling" does the same during war. Maps must be constantly reviewed and updated. Main supply routes (MSRs) must be reconnoitered in advance and any changes noted. It is best to do this in the same time frame as operations are scheduled to begin, in order to learn the relative traffic patterns for that time. In the more dense areas, some movements can only be on foot, making resupply and evacuation difficult. In these situations, supplies can be brought as far forward as possible by truck or helicopter, and then broken down and distributed by hand. Usually, the best method is to stockpile forward.
- **Cover/concealment.** Many buildings together offer excellent cover and concealment and a degree of security. A lone standing building offers cover and concealment, but is an easily discerned target. The important characteristics to look for in a building are its structural attributes and its composition. Brick or natural stone walls are the hardest to breach and present less of a fire hazard. A strong basement, with the addition of reinforcement, can be an adequate shelter from indirect fire and bombing. For a wooden building to protect its occupants, there must be a great deal of reinforcement. Even then, the fire hazard could be too great to make occupation feasible. In the past, brick buildings have been sought out as locations for supply centers and other combat service support

(CSS) activities. Ideal for the concealment of vehicles and other large pieces of equipment are the courtyards often found in older apartment complexes. Also, there are underground garages and warehouses that can be used for these purposes.

- **Observation/Fields of Fire.** The layouts of most built-up areas tend to compartmentalize areas and offer limited observation/fields of fire. Any open area surrounded by buildings can be turned into a kill zone. The buildings prevent maneuver and the open areas, such as roads or parking lots, are usually flat with little cover. In densely built-up areas, observation is more limited and potential kill zones are smaller. These type of areas are ideal ambush sites. Extra security measures must be employed to ensure the safety of convoys traveling through such areas. One method is to establish a series of checkpoints that provide overwatch and continuous communications along convoy routes. The situation is just the opposite in the high-rise areas or industrial/transportation complexes. These areas are far easier to defend due to increased observation and fields of fire. Ambushes are less likely because of the increased maneuverability the openness affords. It is important to remember that the battlefield is three-dimensional. Vigilance is needed to protect against enemy access from above and below. Any entryway, whether a rooftop or entry to an underground passage must be secured. A good rule of thumb is that any route a friendly force might use can also be used by the enemy.
- **Command and Control.** An urban environment tends to isolate units and makes control difficult. An urban setting usually has a great number of communications systems in place, but for security and other reasons, they are not always usable. FM communications and line-of-sight communication are seriously degraded by the buildings. Units must be prepared to act independently and need much preplanning to ensure coordinated effort. Relays can be set up to help FM communications and wire can be run using civilian utility poles. The tunnels and passages underground can also be used for running wire and offer a concealed route for messenger traffic. This lack of communication and restrictive terrain makes reinforcement difficult, so units must be prepared to "stand on their own" during an attack.
- **Fire Hazard.** Fire hazard is an often neglected, but essential aspect of terrain analysis. Fire is one more weapon that can be used to dislodge occupants from a building and is extremely dangerous. Entire blocks can go up in flames, degrading operations of all kinds. The *MOVE* fire in Philadelphia during the 1980s is an example of a situation in which fire was used to dislodge the people inside a building. The unfortunate result was the burning of an entire neighborhood. The fires of the Los Angeles riots also illustrate how susceptible buildings are to fire and fire's effect on the battlefield. Area damage control measures must be planned.

Low Intensity Conflict

Low intensity conflicts (LICs) traditionally have been wars of the people. Vietnam is an example of this, where the insurgents in South Vietnam were waging a battle for control. Low intensity conflicts of the future will be no different. However, the setting will change. The trend towards urbanization has changed the complexion of the world. Even the Third World nations are experiencing this. Industry is attracted to the cheap labor of the Third World, and the people of the Third World generally prefer the factory work in the cities to the back-breaking work of the fields. Also, a new development resulted from the fall of communism in Eastern Europe. In some regions, religious and ethnic differences that were once controlled by the heavy-handed security police of the communist regimes are now raging out of control. The fighting in Yugoslavia and in the republics of the Commonwealth of Independent States are grim examples of this. Again, these regions are largely urbanized. Another problem that has increased in its intensity in recent years is drugs. The drug problem has destroyed inner cities in the United States as well as elsewhere. The drug trade finances terrorism and corruption throughout the world. As in any business, the focus is on the marketplace, and the largest marketplaces are found in the cities.

The chances of becoming involved in a conflict in a city seem to be increasing. During *Operation Just Cause*, a great delay of action took place in Panama City and its suburbs, for example. The all-out war in cities, as we associate with World War II, is not as likely to happen. As I have mentioned, I believe the LICs of the future, unfortunately, will be found in the great population centers. The conflicts will be very political in nature and less defined. Two keys for dealing with this from a logistical standpoint are to be aware of the political implications and to always be conscious of security, both physical and personnel.

The Focus of Our Efforts: The People

Providing logistical support in a LIC is a complicated and involved process. To do so in an urban environment can be either not as difficult or more so, depending on the situation. Yet, in many cases, the logistical support is the most important factor in the overall operations. For the most part, the infrastructure needed to support operations in a LIC is already in place in a city or town. There are

hospitals, gas stations, stores and the like that can be used as part of host nation support. However, if the use of these facilities proves to be too much of a burden on the local populace or if these types of facilities have been destroyed, then the CSS elements will be required to support our people and quite possibly the civilian population with internal means. The Army could very easily find soldiers in the following missions:

- Providing rescue, evacuation and medical care.
- Performing recovery and disposition of the dead.
- Handling refugees, evacuees and displaced persons.
- Providing prepared food and shelter.
- Issuing food, water and essential supplies and material.
- Restoring utilities and lines of communication.
- Assessing damage.

In the past, much of this was done in rural settings. In urban areas, the size and scope of these activities are greater due to the larger populations.

When operating in an urban setting, great sensitivity must be used. As mentioned before, CSS operators must make sure that the support required from a host nation does not hurt the area. Army personnel must work with local officials to prevent this from happening. The Army must also work hard at protecting the legitimacy of the host nation government. This is done, in part, by keeping a low profile and by giving the perception that the host government is responsible for the good works. The flip side is that great efforts must prevent any embarrassing situations with the local populace. In any instance, minimal force must be used. Enemy elements look to take advantage of a bad situation through the media. The large populations found in urban areas are ideal for maximum effect of this technique.

Security

With a great many civilians in the area of operations, need for security increases. Enemy agents, looking like average citizens, can easily infiltrate to commit acts of terrorism or sabotage. Since Army installations are visible targets, it is important to keep civilians away so that they might not become victims or unknowing accomplices to an act of terrorism. Also, in times of shortages, Army supplies are attractive targets for pilferage and theft. They can be stolen during transportation or storage. Good physical security and operational security protect installations against these threats. When planning, soldiers must remember that numerous covered accesses allow an enemy to get close. The requirements for guards are greater than otherwise. To repeat another point, the restrictive terrain and lack of communication make reinforcement difficult. Installations cannot rely on other units to come to the rescue. They must be prepared to defend themselves.

Personnel security is a great concern. The keys to defense against terrorists or other low-level threats are awareness, operational security (OPSEC), and deception. Soldiers must avoid developing routines and becoming complacent in a hostile environment. An urban area often does not seem threatening. Distractions, such as clubs and restaurants, make control and security of soldiers more difficult. The 1986 bombing of LaBelle Disco in Berlin is an example of this. Americans were aware of the threat, but failed to exercise the necessary caution in their activities. We must also deny the enemy intelligence. When the Germans occupied the Balkans in World War II, every large scale antipartisan operation was compromised by intelligence leaks. These leaks were usually the result of a civilian who worked for the Germans. From the most senior commander to the private, OPSEC is critical for everyone. Deception against terrorism is a necessity. Itineraries, schedules and routines must be constantly changed. Decoys must be used where possible. Changing the lighting scheme of an unoccupied building is one technique. Keeping these things in mind will go a long way in the fight against terrorism.

In the past two years, two events have made a significant impact on the scope of our threat. the first is the disintegration of the Soviet Union. The fall of communism and the reshaping of the Soviet Union broke the polarity that existed before. No longer does the Cold War scenario, with the Soviet Union acting as our ideological global rival, exist. The other event that has shaped our present situation is the overwhelming victory in the Persian Gulf. Because of the war in Southwest Asia, it is unlikely that any other regional threat will consider taking on the Coalition Forces, or even the United States alone, in a head-to-head, mid-intensity conflict. With high and mid-intensity conflicts becoming more and more unlikely, the focus of the Army is turning to the LIC.

As I have explained, the shift of the populations into the city from the country has created a climate ripe for conflict. Even in our own country, the Los Angeles riots are an example of urban unrest, where troops had to deploy to restore law and order. The examples are all around us. It is up to us, as military professionals, to learn how to operate in an urban environment and deal with the challenges of LIC.

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AIT Command: Soldiers in Training

CPT Daniel G. Grassi

"It's 0400, I'm tired, it's cold outside and it's dark. Why oh why, am I getting out of bed now?"

Ever asked yourself that question on a daily basis? Well, if you have ever served as a commander of an advanced individual training (AIT) company, then the opportunity arose for that question every day. The life of an AIT soldier in most units begins at 0430 with physical training (PT), and you are leading this morning's run. If you think 0400 is early for you, think of your young soldiers in training.

Life as an AIT company commander is full of interesting questions. Weighing the variables between what is best for the soldier versus what is best for the unit; what is best for me and my family versus what is best for the morale of the unit; what is the battalion commander's intent versus what is best for the unit? To survive and excel in that environment, you, as the commander, must fully understand who and what you are dealing with. Today's soldiers are our most valuable resource and we must know how to lead and train them proficiently. To do that, you must know your soldiers' character. What makes them go?

"Why do I want to be an AIT commander in the first place?"

Why ask why? Sure, you will neither see the glory of a successful National Training Center rotation nor will you travel to exciting foreign lands on deployments, but you will get the opportunity to mold, shape and influence the lives of thousands of young people whose only knowledge of the Army is what they have seen on TV or may have been fed at basic training. This is your chance to make a true difference in our Army by making superb quality soldiers out of these young people, and that, by the way, is your challenge in command. Long hours aside, it is a job, which after you have completed, you will no longer be asking yourself "why?". Here's what I mean...

As the new commander of Company U, 262d Quartermaster Battalion, 23d Quartermaster Brigade, Fort Lee, VA, in July 1990, I found myself thrown into the middle of a true melting pot of American society. Under my command were 150 soldiers from every walk of life imaginable: from the very wealthy to the dirt-poor, from the educationally deprived to the college graduates and beyond, from the inner city to the rural countryside. My cadre and I had it all. Teaching and leading such a diverse unit would indeed be a challenge. It was a challenge I had dreamed of since my first days as an Army private some 10 years earlier. I wanted to give them the best of everything. The best training, the best barracks (after all it is their home now), the best food, and the very best leadership I could give. Now was my opportunity to make a difference.

My first few months in command were shaped by two events which will follow me for the rest of my life. First was the court-martial and subsequent conviction of a young AIT soldier in my command. Court-martials are rare in an AIT environment due to the close scrutiny, demands placed on these soldiers and their virtual lack of free time. This soldier, however, had found the time to commit an offense worthy of a court-martial, and the months following would put the entire unit in turmoil. After a lengthy investigation and court proceeding, the soldier was dishonorably discharged and sentenced to the Disciplinary Barracks at Fort Leavenworth, KS. Guilt aside, watching that young soldier being led away to begin his sentence was extremely painful. As a commander, you want your soldiers to excel. Seeing one whose life was slipping away at such a young age was hard. He was convicted and went off to serve his time. I was abruptly reminded that youth is a terrible thing to waste.

The second incident came a few short weeks later when one of my young soldiers died while on a weekend pass with friends. Twenty years young, in excellent physical condition, and a fine young soldier, a freak accident ended his life just as it was beginning. The evening he died, my cadre and I picked up several other soldiers who had been on pass with him and told them of his death. Mind you, these are not seasoned veterans we were speaking to. How do you tell a young soldier that one of his best friends is dead? Later that night I turned to a bunkmate of his and asked if he could help counsel some of his grieving friends. You see, the bunkmate was an ordained minister with several years of experience. Remember the diversity I mentioned? The next weeks in the company were spent consoling, listening and caring, while training harder than ever preparing to send soldiers to Southwest Asia for *Operation Desert Shield*. There is no training available that can prepare a young officer for that type of leadership. It must come from within. Both of these incidents are painful reminders of the one thing every AIT soldier brings to our Army, a youthful exuberance for life. They are all full of energy and life, with a

deep passion for success. You must nurture that passion and zest for life and find the soldier within.

As the situation in the Persian Gulf escalated, the demands placed on the unit followed suit. The thought of going far away to fight a modern war was frightening to everyone, and loomed large in the minds of the AIT soldiers. The mission of the Petroleum Supply Specialists (77F) encompasses the entire battlefield, and the fear of the unknown was tremendous as the days drew nearer to graduation and subsequent deployment. As cadre, our focus on battlefield survival training was greater than ever before. We were responsible for giving these young soldiers the confidence that they could correctly don and clear their protective masks within nine seconds, apply a field pressure dressing, identify the symptoms of chemical agent poisoning...the list goes on and on. At the same time you train the soldier, you must not forget the individual within. How are they handling the stress and uncertainty? How about their families? Are you taking care of the whole soldier?

