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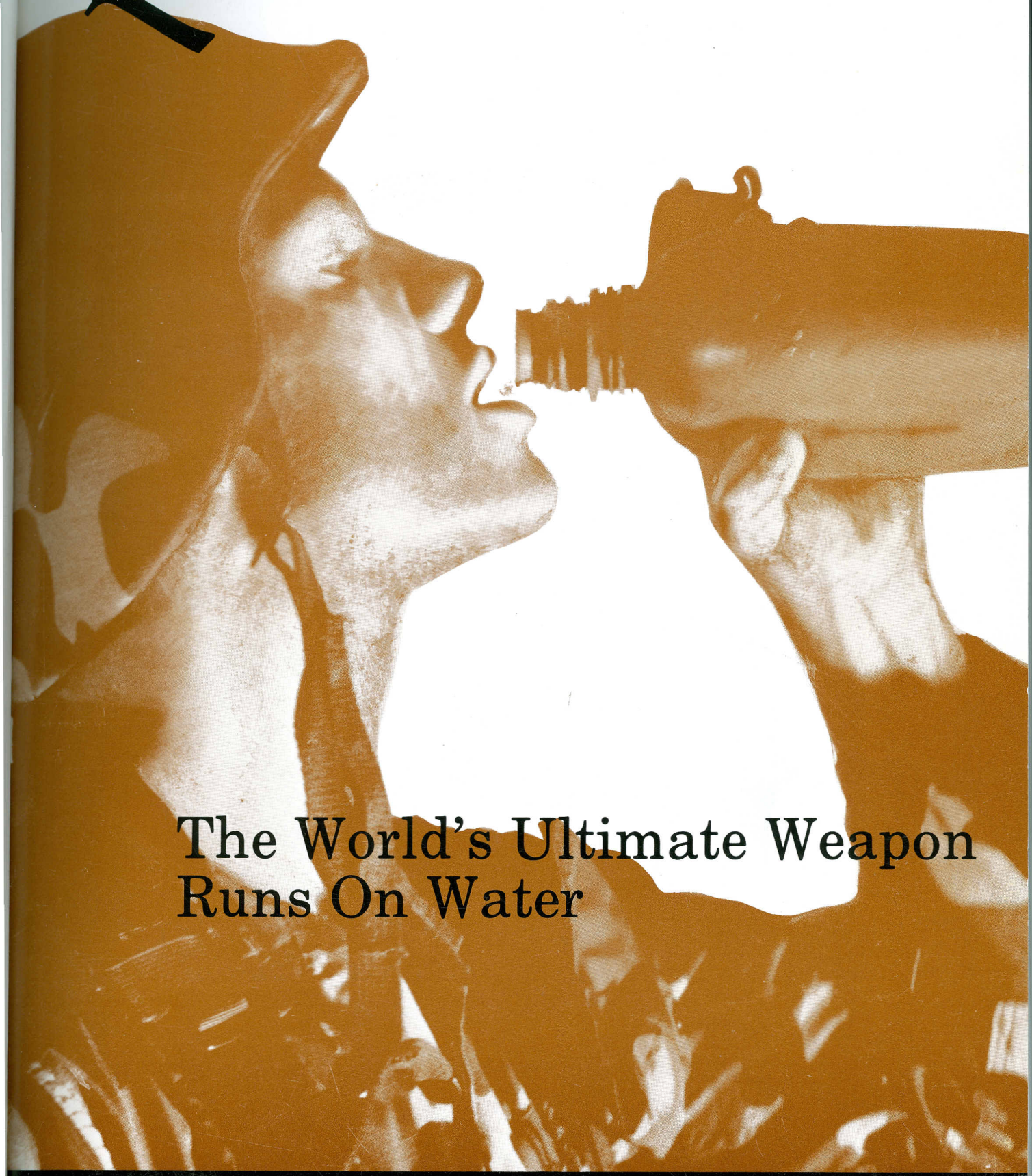

The World's Ultimate Weapon Runs On Water

eadquarters, Department of the Army

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U.S. ARMY QUARTERMASTER CORPS

Key to Logistics

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THE QUARTERMASTER CORPS

As the scale and complexity of warfare has increased, the importance of logistics to success on the battlefield has also grown. An army's ability to marshal, transport, and distribute large quantities of materiel, and its proficiency in maintaining the soldiers and equipment of large units will mean the difference between victory and defeat in times of war.

PURPOSE:

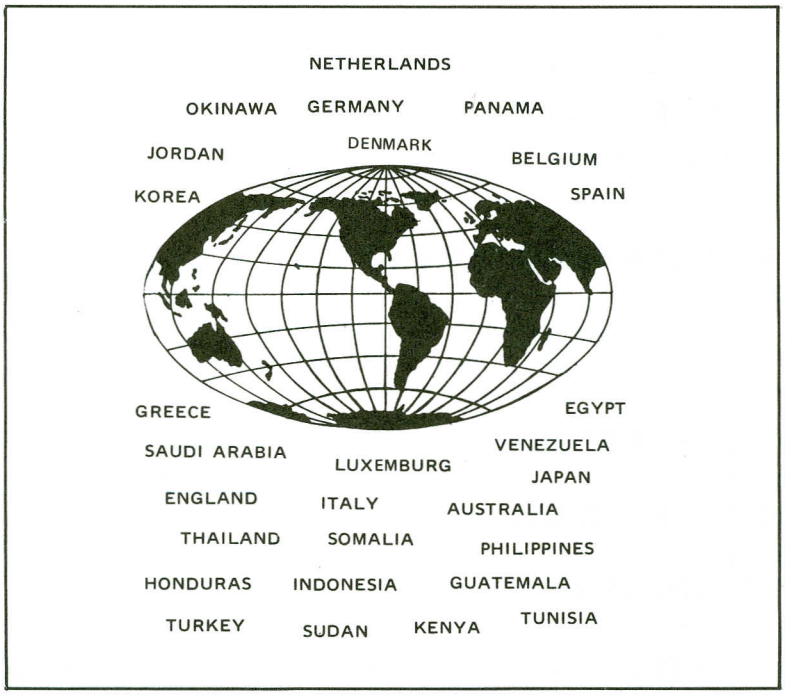
The Quartermaster Corps arranges for, or provides supplies, materiel management, distribution, procurement and field services to support and sustain soldiers, units and their equipage during peace or war.

MISSION:

To arrange for or provide, in peace or war:

- Major end items, repair parts, rations, water, petroleum, individual and organizational clothing and equipment, personal demand items, fortification and barrier material, and materiel to support military and non-military programs.
- Field services including laundry and bath, clothing exchange, bakery, fabric repair, graves registration, classification, reclamation, salvage and property disposal.
- Training and professional development of Active, Reserve Component, and Civilian personnel in proponent and common skill areas.
- Doctrine, systems, and force integration to include research, development and acquisition in proponent areas.
- Post Exchange and Commissary support.

WORLDWIDE SUPPORT



Editor's Notes

The Office of The Quartermaster General is proud to present the first issue of the Quartermaster Professional Bulletin. The purpose of the Quartermaster is to keep personnel knowledgeable of current and emerging developments within the Corps. This forum will provide a medium for professional dialogue, reinforce the training process, and encourage study and innovative thought. Its success will depend upon the articles and ideas received from Quartermaster personnel worldwide.

To assist you in submitting your articles, an information form is located at the end of this issue. Ensure that all articles relate to, and support the mission of the Quartermaster Corps. Typical articles that may be included are: technological developments, tactics, techniques and procedures, "how to" articles, practical exercises, training methods, historical perspectives, views and opinions.

Articles not permitted (per TRADOC guidance): personal notices (to include routine notices of promotions, assignments, graduations, etc.), personality-type articles (except for those with historical significance), and news items not pertinent to the Quartermaster Corps.

Photographs must clearly support articles. Include a short caption to indicate the content of all photos. Photos can be black and white/or color (black and white preferred). Submission of articles and photos is considered authority to release for publication at the discretion of the editorial and design staff.

The Quartermaster Professional Bulletin format consists of four areas: a Special Feature section, general articles, "FYI", and career notes.

The special feature section will highlight a specific mission area within the Quartermaster Corps. Our first issue details our newest mission - water. The water articles offer an overview of doctrine, equipment, and organizational changes resulting from the 1981 transfer of water supply functions from the Engineer Corps to the Quartermaster Corps.

Any material dealing with the Quartermaster Corps may be submitted for inclusion in the general article section. This medium provides an excellent opportunity for exchanging information and enhancing the professionalism within your Corps.

"For Your Information" will provide brief updates on doctrine, training, equipment, and combat developments. The functional areas of Supply, Subsistence, Airborne, and Petroleum/Field Services will each have two pages dedicated to short "information bullets."

The target audience for the Quartermaster is junior enlisted soldiers, noncommissioned officers, warrant officers, commissioned officers, and DA civilians within the Quartermaster Corps. "Career Notes" will discuss aspects of personnel management and professional development for these groups.

Articles from Quartermaster Corps personnel worldwide will promote the exchange of dialogue that is needed to ensure the success of this professional bulletin. The chart below is a schedule of due dates for submission of articles, proposed highlight topics, and projected dates of distribution for the next three issues. We look forward to working with you.

	Professional Bulletin #2	Professional Bulletin #3	Professional Bulletin #4
Deadline for Articles and supporting graphics	15 Apr 88	15 Jul 88	15 Oct 88
Highlight Subject	Airdrop/Rigger	Graves Registration	Combat Field Feeding System
Projected Distribution Dates	Jun 88	Sep 88	Dec 88

THE QUARTERMASTER WATER MISSION

CAPTAIN
MICHAEL C. DOHER

With the advent of Rapid Deployment Force planning, the Department of Defense (DOD) examined the procedures used to distribute and store water on the battlefield, especially in an arid environment. Due to the hot, dry nature of Southwest Asia (SWA) and other arid areas, the services realized that large amounts of water would have to be consumed by soldiers to maintain their health and prevent heat casualties. Millions of gallons of water would have to be produced, stored, and transported in an area where surface water sources were rare.

Because of these requirements, the Army transferred proponency for water from the Corps of Engineers to the Quartermaster Corps, which was accustomed to handling bulk fluids (e.g. petroleum) in the theater. A new water force structure was developed to support these increased logistical requirements.

DOCTRINE

The policy and responsibilities of management of land-based water resources in support of joint contingency operations are outlined in Joint Chiefs of Staff Publication No. 3, Section XVI, Tactical Water Support. This document directs that "the Army will be prepared to provide general support backup capability, if needed, to support all deployed U.S. forces." To this effect, last year, the Army requested the Air Force, Navy, and Marine Corps to determine the water requirements which they could not meet using their own equipment. The Army is now examining these unmet requirements to determine if they can be met with the existing force structure or if the force structure must be increased.

The current water support concept is presented in two TRADOC pamphlets. TRADOC Pam 525-11 was developed specifically as an interim solution to the problem of providing water support in SWA. This document enumerated the DOD services water consumption planning factors and depicted the buildup of water support systems during different phases of deployment. TRADOC Pam 525-32 expanded the operational concept to include all environmental regions (temperate, tropical, arctic, and arid) and defined both direct support and general support water supply operations, equipment, and organizations.

The Quartermaster School Petroleum and Field Services Department is currently revising FM 10-52 to make it the new theater doctrine manual. It will incorporate the material in the two TRADOC Pams. A new field manual will be developed which will describe water supply point equipment and operations at all echelons, under all combat conditions, and in all environments. Both of these manuals will be fielded in fiscal year (FY) 89.

EQUIPMENT

In the mid-1970's the U.S. Army began development of a new generation of water purification equipment to purify water from a wide range of sources: fresh, brackish, salt water, and water contaminated by nuclear, biological, and chemical agents. This new equipment is based on the reverse osmosis process which removes dissolved salts from the water.

The 600-gallons per hour (gph) Reverse Osmosis Water Purification Unit (ROWPU) is designed to provide potable water to Army divisions and separate brigades. This trailer-mounted ROWPU is powered by a 30 KW generator and is both air droppable and air transportable. It can produce up to 12,000-gallons per day (gpd) of potable water from a fresh water source or 8,000-gpd from salt water. This system will be fielded to Active and Reserve Component units under the Total Package/Unit Materiel Fielding concept beginning in FY 88.

The 3,000-gph ROWPU is designed to provide potable water at echelons above division in direct and general support missions. This ROWPU is mounted within an 8X8X20-foot International Standardization Organization (ISO) container, and is transported with its generator on a flatbed trailer which is towed by a 5-ton tractor. It is capable of producing up to 60,000-gpd of potable water from a fresh water source or 40,000-gpd from salt water. This system, currently under development, is due to be fielded beginning in FY 90.

The 150,000-gpd ROWPU is a commercial nondevelopmental item which was procured in the early 1980's to provide an interim capability to treat brackish, contaminated, and salt water until fielding of the 3,000-gph ROWPU. This ROWPU is skid mounted and, if necessary, can be mounted temporarily on three flatbed semitrailers or a lighterage aboard ship (LASH) barge. It is capable of producing up to 150,000-gpd of potable water from a fresh water source or 112,000-gpd from salt water. Upon

fielding of the 3,000-gph ROWPU, this unit will be retained in depot for use as needed.

The ROWPU barge is designed to provide potable water for general support missions in SWA. The barge contains two 150,000-gpd ROWPUs which can produce up to 225,000-gpd of potable water from seawater. Up to 15,000 gallons of potable water is stored within four onboard tanks prior to being pumped ashore in a flexible pipeline. Two barges will be prepositioned in CENTCOM's area of operations while the third will be stationed at Fort Eustis, VA, for training.