Every Sunday afternoon as the conflict escalated in the Gulf, a charter bus would arrive at the unit to take a group of soldiers to their CONUS (continental U.S.) Replacement Center. There they would be issued their own protective mask, weapon and desert battle dress uniforms (BDUs), and a few short days later they would be in Saudi Arabia. One particular Sunday afternoon my father was visiting Fort Lee and I told him: "Dad, you have to come down to the company after church. This is the closest you, I and most of this country will come to really seeing this war." He came to the company and what he saw was 15 young soldiers, scared and nervous, yet excited, getting ready to board a bus. What he also saw was all 250 other soldiers and cadre members of the company standing in line waiting to give 15 hugs and best wishes. A lot of tears, a few smiles, but most of all genuine caring for fellow soldiers, friends and human beings. The rest of the AIT soldiers in the company knew that their time to board the bus would be within weeks, and they came to say good luck and "see you in the sand." My cadre and I, as we did every week, were there to say: "Hey Private _____, you are ready to soldier now, and I'm real proud of you." As my father and I drove away later that afternoon he turned to me and said: "You know something, son? You were exactly right."

That is what it is all about. They are yours to lead. How you decide to do it is up to you. If you have the good fortune to get stationed at Fort Lee, run, don't walk, and try to get command of an AIT company. If you succeed in getting one, thank the battalion and brigade commander in your speech, but remember, you'll earn your command from your soldiers. If you are not in an AIT company and you just received soldiers straight from Fort Lee, remember that the young faces in front of you are tomorrow's leaders. Train them well. They're all yours.

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ANATOMY OF AN AIT SOLDIER

Heart———— Do Well
Mind———— Anxious To Learn
Eyes———— Watching Cadre's Every Move
Ears———— Listening To Drill Sergeant
Pocket———— Vivarin
Pocket———— Initial Entry Training (IET) Soldier's Manual
Pocket———— Food
Wallet———— Calling Card
Watch———— Time To Run To The Post Exchange

ANATOMY OF AN AIT COMMANDER

Heart———— Love Of Soldiers And Family
Mind———— Split Over Soldiers And Mission
Eyes———— Critical Yet Understanding
Ears———— Listening To Soldiers Concerns
Pocket———— List Of "Problem Children"
Pocket———— IET Soldier's Manual
Pocket———— Pen
Wallet———— Money For Barracks Improvements
Watch———— Time To Run Home To Tuck Kids In

Class I Resupply in the LIC Environment

CPT Dennis L. Schrecengast

After spending three years as an Infantry officer in positions requiring knowledge of combat service support (CSS) operations, I decided to branch transfer to the Quartermaster Corps. I felt good about my decision to enter the role of a CSS officer because the Quartermaster officers that I worked with during my stay at Fort Ord, CA, were dedicated to their mission of supporting my unit. They were professional when conducting every support operation and knew that their customer needed to be properly sustained to succeed in every mission.

My position as executive officer for Headquarters and Headquarters Company, 2d Brigade, required constant coordination with the elements in the brigade support area. I supported the sustainment needs of the assets at the brigade tactical operations center and the rear command post during all field training exercises. I was responsible for sustaining the task force during *Operation Just Cause* in Panama. I also planned support operations and executed resupply missions during several brigade training exercises and division-directed, evaluated exercises.

I also served as an Infantry company executive officer. I learned how resupply operations were conducted between the forward maneuver elements and the field trains. I learned the role of the battalion S4 and the support platoon leader. Since my unit trained to fight in the low intensity conflict (LIC) environment, it became critical to properly use every asset available to deliver all needed classes of supply. I experienced the proper usage of Logistics Packages (LOGPACs), sling load and floor-loaded aerial resupply operations, and use of a cache. These resupply methods were used while my battalion, 2-27 Infantry, conducted external evaluated exercises, division-directed alert exercises, and a special National Training Center rotation. The battalion commander, because of my knowledge of CSS and sustainment operations, rewarded me with the position of battalion S4. I was responsible for properly sustaining 574 soldiers during jungle operations training, battalion training exercises, and division alert exercises. I participated in three, division, computer-simulated exercises and served as an observer-controller for two different battalion S4s while their units were evaluated.

While in these positions, I discovered that resupply operations are a hard challenge. Every unit mission had special challenges. The enemy threat, either real or simulated, had to be considered. The location of friendly forces for resupply might be isolated or engaged in combat. Equipment shortages restricted our resupply effort even more. There never seemed to be enough time to plan and execute resupply missions; yet, I had to deliver. The combat soldier must be refueled to continue operations.

The hardest resupply missions were the deliveries of Class I (rations) and water. I will give examples of resupply missions that 2d Infantry Brigade conducted during *Operation Just Cause*, Joint Readiness Training Center (JRTC) rotations, jungle operations training, and field training exercises.

Alert

Before dawn December 19, 1989, key personnel in Headquarters, 2d Infantry Brigade, Fort Ord, received a red bayonet message. The alert signified that some elements within the command were scheduled to deploy in a division-directed, emergency deployment readiness exercise (EDRE). When the brigade staff and key personnel in 5th Battalion, 21st Infantry were told to assemble, rumor soon spread that the brigade was going to Panama. Although it was the holiday season, the time was right to deploy the 2d Infantry Brigade Task Force. The battalions had recently completed a division-directed external evaluation in September and a JRTC rotation at Fort Huachuca, AZ, in late October. The commanders within the task force felt confident about their soldiers' level of training. Some combat-essential tasks needed rehearsal and practice. These tasks were already highlighted on training schedules. One battalion, 2d Battalion, 27th Infantry, had recently returned from Panama after jungle operations training and participation in a six-month show of force rotation. Additionally, the preparation for assumption of the Division Ready Brigade (DRB1) was conducted with few delays. The planning and preparation to allow the Brigade Task Force to be alerted and deploy within four hours was nearly perfect.

When the leaders returned from the briefing room, the deployment plans had changed. The airflow for the task force was reduced by 90 C141 aircraft. The brigade S3-Air, and all the task force unit movement officers now had to prioritize every last combat, combat service and CSS asset. With the final air movement plans, soldiers were enroute to Panama with little more than their basic load of food, water and ammunition. Now, sustainment planning became a concern for the unit sup-

ply officers and the leaders of the Supply and Transportation (S&T) Company, B Company, 7th S&T Battalion.

The equipment and assets for Class I resupply were properly planned before the reduction of aircraft to move the brigade element. The Division Readiness Standing Operating Procedure (SOP) required each unit in the task force to have a contingency stock of nine Meals, Ready to Eat (MREs) for each soldier for deployment. Also, the task force had a five-day supply of MREs palletized and load-planned to deploy with the element. Each battalion-sized element had a field kitchen in which A-Rations and T-Rations were prepared for nearly 700 soldiers. The Headquarters Company Brigade had a mess section and a field kitchen to feed the personnel who worked at the brigade tactical operations center and the rear command post. B Company, 7th S&T Battalion would feed all the soldiers from its company as well as the soldiers in B Company, 707th Maintenance Battalion, and B Company, 7th Medical Battalion. The purpose of nine MREs per soldier was to ensure that food would be available for the first three days of any operation. These meals would be consumed during transport to the airstrip at Travis Air Force Base and on the plane. One final day of meals would be available for either the intermediate staging base or the theater of operations. On the morning of 19 December, a few units failed to issue their soldiers the contingency-stocked MREs because they thought the alert was only an exercise. Also, most of the five-day supply of MREs that were palletized to deploy with the brigade task force were taken off the aircraft load plans because of reducing aircraft available for brigade use. Not only did meals fail to be loaded, but also all the mess equipment was taken off the load plans as well. All field kitchens and vehicles to move them were left back at Fort Ord. Only two water trailers were sent with the task force element. When the task force landed at Omar Torrijos Airport, rations were redistributed so each soldier had at least one meal. The palletized MREs in the air flow were quickly distributed to the Infantry battalions that secured the terrain around the airfield to expand the lodgement.

Quick Airlift

Within 24 hours after the close of the brigade, 2d Battalion, 27th Infantry, was placed under operational control of the 3d Brigade commander. This battalion moved to the northern portion of Panama near Colon and Fort Sherman. The 5th Battalion, 21st Infantry, and 3d Battalion, 27th Infantry, were quickly airlifted by C130 to the vicinity of Rio Hato. MREs were the only meals available to feed the soldiers in the brigade. Only air assets and an unsecure ground route linked the maneuver elements to the small supply base at Torrijos airport and another landing zone at Howard Air Force Base.

A coordinated effort between the brigade S4, the B Company, 7th S&T commander, and the brigade unit movement officer ensured additional MREs were drawn from the Troop Issue Subsistence Activity (TISA) at Corazol, loaded on the C130s flying the maneuver units to Rio Hato, and distributed to the units. At Rio Hato, abandoned buildings previously occupied by the 8th Panamanian Defense Force Company were converted into a Class I storage facility. Once the task force was on the ground, soldiers attached to B Company, 7th Medical Battalion, were responsible for ensuring that the local water source was potable. When company-sized elements were ordered to clear surrounding towns, MREs were provided to them. If any element remained in an isolated village for any extended duration, MREs were floor-loaded on Blackhawk helicopters and flown into them. Some leaders found themselves responsible for feeding civilians who lost their homes or had been subjected to looting. Leaders within the task force requested a possible hot ration for their soldiers since no one had eaten anything other than an MRE for five days. The S4s were trying to get T-Rations from the Corazol TISA. On 25 December, the brigade commander authorized use of Panamanian Defense force kitchens to heat T-Rations that forwarded on a C130 "Log Bird" from Howard Air Force Base. The 5th Battalion, 21st Infantry, ate a T-Ration for dinner on Christmas Day. Since few vehicles were deployed with the task force, the brigade commander consulted his Judge Advocate, General's Corps (JAGC) officer about using locally acquired vehicles. After approval, some vehicles were used for resupply efforts. Other vehicles were contracted to deliver rations and locally purchased fruits and vegetables. Once the area surrounding Rio Hato was secured, the task force left some elements in the Cocle area to maintain peace. The majority of the task force was moved by C130 to David. At this time, the task force was spread out over a 150-mile area. Using an MSR was possible, but the distance to the ration supply point was very long and few vehicles were available. Class I resupply efforts continued to be completed by air assets. In addition to floor-loading MREs and T-Rations, 10 10,000-pound sling sets were used to move rations. Commercial, contracted vehicles continued to move locally purchased fruits and vegetables. For 10 days, the brigade secured the area from the Panama Canal to the Costa Rican border. Most soldiers consumed only one hot meal and drank small quantities of water not treated with iodine tablets. When a change of mission to clean out Dignity Battalion members from the Panama Viejo area came, so did the ration cycle.

Logistics Requests

As maneuver elements were clearing streets and buildings of supporters of General Manuel Antonio Noriega, logistics officers were requesting T-Rations, and condiments from the Corazol TISA, locally purchased fruits and vegetables, vehicles to move the rations, and security for moving the rations. The Panama Defense Force installations in the Panama Viejo area had kitchens capable of preparing T-Rations. Battalion cooks and specially detailed soldiers prepared the meals. For a few days, soldiers received hot meals.

Upon completing the city mission, the task force was directed to continue operations in the Darian Province. Since only one unimproved road stretched out to the Columbian border, vehicles could not be used for resupply. Likewise, no landing zones were available to ship in rations by C130. Soldiers were back to eating MREs and drinking water treated with iodine tablets. UH60s were used to either sling load rations or have floor-loaded rations delivered to elements scattered throughout the area. No hot meals would be provided until the task force was back at Howard Air Force Base preparing to return to Fort Ord. Although most meals eaten by task force soldiers were MREs, the logistics officers used all resources available to sustain the force.

To better appreciate the resourcefulness of the logistics planners in the 2d Brigade Task Force during *Operation Just Cause*, I will discuss the most commonly practiced resupply procedures the maneuver units used at the JRTC. The opposing force at JRTC and the scenario presented by the task force control cell provides the most realistic LIC training environment the Army offers.

A two-battalion rotation starts with the units securing an airfield and expanding a lodgement. Normally, soldiers eat a contingency stock of MREs during this phase. The first brigade support area with unit trains is established within the secured airstrip area. Because most resupply will be throughput from corps to the airstrip, keeping some assets from A Company, 7th Forward Support Battalion, in this area is essential. During this phase of operation, ground LOGPACs most commonly supply the units. Since security is a major concern, often battalion antitank vehicles execute a secondary mission of providing security for LOGPACs during convoy operations along the main supply route. Although commanders may prefer helicopters for aerial resupply, use of Blackhawks is reserved for emergency evacuation and resupply only. When an element of the task force is conducting a mission in an isolated area, soldiers may secure an area in which Class I and water can be kicked out from a passing helicopter. Soldiers in 5th Battalion, 21st Infantry, padded MRE cases with paper to drop five-quart water bags for resupplying their soldiers. Additionally, duffle bags with five-quart bags or five-gallon water cans have been used. Accountability of MRE boxes and water bags is not required by the element being resupplied.

Resupply

Once orders are amended to conduct an infiltration or movement to contact, resupply procedures also change. Units start their movements with enough meals to get them through the mission. Likewise, every canteen and collapsible water tank is filled. Units usually have been fed A-Rations or T-Rations before starting their movement. Once elements arrive at new areas of operations, they may need water resupply. Most resupply operations are conducted during hours of limited visibility. Night operations provide the best protection for convoys traveling along the main supply route. Likewise, vehicles moving into friendly occupied areas are less likely to be detected at night. When the convoy pulls forward along the supply route, a maneuver company representative meets the vehicle driven by the supply sergeant and a clerk. The guide directs the vehicle into a concealed position where the Class I and water are downloaded. This position is far enough behind the company's location to avoid detection. This resupply will be the last until the next maneuver element objective is secured.

While the maneuver elements are securing objectives, the support elements are busy uploading critically needed supplies. Vehicles with needed Class V (ammunition), water and Class I might be pushed up the main supply route as far possible to reduce the time to deliver supplies. A good battalion S4 will have an emergency resupply of Class V, water and Class I at the combat train. If an element cannot continue or complete the mission, the S4 will move the emergency resupply forward from the combat train. Once an objective is secure, combat elements enter the reorganization and consolidation phase. A resupply LOGPAC will be delivered to the element at this time. If the tactical situation allows, the task force may receive a hot meal.

The next task force mission could possibly be an attack. When a maneuver element is attacking, resupply procedures are similar to the procedures during a movement to contact. If a unit is ordered to defend, resupply procedures change. During the preparation of a defensive position, air and ground assets preposition or stock classes of supply directly behind the defensive positions. Class V, Class IV (construction and barrier materiel), Class I and water will be cached directly behind company locations for use during the preparation of the defensive position and the actual battle. The maneuver elements have 55-gallon collapsible tanks and many five-gallon water cans that will be constantly refilled.

Since soldiers will be vigorously working on the preparation of the defensive position, their need to

stay hydrated will be high. Constant exchange of empty for full water containers will be a task handled by the support platoon. Since preparing a defense is a relatively secure operation, the S4 and support platoon leader can go directly to the company commanders and coordinate for any special resupply needs.

Rigger Support

Another type of resupply operations may be considered if fixed wing air assets are available. The 2d Infantry Brigade Tactical SOP provides information for conducting airdrop resupply. Almost every type of airdrop mission is planned in the SOP. However, no element within the task force is authorized the equipment needed to conduct any type of airdrop mission. Parachutes, pallets, bags, containers and padding must be requested from the main support battalion rigger section. For any coordination with the rigger platoon, a formal request must be sent through the division G3.

Additionally, the G3-Air must receive a request for the type of Air Force aircraft the using unit wishes to use. Since requests go through two different agencies outside the task force, it is difficult to successfully receive all the required assets needed to conduct an airdrop.

Within the last three years, no Infantry unit at Fort Ord had successfully completed an airdrop mission. In March 1992, 2d Battalion, 27th Infantry, conducted five drops during a training exercise at Fort Hunter Liggett. The request for air was coordinated directly between the battalion S3-Air and a Reserve Air Force unit in summer training. The request for airdrop equipment from the rigger platoon was approved, provided the battalion S4 signed for the parachutes, bags and pallets. Although the airdrop mission was successfully completed, soldiers under the supervision of the Headquarters and Headquarters Company's first sergeant were taken out of the tactical plan to recover the equipment. A change of hand receipt for the equipment was conducted on the drop zone. Due to the problems in coordinating for airdrop resupply and other factors such as weather, tactical situation and limited personnel, resupply missions requiring fixed wing aircraft are rarely conducted.

The final Class I resupply missions that I will discuss are conducted in the jungle environment. Every element within the 2d Infantry Brigade Task Force has participated in a training rotation at the Jungle Operations Training Center at Fort Sherman, Panama. The jungle terrain greatly restricts all types of resupply missions. Few roads might be considered for use as a main supply route. Also, these roads are closely monitored by the guerrilla forces living in the area. The few pickup zones and landing zones easily become overgrown. Likewise, guerrilla forces know the possible landing zones and monitor the area constantly. These problems are magnified by the jungle climate. Soldiers require about four gallons of water a day to withstand the heat and humidity. Although each soldier carries canteens that can hold six quarts of water, each must be resupplied at least once every day.

Potable Water

Since most of the missions conducted by the Infantry units went well into the jungle, commanders were forced to make soldiers use iodine tablets to make potable water. The battalion S4 attempted to provide fresh water, rations and ammunition by hiding caches near roads. Out of five caches placed in areas where soldiers were moving, only one supply point was found and used. When one company requested an emergency resupply of water, the support platoon leader was ambushed enroute to the linkup site. If Blackhawks would have been available, most commanders would have requested resupply this way. Although a helicopter landing in the middle of the jungle would get the attention of enemy forces, at least food and water would be delivered.

The soldiers who fight in the LIC environment are usually required to carry everything on their backs to fight and survive. The challenge to resupply these soldiers is often restricted due to the enemy threat, terrain, limited assets available to resupply, and difficulty in linking up with the fighting soldiers.

The Quartermaster role in the LIC environment resupply process is critical. Rations and water must constantly be available in the brigade support area. If the supplies are available for the maneuver unit logistics officers to send forward, they can concentrate on how they plan to get the food and water where needed. Support operations in the brigade support area must deliver rapid, responsible support if the brigade task force is to survive and win.

CPT Dennis L. Schrecengast is a recent graduate of the Quartermaster Officer Advanced Course and has served in a variety of Infantry leadership positions with the 2-27 Infantry Battalion, 2d Brigade, 7th Infantry Division (Light), Fort Ord, California. With the 7th Division, he served in Operation Just Cause and Operation Desert Shield/Storm.

CORRECTION: In our Autumn 1992 edition the acronym HSC was incorrectly identified as Health Services Command in the article Airborne Supply Sling-Load Operations by LT Mark D. Collins, pages 27-28; and on Airborne Illustrations by SPC Tyrone Darby, page 1. HSC should have been identified as Headquarters and Supply Company. We apologize to LT Collins and SPC Darby for any inconvenience this may have caused. We thank them again for their contribution to our Corps professional bulletin.

New Career Field for Quartermaster Officers

CPT Kathryn A. Burba

As doctrine changes to support today's mission, so do combat service support (CSS) operations. In response to these changes and the lessons learned in Southwest Asia, a new career field is opening up for CSS officers. Functional Area (FA) 90 will be available to captains and above who qualify. FA 90 positions will incorporate all facets of CSS operations: arm, fix, fuel, move and sustain. This dual-track program will enhance career development through command and staff assignments, logistics management and leader development. The program, designed to make CSS officers well-rounded in all CSS operations, will ensure FA 90 officers serve in challenging multifunctional jobs.

How Does It Work?

The FA 90 position code will be used in personnel authorization documents to identify multifunctional logistics officer positions in the grade of captain through colonel. Specific jobs coded FA 90 include:

- Support battalion commander and primary staff
- Division Support Command (DISCOM)/corps support group (CSG)/ area support group (ASG) commander and primary staff
- Maneuver brigade S4 (Logistics Officer)
- G4, Assistant Chief of Staff (Logistics)
- Logistics staff officer

Positions coded FA 90 will promote qualification in both branch and functional areas. In addition, certain positions are recognized as "exceptionally qualified" positions. Officers who successfully serve in these positions will be on the "command track." These positions and schools are listed in DA Pamphlet 600-3 (Commissioned Officer Professional Development and Utilization).

What To Do?

Training will begin at the Officer Advanced Course (OAC) level for company grade officers by attending the Combined Logistics Officer Advanced Course (CLOAC). FA 90 captains are encouraged to seek branch qualification in multifunctional units to include separate, divisional, and corps support battalions. Officers desiring assignments to better qualify them for potential lieutenant colonel command should seek "exceptionally qualifying" positions coded FA 90. All FA 90 officers should complete the Support Operations Course. By choosing FA 90, officers are not limiting themselves to just that area.

Quartermaster officers may choose one other functional area in addition to FA 90. Officers who do this will have Quartermaster as their control branch, FA 90 as an area of concentration, and their functional area will be separate. Quartermaster officers should investigate the requirements for each functional area to ensure they are capable of maintaining qualification in both. Some functional areas may have similar requirements to FA 90 while others demand so much time that it will be virtually impossible to also meet the requirements for FA 90.

Qualifications

FA 90 is only open to these basic branches: Ordnance, Transportation, Quartermaster, Aviation Logistics, and Medical Service Administration. Initially, a Qualification Validation Reclassification (QVR) board will meet to review officers' records that show experience in any of the newly coded positions. Those officers selected by the board will be offered the functional area. Thereafter, officers who wish consideration must attend selected schools, one of which is the Support Operations Course. A QVR board will meet before each promotion board, and officers will be validated if they have served in an FA 90 position within the last five years.

Reserve Component Officers

FA 90 will play an important role in the Reserve Component since well over half of CSS units are in the U.S. Army Reserves. Officers must have a minimum of either the Support Operations Course or phase five of the Associate Logistics Executive Development Course to be considered for FA 90. Reserve officers who select FA 90 must meet specific requirements to continue in the functional area.

As the Army continues its drawdown and moves toward the Total Army concept, experience in FA 90 positions will become increasingly more vital to CSS officers and their career progression. The perception now is that FA 90 is the wave of the future. A smaller, more streamlined Army will have officers with more diverse training and broad-based experience. Because officers who serve in FA 90 coded positions will also be qualified in the basic branch, the functional area represents a "win-win" situation.

CPT Kathryn A. Burba has a bachelor of arts degree in political science from Colorado State University. She is also a graduate of the Quartermaster Officer Basic Course, Strategic Mobility Planning Course and Airborne School. She is a recent graduate of the first Combined Logistics Officer Advanced Course. Her previous assignments include Platoon Leader and Class IX Warehouse Officer, 3d Infantry Division; and Battalion S4, 22d Support Command, during Operation Desert Shield/Storm. She is currently a Project Officer assigned to the Office of the Quartermaster General, Fort Lee, Virginia.

Warehouse Research and Training Tool

WO1 David M. Peterson

As the technical supply officer in a large Class IX (repair parts) warehouse, I found that I spent 90 percent of my time doing research and training warehouse personnel how to do research. Many pieces of information are required for accurate research, and keeping track of all this information can become very time-consuming and frustrating. After filling up several notebooks with bits and pieces of research information, I developed a worksheet to keep track. With a little experimenting, I came up with the current worksheet (Figure 1).

The worksheet enables me to keep accurate records on problem areas and actions. I use it to communicate areas of concern to the item manager at the materiel management center. It works great as a tool for causative research on Inventory Adjustment Reports. It is also an excellent training tool for warehouse personnel. I pick a few lines from the authorized stockage list (ASL) that need to be researched and give them to the noncommissioned officers (NCOs) to complete the research. When they finish their research, we sit down together, go over all the areas on the research sheet and learn how one piece of information is critical to the overall picture. The NCOs begin to get in-depth knowledge and experience with the ASL, which makes for a more efficient operation.

The research worksheet helps subordinates develop better management decision-making skills. They learn quickly that a repair part is much more than just a national stock number. The worksheet can be modified to suit your own operational needs: just build a file for it in your Tactical Army Combat Service Support Computer System. The worksheet is also an excellent evaluation tool to find training weaknesses and potential problem areas. The worksheet has been a real "money maker" for our operation and I sincerely hope it can be of help to you!

WO1 David M. Peterson has an associate's degree from Central Texas College. He is also a graduate of the 76V (Materiel Storage and Handling Specialist) Basic Noncommissioned Officer Course and Advanced Course, where he was the Distinguished Graduate, and the 920B Supply Support Technician Course. His previous assignments include Noncommissioned Officer in Charge (NCOIC) of a Class II, IV and VII Main Warehouse, 6th Infantry Division (Light), Alaska; Recruiter/Station Commander, Pennsylvania; and NCOIC, Central Issue Facility, Fort Campbell, Kentucky. He currently serves as a Class IX Technical Supply Officer, B Company, 324th Support Battalion Forward, 3d Brigade, 24th Infantry Division, Fort Benning, Georgia.

Quartermaster T/5 Honored

CPT Philip G. Smith

T/5 Eric G. Gibson - On 28 January 1944, near Isola Bella, Italy, Tech 5th Grade Gibson, a company cook in the 3d Infantry Division, positioned himself as point man 50 yards in front of his squad, who were advancing down a wide stream ditch toward enemy lines. A German soldier opened fire on Gibson, who despite the steady stream of deadly point-blank automatic fire, moved on the position and overtook it, killing the soldier. Enemy artillery immediately hit the position, the concussion knocking Gibson to the ground. Upon righting himself, he came under fire from two enemy soldiers in a position 75 yards away. Gibson bounded towards them, disregarding the incessant flow of machine gun rounds passing to his left and right. Once at the position, he killed one of the German soldiers and captured the second.While Gibson waited for his squad to come up on line, he came under machine gun fire from an enemy position 200 yards up the ditch. Under fire, he low-crawled back to his squad and directed them to lay down suppressive fire while he flanked the emplacement. While flanking the position he was subjected to the cross fire of two machine guns and artillery. Once near the enemy, Gibson threw two hand grenades into the position and rushed forward, firing his submachine gun. Two German soldiers were killed and one captured. After waving for his squad to move up, he proceeded forward to reconnoiter around a bend in the stream ditch. In the distance his squad heard the sound of gunfire and rapidly moved up. They came upon a dead German soldier and the body of T/5 Gibson, killed in the exchange.

On 11 September 1944, T/5 Gibson was posthumously awarded the Congressional Medal of Honor. On 10 May 1991 the Noncommissioned Officer Academy Dining Facility at Fort Lee, VA, was named in his honor.

CPT Philip G. Smith is currently the Assistant Historian of the Quartermaster Corps, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.

RESEARCH WORKSHEET DATE_____

NSN_____ DSC_____ SLC_____ RO_____ ROP_____ AAC_____

NOUN_____ RC_____ MRC_____ MATCAT_____ PRICE_____

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ADDITIONAL INFO / RECOMMENDATIONS:

PREPARED BY:_____

Legend:

AAC - Acquisition Advice Code
ASL - Authorized Stockage List
BAL - Balance
DOC - Document
DSC - Distribution Stockage Code
INFO - Information
LOC - Location
MAINT - Maintenance
MATCAT - Materiel Category
MRC - Materiel Readiness Code
MRO - Materiel Release Order
NOUN - Nomenclature
NSN - National stock number
O/H - On Hand
PRI - Priority
QTY - Quantity
RC - Recoverability Code
RO - Requisitioning Objective
ROP - Reorder Point
SLC - Stockage List Code
SUB - Subject
- Number

Figure 1. Class IX Warehouse Reseach Worksheet

Confined Space and Fuel: A Deadly Combination

SFC Juan Giraud, Jr.