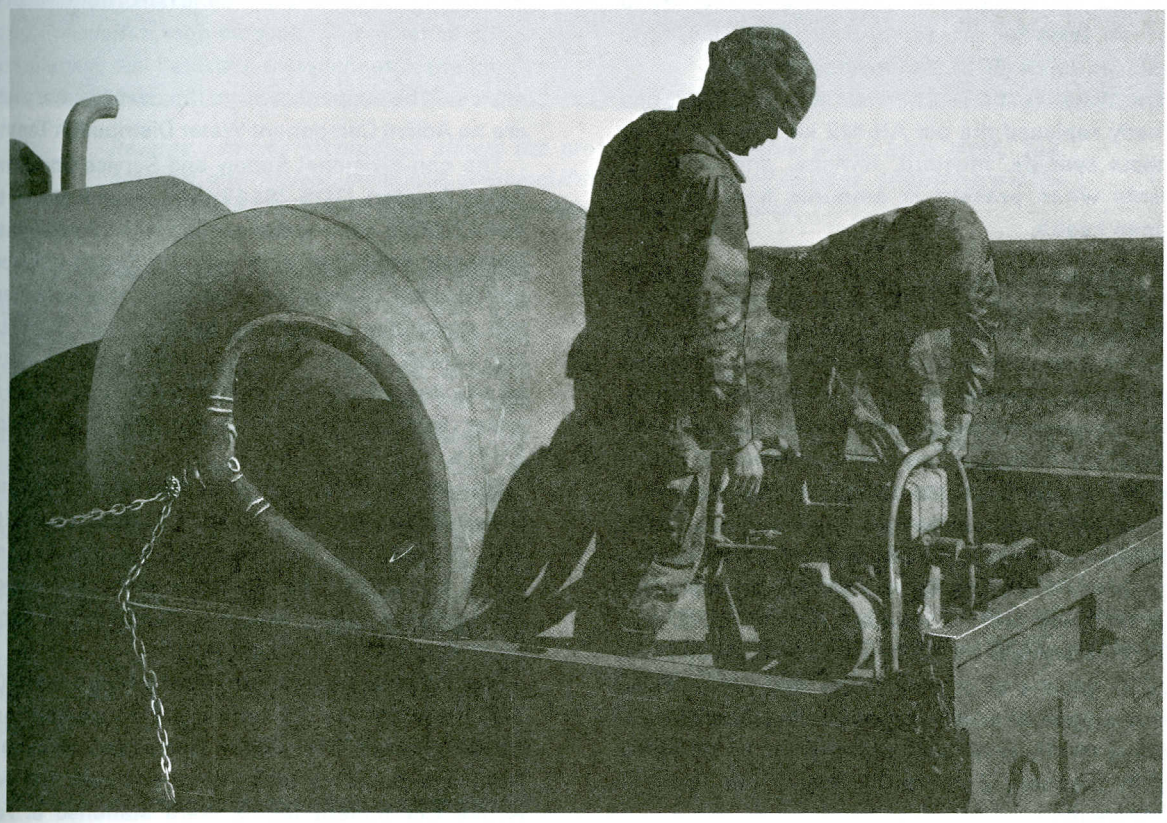
Water storage equipment is also changing to make it lighter and easier to deploy. The current 500-, 1,500-, and 3,000-gallon stave tanks are being replaced by the 3,000-gallon collapsible "onion" tank. This new tank, designed by the British, weighs only 107 pounds. Larger collapsible fabric tanks, with capacities of 50,000 and 20,000 gallons, are used to build systems capable of storing up to 1 million gallons.

Water distribution in the theater is accomplished by several methods.

The Tactical Water Distribution System (TWDS) is a 6-inch hoseline used to distribute bulk supplies of potable water at echelons above corps. Each 10-mile segment uses five 600-gpm pumps to maintain the flow of water forward.

The Semitrailer Mounted Fabric Tank (SMFT) is used to transport water within the division, corps, and theater. These tanks, in sizes of 3,000 and 4,570 gallons, are transported on a flatbed semitrailer. The 3,000-gallon SMFT is used within the division area and by non-divisional Supply and Service units while the 4,570-gallon SMFT is used for line-haul general support operations.

The Forward Area Water Point Supply System (FAWPSS) consists of six 500-gallon collapsible fabric drums, associated hoses, and a 125-gpm pump. The drums can be transported by truck or helicopter, or can be air dropped to supply water within the division or to isolated units.



The Forward Area Water Point Supply System (FAWPSS) allows water to be delivered by helicopter sling load, airdrop, LAPES, or cargo truck.

THE QUARTERMASTER WATER MISSION

The 400-gallon water trailer is used to transport and store water in nearly all units, except those without a prime mover. The trailer has an insulated stainless steel or fiberglass water tank. For units without a prime mover, water is transported and stored in 250- and 55-gallon collapsible fabric drums.

The Lightweight Collapsible Pillow Tank (LCPT) will be used within the Light Infantry Battalion to transport water from the combat trains to the company and platoon areas for resupply of 5-gallon water cans and individual canteens. Designed to contain approximately 160 gallons, the LCPT can be transported in a 3/4-ton trailer or in the back of a high mobility multi-purpose wheel vehicle (HMMWV).

Methods of analyzing raw water sources and product water are also changing. The current Water Quality Analysis Set - Engineer (WQAS-E), which uses wet chemistry tests, will be displaced by the Water Quality Analysis Unit - Purification (WQAU-P). This unit will use probes and electronic circuitry to perform tests for pH, temperature, turbidity, total dissolved solids (TDS), and residual chlorine.

The Water Test Kit - Chemical Agents (M272) has already replaced the old AN-M2 kit. The M272 kit detects cyanide, mustard, lewisite, and chemical agents when present in amounts hazardous to human health.

ORGANIZATIONS

Within the Theater of Operations, forces are structured so that sufficient water production and distribution capability exists to meet requirements. The time-phased deployment of water support units is essential to support increasing numbers of forces arriving at different times during the operation.

The Water Purification Detachment (TOE 10469L00, formerly 10118J300) has 69 personnel who purify water using ten 3,000-gph erdlators. The erdlators will be replaced by the 3,000-gph ROWPU starting in FY 90. This detachment can store 60,000 gallons of potable water and can provide direct support to units located nearby. One detachment currently exists and six more will be activated within the next 2 years; all are in the Reserve Components.

The Water Purification Team (TOE 10570LC00) has 14 personnel who operate four 3,000-gph erdlators, which will eventually be replaced by the 3,000-gph ROWPU. This team can store and issue 24,000 gallons of potable water. There is one Active Component team, located at Fort Irwin, CA, and 21 Reserve Component teams.

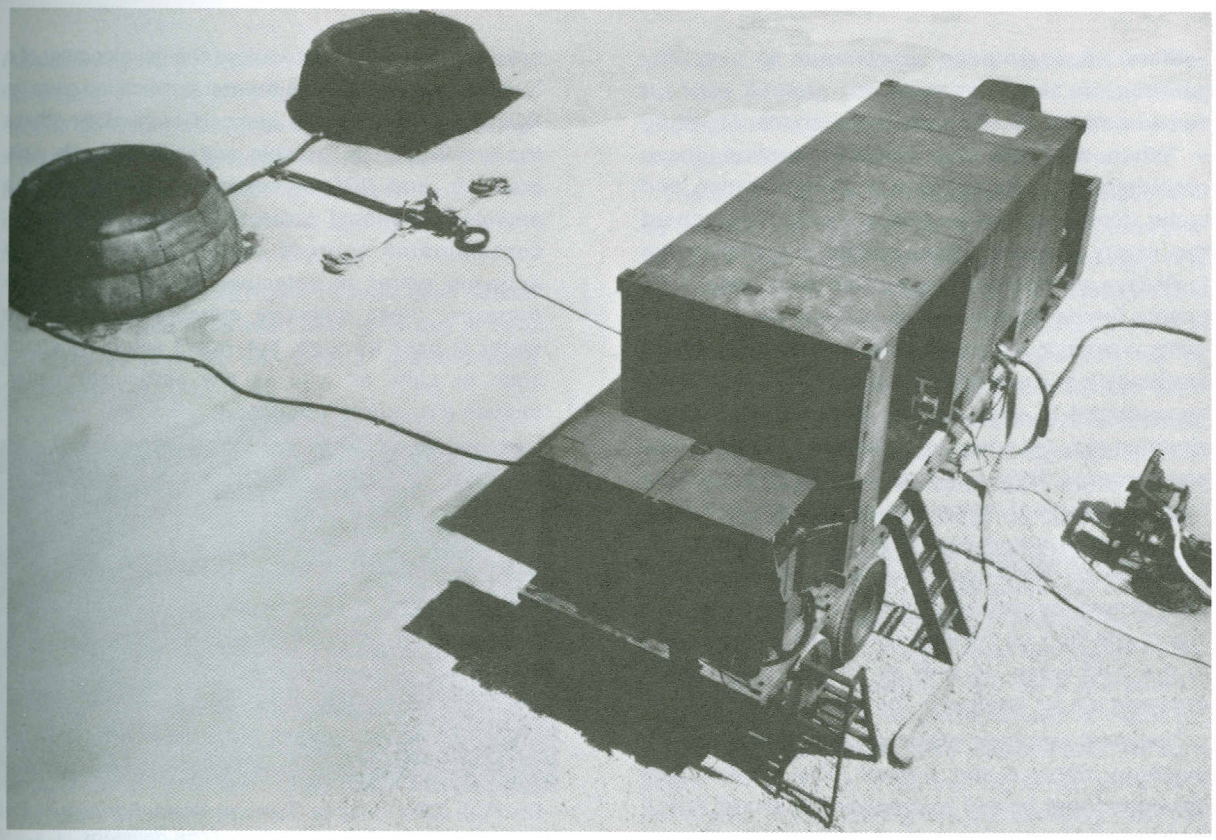
The Water Supply Company (TOE 10468L00, formerly 10117J300) stores up to 1.6 million gallons of water in 50,000-gallon collapsible fabric tanks. This company has 152 personnel and operates in the communications zone (COMMZ) and Corps areas. It can deploy in four sections, each capable of storing 400,000 gallons of water. One company was activated last year and the remaining four will be activated this year; all are in the Reserve Components.

The Tactical Water Distribution Team (TOE 10570LG00) has 19 personnel who operate a 10-mile section of hoseline as part of the TWDS. They are usually deployed in support of a Water Supply Company to pump water forward from the COMMZ into the Corps area. This team also has two 20,000-gallon collapsible fabric tanks from which to issue water to units located near it. Seven Reserve Component teams were activated last year and five more will be activated within the next 2 years; there are no Active Component Water Distribution Teams.

The non-divisional Supply and Service Company, Direct Support, (TOE 29147H500, to be replaced by 42447L000), has a water section with 19 personnel. Currently organized with four 1,500-gph erdlators and twelve 1,500-gallon stave tanks, this equipment will eventually be replaced by 3,000-gph ROWPUs and "onion" tanks. The water section issues water on site and also provides limited unit distribution of water using two FAWPSS and two 3,000-gallon SMFTs.

General support water units are assigned to Water Supply Battalions (TOE 10116J300, to be replaced by TOE 10466L000). Each battalion can provide command and control for up to six water purification detachments, water supply companies, and transportation medium truck companies.

The ROWPU Barge Water Purification Team (TOE 10570LA00) has 15 personnel to operate one ROWPU barge. The water is pumped through a flexible pipeline to tank farms onshore. The two Active Component teams were stationed at Fort Eustis, VA, in September 1987 and a single Reserve Component unit will be added in FY 89.



Reverse osmosis technology allows the production of potable water from fresh, salt, brackish, and nuclear, biological, chemical (NBC) contaminated sources. Shown here is the 3,000-GPH ROWPU with 3,000 gallon collapsible "onion" tanks.

Divisional water supply is provided by the division support command (DISCOM) using 600-gph ROWPUs. The number of ROWPUs varies with the type of division; heavy divisions have ten, airborne and air assault divisions have eight, and the light infantry divisions have six. Each separate brigade has four ROWPUs. Limited unit distribution can be provided using the FAWPSS or SMFT; however, there are no SMFTs in the Light Infantry Divisions or the Air Assault Division. Upon deployment to an arid environment, each division would also receive an arid augmentation section of additional personnel, storage tanks, and distribution equipment to handle the increased requirements for water consumption due to the hot climate.

CONCLUSION

This new force structure is being tested in Army field training exercises such as Bright Star and Gallant Eagle. The results so far indicate that this combination of doctrine, equipment, and organizations can support the force on the AirLand Battlefield.

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WATER PURIFICATION EQUIPMENT

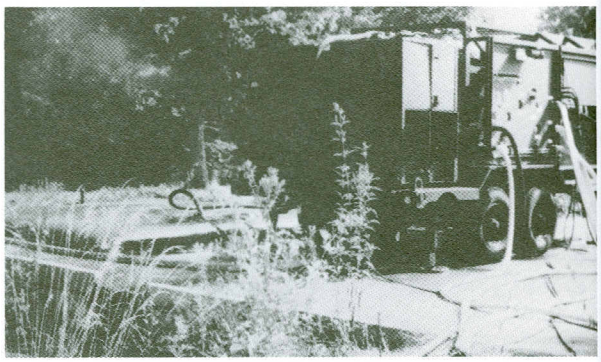
MAJOR SCOTT T. HAAS

Water. A commodity so common in everyday garrison life that it is taken for granted, without consideration of its source or the methods of treating it. When deployed in a tactical situation, these considerations take on much more importance, and water itself becomes a serious matter. Throughout the history of warfare, more soldiers have fallen due to disease and nonbattle injury than the actions of the enemy forces. Contaminated or improperly treated water is a major contributing factor to this loss. Water purification in the field poses problems not typically encountered in everyday life because the tactical situation may not allow selection of an optimum raw water source. Field equipment for water treatment must be capable of removing both naturally occurring contaminates as well as potential nuclear, biological, and chemical (NBC) agents while maintaining a high level of mobility in support of the AirLand Battle. This article will discuss the water purification equipment in the field today, as well as that currently under development for fielding in the near future.

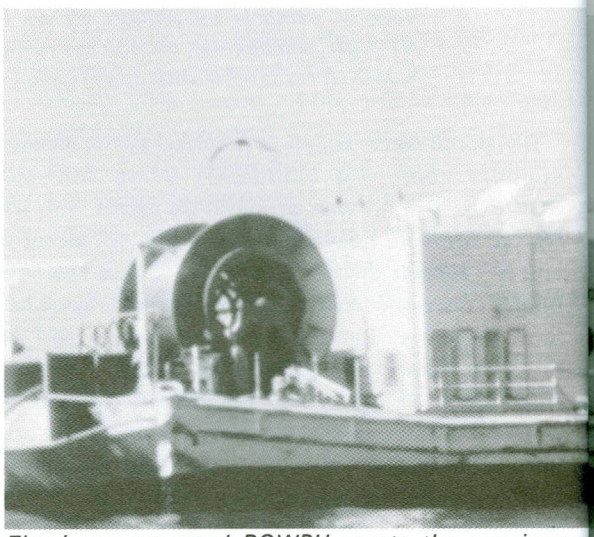
The most common water purifier in the Army's inventory today is the erdlator. The erdlator was developed and fielded subsequent to World War II and is still in use. Currently two sizes of units are available--1500 gallons per hour (GPH) and 3000-GPH, both of which are permanently mounted on a truck chassis. The erdlator uses a coagulation, sedimentation, and filtration process in which chemicals are added to raw water which react with its alkalinity to form a "FLOC" that removes harmful constituents. The water is then disinfected, using a chlorine solution and issued to the soldiers. The system is equipped with an NBC pre-treatment system which uses aeration and manual addition of activated charcoal to remove NBC agents.

While erdlators have provided excellent service to date, they do have several operational deficiencies. The chemical process does not remove dissolved materials, such as salt, and can only be used with fresh water sources. Additionally, the NBC pre-treatment system is only marginally effective. Lastly, due to the quantities of chemicals that are expended in the treatment process, a major logistical resupply problem exists: when those chemicals are not available, the erdlator cannot produce treated water.