The unit was preparing for a field training exercise (FTX), increasing emphasis on vehicle and ground support equipment maintenance. A fuel tank, assigned to the maintenance platoon, was considered key for the FTX. The assigned operator, a self-starter who seemed to require very little supervision, decided to repair the fuel tank. He went inside the tank and was overcome by the remaining fuel vapors. Without the proper safety precautions, the soldier died.

This job could have been performed without fatality, injury or property damage with proper planning of the repair job and with proper training and supervision of the soldier. A working knowledge of the dangers when working with fuels and also hands-on experience with safety equipment are essential. Leadership must stay involved with all phases of fuel operations: training, planning and implementation.

Working with bulk fuel storage containers for cleaning or maintenance is never a one-person task. A team ensures safety during the operation. All team members should be trained in first aid, but a minimum of two members must be trained and tested. First aid training must include cardiopulmonary resuscitation and treatment for vapor inhalation.

Additionally, the detail supervisor must prepare a fire plan for the tank in case fuel vapors ignite. The post's environmental engineer should be consulted before working with any bulk fuels to coordinate spill control plans.

The inside of a tank removed from service is hazardous to health. These health hazards lie in several areas:

- **Presence of fuel and sludge.** Physical contact with fuel and sludge can cause serious skin damage. Fuel and sludge remove natural oils, leaving the skin chapped and cracked. These cracks are avenues for disease and infection to enter the body. Soldiers must wash areas of skin wet with fuel or sludge at once with soap and water. The detail must wear white clothing so that fuel stains can be spotted easily. They must also wear rubber gloves and boots to protect their hands and feet. If fuel or sludge does come in contact with the skin or eyes, soldiers must flush the affected area with water and seek medical treatment if required. Specific steps for treatment are outlined in FM 10-69 (Petroleum Supply Point Equipment and Operations).
- **Presence of fuel vapors.** Fuel vapors, especially gasoline and jet fuel vapors, are narcotic. Inhaling these vapors can slow the central nervous system to the point that breathing stops. Also, inhaling even small amounts of these vapors can irritate the lungs and respiratory system, causing pneumonia or leaving a soldier open to other respiratory diseases. The poisonous or toxic limit is 500 parts per million (ppm) as determined by an explosive meter. The detail must wear respiratory equipment while working until fuel vapor tests produce a reading at or below the 500 ppm limit. Soldiers may then work in the tank up to eight hours without respiratory equipment. This does not apply to tanks that stored leaded fuels because vapors escaping from the sludge with temperature fluctuations may increase the vapor content above safe levels.
- **Presence of tetraethyllead (lead).** Contact with lead can result in lead poisoning. Soldiers must take great care when entering a tank that stored leaded fuel. Inhaling the fuel vapors can be fatal because the toxic limit of leaded fuels is only 20 ppm. Details must wear respiratory equipment when working in leaded fuel storage tanks. The soldiers must use respiratory equipment after the tank has been tested and declared vapor-free because inhaling dust particles from scale on the walls can also result in death. Workers must also avoid direct contact with leaded sludge since lethal amounts of lead can be easily absorbed through the skin. The leaded fuel storage tank is unsafe until cleaned to the bare metal.
- **Presence of hydrogen sulfide.** Exposure to hydrogen sulfide can cause death by paralyzing the respiratory system. Victims become unconscious and never regain consciousness. Mild exposure damages the eyes. Hydrogen sulfide, found in crude oils with a high sulfur content, can usually be detected by a rotten egg odor. Soldiers should never use the sense of smell to determine whether or not hydrogen sulfide is present in a tank. Use a piece of moist lead acetate paper instead. If hydrogen sulfide is present in the tank, the paper will blacken.
- **Lack of oxygen.** Normal air contains 21 percent oxygen. A concentration of less than seven percent is dangerous. Fuel vapors, in addition to being narcotic, displace oxygen in a tank. Soldiers must use respiratory equipment until the tank is vapor-free. Before entering the tank, air must be circulated even if the tank is vapor-freed. The metal surface may have rusted, using up the oxygen inside the tank.

Soldiers can reduce the dangers of working with fuel tanks by following some simple, but critical, steps. Drain the tank and park it outside overnight with its vents open. This will allow air to circulate through the tank and dissipate the fuel vapors. The drained fuel must be handled according to environmental guidelines.

Next, fill the tank with water and flush. Since fuels are lighter than water, the water will force the fuel vapors from the tank. Citrikleen, a flushing agent available through supply channels (NSN: 7930-01-350-7035 in 55-gallon drums or 7930-01-350-7034 in 5-gallon pails), may be used instead of water. Environmental guidelines also apply to the handling and disposal of the flushed water or Citrikleen. Repeat this step as required.

Check the interior of the tank with an explosive meter before starting work each day and randomly throughout the day. Do not allow personnel to enter the tank without an explosive meter check, a fresh-air respirator as required, a lifeline and an observer. The lifeline and observer are used in case personnel operating in the tank are overcome by vapors. Victims can be quickly rescued and given medical assistance. Do not allow open flames, welding or use of heat-producing devices near the tank during cleaning. As a minimum, smoking must be restricted to distances of 50 feet or greater from the tank.

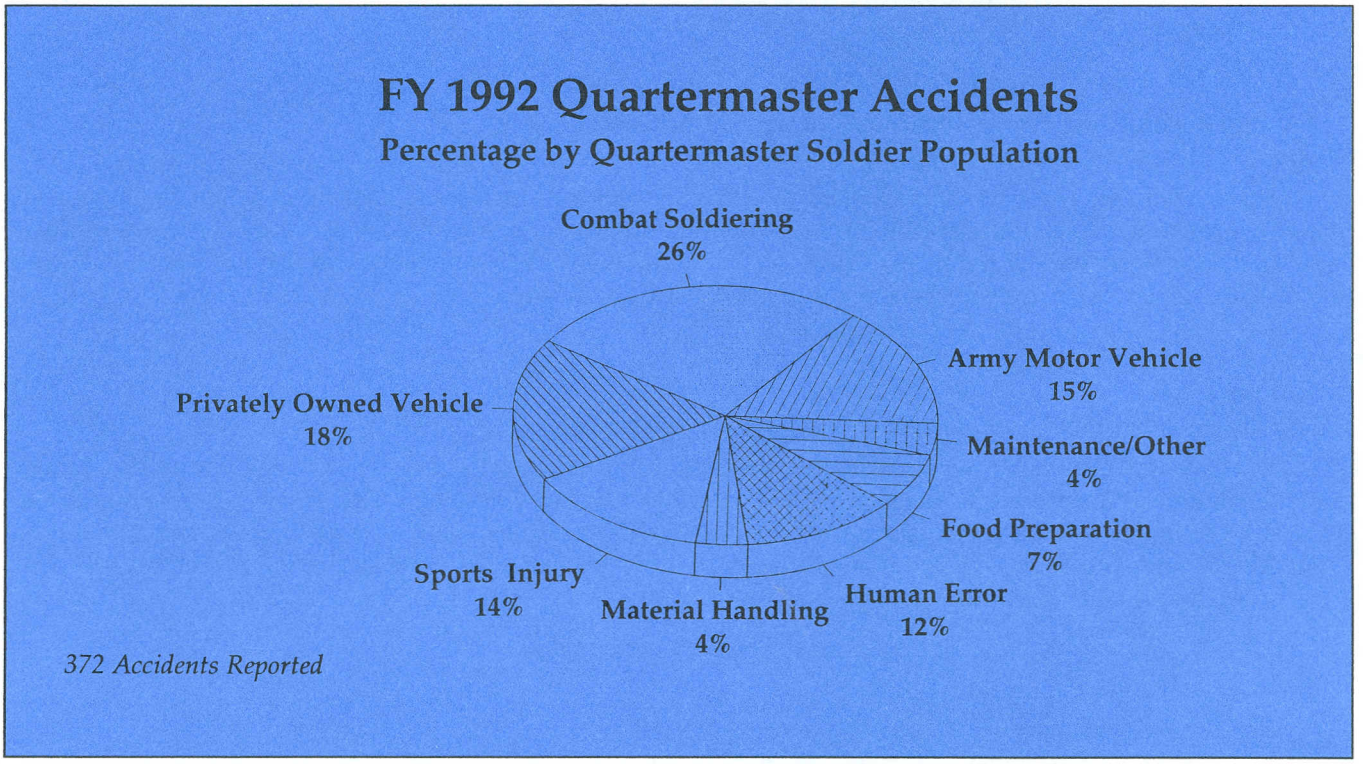
Knowing the hazards of working with fuel containers and how to work with these containers is not enough. Safe operations require sound, demanding leadership. In the previous example, leadership could have saved a life by ensuring that the soldier was not doing an operation he was not authorized to perform. (The maintenance the soldier was performing was designed at a level above the operator/unit). The leadership must assume the role of training and educating the soldier and not sacrifice safety for the sake of getting a piece of equipment operationally ready. Before performing any maintenance on fuel tanks or pods, the leadership should ensure the following:

- The operation is authorized at their level.
- Team members are trained and tested.
- Fire, safety and environmental plans are published and understood by each team member.

In another case, the motor sergeant told a soldier to climb inside a MOGAS fuel tank to empty the last 10 gallons by hand even though the tank was equipped with drain cocks. The sergeant then left the soldier unsupervised. The sergeant returned an hour later and found the soldier overcome by fumes inside the fuel tank. Neither the sergeant nor the soldier was trained in fuel handling.

Working with fuels is not like working with any other item of supply. Plain and simple, fuels are dangerous. The fuel and containers that hold fuel must be respected. This respect will ultimately save lives. Soldiers who are untrained in fuel handling should not try to make uneducated decisions about fuels or fuel containers. For assistance on fuel-related problems, contact the fuels branch at the Materiel Management Center or call the Petroleum and Water Department of the U.S. Army Quartermaster Center and School, Fort Lee, VA, DSN: 687-6663.

SFC Juan Giraud, Jr. is working toward a bachelor's degree in human resource management. He is a graduate of the Advanced Noncommissioned Officer Course and the Petroleum Quality Assurance Course. His previous duty stations include Fort Bragg, North Carolina, Zweibrucken, Germany, and Korea. He is currently a senior instructor assigned to the Petroleum and Water Department, U.S. Army Quartermaster Center and School, Fort Lee, Virginia.



PROFESSIONAL READINGS

The Professional Readings section of the *Quartermaster Professional Bulletin* is designed to encourage the professional development of all Quartermasters. Titles are selected from the Quartermaster School Professional Reading List, the current Department of the Army Contemporary Military Reading List, as well as other notable sources. Short reviews from the field are always welcome.

A Rumor of War
Philip Caputo, First Edition, Holt, Rinehart and Winston: New York, 1977.

Caputo was a Marine platoon leader in Vietnam. **A Rumor of War** is his personal account in the early days of Vietnam, 1965-66. In vivid detail, Caputo relates the day-to-day struggle of the combat soldier. Caputo experienced Vietnam as a soldier and would later return as a reporter, being present in 1975 during Saigon's fall. This book is a must-read for anyone interested in our involvement in Southeast Asia. His antiwar stand does not interfere with this book being exceptional professional reading.

Duty, Honor, Vietnam, Twelve Men of West Point Tell Their Stories
Ivan Prashker, Warner Books: New York, 1990.

Prashker interviewed 12 graduates of the United States Military Academy at West Point, NY, who served in Vietnam. Many of these men are presently serving in senior command positions within the U.S. Army. This book tells their story and gives great insight on how these men feel today. Prashker has compiled a readable and interesting book, which gives a much different line than most Vietnam-era publications.

"The Good War," an Oral History of World War Two
Studs Terkel, Pantheon Books, 1984.

Terkel, a Pulitzer Prize winner, has produced a book that shows World War II from every conceivable angle. He has interviewed veterans and nonveterans who remember the war. This book is memories of combat, important events, and the homefront. What Terkel has done is produce a chronological history as remembered by the survivors.

Inevitable Revolutions, The United States in Central America
Walter LaFeber, W.W. Norton & Company, 1984.

LaFeber analyzes the problems in Central America and why problems will be constant in the region. Although much has changed since the original publication, his thesis remains as true today as it did 10 years ago. This book looks back at the history of the region and America's involvement there. With *Operation Desert Shield/Storm* over, America's focus changes to areas in our own hemisphere.

About Face
David H. Hackworth and Julie Sherman, Simon & Schuster, 1989.

COL Hackworth (Retired), who presently works as a journalist, tells the story of how one of the Army's most decorated soldiers turned renegade. The book is his own story, tracing his rise from private and his service in two wars, Korea and Vietnam, to his eventual retirement and revolt against the U.S. Army policy in Vietnam. He ends the book with opinions on America's present state of readiness and our military leadership. This book should be read by anyone serving in today's Army.

Civilian Proponency

The Army goal is to fully integrate civilians into the Army Personnel Proponent System. Normally, this integration would include the life cycle management functions of force structure, personnel acquisition, training and education, grade/military occupational specialty (MOS) distribution, grade/MOS sustainment, professional development and separation procedures. However, due to limited resources, initial efforts are concentrating on developing progressive and sequential technical and leadership training (Army Civilian Training, Education and Development (ACTEDS)) plans and integrating potential deployable civilians into doctrine, where applicable.

Quartermaster civilian proponency is initially focusing on two areas. The first element is to develop a mutual and reciprocal relationship with Supply Career Field 13 civilians and the field supply system taught at Fort Lee, VA. Work continues on mutual support by the Functional Chief's Representative at Headquarters, Department of the Army, Office of the Deputy Chief of Staff for Logistics (HQ DA ODCSLOG) and the Commandant of the U.S. Army Quartermaster Center and School, Fort Lee, VA.

The second element of Quartermaster civilian proponency pertains to the development of a career program for Quartermaster General Schedule (GS) job series 050 - Funeral Directing, 1630 - Cemetery Administration, 1658 - Laundry and Dry Cleaning Plant Management, and the 1667 - Steward series (Services). Follow-on work in the Quartermaster Wage Grade series will be taken to publicize appropriate career ladders and educational opportunities.

Actions are in progress to develop an ACTEDS program for a Quartermaster Services series. Functional training for each specific job series will continue. However, the supervisory and management training will be framework to merge the different series into a career program. Also a management structure is being developed to oversee and manage the series career program.

These actions for the Quartermaster civilian employees and the supply personnel associated with Career Program 13 will move civilian proponency closer "toward the achievement of the total Army goal of one integrated quality force."

Executive Development of Civilians in SES "Feeder Groups"

On 13 Apr 92 the Secretary of the Army and the Chief of Staff cosigned a memorandum to Army commanders calling for greater attention in preparing civilians for potential Senior Executive Service (SES) appointment. This followed leadership approval late in 1991 of an Armywide SES Action Plan, seen as a blueprint for strengthening executive credentials in the senior civilian (GS/GM 13-15) SES candidate pool.

Citing effective leadership as "the hallmark of the success of today's Army," the joint memorandum also characterized the action plan as "an important tool in...the effort to overcome barriers to professionally advancing potential candidates for leadership positions." The initiative also responds to the lack of sufficient representation of women and minorities in both the SES and its "feeder groups." Action plan goals are twofold: (1) significantly strengthen the professional competencies of those aspiring to the Army's top management jobs and (2) strive to make the SES more representative of the public it serves.

In addition, the action plan recommends more closely aligning the SES selection process with that of general officers, publicizing internal career paths to the SES (as well as actions needed to become competitive/eligible), and sponsoring studies of open issues such as mobility, succession planning and "glass ceiling" barriers.

A key plan element is leader commitment to develop subordinates through appropriate assignments, counseling, mentoring and training. Managers and supervisors at all levels are being tasked to fully support the initiative.

Specific actions are underway within career programs whose career paths culminate in SES positions. Functional Chiefs are now reviewing progress in feeder group executive development as well as in SES referral and selection measures. Quarterly briefings are being provided to both the Under Secretary of the Army and the Assistant Secretary of the Army (Manpower and Reserve Affairs).

Currently, over eight percent of Army SES positions are occupied by careerists selected from the logistics arena (Supply Management, Materiel Maintenance Management and Transportation Career Programs).

Career Program 13 Registration

1993 will be a year of opportunity for those who are prepared for the challenges resulting from a declining workforce. Paramount in preparing for these challenges is for all eligible employees to ensure they are properly registered in Career Program 13 and that their records are current.

Our goal during 1993 is to encourage the maximum numbers of eligible Department of the Army employees, currently registered in the SKAP Program, to transition into the new ACCES Program, as forms are provided to the field this year. Our goal is 100 percent of eligible employees to register this year in ACCES.

Should you change jobs in 1993, do not forget to update your records with your new assignment information after occupying your new position. Taking the time in keeping your records current will best position you to meet the challenges and opportunities for the future.

For further information, contact Dorothy J. Narverud, Logistics Proponency Officer, DCSLOG, DSN 227-8002.

Revised Quartermaster RCOAC

As of 1 Oct 92, all officers enrolling for Quartermaster Reserve Component Officer Advanced Course (RCOAC) must enroll in Phase I of the revised RCOAC by submitting a DA Form 145 (Army Correspondence Course Enrollment Application) to the Army Institute for Professional Development (AIPD), U.S. Army Training Support Center, Newport News, VA 23628. The officer must be at least a first lieutenant and an officer basic course (OBC) graduate. Phase I consists of approximately 120 credit hours of correspondence course work. Note that Phase I must be completed before attending Phase II. Phase II is a two-week, resident phase taught only at Fort Lee, VA. It will be taught for the first time 10-23 Apr 93 and approximately once per quarter thereafter. Quotas for the resident phase will continue to be managed by the U.S. Total Army Personnel Center and U.S. Army National Guard Bureau, as quotas currently are managed.

Current Configuration of Quartermaster RCOAC

Officers currently enrolled in the three-phase Quartermaster Reserve Component Officer Advanced Course (RCOAC) have until 30 Sep 93 to complete all course requirements. The following is a summary by phase:

- Phase I, Company Command Module, two weeks at Fort Lee, VA. The last Phase I class will be taught 20 Feb-5 Mar 93. Only officers who enrolled before 1 Oct 92 should attend.
- Phase IIA, Common Core, correspondence course work. Officers enrolled in IIA with AIPD had to complete all subcourses by 30 Sep 92. If enrolled in Phase I Combined Arms and Service Staff School (CAS3) to meet the requirements for IIA, then the officers must complete that by 30 Sep 93.
- Phase IIB, Quartermaster track, correspondence course work. Courses distributed by AIPD must be completed by 30 Sep 93.
- Phase III, two-week resident course at Fort Lee. This phase will be taught for the last time during the summer of 1993. Expect two or three classes scheduled as part of First Army's annual training schedule.

For any questions about Quartermaster RCOAC, please contact either MAJ Joosse or Mr. Clemons at AV 687-5167/5452 or Commercial (804) 734-5167/5452.

Exportable Training Exercise Program (ETEP)

The ETEP was started in 1981 to fill a training void in Reserve Component (RC) combat service support (CSS) training and to provide standardized training in CSS training exercises. Building on this program, the U.S. Army Combined Arms Support Command (USACASCOM), Fort Lee, VA, developed training programs for CSS units. These exercises are an Army Training Evaluation Program (ARTEP)-based model exercise written to Logistics Exercise (LOGEX) Central Army Group scenario and contain all required to run a three-day command post exercise (CPX). The ETEPs can be used "as is" for training staffs in their ARTEP mission management functions or tailored to meet the needs of a particular unit commander. Although created primarily to assist RC exercise developers, ETEPs are equally applicable to Active Component units. Twelve exercises are currently available and have been recently updated. They are [Echelons Above Corps] Area Support Group; Supply and Service (S&S) Battalion; Maintenance Battalion; Ordnance Battalion (Ammunition); [Corps Support Command] Corps Support Group (Forward and Rear); Corps Support Battalion (Forward and Rear); Petroleum, Oils and Lubricants Battalion; Transportation Battalion; S&S Battalion; and Forward Support Battalion. Due to resource constraints, however, ETEPs will no longer be updated. They will be replaced in the future by an automated command and staff trainer. The exercises can still be obtained by calling SSG Gilles, Operations Noncommissioned Officer, Operations and Management Office, at DSN 539-2298, Commercial (804) 765-2298, or by sending a written request to Commander, USACASCOM, ATTN: ATCL-LO, Fort Lee, VA 23801-6000.

FY93 - Year of RC Training

RC Logistics Warrior Update Conference: The RC Update Conference will be held at Fort Lee, VA, 27-28 Feb 93, at the Larkin Conference Center. The target audience is battalion commanders, battalion S3s and RC unit commanders. Name and rank of attendees should be forwarded to the Commander, USAQMC&S, ATTN: ATSM-SPT-I, Fort Lee, VA 23801-5036, by 15 Jan 93.

FY93 Annual U.S. Army Reserve Forces (USARF) School Training at Fort Lee: Seven USARF schools will conduct annual training at Fort Lee during May-August 1993. Officer Advanced Course, Advanced and Basic

Noncommissioned Officer Military Occupational Specialty (MOS) Course and Skill Level 10 training are scheduled. Approximately 2,000 RC soldiers will receive specialty training during this period.

92A Questions From the Field

See the Quartermaster UPDATE section of this edition for the RC reclassification window.

Mobilizing for Combat: National Guard Meets the Challenge

LT Todd Ratliff

"Wow. They said it was going to be tough but we made it. After long hours spent reviewing and then exercising our unit's mobilization plan, my unit, the 53d Support Battalion, Florida Army National Guard, completed a mock exercise of a mobilization contingency force. We had been planning this exercise for just two weeks and, all in all, things really went well. A lot of the reason for this must be the emphasis my commander placed on the level of mobilization readiness in our unit and the program we developed. It sure seems to be paying off now as our soldiers are better prepared to go into a combat situation if we receive the actual call to mobilize."

During the recent activation of many National Guard units for Operation Desert Shield/Storm, the mobilization process was difficult and time consuming. As a Quartermaster officer, one of your additional duties may include unit movement officer (UMO). After serving as the UMO for the 53d Support Battalion, I gladly pass along the following advice and comments for developing your unit's mobilization plan.

First, identify the requirements for the plan and how it will be implemented. Your mobilization planning organization should include an administration section and an operations section. The administration section will cover the unit orders for the UMO, unit movement noncommissioned officer, personnel on load teams, purchasing authority agent and personnel trained to certify hazardous material. The operations section will include the automated unit equipment list (AUEL). The AUEL contains the unit movement data summary which shows the cargo tonnages and modes of transportation. It also gives general commercial transportation planning data. In addition, the AUEL shows individual shipment units that are planned for the movement. This list will ensure adequate lift allocation and will eliminate the need for the unit to manually produce the transportation control and movement document for the move.

You will need to be familiar with many points of contact, and you must have a thorough understanding of their roles and responsibilities. The installation transportation officer (ITO) on the nearest military installation will be your point of contact for unit deployment transportation requirements. The ITO has information for commercial transportation of cargo, all of which must be documented and entered in your movement plan. The Directorate of Engineering and Housing (DEH) can determine the amount of blocking, bracing and packing requirements of your unit. The DEH and Directorate of Logistics will assist you in any vehicle preparations before deployment.

As you prepare your unit for movement, you should develop a checklist to follow to ensure that you are not missing any important details. At a minimum the following requirements should comprise your checklist for unit movement:

- Adequate guidance on vehicle load plan development and testing.
- Vehicle load plans prepared for all cargo-carrying vehicles.
- Space in vehicle load plans for all organizational equipment and supplies for movement on unit vehicles.
- Additional transportation requirements that were identified and requested.
- Planning for necessary packing materials and shipping containers.
- Copies of all applicable regulations about unit movements on hand.

Test and update all parts of your unit movement checklist as needed to ensure the best possible movement.

The lessons learned from *Operation Desert Shield/Storm* hit home hard with the Reserve Components. Our movements are critical to the success of our Army on the battlefields of the future. We do not get as much training and practice as the active force, so our leaders must ensure our planning is solid and exact. Check your own unit's current mobilization plan. Identify the weak areas and correct them. Ensure that your unit leaders are trained in unit movements at the U.S. Army Transportation School at Fort Eustis, VA. Practice unit "load outs" at your home stations. "Load outs" will assist you in identifying strengths and weaknesses in your plan and will help your unit to move when called. It is your unit and you must be ready to lead your unit into combat. Will you be ready to mobilize?

LT Todd Ratliff has a bachelor of science degree in psychology from Ohio University. He is also a graduate of the Transportation Officer Basic Course and the Quartermaster Officer Basic Course. Previous military experience includes enlisted service as a Combat Engineer and Platoon Leader for a light/medium truck company. He is currently a Platoon Leader and Unit Movement Officer in the 53d Support Battalion, Florida Army National Guard.

PT Pays Off for Reserve Components

LT Charles L. Orman

"Well, we are finally here. It was tough, but we made it. After long hours spent reviewing and then exercising our unit's mobilization plan, my unit, the 123d Quartermaster Company, Mississippi Army National Guard, has finally touched down in Germany as part of a mobilization contingency force. We have been here for just two weeks, and my soldiers are holding up well and doing a great job. Credit has to go to the military occupational speciality training we did at our home station the past year, but I also can look back positively on the emphasis my commander placed on the level of physical fitness in our unit and the program we developed. It sure seems to be paying off now as our soldiers are better able physically to complete their missions."

Over the last 15 years, the Army made many substantial changes in its view of physical fitness in the areas of doctrine, equipment and uniforms. The objective is to improve the soldiers' readiness for war. These improvements transferred into the Reserve Components, where their applicability is just as great if not greater than in the Active Army today. This article identifies some of those changes and makes recommendations to units developing their own physical training (PT) program with emphasis on U.S. Army Reserve and National Guard units. As witnessed in *Operation Desert Storm*, the need for physically fit soldiers in all components has never been greater.

By the early 1980s, the Army had abolished its policy of running in boots, and soldiers started running in athletic shoes. Running in boots was a combat deterrent because many soldiers had problems with their feet, ankles, knees and backs. More variety with an emphasis on aerobic conditioning was incorporated into the PT doctrine. Evaluation standards for soldiers were raised with the objective of increasing the stamina and durability of the soldiers. Finally, the Army established the Army Physical Fitness Uniform (APFU) standardizing the uniform for all soldiers.

When establishing or improving your unit's PT program, consider many things. First, take a look at your training facilities. This will dictate the type of program you will be able to develop. Ideally, you should have modern weight-lifting equipment, a gymnasium, swimming pool and a obstacle/leadership reaction course. The swimming pool is necessary for soldiers with a running profile and also an excellent source for aerobic conditioning. Combined with a good running surface, such as a track or improved road, these facilities will enable you to develop a varied and challenging program.

Second, you should evaluate the condition of your soldiers. A diagnostic PT test is an excellent tool for the leader to see in what areas his soldiers need the most improvement. An initial test followed by additional diagnostic tests later in the year will best complete your evaluation. Also take into consideration the mission of your particular unit. Soldiers whose jobs require heavy lifting or handling heavy materials will require a program with increased levels of strength and endurance training. Emphasize a strength development program with positive health value for all participants, and task/mission orientation.

Yet another factor to consider is the equipment, or more specifically, the running shoes your soldiers have for exercise. The correct type of footgear will not only improve your time but will also decrease the probability of serious foot, ankle, knee and back stress-related injuries. As their supervisor, you must pay particular attention to the safety of your soldiers while they are involved in your unit's PT program. Proper diet and nutrition will also give your soldiers more stamina and ability to perform their assigned missions.