The increasing NBC threat and the requirement for deployability to areas of the world where only salt or brackish water exists required the development of a family of reverse osmosis water purification units, or ROWPUs. The reverse osmosis technology allows the production of potable water from fresh, salt, brackish, and NBC contaminated sources. It also provides additional protection against industrially contaminated sources. It accomplishes this by applying water to selective membranes at high pressure; these selective membranes allow pure water to pass through, but reject soluble material such as salts as well as any particulate matter, including microorganisms.



The 600-GPH Reverse Osmosis Water Purification Unit (ROWPU) is the water purifier of the divisions.



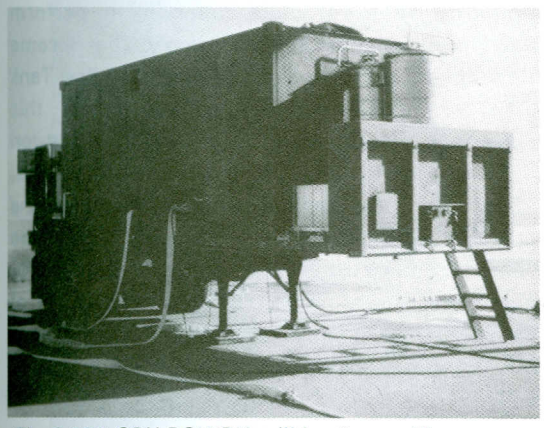
The barge mounted ROWPU meets the requiremen to support operations at ports and beachheads.

The first ROWPU developed and fielded was the 600-GPH ROWPU. This is the water purifier of the divisions. Trailer mounted, highly mobile, airdroppable, it uses a 5-ton truck as a prime mover. This truck also performs limited water distribution

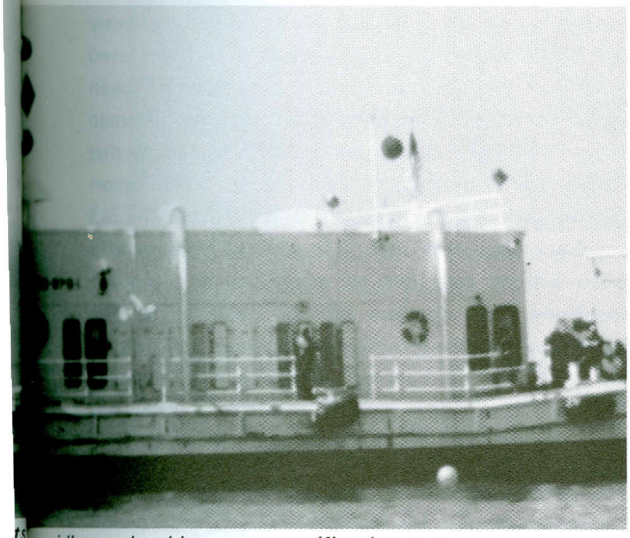
". . .our most prized asset, the soldier, runs on water."

missions. The ROWPU uses two pre-filtration steps, consisting of multi-media and cartridge filters; reverse osmosis membranes and disinfection equipment completes the process. It is equipped with an NBC post-treatment system consisting of both activated charcoal for chemical agents and an ion-exchange resin for radioactivity.

At the present time, 48 ROWPUs have been fielded to Army units and have seen extensive use in field exercises as well as operational deployments



The 3,000-GPH ROWPU will be the purifier at echelons above division.



rapidly employable water purification system

throughout the world. Current procurement actions will allow all active Army, Reserve, and National Guard divisions and separate brigades to be equipped with the 600-GPH ROWPU by March 1989. The 600-GPH ROWPU is typically employed in pairs with two units at each water point, operated by four soldiers (77W). Each is equipped with three 3000-gallon storage tanks--two for potable water storage and one for operational process water.

The water purifier for echelons above division will be the 3000-GPH ROWPU. This unit also uses pre-filtration and the reverse osmosis technology. It is mounted on a M-871 trailer and is air transportable on two C-130s, or one C-141 or larger aircraft. It is operated by a crew of three soldiers and will be assigned to nondivisional supply and service companies, water purification teams, and detachments. The 3000-GPH ROWPU completed development and was type classified on 29 July 1987; the first units are scheduled to be equipped by 1st Quarter 1990.

To support near-term contingencies, the Army procured twenty-four 150,000-gallon per day (GPD) ROWPUs commercially. Although these units are not highly mobile, they provide adequate water purification capabilities to support near-term operations if deployment to an arid environment is required. To further support possible deployments to such areas, three barge mounted ROWPUs were also developed, each utilizing two permanently mounted 150,000-GPD ROWPUs. These barges are part of the Third U.S. Army's operational project stocks. Two of the barges will be prepositioned and the third is planned to be located at Fort Eustis with the two active duty teams to support sustainment training.

Water is an undeniably critical commodity on the battlefield. The Quartermaster Corps had made monumental strides in developing and fielding updated and improved water purification equipment and highly trained operators to ensure that sufficient quantities of safe, potable water will be available to our soldiers in support of any mission in any climatic or geographic area. We must all remember that our most prized asset, the soldier, runs on water.

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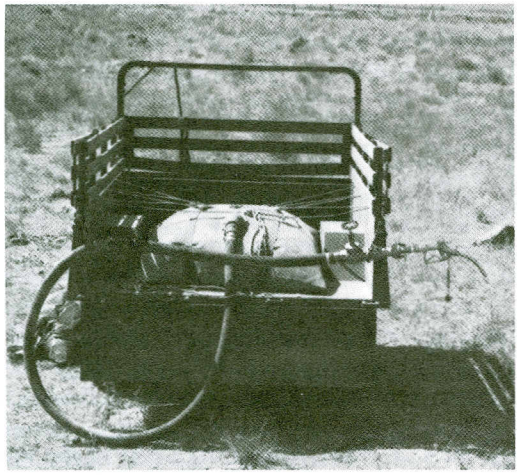
WATER TO THE LIGHT FIGHTERS

JOHN C. MARIGLIANO

WATER DISTRIBUTION TO THE LIGHT INFANTRY DIVISIONS

Water is a vital commodity, necessary for survival and mission accomplishment for all soldiers regardless of their organization. According to doctrine, water is obtained using supply point distribution for the majority of the Army; however, this method of water resupply is not feasible for Light Infantry Battalions (LIBs) of Light Infantry Divisions (LIDs), due to the tactics of foot mobile infantry and their lack of vehicular assets. While supply point distribution can be used by the rest of the LID, the Quartermaster School has developed new doctrine to support the requirements of the LIB.

The LIBs are equipped with a small number of high mobility multi-purpose vehicles (HMMWVs) while the individual rifle companies have no organic vehicles. These HMMWVs are not capable of towing the standard 400-gallon water trailers which have historically provided the primary method of water resupply. To ensure adequate water resupply while minimizing force structure increases to the LIDs, unit distribution will be provided to LIB combat trains. This task will be performed by Quartermaster water purification personnel, operating water points using components of the Forward Area Water Point Supply System (FAWPSS) in tandem with the 5-ton trucks that are the organic prime movers of the ROWPUs.



The "Pillow Tank" can transport water using a 3/4 ton trailer or HMMWV.

The Water Section will deliver water to the LIB combat trains, as required, in two 500-gallon collapsible drums per issue. Upon arrival, this water will be transferred to water distribution equipment organic to the individual LIBs that can be transported by their HMMWVs. These assets will then be transported forward to the company/platoon locations to resupply individual soldiers.

Equipment currently available to support the forward movement of water from combat trains to company locations includes the 5-gallon can, 55-gallon collapsible drum, and the 250-gallon drum. All of these systems require significant cubeage for transport even when empty, adversely impacting on a vehicle's capability to perform missions other than water resupply. To overcome this problem, a Lightweight Collapsible Pillow Tank (LCPT) was developed. Holding 160 gallons, this pillow tank will fit within a HMMWV or 3/4-ton trailer. Its loaded weight is less than 1500 pounds; empty, it occupies less than 5 cubic feet and weighs under 50 pounds. This compactness allows one soldier to remove the LCPT from transport vehicles or trailers rapidly allowing maximum flexibility of vehicle use while providing the required water distribution capability. These LCPTs are scheduled for fielding 3d Quarter FY 88.

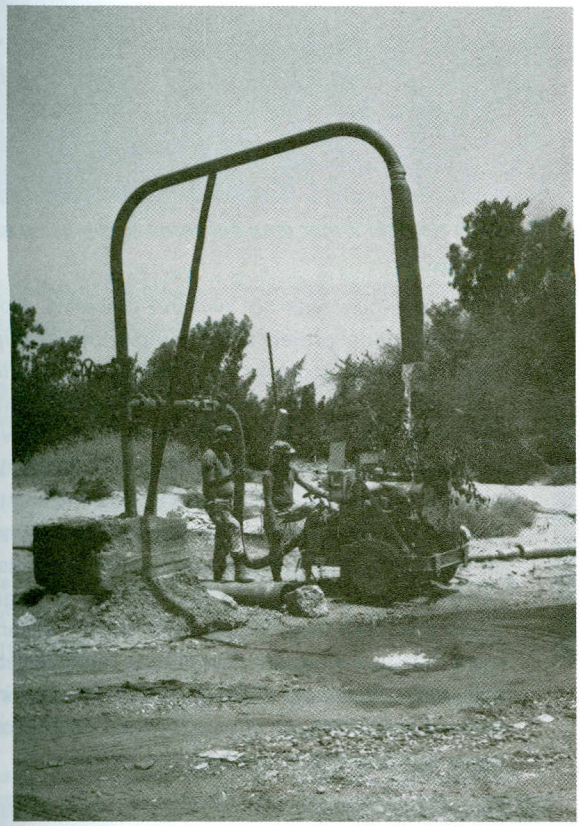
To further enhance water delivery to the individual rifle squads and soldiers, a 5-quart collapsible water carrier is also being fielded. This item had previously been in the Army's supply system and was used extensively in Vietnam. This water carrier has been reinstituted in the supply system and is programmed for availability in December 1988. When empty, this carrier will fit in the pockets of the BDU. The 5-quart carrier will be transported forward from the LIB combat trains with full LCPTs and will be exchanged with empty carriers at company and platoon locations. Full carriers will be returned to their locations, enabling individual canteen refill, empty carriers will be carried until the next resupply mission. To this end, the proponency of this item has been transferred to the Infantry School for their consideration.

John C. Marigliano, GS-12, is a Military Analyst, Material and Logistics Systems Division, Directorate of Combat Developments, U.S. Army Quartermaster School.

BRIGHT STAR 87 - WATER SUPPLY OPERATIONS

MAJOR FRANK WRIGHT

ACTIVE AND RESERVE UNITS SUCCESSFULLY DEMONSTRATE QUARTERMASTER WATER PURIFICATION/DISTRIBUTION CAPABILITIES IN AN ARID ENVIRONMENT



Anwar's Well provides an arid environment's most precious commodity - raw water.

Exercise BRIGHT STAR, conducted biennially between United States (U.S.) and Arab Republic of Egypt forces, is a Joint Chief of Staff (JCS) directed joint readiness exercise. It is intended to demonstrate U.S. military capability to deploy using existing contingency plans, and sustain forces with organic operational project stock in a bare based environment. BRIGHT STAR 87, the fifth in the series, was a clear success, with over 9,000 U.S. CENTCOM active and reserve component personnel deploying.

The 240th "Proud to Serve" Quartermaster Battalion, Fort Lee, Virginia, was tasked with mission responsibility for GS bulk water purification, storage, and distribution, as well as GS bulk fuel receipt, storage, distribution, theater-level POL quality surveillance, and oil analysis. The battalion was the exclusive operating element of the 475th Petroleum Group (USAR), of Farrell, PA, under the 377th TAACOM (USAR), New Orleans, LA. Subordinate 240th Quartermaster Battalion units included five active duty, seven reserve component, and one civilian element.

The GS water support mission utilized: the 600 Gallon Per Hour (GPH) Reverse Osmosis Water Purification Unit (ROWPU) and the 150,000 gallon per day (GPD) ROWPU for water purification; the Tactical Water Distribution System (TWDS) hoseline for overland movements; components from the 800,000 gallon Potable Water Storage and Distribution System (PWS-DS) for GS storage; and the 4,570 gallon Semi-Trailer Mounted Fabric Tank (SMFT) for distribution. The DS water mission utilized the 40,000 gallon Storage and Distribution System.

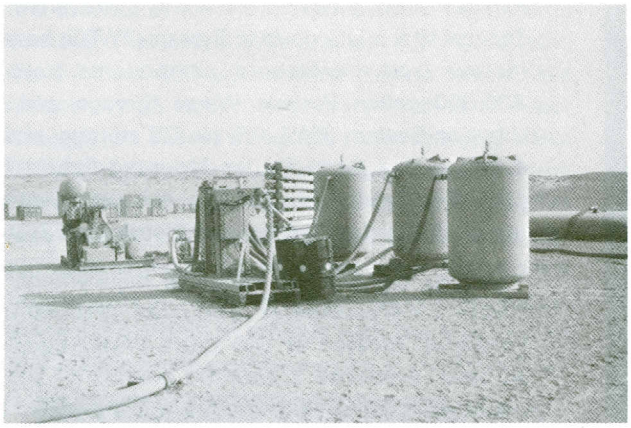
During the 6-week inclusive deployment, the 240th Quartermaster Battalion (Provisional-Forward), located at the Cairo-West (Egyptian) Airbase, produced 2,250,000 gallons of potable water with deliveries of 1,500,000 gallons to U.S. forces and 750,000 gallons for Egyptian forces. U.S. issues were primarily conducted using the SMFT while issues to the host nation (HN) were achieved by pumping directly from the TWDS into the Cairo-West Airbase water distribution system. The integrated operation was an overwhelming success, clearly demonstrating the total Army's ability to strategically deploy both active and reserve component units over significant distances; rapidly establish a tactical GS water production, storage, and distribution system; and totally sustain U.S. forces in an arid environment. The CSS community's dependence upon reserve component units was obvious and their ability to support the operation readily confirmed.

The concept of the operation called for an advance element to deploy and establish initial water production, storage, and distribution capabilities prior to arrival of the main body.