As logisticians serving in the Reserve Components, the challenge has never been greater to ensure that our soldiers are ready to go into a combat situation. *Operation Desert Storm* proved to us that a fit fighting force has definite advantages on today's battlefield. Developing and implementing a good PT program at your home units will help to ensure that your soldiers are ready to go if they get the call to mobilize. By using some of the basic ideas discussed here and good common sense when developing your program, your soldier's physical fitness, combat readiness and attitude toward being all they can be will change for the better.

LT Charles L. Orman is a graduate of the University of Southern Mississippi. His military education includes the U.S. Naval Firefighting School, Mayport, Florida, and the Quartermaster Officer Basic and Advanced Courses. He is currently assigned to the Headquarters and Headquarters Detachment, 298th Maintenance Battalion, Mississippi Army National Guard.

92A Questions From the Field

Effective 1 May 93, all Active Component soldiers holding military occupational specialties (MOSs) 76C/P/V/X will be reclassified 92A (Automated Logistical Specialist). For the Reserve Component to complete the reclassification, 1 May through 30 Sep 93 is the current operational window. More information will be sent out with final decisions and approvals. Soldiers affected by the consolidation will receive an additional skill identifier (ASI) of Y2. The Y2 designation will show commanders the soldiers who require transition training. The Y2 will be removed when a soldier successfully completes an approved 92A transition course.

Transitional training can be through resident or nonresident training programs, but is designed primarily for a nonresident mode. The 92A Transition Training Plan includes both Active and Reserve Components and skill levels 10/20, 30, 40 and 50. The nonresident transition training package is being developed as both Reserve Component configured courseware (RC3) and a troop school program of instruction (POI). Additionally, soldiers can complete transition training by attending the next level Noncommissioned Officer Education System (NCOES) course or completing the 92A Army Correspondence Course Program (ACCP). Local commanders will verify the completion of transition training and initiate personnel actions to remove the Y2 ASI from the individual soldier's record.

The first 92A resident AIT will begin 9 Mar 93, with Basic Noncommissioned Officer Course (BNCOC) and Advanced Noncommissioned Officer Course (ANCOC) classes starting 11 May 93 and 6 Apr 93, respectively. AIT will consist of 13 weeks of intensive MOS training in all four supply areas in the 92A MOS. Active Component major command (MACOM)/Logistics Assistance Office (LAO), troop schools and Reserve Component training institutions (RCTIs) will have the transition training material in the 4th Quarter, FY93. This matches the start of the RCTI FY94 school year.

The ACCP and Training Extension Course (TEC) materials currently in inventory will be available for individual soldiers who wish to start learning the new MOS skills before the MOS conversion date. These materials are grouped into packages tailored to each affected MOS. (Example: If you are currently a 76C, the package that you would receive would contain MOSs 76P/V/X training material.) These materials, called the 92A Supplementary Training Package, are currently available through the Army Training Support Center (ATSC). These ACCPs/TEC lessons may be completed on a voluntary basis. Although no transitional training credit will be given for completion, these packages will provide an excellent opportunity to prepare soldiers for the upcoming change.

The official 92A ACCP 50-level course will be available in 2d Quarter, FY93, with the 10/20-level ACCP targeted for 3d Quarter, FY93 and the 30/40-level following in 2d Quarter, FY94. Automation training requirements will be met using the Standard Army Management Information System (STAMIS) tutorials and training programs within the software or by using the RC3 POI.

The U.S. Army Training and Doctrine Command (TRADOC) approved delays of the 92A Self Development Test (SDT) until the Y2 ASI program ends. The SDTs for FY93 and FY94 are canceled and will be given in FY95 only to those soldiers who no longer have the Y2 ASI.

Answers to MOS 92A Questions:

Q: When will I be converted to 92A?

A: For Active Component soldiers, reclassification to 92A will occur 1 May 93. The Reserve Component's window to complete reclassification currently is 1 May through 30 Sep 93.

Q: What happens to 76C soldiers in the conversion process?

A: Until 1 May 93, 76C sergeants will continue to be promoted to 76Y staff sergeant and on 1 May will convert to MOS 92Y. After 1 May 93, all 76C soldiers, regardless of rank or promotion status, will be converted to MOS 92A.

Q: What will be the entrance aptitude area qualification score for MOS 92A?

A: The entrance aptitude area qualification score for MOS 92A is 95 in the CL (clerical) area of the Armed Services Vocational Aptitude Battery (ASVAB) test.

Q: When will 92A be required to take the SDT?

A: TRADOC approved canceling the 92A SDT for FY93 and FY94. Soldiers who have not completed transition training and carry the Y2 in FY95 will be deferred from testing. Soldiers who have completed transition training before the FY95 test administration date will be tested.

Q: How does the Active Component soldier transition to 92A?

A: Successfully completing any of the following will qualify soldiers for transition to 92A and the removal of the Y2 designator:

- 92A ANCOC or BNCOC
- Troop school transition course

- Local training programs
- Regional training sites, transition course
- 92A ACCP

Q: How does the Reserve Component soldier transition to 92A?

A: Successfully completing any of the following will qualify U.S. Army Reserve and Army National Guard soldiers for transition to 92A and the removal of the Y2 designator:
- 92A ANCOC, BNCOC, U.S. Army Reserve Forces (USARF) School or resident version
- USARF School, transition course
- Regional training sites, transition course
- 92A ACCP

Q: Who is responsible to ensure soldiers receive transition training?

A: Unit commanders are responsible to ensure that personnel receive transition training.

Q: I am already qualified in more than one of the consolidated MOSs. Do I need to complete the entire transition course?

A: Yes. However, each transition course will have a pre-test available to allow an individual to test out of certain blocks of training.

Q: When will training materials be available for transition training?

A: Resident NCOES courses will begin in 3d Quarter, FY93. All other transition training packages except ACCPs will be available 3d Quarter, FY93. The official 92A ACCP 50-level course will be available in 3d Quarter, FY93, with the 30/40-level targeted for 2d Quarter, FY94 and the 10/20-level ACCP following in 3d Quarter, FY95.

Q: How do I qualify instructors to teach 92A?

A: The best plan for teaching the 92A course and qualifying instructors is a round-robin method using instructors who taught old MOSs to teach the associated portions of 92A. They should be given the opportunity to sit in on the training they need and become qualified to teach the entire course.

Q: What transition course is available at the Quartermaster school?

A: Because of monetary, equipment and other resource constraints, there is no transition course being offered in residence other than NCOES courses.

Q: What is the ASI Y2 designator and how can it be removed?

A: In AR 611-201 (Enlisted Career Management Fields and Military Occupational Specialties), the ASI Y2 is used to identify personnel who require transition-type training because of MOS conversion. For 92A, the Y2 is removed when a soldier completes a transition training course.

Q: Who can remove the ASI Y2?

A: Unit commanders can remove the Y2 designator once transition training is completed.

92A Supplemental Training Enrollment

Effective May 1993, all soldiers holding the Quartermaster military occupational specialties (MOSs) of 76C, 76P, 76V and 76X will be consolidated into the new MOS 92A (Automated Logistical Specialist). Supplemental training for MOS consolidation is available from the U.S. Army Training Support Center (ATSC). Using Army Correspondence Course Program (ACCP) and Training Extension Course (TEC) lessons currently in stock, interim training packages became available last October. These packages do not qualify soldiers as 92A, but supplement and/or cross train soldiers on 76C, 76P, 76V and 76X tasks carried over to 92A. Exportable training materials specifically developed for 92A will be fielded during the first quarter of FY 95.

Soldiers in the consolidated MOSs may voluntarily enroll in these supplemental training courses. To enroll, soldiers should complete DA Form 145 (Army Correspondence Course Enrollment Application). When requesting enrollment in the 92A supplemental course, it is important that the soldier's current MOS and skill level be entered in blocks 2 and 16. This will ensure they receive a specifically tailored package. Forward the completed form to the Army Institute for Professional Development, U.S. Army Training Support Center, Newport News, VA 23628-0001.

92A Update

The Automated Logistical Specialist (92A) training development is progressing well. The 92A10, 92A30 and 92A40 programs of instruction are complete and approved by the U.S. Army Training and Doctrine Command (TRADOC).

The 92A10 course is 13 weeks long. The 92A30 and 92A40 courses are 9 weeks, 1 day and 9 weeks, 4 days, respectively. The courses focus primarily on automation. However, each course contains enough manual procedures to train the soldiers to operate under non-automated conditions.

The 92A10 course contains the same number of hours of Unit Level Logistics System (ULLS), Standard Army Retail Supply System (SARSS) and Direct Support Unit Standard Supply System (DS4) currently in the 76C (Equipment Records and Parts Specialist) and 76P (Materiel Control and Accounting Specialist) courses. The 92A course also capitalizes on the common skills throughout the four supply military occupational specialties (MOSs). The course will give the 92A soldier a better look at the connection between the automated systems and the part they play in the overall supply system. The 76X (Subsistence Supply Specialist) portion of the training is the most radically changed subject area. This training focuses on field operations only. Troop Issue Subsistence Activity (TISA) operations are no longer a part of the training.

The 92A30 and 92A40 courses are layered to

focus on the management and supervision of the automated supply systems.

Class IX Asset Visibility

Class IX (repair parts) asset visibility on 52,599 secondary items is reported by the Selected Item Management System - Expanded (SIMS-X) from the retail level to Army wholesale item managers. These SIMS-X lines represent just 18 percent of all Class IX items managed by U.S. Army Materiel Command, but account for nearly 74 percent of its inventory sales.

On 13 July 1992, Headquarters, Department of the Army, Office of the Deputy Chief of Staff for Logistics (HQDA, ODCSLOG) and the U.S. Army Materiel Command (AMC) expanded upon AMC's program to ensure Army wholesale item managers fully consider the visibility of excess retail-level repair parts provided by SIMS-X in their buy/repair decision process.

In 1990, AMC initiated Phase I by using SIMS-X data to cancel requisitions for excess stock at the requestor's level. Phase II started on 1 September 1992 when Army wholesale item managers began using SIMS-X data to offset buys. Later in Phase III, item managers will routinely use SIMS-X data to redistribute assets that include all Army-managed Class IX items. This third phase is tied to the Single Stock Fund which begins testing during FY 93.

Reducing the Army's secondary item inventory is a shared responsibility. Field commanders must ensure that unserviceable and excess repair parts are accurately reported and rapidly turned in to the supply system. Army wholesale item managers must use SIMS-X visibility to offset buys for stocks in an excess posture. The combination of these efforts will reduce secondary item procurement and conserve Defense Business Operating Fund dollars. For further information, the HQDA, DALO-SMP POC is MAJ Greg Guillie, and the AMCLG-MS POC is Ms. Laurel Carlson, DSN 284-5708.

18th Annual Culinary Arts Competition

The 18th Annual Culinary Arts Competition will be held 10-11 Mar 93 at Fort Lee, VA. Teams from all over the world will arrive by 28 Feb 93 to begin their preparations. Registration packets were sent out last September. It is extremely important to have your team registered by the January deadline or points will be deducted from the team competition. Motivate your soldiers to hone their skills for the field, garrison and static display competitions. The 1993 Army Culinary Arts Team will be chosen at the competition. They will go on to compete in the National Restaurant Association Show in May 93. Take advantage of this opportunity to expand your professional skills. POC is MAJ John Miller, Culinary Skills Training Division, Army Center of Excellence, Subsistence, U.S. Army Quartermaster Center and School at DSN 687-3192.

International Culinary Olympics

In addition to gold and silver medals, The U.S. Army Culinary Arts Team (USACAT) won the title "World Champion of the Armed Forces" in the Military Competition at the International Culinary Olympics, Frankfurt, Germany, 11-15 Oct 92. They will keep the title for the next four years. The USACAT, consisting of Army chefs and apprentices assigned throughout the world, left Fort Lee, VA, to compete with 126 teams and 333 individuals from 30 nations. The live cookery competition was emphasized in the 1992 Olympics.

The USACAT was subdivided into Military and Regional Teams. In competition with other armies of the world, the five-soldier Military Team won a gold medal with distinction for the highest possible score for seven, three-course, hot-served-cold menus for one person prepared in advance. The Military Team also won a gold medal in a live cook-off preparing two, three-course meals for 200 customers. (Two gourmet menus for 200 people were prepared within a time limit. After the judges critiqued the meal, visitors to the Olympics purchased the foods from the Restaurant of the Army.) The Military Team was declared world champion after combining the scores of both sections of their competition. The Regional Team won a gold medal for their centerpiece display, which was a three-tiered cake, and a silver medal overall for their restaurant platters, four-course lunch menu including dessert, and a seven-course gourmet menu including dessert.

This was the first time that the USACAT was a part of the 1992 Culinary Team USA and thus represented the nation in both the military and the regional categories as a part of the USA official team entry. All entries have to have the prior approval of their country's food service governing body, which for the Army is the American Culinary Federation. The Olympics, begun in 1900 in Frankfurt as a forum for sharing information on food ingredients and cooking techniques, had the following categories for competition: national, regional, military, junior national, junior regional and individual.

MRE Improvements for 1993

Deliveries of Meals, Ready to Eat (MREs), starting in Jan 93, will include a number of significant changes. Every menu bag will contain a flameless ration heater. Chicken ala king and also meatballs with rice will be replaced with smoky franks with potato sticks and with pork chow mein with noodles. A new baked pound cake will replace the retorted in the pouch cake. Six of the 12 sugar-sweetened beverage bases will be replaced with a nonnutritive sweetened base. Additional changes based on input from the field include:

- Hot sauce in each menu bag.
- Cheese spread shifted to be with the ham slice for a "ham and cheese."
- Candy added in four additional menus for a total of eight menus.