They achieved this using the 600 ROWPU and collapsible storage tanks. (Initially, SMFTs mounted

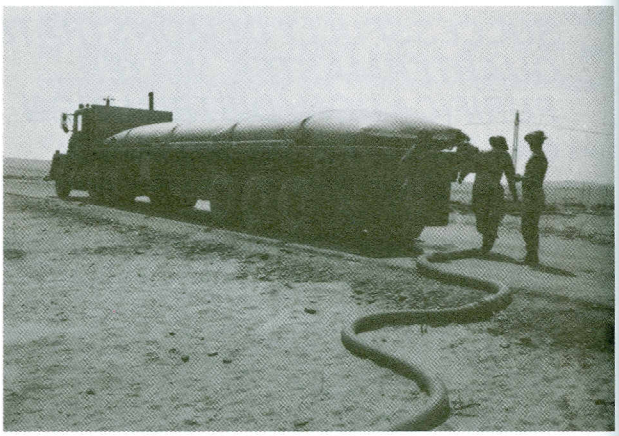
BRIGHT STAR 87

on HN trucks delivered potable water prior to the arrival of U.S. transportation elements.) As troop and equipment flow increased during the theater buildup, the 150,000 ROWPU, TWDS, 800,000 Potable Water Storage and Distribution System, and additional SMFTs arrived and were placed in service. Operating under a strict time/production schedule, the GS water base made a quick transition from the initial 600 ROWPU production to the 150,000 ROWPU with its associated storage and distribution systems. These integrated systems were then used to totally sustain the joint-service operation at Cairo-West, Gebal Hamza, and Enshas through ENDEX and redeployment.



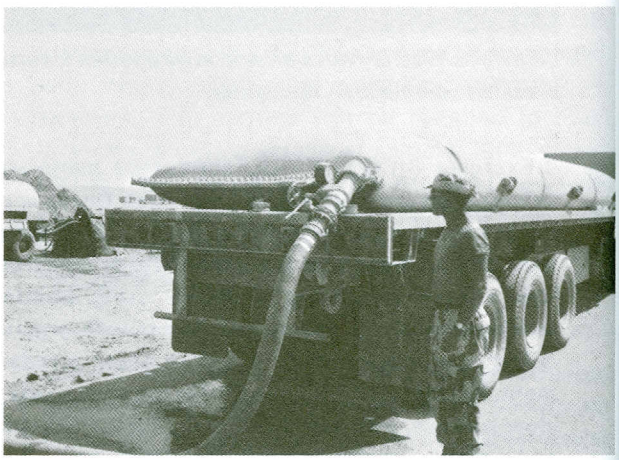
The 150,000-GPD ROWPU was utilized during the theater buildup.

Raw water for the 600 ROWPU was provided from a tributary of the Nile River by HN truck. Water for the 150,000 ROWPU came from a HN raw water supply point known as Anwar's Well. Raw water from Anwar's Well was processed through the pretreatment section of the 150,000 ROWPU, then disinfected by the hypochlorination unit at the base terminal complex. The purified water was transported approximately 4 miles by TWDS to the head terminal consisting of 300,000 gallons of potable storage. From the head terminal, bulk potable water was delivered to the using unit by SMFT mounted on 22-ton 40-foot trailers. This system was highly efficient in support of the operation. (Prior to deployment, hands-on technical training was conducted for operating units at Pueblo Army Depot. This later proved to significantly enhance the operational capabilities of the water units' and the battalion's ability to support the exercise.)



Bulk potable water was delivered to the using unit by the SMFT.

The exercise was not without problems. Most of the operational project stock equipment was shipped directly from storage in Colorado. Significant amounts of cargo became misrouted, initially delaying GS and DS water operations. Reverse osmosis filter elements for the 150,000 ROWPU were not used due to their loss during shipment and late arrival in country. Problems with communications hampered submission of water forecasts and requirements. Additionally, a lack of organic materials handling equipment (MHE) adversely impacted on the battalion's ability to rapidly establish the water systems. Further problems with intermittent availability of raw water from the HN source were experienced throughout the exercise.



Units receiving water by Semitrailer-Mounted Fabric Tank (SMFT) must ensure capability exists to receive the entire 3,000 or 4,570 gallon quantity.

"Lack of raw water availability is a potential "war stopper" and will dictate our ability to sustain operations."

The 40,000 gallon Storage and Distribution System.

Significant conclusions from the BRIGHT STAR 87 water operations included:

- Comprehensive water discipline programs are essential to success in an arid environment.
- Lack of raw water availability is a potential "war stopper" and will dictate our ability to sustain operations.
- Existing water equipment performance meets or exceeds requirements for production and reliability.
- Current water systems are rapidly deployable and recoverable.
- Technical training and OCONUS deployments using operational project equipment is critical to sustain proficiency.
- Systems deploying from contingency stocks must be containerized to minimize frustrated components.
- Systems must be maintained in a go-to-war status with complete unit basic loads of special tools, manuals, and operating chemicals.
- Using unit field sanitation teams must be fully trained to ensure organic water storage and distribution equipment is properly sanitized prior to deployment.
- Operating units should be trained and prepared to deprocess operational project equipment arriving from storage.
- Anticipate and plan for procurement of materiel and supplies from HN resources to sustain operations.
- Using units must provide accurate and timely forecasts of water requirements.
- Units receiving bulk water resupply by SMFT must ensure capability exists to receive the entire 4,570 or 3,000 gallon quantity.
- Water systems are MHE intensive to deploy and recover.
- Absence of the 3,000 gallon SMFT and other authorized TOE water equipment hampered DS water resupply operations.
- RC units are capable and prepared to rapidly deploy and provide water resupply.
- Planners should anticipate a requirement for HN bottled water for advance and redeployment personnel during transition to and from U.S. treated potable water.
- Active component force structure should consist of at least one water supply company.

BRIGHT STAR 87 was a realistic assessment of the Army's water doctrine, equipment, contingency plans, and ability to deploy and sustain the force in an arid environment. Lessons learned from this and future exercises will be refined and implemented ensuring adequate water is available to support U.S. forces worldwide as required. The integration of active and reserve component units was a challenge that proved to be highly effective and essential if U.S. forces are to deploy and win the AirLand Battle in an arid environment.

MAJ Frank Wright is the Executive Officer of the 240th Quartermaster Battalion (Petroleum), Fort Lee, Virginia. He is a graduate of the Quartermaster Officer Advanced Course and has been selected to attend the Command and General Staff College. He holds a B.S. and an M.S. degree in Education from Murray State University, Murray, Kentucky.

QUARTERMASTER SERVICE NEWS

WATER PURIFICATION IN WAR

FEBRUARY 1920

MAJOR HOWARD McCYOST

Wholesome drinking water has become recognized as one of the important elements entering into the conduct of warfare. Water is used for such a variety of purposes that it is absolutely necessary to both man and beast. Without water of any sort, an Army would soon become entirely demoralized and actually perish. With impure water, an Army must straggle along handicapped by various disorders which may be directly traced to the character of the water in use. Water is as necessary to an Army as food and transportation. It is far more necessary than either clothing or shelter.

To make water attractive for drinking purposes, it must be clear to the eye and sparkling. At the same time, as nearly sterile as it can be made under the conditions. Many diseases of men in the field can be traced directly to a spring or well that has become so foully polluted that it is the very essence of poison. It may be, therefore, assumed that one of the first, if not the prime, requisites for good morale is a sufficient supply of pure wholesome water.

Water coming from any source may be muddy or discolored to a point where it will be unsightly. When it is muddy and discolored, it generally contains many injurious elements which must be removed before it is in fit condition for general use. Again, raw water may be clear and sparkling and, at the same time, contain elements that are injurious to the health of the consumers. Therefore, it is necessary to have, in connection with the collection of water, a method for testing the quality by analysis. For turpidity, water is

compared with standard samples having various known degrees of turpidity. The unit of turpidity is 100 and, is the turpidity of a water in which a bright platinum wire 1 millimeter in diameter may be seen through 1 centimeter of water. The comparative samples are arranged by dilution in distilled water in the ratio desired. Examination of water for bacterial contents involves a qualitative chemical analysis. Clear, sparkling water may contain bacilli coli to a count where the health of the community might be jeopardized by the use of the water. It can, therefore, be seen that appearances are quite deceptive and that any water that is intended for use should be carefully analyzed to determine its fitness. In the cantonments of the United States Army and the American Expeditionary Forces, permanent installations consisting of gravity filters and mechanical sterilizers were installed to ensure the health of the soldiers.

In the theatre of operations (near the front) it was impractical to have these permanent installations where rapid movement of the troops made them useless except to supply water for the water trains. It, therefore, became necessary to provide a means of examining and correcting the water encountered in this district, so that heavily contaminated water might be avoided and water that was not so heavily contaminated might be corrected to a degree where it could be made safe to use. Portable apparatus, such as Lister Bags and large canvas filters, was first developed; later on, a device which will be described in a succeeding paragraph was designed to replace in a measure the rough and ready expedient in use.

The filters used by the American Expeditionary Forces were those known as the gravity-type, consisting of filter beds filled with sand and stone through which the water must percolate before reaching the outlet which connects with the distribution system. The operation of a typical filter may roughly be described as follows: Water is pumped into the tank, which is known as a dosing chamber, where it receives a treatment of an alum solution which is intended to coagulate the foreign elements in the water and form a substance known as flocce. The water flows very slowly through this dosing chamber and into what is known as a sediment bed where the rate of flowing is still slower--slow enough to cause the minute particles held in suspension that are heavier than water to drop to the bottom of the bed. The alum solution collects the particles which are not as heavy as the water and which are of the same specific gravity and forms them into a mass which is held separate from the water in a sort of gelatinous condition. These two processes reduce to a considerable degree the bacterial content of any water. The water then passes from the sediment bed out over beds of clean sand and stone of varying depths for filtering. The distribution of this water over the filtering beds is often accomplished by the use of a network of pipes laid in the sand, each pipe having many outlets which are terminated with sprinkling nozzles. The water is forced into the air where the sunlight and the oxygen of the air assist in the reduction of bacteria by an action known as aeration. As it flows upon the filter beds and gradually seeps through the various layers of filter material, the gelatinous flocce collects upon this filter material and is, thus, separated from the clear water. The turpidity is greatly reduced in the sediment bed, and final reduction to a point where it is clear and sparkling is accomplished in this filter bed. Thus, water is clarified and reduced to a certain degree in bacterial content, but still other processes must follow before safety in use can be assured.

We now approach the most recent development in the preparation of water for use. The purpose of sterilization is to render water entirely free of harmful bacteria. This ideal is not reached in practice, but modern devices have become so accurate that after water has been treated it is rendered absolutely safe for any purpose. The first method used in sterilization of water was distillation; that is, the water was formed into a vapor, the vapor was passed over certain chemicals, and the vapor was then recollected as distilled water. Another method of sterilization that has been tried and is still in use in many places is the treatment of water with certain salts of chlorine. This method has been replaced by a more scientific method largely because the percent of chlorine administered to the water could not be closely controlled due to the varying chlorine content of the salts used. Water sterilized by this method often has a strong taste and odor of chlorine which is decidedly disagreeable. Sterilization is accomplished in camps and cantonments by the use of permanent chlorine dosing stations. In the field and in the theatre of operations, portable apparatus has been developed which accomplishes the same purpose to a limited degree. The sterilization of water in our cities and also in our Armies is a safeguard against epidemics and has

reduced the death rate due to disease very materially. In fact, cases are hard to discover where patients have contracted disease of a water-born variety where sterilized water has been used to the exclusion of all others. It is extremely difficult to control the drinking of troops. When a spring of clear, cold water is found, the water is generally used without regard to its content. It, therefore, became necessary for officers in charge of troops in the field to investigate the characteristics of the water that might be encountered by the troops and to prevent as far as possible the use of dangerous waters by providing sufficient sterilized water.

Sterilization equipment as used in the Army covers everything from lozenges of sterilizing chemicals which are placed in the canteens to highly developed dosing plants. Little need be said here of the ruder methods of sterilizing water except that each has its particular use. Most of the lozenges produced water which had a taste which was disagreeable to the user, consequently the lozenges were not used but were thrown away and dangerous water used in place of the bad tasting sterilized water. At all of the camps in the United States and at the permanent camps in France the American Army was equipped in addition to filters with up to date sterilizing equipment. Liquid chlorine compressed in steel cylinders was used instead of the salts used by other Armies. The amount of chlorine to be administered to the water was determined by analysis and an automatic regulating meter was used to insure the constant flow of the proper quantity of chlorine into the water. This measuring apparatus was extremely technical in operation and need not be described in detail here. It is sufficient to say that every gallon of water had its proper quota of sterilizing material injected into it before it was used. Oftentimes the amount of chlorine necessary to neutralize the bacteria in the water would be sufficient to cause a taste. This was overcome by the use of a dechlorinating agent such as soda thiosulphite. This chemical absorbed the excess chlorine and rendered the water acceptable for drinking purposes. The present advance in the science may be attributed directly to the war, as a development of portable apparatus for treating water in the field. This apparatus combines the analysis, filtering, and sterilizing of water in one unit. The entire unit was mounted upon a motor truck. The operation of the unit may be described as follows: Water encountered is first sampled and the samples taken to the laboratory for analysis for bacterial content. Here the amount of chlorine necessary to sterilize the water is determined. The water is pumped from this source by means of a pump, mounted integral with the rest of the unit, and forced into a dosing chamber where it receives the alum solution and thence into the pressure filter where it is clarified. Here the filtered water is forced through pipes and in its course treated with the correct amount of chlorine, by means of a special measuring device. After the chlorine has operated for sufficient time to render the water sterile a dechlorinating agent is administered in the form of sodium thiosulphite and the water sent to storage into two six hundred gallon tanks, fastened under the truck. Thus each unit is capable of providing 1200-gallons per minute of clear sterilized water for the use in the Army kitchens and for drinking purposes. It may here be said that the above device is strictly American. Practically all of the devices of a similar nature used by the British and French were designed by American Engineers. The success attained by the use of this apparatus is hard to estimate as it is not known how far impure water might have affected the troops. However, it suffices to say that the hospitals, cantonments, and even the troops in the field were provided with a means of obtaining suitable water for any purposes.

The collection of water in the field and in the camps abroad was under the control of the Corps of Engineers and the above devices were adopted and installed by the Engineers of the United States Army. The chemical analysis of the water was conducted by officers assigned to duty with the Engineers from the Medical Corps. The results achieved were; first, pure water; second, the death rate from water diseases was reduced almost to the figures obtained in civil life; third and last, a feeling of security from plagues and disorders that frequently reduce the morale of an Army to a very low figure. It can safely be said that that part of the Army engaged in the collection of water has rendered to the United States a service as valuable as that rendered by any branch of the Army.

EDITOR'S NOTE: This article is presented in the author's original style as published in the 1920 Quartermaster News Service.

TOTAL PACKAGE FIELDING

SGT OLY I. MAGOFNA

Total Package Fielding (TPF) has been developed by the Army for fielding of new/modified weapon systems with all required support equipment to all branches of the Army. TPF minimizes the workload of the gaining units by consolidating the end item and all support equipment into a single package which is identified, assembled, funded and deprocessed prior to hand-off.

Once materiel requirements have been identified and coordinated, the U.S. Army Troop Support Command (TROSCOM), Directorate of Materiel Management, Total Materiel Fielding Division, will requisition all the items and materiel (except ammunition, bulk petroleum oils and lubricants (POL), and certain medical supplies) which are to be included in the total support package for the end item. The gaining command will be furnished record copies of all requisitions submitted by the fielding command pertaining to the total package. This will allow the gaining units to track and verify that these items have been requisitioned in accordance to the unit's authorization as specified on the materiel requirements list (MRL). All requisitions will be assigned with the TROSCOM's document numbers.

After requisitions are materiel release ordered (MRO), materiel will be sent directly to a staging area or unit materiel fielding point (UMFP) for inclusion in the total package. The materiel fielding manager will track all requisitions by means of logistics intelligence file (LIF) to determine the status of each. In addition, fielding managers may request a visibility inquiry at designated UMFP to calculate the percent of fill rate of the total package. The fielding command sends a 90/60-day Joint Supportability Assessment (JSA) to the gaining unit indicating the development of the total package especially the rate of fill on all requisitions.

When all items (to include parts, tools, support equipment and publications) are consolidated at the UMFP, the fielding manager will conduct a physical inventory at the depot to ensure that there are no damages or shortages. Once the fielding command, TROSCOM, has determined that the minimum requirements for fielding have been met, it provides a 30-day JSA of the total package to the gaining unit.

This assessment was previously known as a "Request for Call Forward" and contains information on the availability of end items, Associated Support Item of Equipment (ASIDE), Special Tools and Test Equipment (STTE), Test Measurement and Diagnostic Equipment (TMDE), and technical publications. The percent of fill for the support package authorized stockage list/prescribed load list (ASL/PLL), the number of Class II and Class VII lines in the package, items backordered, location of staging, and verification of the retail supply system (for Class IX and Class VII items) for customer documentation purposes is also addressed. The gaining command will use the information provided in the JSA to decide if the total package will support the fielding of the weapon system. If the total package is judged to be adequate, the gaining units will prepare and send a call forward confirmation message to the fielding command. Upon receipt of this message, the fielding command will instruct the UMFP to ship the package to the staging site or hand-off location. UMPF personnel should label all materiel with the appropriate TPF labels as furnished by the fielding commands. The central staging area or hand-off site is the facility or location where the total package (end item and all support equipment) is assembled and held pending hand-off to the gaining units.

TROSCOM is responsible for establishing a hand-off team, which will include personnel to deprocess and conduct new equipment training and joint inventory with the gaining unit on all equipment. The hand-off team will also assist the gaining unit in establishing accountable records and in ensuring that the retail supply transactions are input in accordance with local procedures. Report of Discrepancy (ROD) or Quality Deficiency Report (QDR) will be prepared by the fielding manager (as appropriate) for all damaged and missing items and a list of all residual materiel (if necessary) will be provided to the gaining unit with the estimated delivery date of each item. The gaining command will furnish a designated representative (property book officer) to conduct joint inventory with the materiel fielding team and to accept property accountability of the total package. Proper accountability of all equipment is when the property book officer or designated representative signs the U.S. Army Materiel Command (AMC) Hand-Off Form and DD Form 1348-1. The materiel fielding manager will also furnish the customer documentation (i.e., DS4, SAILS Phoenix, or manual for all Class IX items and SPBS or manual for all Class VII) during the hand-off to the property book officer and will ensure that receipt cards (D6S) are input in their local supply system. "After Hand-Off Actions" will include updated status of any residual items to be furnished to the gaining command. Residual materiel should accumulate at the UMFP until further coordination with the gaining unit is obtained for a mini-package shipment.

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URBAN AREA TRAINING

LTC WILLIAM M. CAUSEY JR. AND CPT C. S. VAKAS

Realistic combat service support (CSS) field training in United States Army, Europe (USAREUR) dictates build-up area operations for a variety of reasons, chief among them the lack of wooded or other undeveloped sites throughout Germany's highly urbanized terrain. Without question, going to war will require support units to occupy and operate from urban landscapes. Though manmade facilities often provide the best support bases, especially true for Quartermaster activities which require hardstands, large overhead shelters and improved roads readily accessible to the main supply route (MSR), effective occupation of urban areas is much more complex than that of the classic "woods" site.

Through a lack of familiarity, CSS units typically steer away from urban terrain site selection for training. Real world administrative burdens, troop control challenges, and a higher accident/incident risk setting are too often perceived to more than outweigh training value. Unfortunately, retreating to the "safety" and relative simplicity of the woods significantly decreases war preparedness; the disparity between training and actual deployment virtually guarantees needless casualties and at least initially, inadequate support as responsible units learn how to operate and survive under the unforgiving pressure of war. In order to survive and win, support units must train as they expect to fight.

Starting in 1983, through a series of major field training exercises in maneuver rights areas throughout southern Germany, the 299th Support Battalion of the 1st Infantry Division (Forward) systematically developed urban area proficiency. The initial command commitment to train in accordance with what is frequently termed the "Village Support" concept sprang from revised war planning and the realization that the unit was not preparing for war by going to field locations. A trial run in the towns surrounding Hohenfels training area confirmed the Battalion's training shortfall; urban operations were an entirely new experience for the majority of the Battalion's leadership. Since then, soldiers and leaders at all command levels have embraced the obvious and subtle differences of urban operations. The Battalion's urban area skills were best demonstrated when employed in the Certain Fury REFORGER Exercise during September 1984. The procedures used in coordinating the occupation of the city of Weikersheim while on REFORGER, thoughts of the actual siting of the units, and subsequent experiences of the Supply & Transport (S&T) Company are provided here as guidance for other units that need urban training.

Unit leaders learn the difficult process of establishing a defensive perimeter in an urban environment.

The 299th Support Battalion provides Direct Support Command (DISCOM) level support to the forward deployed USAREUR brigade of the 1st Infantry Division (Mechanized). As a result, the Battalion is twice the size of a "J" series forward support battalion and consists of approximately 850 soldiers in five distinct companies: A- Supply & Transportation, B- Maintenance, C- Medical, D- Administrative Services, and the Headquarters and Headquarters Company (HHC) with Battalion Staff, Brigade Materiel Management Center (BMMC), Automated Management Office (AMO), and Support Operations Section (SOS).

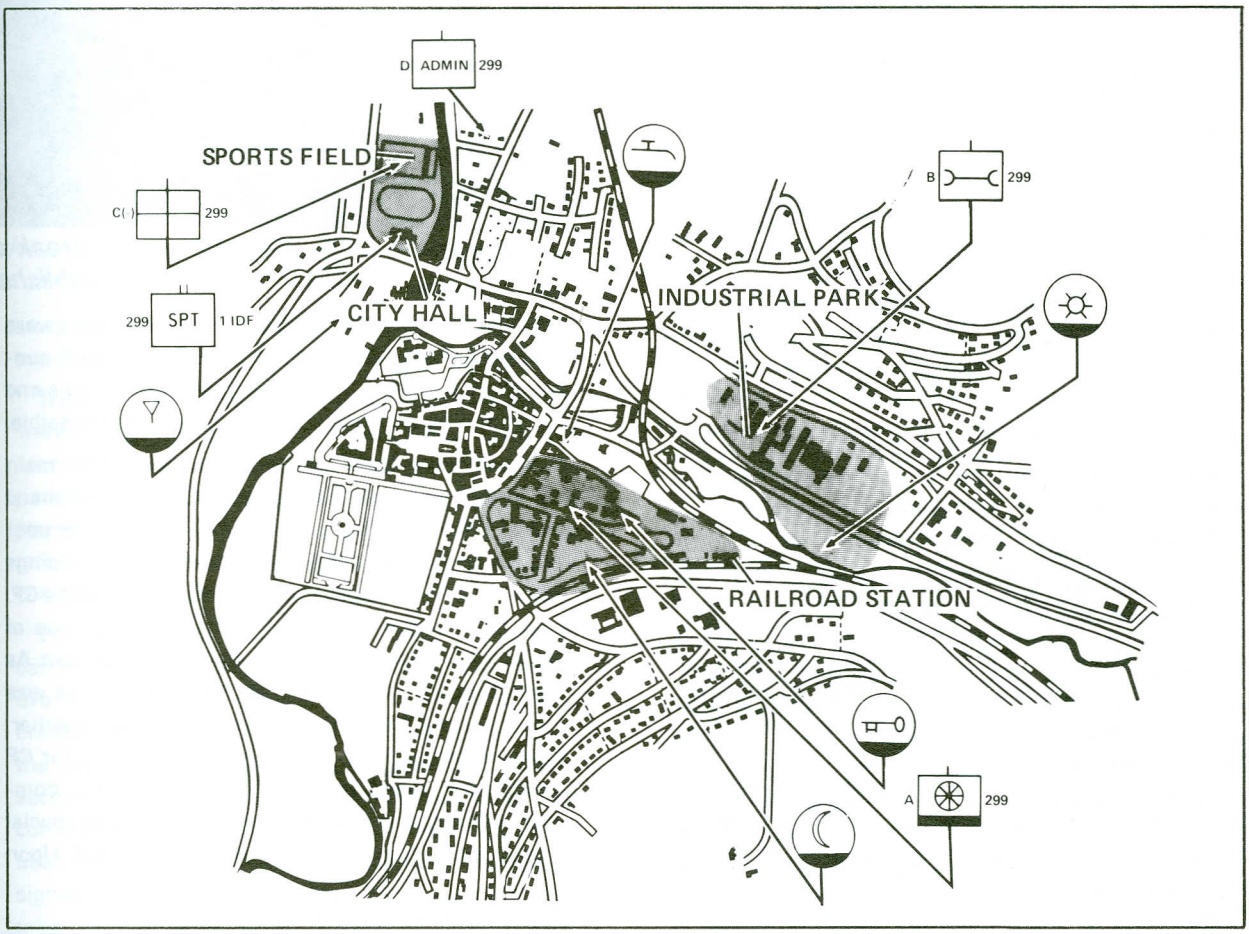
During the early planning stages of REFORGER, once the boundaries of the exercise were defined, a Brigade/Division Support Area (B/DSA) was outlined. Ground and serial reconnaissance followed a preliminary map reconnaissance in order to identify workable support sites as specified by current doctrine and local tactical guidance. Because of its large size, and the consequent degradation of mobility, the 299th and other similarly sized companies would typically employ a Forward Area Support Team (FAST). The REFORGER scenario dictated a wide variety of FAST sites; operated well

"In order to survive and win, support units must train as they expect to fight."

forward and commanded by the Support Operations Officers, the highly mobile 125-soldier FAST served as the focal point for the brigades customer support. The Battalion Commander's concept was that no customer would be required to travel to the B/DSA for any type of support and that all commodities/services would be available or on call at the FAST. Maneuver battalion field trains were colocated with the FAST. The ammunition transfer point (ATP), initially located with the FAST would be capable of moving somewhat independently as the scenario developed.

The city of Weikersheim was selected as the optimum site for the main battalion base because of its proximity to the MSR, major rail lines, and the town road network. It was chosen over multiples of smaller towns because prior experience had demonstrated strained command and control when company bases were strung over 10 or 15 square kilometers. In such environments, Battalion level RACO operations are awkward at best. Elements located in Weikersheim included the majorities of S&T, Maintenance, Administrative Services, and Headquarters Companies; nonforward deployed elements of the Medical Company; and typical division rear assets to include: communications support, military police (MP), and the Staff Judge Advocate (SJA). In total, over 700 soldiers providing a full array of support functions were assigned there. While based on a relatively fixed site, plans were made for the main battalion to displace forward to another identified urban area based on the tempo of operations.

Weikersheim was examined in detail by a designated Battalion project officer who had a basic understanding of the size and composition of the various companies and special staff activities. With a view toward maintaining each company's integrity, the town was analyzed choosing preferred and alternate sites for all activities. Drop and landing zones were designated at the town's edge. Notes were made on all public buildings and facilities; in the past, public sites had proven more accessible and less expensive to use.



WEIKERSHEIM

REALISTIC LOGISTICS TRAINING IN AN URBAN ENVIRONMENT

After preliminary studies were completed, the City Manager and Mayor were formally contacted by the Battalion Commander with an outline of intent. Entering the first meeting required a fundamental sensitivity to the civil officials' fears of their picturesque town becoming a combat zone. The Battalion Commander was open and forthright about the Battalion's needs while being reassuring and supportive of the town's concerns, presenting his requirements over the course of several meetings without being insensitive. Once the required foundation of mutual trust and support was established, space in and around public facilities noted in the preliminary studies was discussed, as well as the hygiene needs of the personnel and wholesale water point availability.

At this point, attention was turned to a detailed discussion of earmarked private properties. Using the City Manager as a liaison, private homes and commercial establishments were visited. In some instances, space proved simply unavailable, in others, the owners rejected the thought of using their property for military training. Eventually, adequate locations were agreed upon and the majority of the populace proved supportive throughout the Battalion's urban exercises.

Key to the entire process was the designation of one project officer. Working independently and energetically, having a thorough appreciation of the total Battalion needs and the authority to make decisions, this single officer was more readily accepted by the citizenry. (It was felt that an entire committee of officers, all eager for involvement, would have overwhelmed the situation.) Also, a soldier fluent in German was present to translate at all times in order to avoid any possible confusion.

Finances were discussed at the outset. There is a financial cost in city operations for training as in actual war. To the maximum extent possible, costs were determined before the Battalion moved to Weikersheim. The basic philosophy was to pay for all utilities consumed, not pay for the use of public facilities, and pay a minimum for private rentals. Utility meters were read prior to troop arrival and immediately upon departure. Damages, if incurred, would have been paid outright by the Battalion or through formally filed maneuver damage claims. The local citizenry was disallowed the concept of a large rental windfall, but were assured that their property would not be abused and that there was no expectation of them incurring personal losses in support of the operation.

The intent of the siting was to fully integrate the S&T Company within the urban landscape, taking full advantage of existing facilities and features. To the maximum extent possible, TOE equipment was maintained unloaded; thereby, minimizing disturbance of local surroundings, maintaining equipment readiness, and simplifying rapid displacement. Local power was used rather than generators, substantially reducing the noise level, and this was beneficial since part of the company was located in the residential area which included the homes of both the Mayor and City Manager. Locally purchased, compatible extension cords were used to connect with the electrical supply; drop lights were used instead of military light sets. Troops slept indoors whenever possible instead of using tents. This commonsense approach avoided the manual labor of setting up tents, minimized visual signature, provided superior tactical cover and weather protection. Camouflage nets were utilized when necessary but the overhead concealment provided by buildings, roof extensions and the shadows of side streets was used when possible.