- When room is available, dehydrated fruit replaced with a comparable wet pack fruit.

New Food Items

The Armed Forces Product Evaluation Committee (AFPEC) has authorized a variety of new food items. Here is a list:

- Nicaraguan coffee beans authorized into the Federal Specification for Coffee.
- Assorted flavors of dehydrated yogurt mix.
- Prepared gyro meat and cucumber sauce.
- Canned orange sections.
- Bulk pack cereal (11 varieties).
- Frozen spiral (french-fried) potatoes.
- Dehydrated regular and spinach tortellini.
- Low-fat granola cereal (bulk and individual boxes).
- Nonfat salad dressing (mayonnaise-type) and Italian, French and thousand island dressings.
- Refrigerated extended shelf life milk (60-day shelf life, white and chocolate) five-gallon, quarts, pints and half pints.
- Cherry cola carbonated beverage.
- Frozen silver sea trout.

In addition, the committee revised standards to improve the quality of the current roast veal, strip steak, and precooked corned beef. The committee meets four times a year (February, May, August and November) at various government agencies.

Food Service Contracting Training

The U.S. Army Quartermaster Center and School (USAQMC&S), Army Center of Excellence, Subsistence, Fort Lee, VA, has created and scheduled three workshops in FY 93 to train personnel to develop and administer quality food service contracts. The USAQMC&S provides these workshops to ensure that commanders and directors responsible for food service can train their personnel. As a result of the downsizing of the Army, the Army Logistics Management College will no longer provide resident contracting officer's representative (COR) classes. This course has been the primary source for training food service personnel in the basic principles and procedures of service contracting. The Food Service Contract Management Workshops will certify personnel in COR duties and will focus on quality assurance and contract administration. Training funds should be budgeted for appropriate personnel to attend one of these eight-day workshops at Fort Lee during FY 93. Point of contact for registration is Mr. McGinniss, DSN 687-7118.

West Point Training

The United States Military Academy's Department of Social Sciences is looking for company grade Reserve Officers' Training Corps or Officer Candidate School officers interested in teaching political science or economics. If you are from basic year groups 86-90 and interested in civilian graduate study followed by a teaching assignment at West Point, please contact us. We are currently considering applications of officers who might be available to start graduate study in the summer of 1994 or later. For more information, write the Department of Social Sciences, United States Military Academy, ATTN: Personnel Officer, West Point, New York 10996.

Airborne Training Material

Army Training and Evaluation Program (ARTEP)/Mission Training Plan (MTP) 10-443-30 (Quartermaster Light and Heavy Airdrop Supply Companies, Quartermaster Airdrop Supply Detachment, and Quartermaster Parachute Packing and Repair Detachment) will be coordinated for field review in 1st Quarter, CY 93 with expected publication in 3d Quarter, CY 93.

ARTEP/MTP 10-449-30 (Quartermaster Airdrop Equipment Repair and Supply Company and Quartermaster Airdrop Equipment Repair and Supply Detachment) will be coordinated for field review in 1st Quarter, CY 93 with expected publication in 4th Quarter, CY 93.

POC for ARTEP/MTP dates is Everett Jones, DSN 687-4816 or Commercial (804) 734-4816.

QARMA Boards

The Quarterly Airdrop Review and Malfunction/Safety Analysis (QARMA) boards for CY 93 are scheduled for the following dates:

13-14 Jan 93, Fort Lee, VA
21-22 Apr 93, Fort Lee, VA
21-22 Jul 93, Fort Lee, VA
7-8 Oct 93, Fort Bragg, NC

POC for the boards is Roger Hale, DSN 687-4769 or Commercial (804) 734-4769.

Warrant Officer Technical Tactical Certification Course (WOTTCC)

WOTTCC Class 92-17 was the final resident course to report to Fort Lee, VA, and the Quartermaster School as Warrant Officer Candidates (WOCs). All future students will report to the WOTTCC wearing the rank of warrant officer. This is due to a change in the Warrant Officer Training System (WOTS). The WOTS was renamed the Warrant Officer Education System (WOES). The newly revised WOES went into effect 1 Oct 92. The WOTTCC will also be used for the reclassification of all warrant officers to the Quartermaster specialties.

Warrant Officer Leader Development Action Plan (WOLDAP) Update

The following are the approved WOLDAP initiatives with milestone dates, along with Office of the Quartermaster General (OQMG) action.

- Establish Warrant Officer (WO) Life-Cycle Models, 1st Quarter, FY 94: OQMG forwarded these models for all four Quartermaster military occupational specialties (MOSs) to Headquarters, U.S. Army Training and Doctrine Command (HQ

TRADOC) on 27 Jul 92.

- Review,Update, Revise and Standardize the WO Training System (WOTS), 1st Quarter, FY 94: The WO Education System (WOES), formerly WOTS, is currently under revision by the Warrant Officer Career Center (WOCC) at Fort Rucker, AL. OQMG participated in a HQ TRADOC-hosted Common Training Task Site Selection Board in Sep 92 to develop common core training at all levels. As a part of this board action, an additional phase of training was implemented for WOs upon selection for promotion to Chief Warrant (CW) 4. Instead of the current three phases of training, the following four will be spread out over an individual's career:
  - Warrant Officer Candidate School (WOCS) and Warrant Officer Basic Course (WOBC) at appointment to W1.
  - Warrant Officer Advance Course (WOAC) upon selection for CW3.
  - Warrant Officer Staff Course (WOSC) upon selection for CW4.
  - Warrant Officer Senior Staff Course (WOSSC) upon selection for CW5.

  WOES will be detailed in TRADOC Regulation 351-XX (Officer Training).
- Implement Standardized Selection Criteria and Accession Goals of 8 Years Active Federal Service (AFS) and 12 Years AFS Accession Cap, 3d Quarter, FY 93: On 8 Jul 92, OQMG forwarded standardized accession prerequisites for all four Quartermaster MOSs to the U.S. Army Recruiting Command.
- Appoint WO Candidates to WO1 Upon Completion of WOCS, 1 Oct 92: Action implemented.
- Establish by Grade Position Coding for WO1/CW2, CW3, CW4 and CW5. Identify Army and Branch MOS Immaterial WO Positions and Pinpoint Assignments for CW5s, 1st Quarter, FY 94: OQMG has begun initial scrubbing of The Army Authorization Document System (TAADS) for both the tables of organization and equipment (TOEs) and tables of distribution and allowances (TDAs) to identify first generation of position coding by rank. It is anticipated an OQMG representative will make coordinated visits to the major commands (MACOMs) during 2d and 3d Quarter, FY 93 to validate the coding of Quartermaster warrant officer positions in their respective modification TOEs (MTOEs) and TDAs.
- Establish a WO Training Institution To Act as Executive Agent for All WO Common Core Training, 2d Quarter, FY 93: On 2 Oct 92, the WOCC was activated at Fort Rucker. The WOCC, a Combined Arms Center organization, will be the Army's executive agent for all WO common training.
- Improve Reserve Component (RC) WO Recruiting by Increasing Recruiter Assets Through Active Component, U.S. Army National Guard and U.S. Army Reserve Coordination, Plus RC Command Emphasis, 2d Quarter, FY 93: To help with the recruiting of RC WO shortages, the U.S. Army Quartermaster Center and School developed Reserve configured training modules which allow Reserve WOs to tactically and technically certify through a series of correspondence courses and a two-week resident phase at Fort Lee, VA. These Reserve configured training modules apply to MOSs 920A, 920B and 922A. Currently, the 921A (Airdrop Equipment Technician) must continue to successfully complete the nine-week resident training.
- Institutionalize and Market Understanding of WO Roles, Duties and Responsibilities, 1st Quarter, FY 93: OQMG is presenting a one-hour briefing on WO topics to all Officer Basic and Advanced Courses and the Battalion/Brigade Precommand Course. This is in addition to the WOBC and the WO Senior Course.
- Raise Civilian Education Goals To Professionalize WO Force: Attain Associate's Degree by Eligibility for Promotion to CW3 and Bachelor's Degree by CW4 Eligibility, 4th Quarter, FY 93: OQMG continues to highlight these civilian education goals to resident training students and through briefings during field visits. Also, many articles on this subject have been in professional journals and bulletins.
- Retain WO Insignia and Central Management: Action completed.
- Establish a Limited WO Military Qualification Skills (MQS) System, Similar to the Regular Officers' MQS II, for WOs Through the Grade of CW4, 4th Quarter, FY 94: This is a Combined Arms Center initiative and has little or no input from Quartermaster proponency.

With full implementation of WOLDAP, the Army expects to develop and build a corps of WOs who start younger, serve longer, are better educated and have better leadership skills. POC for Quartermaster WOs is MW4 John F. Zimmerman, Chief WO of The Quartermaster Corps, DSN 687-3702.

Uniform Fitters Training Program

Two Apprentice Uniform Fitters Courses were conducted at Fort Jackson, SC, last July and August. A total of 27 uniform fitters from the Clothing Initial Issue Points and the Army/Air Force Exchange System were trained. The Master Uniform Fitters Course last September concluded the training for FY 92. The Uniform Fitter Training Program has made significant progress in standardizing the fit of the Class A Uniform throughout the Army. Funds to continue the training program are expected for FY 93.

Repair Outfit, Collapsible Tanks and Drum (ROCTAD)

A repair kit (NSN 5430-01-359-1078) has been certified safe for use with both petroleum and

potable water tanks. Known as ROCTAD, the kit is a stock fund item, now called Defense Business Operations Fund (DBOF), and is managed by the Defense Construction Supply Center (DCSC), Columbus, Ohio. The estimated cost of the kit is $275. Although DCSC has taken no procurement action to date, units requiring the ROCTAD should submit funded requisitions to DCSC, using routing identifier code (RIC) S9C. This will establish a demand history leading to the procurement of the kits.

Joint Communications Unit Recruiting

The Joint Communications Unit (JCU) is a special duty assignment supporting the Joint Special Operations Command. We continuously solicit for volunteers. The following are prerequisites for 76Y (E5 or a junior E6):

- Volunteer.
- Active duty with three years retain ability before permanent change of station.
- Pass special background investigation (SBI).
- No history of recurring disciplinary action.
- United States citizen.
- At least 23 years old.
- Airborne qualified or volunteer for airborne duty (may be waived for certain positions).
- Able to pass the JCU Physical Fitness Qualification Test (push-ups, pull-ups, sit-ups, and three-mile run).
- Fully qualified in job speciality.
- Basic Noncommissioned Officer Course graduate.
- Exemplary performance record.
- Unit commander's endorsement.

The JCU recruiting process is highly selective, often taking several months. If interested in being considered for a position, call SFC Perez/CW4 Rivers, DSN 396-0217/0216 or write to Joint Communications Unit, ATTN: Pers, P.O. Box 70239, Fort Bragg, NC 28307-0239.

SMART Program

Supply and Maintenance Assessment and Review Team (SMART) is a "soldier helping" suggestion program that seeks ideas from the field to simplify and improve the logistics system. SMART suggestions have been contributing to improved Army logistics support since 1981. During FY 92, 830 suggestions were evaluated, and a total of 207 ideas were recommended for adoption. Estimated Army savings for FY 92 SMART suggestions were $1.1 million. The total awarded to individuals in FY 92 for their adopted suggestions was $86.5 thousand. Since the program's inception, SMART has generated approximately 12,700 ideas, worth $137.1 million in Army savings, and over $590,000 has been awarded to individuals.

The success of the SMART program depends upon input from the field and command emphasis. For more information, contact SGM Linda Cotton, HQDA, DALO-SMP, DSN 224-8304.

The Quartermaster Officer and the Army Acquisition Corps

With the passage of Congressional mandates and the FY95 cap of 2,500 military officers, the Army Acquisition Corps (AAC) focuses on developing a dedicated pool of highly qualified acquisition specialists. The AAC consists of 1,465 officers in Functional Area (FA) 51 (research and development), 443 officers in FA 53 (systems automation) and 585 officers in FA 97 (contracting and industrial management). Before creation of the AAC in October 1989, the Quartermaster Corps was a major player in the acquisition management arena. This was particularly true in the procurement/contracting and industrial management of the wholesale supply system.

The Notional Operational Force (NOF) 25 model for FY95 has 111 Quartermaster officers in the AAC. This will be 5.4 percent of the projected 2,052 Quartermaster officer corps. The distribution of the 111 Quartermaster officers in the AAC will be 45 officers in FA 51, 18 in FA 53 and 48 officers in FA 97. Currently, Quartermasters have 36 officers in FA 51, 14 in FA 53 and 100 officers in FA 97. The large number in FA 97 comes from consolidation this past year of all FA 97 officers in the AAC. Over 218 Quartermaster officers dropped the FA 97 designation. The AAC officers did better than the Army average on the last promotion boards to major, lieutenant colonel and colonel by 25.5, 13.7 and 20.9 percent, respectively.

Army Acquisition Corps - A Career Look at Contracting and Industrial Management

LT John E. Amundsen

The Army Acquisition Corps (AAC) is an area with highly trained soldiers who specialize in acquiring military equipment. These professionals are the first step in procuring all the major end items and components that we Quartermasters account for, distribute and repair for the rest of the Army. Therefore, Quartermasters need to know about the AAC.

The AAC includes these functional areas (FAs): FA 51 (research and development), FA 53 (systems automation), and FA 97 (contracting and industrial management). Officers seeking a place in the AAC must select FAs during the fifth year of their careers. An FA 97 officer performs duties to get the best from government and industry providing all the equipment and materials used by the Army and Department of Defense. This highly skilled soldier must bridge the gap between civilian industry and the military. The challenge is to ensure that the defense acquisition process procures the required weapon systems, supplies and services to support and sustain the readiness of our combat forces and future forces.