The Class I ration break-dow
Operations were established in

A plumbing supplies warehouse on the main thoroughfare was chosen as the company command post (CP). Selecting on-site buildings in past exercises created problems; since no two buildings were alike, it was difficult to plan the layout of the CP, especially when compared to the relative ease of planning for the standard dimensions of a CP tent. As a solution, the equipment for functional areas was "modularized" by keeping related items together. Prior to deployment, the vehicle load plans for CP equipment were organized so that NBC, communications, arms room, administrative, and special supply equipment were tightly consolidated. Upon

REFORGER

"...the first meeting required a fundamental sensitivity to the civil officials' fears of their picturesque town becoming a combat zone."

arrival at Weikersheim, the segregrated modules were "plugged" into the building with ease. An example of this concept was the prefabricated communications console with radio, field telephone switchboard, communications security (COMSEC) safe, and leased commerical telephone, all colocated.

The Class I ration break-down point was established at the railhead in a series of rented railroad box cars. By using railcars in a railroad setting, nothing unusual was visible from the air. The box cars provided excellent weather protection for food; were readily secured, negating pilferage concerns and, in addition, provided enough space for the accountable officer's office. Since troops will undoubtably receive

n poitakes full advantage of existing facilities and features. ı rentailroad box cars.

an assortment of supplies by rail during war, railhead exposure added a realistic dimension to the training.

Transportation Platoon trucks awaiting missions were centrally parked in two staging areas to improve control. The light truck section was housed in an auto junkyard, while the medium truck section lined a side street. Uncommitted stake and platform trailers were interspersed with commercial vans at a grain storage company, further minimizing signature.

Wire was the principal means of internal communications. The company wire team used lance poles over roads or gutters under roads in order to avoid breakage from heavy vehicular traffic which included the city street sweeper. An FM radio with Vinson secure capability on the Battalion Command net was continuously manned at the CP, but was infrequently used in order to minimize electronic emissions signature. The tactical planner must consider that urban terrain is an aid in concealing radio signals because of the volume of electrical emissions from built-up areas, but that a crowded cityscape can also prove problematic for local tactical radio traffic. In this instance, while no Battalion station in Weikersheim was more than a mile away, an OE 254 antennae had to be erected due to building density. Several Bundespost commercial telephones were installed or leased at key locations in town. Their use yielded the best and most convenient communication for the Battalion.

Shortly after the S&T Company's arrival, a vulnerability assessment was made as a basis for defensive planning. The area was physically secured by a combination of assigned perimeter positions and strong point defense which were variously manned on the basis of threat information. Maximum defenses were exercised daily during morning standtos. Alert procedures incorporated a 20-soldier reaction force under the control of the Transportation Platoon Leader which automatically assembled at the company maintenance building. Based on verbal CP guidance provided over landline or by PRC 77, the force would deploy to another part of the city to support sister company bases, reinforce areas on the company perimeter, or conduct sweeping house-to-house patrols within that perimeter to prevent infiltration.

The entire Battalion followed rear combat area operation techniques. The Battalion S-3, operating a base cluster operations center, provided a continuous stream of information concerning threat activities and defensive requirements. Efforts were geared against Level I and II threats defined as local terrorism and sabotage; and enemy platoon size, tactical unit raids, ambush, and reconnaissance

The medium truck section awaits another mission.

"Officers and Noncommissioned Officers became increasingly attuned to the idiosyncrasies of urban defense."

operations; respectively. Level I was considered an actual concern throughout the exercise since past experience had included several instances of local nationals making inquiries beyond the level of idle curiousity. Resultingly, soldiers and the chain of command were sensitive to such overtures.

Because of the amount of minor avenues of approach to Battalion locations situated within Weikersheim, defensive procedures were very much a thinking man's game. Officers and Noncommissioned Officers (NCOs) constantly reassessed positions, shifting points as they became increasingly attuned to the idiosyncrasies of urban defense. Company defensive fires were tied to one another, light antitank weapon (LAWs) and Claymore mines incorporated into plans, challenge and passwords were used faithfully, and both MP and Battalion sponsored patrols traveled throughout the city and surrounding countryside. Sensitive item security was heavily emphasized.

Apprehending the deadly serious nature of urban defense was made a great challenge while conducting the exercise admist the German citizenry. Their friendly interest was both pleasant and frustrating, and local children who appealed to the affection of the troops formed a major safety problem. Soldiers were briefed to discourage contact and to maintain a friendly detachment, staying off the streets unless they had a specific purpose.

Tactical discipline was maintained during the entire exercise. "Administrative Breaks" were not allowed and soldiers stayed in uniform at all times. Further, dispersion requirements were followed at all times at the field mess facilities. Traffic control points were also maintained, first directing traffic into the town, and then to the operation of various companies. Directional signs throughout the Battalion area supplemented these efforts. Finally, internal road traffic was minimized and noise and required light discipline was enforced in order to maintain a quiet, serious, professional atmosphere throughout the command.

To establish rapport with German neighbors, soldiers were detailed for yard police, raking leaves, and sweeping curbs. These activities demonstrated the Battalion's fundamental commitment to maintaining property. Separate rations were pulled for the exercise but soldiers were allowed to make minor purchases at local bakeries and grocery stores when escorted there by NCOs. Local vendors appreciated this controlled, but enthusiastic, business. Laundry service was also available on a voluntary basis through a German laundry. In short, positive German/American relations were fostered throughout the entirety of the Battalion's urban exercise. Post-exercise banquets and the exchange of plaques became a pleasant norm, and many of the soldiers were invited back after the close of exercises to spend holidays with German families.

In retrospect, the Battalion's urban training efforts have yielded wholly positive results. The successful occupation of Weikersheim is an experience that has been used as the base for the Battalion's expansion of urban operations to embrace every facet of CSS over the last 4 years. Included in this expansion, has been the annual moving of the entire Division stockage of repair parts, via Bundesbahn, to the Hohenfels maneuver rights area as described in "Keeping the ASL Forward," (Army Logistician, May-June 1986) and the routine siting of maneuver battalion field trains in local villages within the Brigade/Division Area during exercises. Throughout this process, the Battalion has not ignored the fundamental, traditional field skills; tentage, generators, mobile-field kitchens, and other TOE field equipment are always employed within urban operations when appropriate. Competence in urban area support is paramount, and in a built-up Europe with limited active CSS assets, every support unit must be capable of optimizing operations in any situationally determined location.

In conclusion, training in urban areas is unquestionably more difficult than training in the woods, but it is extremely rewarding. The training diversity provided by the continually varying urban stimuli keeps our soldiers alert; simply put, it is exciting. Additionally, because of its realism, the authors feel CSS urban training in Europe is comparable in value to National Training Center experience. No doubt we will go into towns and cities during war; we must train in them now.

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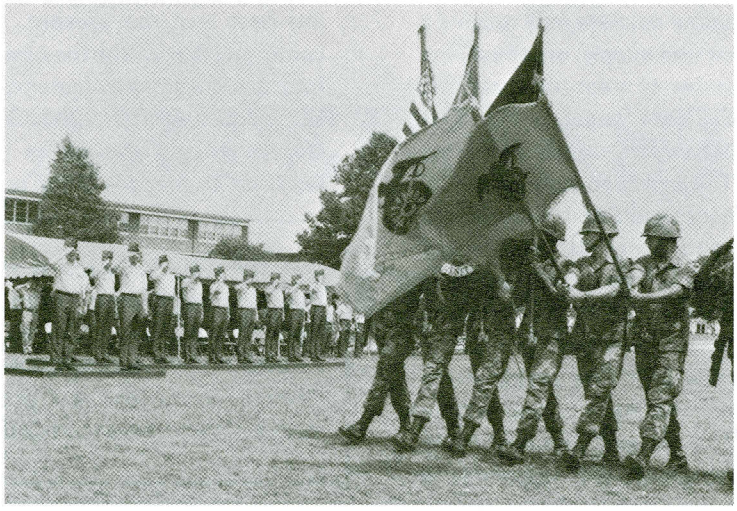
THE REGIMENT

CPT GARY G. FURNEAUX

THE QUARTERMASTER CORPS AND THE U.S. ARMY REGIMENTAL SYSTEM

Effective 13 June 1986, Department of the Army General Order No. 9 placed the Quartermaster Corps under the U.S. Army Regimental System (USARS). This order also established Fort Lee, Virginia, as the Corps' regimental home. The activation of the Quartermaster Corps (Regiment) took place amidst activities commemorating the 211th Anniversary of the founding of the Corps. With the unfurling of the new regimental colors, more than 210,000 Active Army, Army Reservists, and National Guard soldiers throughout the world became affiliated with the Quartermaster Corps (Regiment).

The Chief of Staff, Army, approved the USARS concept in 1981 to provide each soldier continuous identification with a single regiment. The mission of the system is to enhance combat effectiveness through a framework, which by providing an opportunity for affiliation, develops loyalty and individual commitment in its members, fosters an extended sense of belonging, improves unit esprit, and institutionalizes the war fighting ethos.



Regimental Activation 1986

Under USARS, Combat Support (CS) and Combat Service Support (CSS) branches will retain their "Corps" title and implement as "whole branches." CS/CSS officers and enlisted soldiers may not change their affiliation unless they change their branch/MOS.

A personnel assignment system for CS/CSS soldiers cannot mirror the system for Combat Arms soldiers since all branch proponents are not identical in terms of MOS, unit structure or professional development goals. It remains the responsibility of all proponents to incorporate within their Corps the intent and spirit of the Regimental System, including providing for soldier opportunity and professional development, and for affiliation/association which offers meaningful continuity to each soldier.

Quartermaster soldiers were immediately affiliated with the Quartermaster Corps (Regiment) based on their primary MOS. This procedure was accomplished at the Total Army Personnel Agency (TAPA, formerly Military Personnel Center (MILPERCEN)) and requires no action on the part of the soldier or the installation. Regimental affiliations are posted to the Enlisted Management File (EMF) or Officer Management File (OMF) and will appear on DA Forms 2A and officer Record Briefs (ORBs).

New Quartermaster officers and enlisted soldiers will become affiliated with the Quartermaster Corps (Regiment) upon graduation from branch/MOS producing Quartermaster schools.

The Regiment is commanded by the Quartermaster General, Major General William T. McLean, Commanding General of the U.S. Army Quartermaster Center and Fort Lee. The Fort Lee Command Sergeant Major, Charles E. Webster, is the Regimental Sergeant Major, serving as an advisor to the Commander on matters pertaining to the Quartermaster enlisted force. The Chief, Office of the Quartermaster General, will serve as the Regimental Adjutant, monitoring Corps' affiliation, functioning as a liaison between the Regiment and the Department of the Army, and providing information to soldiers about the Quartermaster Corps (Regiment) and the importance of its role in the Army.

The Quartermaster Regimental plan includes an honorary program which appoints distinguished retirees to serve as the Honorary Colonel of the Regiment (HCOR) and the Honorary Sergeant Major of the Regiment (HSGMOR). The HCOR and the HSGMOR provide a link between the past and present, perpetuating the history, customs and traditions of the Regiment. The Senior Quartermaster

Officer, Lieutenant General Kenneth Lewi, has recently announced the selection of Major General Joseph E. Pieklik as the HCOR. The induction of the HCOR will take place in February 1988. The HCOR will then select the HSGMOR. Complete coverage of the induction process will be provided in the next issue of the Quartermaster Professional Bulletin.

Regimental affiliation is enhanced by Regimental accoutrements designed for permanent wear with the uniform. The Quartermaster distinctive insignia is a gold metal device which features the 1886 "Regimental Eagle" above the traditional branch insignia. Wearing the Regimental Crest on the Army green, blue dress and mess, and white dress and mess uniforms is a visible sign of commitment to the Regiment. AR 670-1, Wear and Appearance of Army Uniforms and Insignia, authorizes and provides direction for the wear of the crest.

Headquarters Department of the Army (DA) recently published revised procedures for the funding, procurement, and issue of initial free issue distinctive insignia for all CS/CSS enlisted soldiers. All active duty Quartermaster soldiers now receive a free issue crest from their unit supply; organizations request the required number of crest using current unit supply procedures. These requests are consolidated by the installation which initiates a contract for local purchase from the approved supplier, Army Air Force Exchange Service (AAFES). United States Army Reserve (USAR) and Army National Guard (ARNG) soldiers will receive a free issue crest from their troop program unit supply. The issue of all crests is to be annotated on the soldier's DA Form 3645, Clothing Record, and the unit and major Army command (MACOM) level operating budget will be the only source of funding. After 1 January 1988, United States Army Training and Doctrine Command (TRADOC) schools will also procure crests for issue to advanced individual training (AIT) students upon graduation.

Other devices specific to the Quartermaster Corps (Regiment) include the newly designed Regimental colors and the Regimental Certificate of Affiliation. The colors, permanently retained at the Regimental Headquarters at Fort Lee, show the Regimental insignia superimposed on a buff field with a blue and white banner below. The Certificate of Affiliation, key to sustaining pride, is awarded to all Quartermaster soldiers — officers, warrant officers, and enlisted. Letters from the Regimental Adjutant were forwarded to senior Quartermaster officers alerting them of the issue requirement and requesting a total headcount of Quartermaster soldiers in their MACOM/area. Certificates will also be issued to graduates of Quartermaster branch/MOS producing schools.

The Quartermaster Corps has been providing the U.S. soldier with the means of war for over 200 years. The Quartermaster Corps (Regiment) exists to bridge the past and the present, and provides a proud continuity that will be the basis for our march into the future. It does this by fostering Corps espirit; it is this spirit, couched in a rich tradition, that will accompany Quartermaster soldiers as they rise to meet the logistical challenges of the present and the future.

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THE QUARTERMASTER CORPS (REGIMENT) AUTHORIZATIONS:

ACTIVE COMPONENT	69,855
ARMY NATIONAL GUARD	54,191
U.S. ARMY RESERVE	41,638
	165,684

THE UNITED STATES ARMY

QUARTERMASTER CORPS

1775 - 1988

16 Jun 1775	Quartermaster Department was established, responsible for the supply of camp equipage and for transportation of the Army.
14 Sep 1775	General Washington appoints Major Thomas Mifflin as first Quartermaster General.
4 Nov 1775	Congress agrees upon a uniform ration for soldiers in the Continental Army.
26 Dec 1776	Congress authorizes General Washington to appoint a Clothier General for the Continental Army.
14 May 1777	Congress provided for more specialized division of Quartermaster duties; created Forage Department and Wagon Department.
19 Dec 1777	Winter quarters of Continental troops established at Valley Forge.
25 Nov 1779	Quartermaster Department placed under direction of the Board of War.
10 Jul 1781	Congress established the "Contract System" as best means for providing rations to the Army.
28 May 1784	Congress abolished the office of the Quartermaster General.
2 Jun 1784	Congress disbanded the Army, stating that in time of peace it was "inconsistent with the principles of republic government." A caretaking establishment numbered 80 men.
8 May 1792	All purchases and contracts for supplying Army with provisions, clothing, and supplies in the Quartermaster Department, etc., transferred to Treasury Department.
30 May 1796	Office of Quartermaster General recreated by Congress.
24 Dec 1799	Founding of Philadelphia Quartermaster Depot. (The Honorable James McHenry, Secretary of War, purchased for $2,293.33, 8 1/2 acres of land near Philadelphia for the establishment of an arsenal. This property became the site of the Schuylkill Arsenal, later the Philadelphia Quartermaster Depot.)
28 Mar 1812	First legal recognition of an actual supply staff for the Army provided by creation of a Quartermaster's Department.
28 Mar 1812	Purveyor of Public Supplies is abolished and the office of the Commissary General of Purchases under the Secretary of War's direction is established.
9 Mar 1813	Quartermaster Department ordered to build boats at Erie for Perry's fleet. Fleet turned over to Perry in August.
31 May 1813	Office of Purveyor of Public Supplies abolished and functions transferred back to the Quartermaster's Department by Act of Congress.
14 Apr 1818	Office of the Quartermaster General reestablished with designated rank of brigadier general; Quartermaster Department made a permanent bureau in the nation's capital; BG Thomas Sidney Jesup ("Father of the QMC") appointed Quartermaster General.
27 Mar 1821	Blue specified as national color for uniforms in an order prescribing a uniformity of dress.
23 Aug 1842	Office of Commissary General of Purchases abolished by act of Congress; clothing mission transferred to Quartermaster Department.
18 Jun 1846	Congress authorizes Quartermaster Department additional officers as required, but not to exceed one QM per brigade.
17 Jul 1862	Congress enacted legislation providing for establishment of national cemeteries and for their maintenance by the Quartermaster General.
19 Nov 1863	National Cemetery at Gettysburg dedicated. Lincoln delivered his most famous speech.
28 Jul 1866	The sutler system (forerunner to the present PX and Commissary Store) was formally abolished by Congress. In its place the Subsistence Department was directed to keep articles for sale to officers and enlisted men at cost.

Supply Point - Civil War 1865

25 Jul 1876 National cemeteries placed under supervision of the Quartermaster General.

30 May 1898 During the Spanish-American War, from 1-30 May, 80 officers and 2500 enlisted men died in Army camps from disease.

18 Jul 1898 War Department created a Division of Transportation in Quartermaster Department charged with supervision and control of all rail and water transportation.

7 Oct 1898 Khaki cloth formally adopted by the Army for uniforms.

30 Jun 1902 Olive drab color adopted by Army for uniforms.

1 Mar 1910 The Quartermaster School opened at Philadelphia Quartermaster Depot.

10 Jun 1912 Army adopted what has come to be known as the "Munson Last" to be used in the manufacture of Army shoes. Straightening of inner line of the sole, intended to give more width in the forepart to provide for spread of the soldier's foot when carrying a heavy burden, was one of the several improved features agreed upon by an Army Board.

24 Aug 1912 Quartermaster, Subsistence, and Pay Departments consolidated and renamed Quartermaster Corps.

21 Jun 1917 A Charlottesville construction firm begins building Camp Lee in Prince George County, Virginia (adjacent to nearby Petersburg). This would be the home of the 80th Division through most of World War I.

16 May 1917 Secretary of War establishes Cantonment Division, thus relieving the Quartermaster Corps of its construction and repair mission.

15 Jul 1917 War Department announced that Camp Lee would be named in honor of the famed Confederate leader Robert E. Lee.

7 Aug 1917 Chief of Staff of the Army and the Secretary of War approve plans for the organization of graves registration units, to consist of two officers and fifty men.

17 Nov 1917 The "Quartermaster Corps School" was moved from the Philadelphia Depot to Camp Joseph E. Johnston, Florida, which was established as the Quartermaster Corps Training Center. An officer candidate school and courses for storekeeper, checkers, and other supply personnel were quickly set up. More than 50,000 students were trained at this camp.

8 Dec 1917 Establishment of Motor Transport Service, transferred to Services of Utilities within the Quartermaster Corps.

10 Jan 1918 Quartermaster Corps loses control over rail transport mission, transferred to newly created Purchases, Storage, and Traffic Division.

22 Apr 1918 Water Transportation Branch of Quartermaster Corps is absorbed by Purchase, Storage, and Traffic Division.

25 May 1918 Last elements of the 80th Division depart Camp Lee for France.

18 Sep 1918 War Department removes all Quartermaster procurement divisions from the Quartermaster General's control, to report to the Director of Purchase and Storage.

11 Nov 1918 Armistice Day.

13 Nov 1918 Quartermaster Graves Registration Service begins to recheck temporary graves and establishes 15 concentration cemeteries in European battle areas.

4 Jun 1920 National Defense Act restores transportation and construction missions to the Quartermaster Corps; prewar paymaster function permanently transferred to Finance Department.

Sep 1920 The Quartermaster Corps Subsistence School was established at the Chicago Quartermaster Depot.

Remount Operations - World War I 1918

30 Mar 1922 Forty-six thousand remains were returned to the USA for reburial; 30,000 American soldiers were permanently interred in Europe at the request of close relatives.

7 May 1925 The insignia of the Quartermaster Corps School was authorized by The Adjutant General.

1 May 1930 Quartermaster Corps initiated the "Gold Star Mothers Pilgrimage" to European grave cities.

31 Dec 1926 "Rolling" type of collar on service coat superseded "choker" type collar worn during World War I. Design remained a single-breasted sack coat, but with a "notch Lapel collar." Change effected through the Quartermaster Corps.

29 Nov 1929 Admiral Byrd's Antarctic expedition (supported by the Quartermaster Corps) reached the South Pole.

31 Mar 1933 Civilian Conservation Corps created. The Quartermaster Corps provided the 300,000 men enrolled in the program with food, clothing, equipment, shelter, and transportation.

25 Nov 1940 Construction began on second Camp Lee (on same site as the World War I camp).

10 Sep 1941 First contingent from Quartermaster School (Philadelphia QM Depot) arrive at Camp Lee.

5 Oct 1941 The Quartermaster School closed at Schuylkill Arsenal.

6 Oct 1941 Quartermaster School moved to Camp Lee, Virginia.

13 Oct 1941 The Quartermaster School officially opens Camp Lee.

7 Dec 1941 Private A.R. Gurkin (QMC truck driver) becomes first U.S. Army casualty in World War II.

9 Mar 1942 The Quartermaster Corps turned over the Transport Service to the Transportation Division. Transportation Corps created 31 July 1942.

13 Mar 1942 Dogs first officially inducted into U.S. Army when Under Secretary of War, Robert Patterson, approved an application of the Quartermaster General. This branch of the Army became known as K-9 Corps.

27 Nov 1942 Well-known K-ration consisting of three packages (Breakfast Unit, Dinner Unit, and Supper Unit) first issued to soldiers.

4 Feb 1943 Establishment of Quartermaster Climatic Research Laboratory at Lawrence, Massachusetts, approved by The Adjutant General's Office, marking beginning of continuous scientific study of relationships between the human body, clothing and equipment, and climatic extremes.

12 Mar 1943 Services of Supply became Army Service Forces.

25 Jun 1943 Quartermaster Corps developed "Ten-in-One" ration, containing complete food supplies for 10 men for 1 day or for 1 man for 10 days.

22 Nov 1943 Headquarters, Army Service Forces, approved recommendation of Quartermaster Corps for standardization of the combat boot, replacing field shoe and legging as standard footwear of troops in combat areas.

12 Feb 1944 New mobile bath unit developed at Camp Lee.

25 Apr 1944 The Quartermaster Replacement Training Center (QMRTC) at Camp Lee was renamed Army Service Forces Center.

28 Sep 1944 LTG Somerville, Chief of Army Service Forces (ASF), approved the request of MG E. B. Gregory, The Quartermaster General, to reactivate the Quartermaster Subsistence School in Chicago.

4 Dec 1944 The first class of the new Quartermaster Subsistence School (Chicago) opened as directed by OQMG.

28 Jan 1945 First convoy using QMC truck drivers travels over Stilwell (Ledo) Road and enters China.

14 Aug 1945 Second World War ends. During the war, the Quartermaster Corps successfully provided food, clothing, and equipment for an Army of over 8 million soldiers.

Field Feeding - World War II 1944

11 Jun 1946 Army Service Forces inactivated.

5 Dec 1946 In a major reorganization, the Commanding General of Camp Lee was also designated School Commandant.

15 Feb 1947 The Quartermaster Training Center (QMTC) was inactivated at Camp Lee and enlisted skill courses were added to the Quartermaster School curriculum.

Apr 1950 Camp Lee was designated Fort Lee and made a permanent Army installation.

23 May 1951 Responsibility for aerial delivery was assigned to the Quartermaster Corps and a course in parachute packing, maintenance, and aerial delivery was initiated at the Quartermaster School.

Dec 1951 The Quartermaster School assumed operational control over the Petroleum School at Caven Point, New Jersey.

27 Jul 1953 Armistice signed providing for a cease-fire and the establishment of a demilitarized zone between North and South Korea at the 38th parallel. The Quartermaster Corps had successfully provided logistic support to U.S. troops, troops of the Korean Republic, and U.N. troops.

Aug 1954 Petroleum Courses were moved to Fort Lee and the Petroleum Training Area was laid out.

1959 The Quartermaster Subsistence School moved from Chicago to Fort Lee, and was consolidated with the Food Service Department of the Quartermaster School.

29 Jan 1960 MG Andrew T. McNamara, The Quartermaster General, threw the switch inaugurating the Quartermaster School's closed circuit television operation.

19 May 1961 Mifflin Hall was formally dedicated.

1 Oct 1961 The Defense Supply Agency (DSA) was established by the Secretary of Defense to provide supplies and services used in common by the military services.

27 Oct 1961 The Fort Lee Drop Zone was opened for airborne exercises at the Quartermaster School, Fort Lee.

10 Jan 1962 Secretary of Defense Robert McNamara issued an executive order on the reorganization of the Army which abolished the statutory positions of the technical service chiefs (including The Quartermaster General) and transferred them to the Secretary of the Army. Congress approved the plan on 17 February 1962.

Jul 1962 The Quartermaster School was designated "Home of the Quartermaster Corps." Also, the U.S. Army Combat Service Support Group was established at Fort Lee. (This agency was later changed to Personnel and Logistics Group, and in 1973 to the U.S. Army Logistics Center.)

1 Aug 1962 Army Materiel Command (AMC) assumed responsibility for the Army's wholesale logistics system, the offices of The Quartermaster General, the Chief of Ordnance, and the Chief Chemical Officer disappeared.

15 Jun 1963 The new Quartermaster Museum building was dedicated.

1 Jan 1966 The Second United States Army was inactivated and the Quartermaster Center and Fort Lee became a Class I military installation under First United States Army.

29 Mar 1973 The last U.S. troops left Vietnam, ending the Quartermaster support system that provided supplies to a U.S. and Free World military force of over 1 million men.

Feb 1981 The Army initiated transfer of water purification/distribution functions from the Engineer Corps to the Quartermaster Corps.

13 Jun 1986 The Quartermaster Regiment was activated.

Aerial Resupply - Vietnam 1968

TRAINING ON SQUAD AUTOMATIC WEAPON (SAW)

Unit Supply Specialists (MOS 76Y) at Fort Lee, VA, and Fort Jackson, SC, began training on the new SAW in August 1987. At this time, the Quartermaster School (QMS) only received 60 of the 106 training weapons requested and, according to a spokesman at the Armament, Munitions, and Chemical Command, the remaining SAWs will not be delivered before FY 90 or 91. At the time that full delivery has been made, the QMS will extend resident training on the SAWs to the Quartermaster Officer Basic and Advanced Courses.

TRANSITIONAL PERFORMANCE AID (TPA)

Beginning in January 1987, newly graduated Equipment Records and Parts Specialists (MOS 76C10) will arrive at their new duty stations equipped with a TPA to assist them during their first months on the job. This 37-TPA, developed through a coordinated effort by the U.S. Army QMS and the Army Research Institute for the Behavioral and Social Sciences, under the auspices of the United States Army Training and Doctrine (TRADOC) Technical Training Field Activity (Lee), organizes the critical tasks of the 76C MOS and shows how they are to be performed. The TPA consists of flow charts showing the procedures to be followed for task completion and the actions for which the 76C is responsible. The flow charts are keyed to a reference matrix. Although designed as a job aid, the TPA is introduced to the students early in the 76C10 advanced individual training (AIT) course to familiarize them with it prior to their initial duty assignment. Personnel assigned to the 76C MOS may find themselves operating in one of four duty positions: PLL Clerk, TAMMS Clerk, Shop Stock Clerk, or Shop Clerk and often without direct technical supervision or guidance. The uncertainty of the assignment position, and the possible lack of immediate technical supervision dictated the need of a job aid to serve as a reminder of tasks learned and, thus, improved the initial proficiency of the new 76C10 soldiers.

LOGISTICS APPLICATION OF TACTICAL AUTOMATED MARKING AND READING SYMBOLS (LOGMARS T) FOR MATERIEL STORAGE AND HANDLING SPECIALIST 76V

The Storage Training Division of the Supply Department has received the new LOGMARS T equipment which will be making automated training of the 76V a reality. This equipment will enhance the 76V's ability to perform receipt processing, location survey, and inventory in a more efficient and timely manner. The training will enable the 76V to unpack/set-up/operate the LOGMARS T hardware with or without host computer to support storage operations and maintenance functions. As of July 1987, the 76V AIT Course has a length of 7 weeks. Additional subject matter, to include Class III Package Petroleum, Electro-Static Discharge, and LOGMARS T has been recently incorporated.

FM 39-741 DIRECT SUPPORT UNIT STORAGE OPERATIONS

Per Department of the Army (DA) directive, a chapter pertaining to Combat Authorized Stockage List (ASL) uploading is under development for enclosure in the new FM 39-741 with a field due date of July 1988. It will address the need for determining the cubic feet requirements of ASL lines and utilization of a variety of storage

aids to include newly developed items now appearing in the active inventory. This chapter will serve to close the procedural gap between the manner in which individual units compute, organize, and perform the uploading of the Combat ASL.

ROBOTICS AND MATERIALS HANDLING EQUIPMENT (MHE) OF THE FUTURE

The QMS is currently involved in developing requirements to apply the latest robotics technology to MHE. The thrust of the program is to develop a robotics assisted cargo handler (RACH) that will enable personnel to operate MHE on a continuous basis in a nuclear, biological, chemical (NBC) contaminated environment. The RACH will be designed to replace current 4K, 6K, and 10K forklifts. It is envisioned that the RACH will be operated by remote control from an NBC hardened shelter up to a distance of 1 mile. When the vehicle is being used in a non-contaminated environment, it will have the capability to be operated in a manner similar to conventional forklifts. The development of the RACH is expected to provide the trainers of current MHE with an unprecedented challenge, not only will the trainers be required to teach conventional forklift operations, but they will also be required to teach operators how to use sophisticated teleoperated devises to move the forklifts from one location to another within a storage area. As well as being operable in a contaminated environment, the RACH will overcome another deficiency of current MHE which is the inability to relocate on the battlefield without the aid of a prime mover. The RACH will be capable of speeds in excess of 45 mph which will enable it to convoy with its unit. Fielding of the RACH is scheduled for FY 94.