Starting Phase

Contracting and industrial management is an FA which is not aligned with any one branch of the Army. Positions in this area are open to both male and

female officers who have completed qualification in their basic branch and Combined Arms Service Staff School (CAS3). Officers with an area of concentration will be considered for selection into the AAC at the eighth year based upon their qualifications and the requirements for their year group and branch.

Captain Phase

The eighth to the tenth year is considered the "Captain Phase." The officer would be considered an AAC candidate. The soldier's primary goal is to develop contracting and production management competency, leadership and overall managerial abilities. A minimum civilian education level would be an undergraduate degree in a business (technical or management) field and graduate study in an acquisition-related field that could be funded through the Advanced Civil Schooling Program. The officer would complete the required FA and AAC training. Training With Industry would be available as a strong training tool to this officer. Some typical assignment opportunities during this period would be contracting and procurement officer, program analyst, contract administration, and production officer.

Major Phase

The "Major Phase" is from the eleventh to the sixteenth year of the soldier's career. The skill identifier 4M would now be awarded to the officer who would become an AAC developmental officer. The main objective during this phase is to pursue advanced development with emphasis on enhanced acquisition technical knowledge, competence and managerial ability. The officer should have graduate study in a related specialty and must complete the Command Staff College course. After this course, the officer could be assigned to an acquisition user position. This will be the AAC officer's last assignment in the basic branch. From this point, the officer would most likely attend the Program Management Course. All future assignments will be solely acquisition assignments.

Lieutenant Colonel and Colonel Phase

The objective for the seventeenth to the twenty-first years is to obtain certification as a 4Z AAC officer, continue advanced development within the FA 97, and enhance contracting and industrial management technical knowledge and managerial ability. The above is completed during the "Lieutenant Colonel Phase." The officer should attend the Senior Service College and try to complete all civilian education and FA training not previously completed. As a lieutenant colonel and as a colonel, the officer will compete for critical acquisition positions such as commander of the Defense Logistics Agency, product manager and acquisition management analyst.

Final Phase

The last phase for the AAC officer is time to maximize the expertise and experience in FA 97 assignments. The AAC officer really gets to reap the benefit of all the years of training. The officer will be in charge of projects that will shape the future of the Army and maintain superiority of equipment over other countries. The requirement for a joint service assignment is waived and an AAC officer does not compete for battalion or brigade commands. A colonel must complete a minimum of 120 months of assignments in the FA 97 before selection for General Officer.

Military to Civilian Transition

The AAC officer will find that after a very rewarding career in FA 97, the transition into the civilian job market is easy. The training and experiences of an FA 97 officer are very similar to the type of training and experience required in the corporate world. This fact will allow the individual to continually support the military as an employee for a company that produces quality equipment for the Army.

LT John E. Amundsen has a bachelor of arts degree in accounting from Washington State University where he was also Distinguished Military Graduate. He is also a graduate of the Field Artillery Officer Basic Course, Nuclear Weapons Doctrine Course, and the Quartermaster Officer Advanced Course. He has served previously at Fort Sill, Oklahoma, where he was a Platoon Leader and Executive Officer for the 3d U.S. Army Field Artillery Detachment.

Texas Tech University and the Logistics Warrior

LTC Frank W. Miller

Texas Tech University in Lubbock is known as "The Pride of the South Plains." The U.S. Army through the Reserve Officer Training Corps (ROTC) has been associated with Texas Tech since 1926. Because of this association with ROTC and the strong academic programs in science and engineering, the university affiliated with the Logistics Warriors in the Quartermaster Corps on 4 April 1988.

Texas Tech is a multipurpose state university that provides the opportunity for a liberal education for all students and for professional training at the undergraduate and graduate levels. In addition, the university recognizes the value of participating in community service and the significance of scholarly research.

More than 25,000 students attend classes in Lubbock on the 1,839-acre campus. The university also operates the Research Center-East Campus (Lubbock); Texas Tech University Center at Amarillo, an educational facility and agricultural research farm of approximately 14,000 acres in the Texas Panhandle; and the Texas Tech University Center at Junction, an educational facility consisting of 411 acres in the Texas Hill Country.

Lubbock, with a population of over 186,000, is located atop the caprock on the South Plains of Texas. The city lies 320 miles west of Dallas and 320 miles southeast of Albuquerque, NM. Several major airlines and an interstate bus line serve the city, as well as four U.S. highways, including interstate highway 27.

Texas Tech's greatest growth came after World War

II. Graduate programs in most of the academic areas were instituted, the library was expanded, and the athletic program was incorporated into the Southwest Athletic Conference. Texas Tech University is one of the youngest major universities in the nation, and a spirit of intellectual growth pervades the campus. There are many special facilities for research, such as the Computer Center, the Seismological Observatory, and the Southwest Collection. The library, heart of the academic world, is one of the finest in the Southwest, with strong collections in the humanities and in the biological and physical sciences.

ROTC

The ROTC program prepares university students for commissioning as officers for the Active Army, Army Reserve, and Army National Guard. This instruction is viewed as an integral aspect of our national security because Army ROTC provides over 70 percent of the commissioned officers serving in the Army Reserve Component and the Active Army. The training teaches military skills and enhances the individual's abilities in communications, leadership and physical aptitude.

The four-year Army ROTC program is divided into the Basic Course (first two years) and the Advanced Course (last two years). Students, other than scholarship winners, incur no military obligation during the first two years.

- **Basic Course.** Enrollment in the basic course is open to all fulltime students at Texas Tech who are U.S. citizens or immigrant aliens. Students must be able to participate in rigorous physical training. During the first two years, students observe and experience motivational techniques and human relations practices specifically developed to assist them in their adjustment to the university environment. A tutorial program assists ROTC students in making the academic transition to higher education. Outdoor and survival skills, including land navigation with a compass and topographic map, weapons marksmanship and safety, first aid, rappeling, and physical conditioning are taught in both the classroom and outdoor laboratory. Course content also includes structure of the Army and its relationship within American society, customs and courtesies of the Army, leadership, values and interpersonal communications. Leadership, decision-making, and organizational skills are emphasized in all training activities.
- **Advanced Course.** The junior- and senior-level courses offer in-depth study of individual and group behavior and personnel management. The courses are designed to allow students to develop leadership and organizational skills during laboratory periods. Emphasis is on individual and small unit combat tactics, accelerated physical training, and basic soldier skills in order to assure successful completion of the Advanced Camp between the junior and senior years. Military history is used in both years to teach the development of strategy and tactics. During the senior year, students study the importance of ethics and professionalism for the military officer. Students are required to develop skills in oral and written communications as well as techniques of instruction.
- **Military Science Organizations.** This department sponsors the local chapter of Scabbard and Blade, the national military honor society. It also sponsors intramural athletic teams, the Officer Christian Fellowship, and the following organizations:
  - *Ranger Challenge Team.* This nine-member team represents the Texas Tech Army ROTC program at competitive meets in the Texas-Oklahoma-Kansas area. The purpose of the Ranger Challenge is to test the abilities of the top cadets in small unit competition. Team members are selected competitively in the areas of physical fitness, endurance, marksmanship and proficiency in basic soldier skills.
  - *Ranger Company.* Members of this unit have the opportunity to apply classroom leadership and tactics instruction in a realistic situation. In addition to weapons and tactics instruction, participation in the unit develops confidence in each member's leadership ability, teamwork and spirit. Membership is open to all Army ROTC students.
  - *Grey Scouts.* Members of this unit participate in leadership and training activities to round out their officer skills by organizing and making presentations on military subjects and by coordinating service projects for the university. Membership is open to all Army ROTC cadets.
  - *Red Raider Orienteers.* This organization represents Texas Tech at competitive orienteering meets throughout the Southwest. The sport of orienteering requires cross-country navigation using map and compass to locate control markers in a race requiring speed, accuracy and mental decisiveness. Membership is open to all students.
- **Awards and Recognition.** Awards and decorations are presented each semester to military science students to recognize outstanding performance in academic, military science, athletics and physical training. Awards range from cadet ribbons and certificates to organization decorations and scholarships.
- **Summer Training**
  - *Basic Camp.* Students desiring to enter the military science program, who have no prior military service and have only 2 to 2 1/2 years remaining before graduation, may choose to attend a six-week ROTC Basic Camp at Fort Knox, KY. Completion of this camp satisfies the requirements for the Basic Course. After Basic Camp, students may then contract and enter the Advanced Course. Transportation, room and board, and an allowance are paid for the six-week period.
  - *Advanced Camp.* All Advanced Course students must complete this six-week camp at Fort

Riley, KS, between the junior and senior years or immediately following completion of Military Science (MS) IV. Transportation, room and board, and an allowance are paid for the period. The program of instruction here is designed to be the capstone for all military education up through and including the MS III year.

- *Nurse Summer Training Program.* Students seeking a bachelor of science degree in nursing and a commission in the Army Nurse Corps may choose to attend a six-week camp for nursing students instead of the regular advanced camp. Following a week of field training, students are then assigned to an Army hospital for the remaining five weeks. During this time, nursing students work one-on-one with an Army nurse, putting into practice the clinical skills learned in college.
- *Special Schools.* Army ROTC students may apply for summer training in Army Airborne, Air Assault, Northern Warfare, Jungle Warfare, Ranger, or Russian Language School. In addition, MS III level students may request assignment to a Cadet Troop Leadership Training (CTLT) position for additional experience with an Active Army unit. CTLT training is normally for three weeks. However, a few positions may be available for extended training (five weeks) overseas.

- **Green to Gold Program.** The Green to Gold program is designed to identify enlisted soldiers with officer potential and assist them in their transition from active duty to college and subsequently recruit them into the college ROTC program. The program grew out of the Army Transition Management (ATM) program that began in December 1986. Under ATM, the Army sought to counsel soldiers and to help them make reenlistment, education, vocation, and/or retirement decisions. A portion of ATM involves education counseling through Army Education Centers (AECs). Cadet command forged an alliance with these AECs to find quality soldiers with leadership potential who wished information on college ROTC opportunities.

The AEC provides soldier assistance in the areas of counseling, testing and college application. The AECs assist soldiers, as necessary, with admissions packets for each educational institution that requires formal application. The packet includes an Education Services Officer (ESO) letter of introduction. They also counsel soldiers on their educational benefits and complete a financial worksheet that demonstrates potential costs at the student's college.

Within the continental United States (CONUS), the AECs perform all the activities described above and refer soldiers with ROTC interest, who have not previously contacted ROTC officials, by phone to the cadet command counterpart battalion for the installation.

Outside CONUS (OCONUS), the AECs perform all the functions described above and prepare a Green to Gold packet consisting of a cover sheet, ROTC cadet command form, a commander's letter of recommendation, and a copy of the soldier's admission packet.

Texas Tech University and the ROTC actively seek enlisted Logistics Warriors who want a commission in the Quartermaster Corps. Seek out information from your AEC.

- **Advanced Civil Schooling (ACS).** Logistics Warriors wishing to complete a post-graduate degree should consider the ACS program. ACS is currently offered to branch-qualified officers. The Leadership Development Branch at the U.S. Total Army Personnel Command distributes quotas to each branch. The selection is extremely competitive and applicants should have an above-average military performance file and good academic aptitude.

Army Regulation 621-1 (Training of Military Personnel at Civilian Institutions) outlines the application process. Applications should be submitted no later than 1 October of the year before an officer intends to begin classes. Successful applicants will start classes the following August or September. Obtain additional information by calling the Future Readiness Officer at the Quartermaster Branch, U.S. Total Army Personnel Command, AV 221-8119/8123.

If you are selected and wish to study in the critical fields of petroleum engineering or restaurant, hotel and institutional management, then Texas Tech University is the place to be. These programs are nationally ranked as first and fourth, respectively. Military personnel are granted in-state tuition, and we enjoy an excellent working relationship with the university. For active duty personnel and their families, we have the support of Reese Air Force Base just 12 miles away. The base has a hospital, dental clinic, base exchange, commissary, officer's club, and all the services of a military installation.

For additional information about Texas Tech University or the ROTC Program, write or call Texas Tech University, Box 45003, Lubbock, Texas 79409-5003, ATTN: LTC Frank W. Miller, (806) 742-2141.

LTC Frank W. Miller is currently the Professor of Military Science/Battalion Commander at Texas Tech University, Lubbock, Texas. He has a bachelor of arts degree in biology/chemistry and a master of science degree in vocational counseling from West Virginia University. His military education includes the Command General Staff College, Supply/Service Officer Course, and the Quartermaster Officer Basic and Advanced Courses. His previous assignments include Platoon Leader/Class I Officer, 3d Infantry Division, Wurtzburg, Germany; Psychological Operations Officer, 16th Psychological Operations Company, Morgantown, West Virginia; Company Commander and Chief, Supply and Transportation, Yuma Proving Ground, Yuma, Arizona; Battalion Executive Officer, Special Troops Battalion and Group Executive Officer, 507th Corps Support Group, Fort Bragg, North Carolina.

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530th Quartermaster Battalion Soldiers Loading Rations, Foggia, Italy, February, 1944.

LINEAGE

Constituted 29 December 1942 in the Army of the United States as the 530th Quartermaster Service Battalion

Activated 14 January 1943 at Camp Butner, North Carolina

Battalion broken up 6 February 1944 and its elements reorganized and redesignated as follows:

Headquarters and Headquarters Detachment as Headquarters and Headquarters Detachment, 530th Quartermaster Battalion

(Companies A, B, C, and D as the 4133d, 4134th, 4135th, and 4136th Quartermaster Service Companies, respectively - hereafter separate lineages)

Inactivated 25 June 1946 in France

Converted and redesignated 10 January 1966 as Headquarters and Headquarters Company, 530th Supply and Service Battalion, and allotted to the Regular Army

Activated 24 January 1966 at Fort Bragg, North Carolina

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