ASSIGNMENT OF TACTICAL ARMY COMBAT SERVICE SUPPORT COMPUTER SYSTEM/STANDARD ARMY MAINTENANCE SYSTEM (TACCS/SAMS) GRADUATES

Graduates of the 3-week TACCS/SAMS course at the U.S. Army QMS are awarded an additional skill identifier (ASI), B5. The DA has the responsibility for assignment of the TACCS/SAMS graduates. These personnel assignments are made to commands that currently have the TACCS hardware or to commands that will receive the TACCS hardware in the future. It is the responsibility of the receiving command to make assignment of the TACCS/SAMS graduates to the appropriate units within the command that have or are to receive the TACCS hardware.

76Y30 SPECIAL CONFIGURED PACKAGE (SCP) PROGRAM OF INSTRUCTION

The SCP program of instruction (POI) is in final draft. This POI will be used to support reserve personnel training in the Unit Supply Specialist Basic Noncommissioned Officer Course (BNCOC). The POI has two separate phases: Phase I consists of 99 hours of active duty training (ADT); Phase II has 119 hours of instruction pertaining to the duties and responsibilities of the Unit Supply Specialist at the 76Y30 level. The training includes ordering and accounting for supplies and equipment, maintaining property book records, obtaining relief from accountability, security, and administration of an arms room. The training has been designed for inactive duty training (IDT). The IDT may be presented in 4-to 16-hour blocks of instruction on weekends.

HEMTT TANKER AVIATION REFUELING SYSTEMS (HTARS)

The QMS in conjunction with the Belvoir R&D Center is currently testing a state-of-the-art lightweight refueling system designed to give the M978 HEMTT Tanker the ability to simultaneously refuel four aircraft. The system's components consist of lightweight hoses, valves, and couplings. Using the HEMTT's onboard pump and separator the system will be able to provide each of the points with 50 GPM. The system is designed so that the entire system stows in the cargo compartment on the HEMTT.

ADVANCE AVIATION FORWARD AREA REFUELING SYSTEM (AAFARS)

A new type of aviation refueling system is currently being evaluated for possible Army-wide adoption. The AAFARS will replace the present Forward Area Refueling Equipment (FARE) in aviation units to support the fielding of the AH-64 Apache. The system is designed to be lightweight, three man portable, and provide a 50 GPM flow rate at each of its four refueling points. The system is comprised of state-of-the-art lightweight hoses, valves, and sexless couplings.

XM1061E1 TRAILER

The M105 series trailer/600-gallon fuel tank combination was banned by Headquarters United States Army Troop Support Command (TROSCOM) safety of use message in September 1985. An initial "fix" to the problem was to use the M976 bolster trailer with a tie down kit. The long term plan which was initiated in December 1986 was to use the XM1061E1 trailer as the transporter of the 600-gallon pod. The XM1061E1 trailer is a 5-ton, four-wheel, dual-axle, flatbed, general-purpose trailer capable of carrying one or two pods. The trailer measures 14 feet long and 8 feet wide. The gross vehicle weight of the trailer loaded with two pods is 15,620 pounds. United States Army Test and Evaluation Command (TECOM) completed technical feasibility testing of the XM1061E1 trailer with one and two 600-gallon pods in September 1987. Although initial results of the TECOM feasibility test proved satisfactory, additional issues have surfaced and are being worked at various levels. Type classification is anticipated early 2d Qtr FY 88. Contract award and initial sole source buy is anticipated late 2d Qtr FY 88. Subsequent buys will be on a competitive bid beginning 1st Qtr FY 89.

TEST KIT FOR CAPTURED FUEL

A "go/no go" test kit for captured fuel is required to provide the combat soldier in the field with a method of identifying captured or commandeered petroleum fuels as to type fuel and its degree of contamination by water and sediment for use under emergency conditions. The test kit is a compact, man-portable kit intended for use by the combat vehicle crewman or field soldier. It will determine if fuels of opportunity are suitable for use in diesel or gas turbine engines. The approximate measurement of specific gravity, viscosity, and visual contamination are used to determine if the fuel is suitable for emergency use. Specific gravity and viscosity test components are contained in test kit housing. The transparent housing of the case contains the visual contamination test

component and also serves as the test sample container. Positive determination of usability requires that all test methods read acceptable or "GO." The test kit and case have been designed to be durable and to withstand repeated use and rough handling. These kits will be available for combat units in FY 89.

VERSATILE MATERIELS HANDLING EQUIPMENT

The QMS in conjunction with the Engineer School have recently awarded a contract to Freightliner Corporation to purchase 120 small emplacement excavator variants. These vehicles are equipped with a front mounted forklift and rear-mounted crane. The forklift has a maximum lift capacity of 4,000 pounds and the crane can lift 6,000 pounds. The vehicle is also equipped with an auxillary hydraulic system that enables the use of special tools such as an impact wrench and cut off saw. Testing of the See Variant will take place at Yuma Proving Ground in February 1988 and fielding will begin in July to two Quartermaster units; the Petroleum Supply Company and the Petroleum Supply and Operating Company. One of the most unique features of the See Variant is its ability to relocate on the battlefield without the aid of a prime mover. It is capable of speeds in excess of 45 MPH which enables it to convoy with supported units. The See Variant can also be externally air transportable by the CH47D and internally air transportable by C130 and C141.

LIGHTWEIGHT COLLAPSIBLE PILLOW TANK (LCPT)

Type classification of the new LCPT occurred on 3 November 1987. The Defense Logistics Agency (DLA) is expected to solicit contract proposals for the pillow tank in calendar year 1988. Fielding of the LCPT is expected to commence in the second quarter of FY 89. The purpose of the LCPT is to supply water within the Light Infantry Battalion; when full, it will contain 160 gallons of potable water and weighs less than 1,500 pounds. When empty, it weighs less than 50 pounds and can be folded flat. Under the operational concept, the pillow tank is filled from the Forward Area Water Point Supply System (FAWPSS) at the battalion combat trains. The tank is transported forward to the company area in a HMMWV or 3/4-ton trailer and is used to fill 5-gallon water cans, 5-quart water carriers, and canteens.

3000-GPH REVERSE OSMOSIS WATER PURIFICATION UNIT (ROWPU)

A contract to procure the new 3000-GPH ROWPU was awarded by the U.S. Army TROSCOM on 25 November 1987. Under the contract, 98 ROWPUs will be constructed by Aqua-Chem Incorporated of Madison, Wisconsin, with delivery commencing in late FY 90. The 3000-GPH ROWPU is designed to produce potable water from fresh, brackish, salt, and NBC contaminated water sources. The treatment processes include media filtration, cartridge filtration, reverse osmosis, chlorination, and NBC post-treatment. Product water is stored in three 3000-gallon collapsible fabric "onion" tanks. As the replacement for the 3000-GPH erdlator, this ROWPU will be found in echelons above division. Quartermaster units scheduled to receive it include the Water Purification Team (TOE 10570LC00), Water Purification Detachment (TOE 10469L000), and the Supply and Service Company, Direct Support (TOE 42337L000).

SUBSISTENCE

DOCTRINE AND TACTICS TRAINING (DTT) TEAMS

Initial onsite training visits provided to units converting to the Combat Field Feeding System (CFFS) are known as DTT Teams. When units convert to the Army of Excellence Structure and receive their CFFS equipment, or shortly thereafter, the QMS will send a team of instructors to provide one-time training on the CFFS to units. The number of instructors on the DTT Team is based on the number of students and length of the course offered. Training is a combination of lecture, discussion, demonstration, hands-on exercises, and testing. Soldiers who successfully complete training will receive a QMS Certificate on the CFFS. It is expected that those personnel trained by the QMS's DTT Team will be used for on-the-job training in the unit. DTT Teams are coordinated by United States Army Forces Command (FORSCOM). The team has conducted training for the 7th Infantry Division (L); 10th Mountain Division; Fort Benning, GA; Fort Dix, NJ; Fort Jackson, SC; Fort Clayton, PZ; Schofield Barracks, HI; Fort Campbell, KY; Fort Lewis, WA; Fort Bragg, NC; and Fort Hood, TX.

NEW FOOD SERVICE SCHOOL

Fort Lee's new food service training facility, its largest new training construction since the World War II era, was dedicated in 1986. It houses the food service courses taught by the Subsistence and Food Service Department which is responsible for entry-level training of Army cooks and advanced training for food service sergeants and warrant officers. It replaces a number of World War II vintage buildings. The facility features seven general-purpose classrooms of 1,225 square feet each, capable of accommodating 40 students. For hands-on training in cooking skills, there are 15 kitchen classrooms, 1,225 square feet each, capable of providing 12 students with all necessary kitchen equipment. Other features of the facility include a 92-seat dining hall, where students will practice large-quantity cooking in a Garrison Dining Facility. A 91-seat auditorium has also been included.

FM 10-60 SUBSISTENCE SUPPLY MANAGEMENT IN A THEATER OF OPERATIONS

FM 10-60 will be revised soon. The revision will consolidate FM 10-60 with FM 10-24, Ration Distribution Operations. This consolidation is meant to reduce printing costs by preventing the duplication of material that currently appears in both manuals. The title of FM 10-60 will be changed to: Subsistence Supply Management, Distribution and Operations. The new FM 10-60 will cover the following topics: CLASS I supplies, principles of storage (space management and care of subsistence), MHE, subsistence handling units in a theater of operations, CLASS I operational sites, CLASS I supply operations, special operating conditions, Troop Issue Subsistence Activity Operations, and ration distribution during field training. New material will be printed in late 1988. Any recommended changes to the current FM 10-24 or FM 10-60 should be submitted as soon as possible using DA Form 2028. The forms should be forwarded to: Commandant, U.S. Army Quartermaster School, ATTN: ATSM-SFS-ST, Fort Lee, VA 23801-5041.

FIELD CIRCULAR ON CFFS

The Field Circular has been renumbered. It is FC 21-150, Combat Field Feeding System Operations. It was mailed out Armywide during September 1986. If you have not received one, contact Ms. Ellen Waraksa, AUTOVON 687-2742/3963.

VISUAL PRESENTATION OF ARMY FOOD SERVICE

The Subsistence and Food Service Department is currently organizing a traveling exhibit featuring the varied activities of Army Food Service, and is requesting input from interested individuals. Our goal is to develop a major display, representative of all aspects of Food Service, to include depictions of field feeding scenes in the field or in the garrison, subsistence supply points, award ceremonies, and local newspaper coverage of Army Food Service operations. The proposed title of the presentation is "Food Service Professionals at Work in the World." We are interested in all sources of information, and will accept B&W/color prints, negatives, slides, and sketches pertinent to the topic. Contributors will be given credit for any materials used in the presentation. Please send your input, or any requests for more information, to: Mr. George Herb, Proponency Manager, or CW3 McCutcheon, Proponency Project Officer, Subsistence and Food Service Department, ATTN: ATSM-SFS, Fort Lee, VA 23801-5041.

KITCHEN, COMPANY LEVEL

For the fourth time, the name of this component of the CFFS has changed. It is now the Kitchen, Company-Level Field Feeding (KCLFF) pronounced "K-cliff". The other change in this component is the plan to camouflage the components (heater cabinet, pot and cradle assembly, etc).

TRAINING PACKETS

The exportable training packet on the CFFS is now available. This packet can be obtained by contacting the Nonresident Training Branch, U.S. Army Quartermaster School, AUTOVON 687-3561/3594. Also available, upon request, is a 7-minute video tape, "Combat Field Feeding in the Army of Excellence," #800-101-0237B. Request for copies of this tape on a long-term basis (i.e., 1 year) should be sent to: Commandant, U.S. Army Quartermaster School, ATTN: ATSM-DTP (AVPRO), Fort Lee, VA 23801-5000.

FOOD SERVICE SANITATION TRAINING FOR RESERVE COMPONENT SOLDIERS

The QMS offers a Food Service Sanitation Adjunct Instructor Course for Reserve Component soldiers with background in food service sanitation. Graduates are designated as adjunct instructors for the QMS and are able to certify food service personnel in their units in food service sanitation. This allows Reserve and National Guard units to meet training requirements of TB Med 530. Offered two-three times a year at Fort Lee, the course is 1 week long and must be funded by the parent unit. For further information, contact CPT Schlosser, U.S. Army Quartermaster School, Subsistence and Food Service Department, AUTOVON 687-1760.

SPECIAL CONFIGURED PACKAGE (SCP) PROGRAM OF INSTRUCTION FOR FOOD SERVICE

Two new SCP POI have been compiled to train reserve personnel assigned the 94B duties of food service personnel at skill levels 1 and 4 (94B10 and 94B40). Both courses are set up to be taught in the 2 weeks of ADT. The new 10-level SCP covers all but three critical tasks. A new 30-level SCP is programmed for development in FY 88. The instruction is conducted by the faculty of the United States Army Reserve (USAR) School at Fort Lee facilities or satellite teaching locations.

42,000-POUND LOW ALTITUDE PARACHUTE EXTRACTION SYSTEM (42K LAPES)

The components for the new 42K LAPE Airdrop System were recommended for type classification as Standard A at a recent 21 October 1987 In-Process Review (IPR). The 42K LAPE System was successfully tested at Yuma Proving Ground, AZ, and at the Airborne and Special Operations Test Board, Ft Bragg, NC. The 42K LAPE System is the first phase of the 60,000-Pound Capacity Airdrop Program, which will incrementally increase our current 35,000-pound system to 60,000 pounds for LAPE and Low Velocity Airdrop (LVAD). The 42K LAPE System is expected to be fielded in FY 89.

AIRDROP SUPPORT FOR THE LIGHT INFANTRY DIVISION (LID)

In April 1987, rigging began at Tooele Army Depot on the operational project for the 7th Infantry Division. Three days of supplies for one brigade are being rigged in approximately 1200 A-22 containers with the G-12D cargo parachute. The supplies will be held at Tooele until called forward by the 7th Infantry Division. A similar project is being planned for the 25th Infantry Division.

ENHANCED CONTAINER DELIVERY SYSTEM (ECDS)

The Army and the Air Force are jointly working on personnel and cargo airdrop systems that will reduce the vulnerability of delivery aircraft to enemy anti-aircraft systems. Air Force testing has revealed that lower and faster delivery methods are required to avoid acquisition by threat forces. The current container Delivery System (CDS) is the primary means of airdrop resupply for combat ground forces. It consists of multiple 2200-pound A-22 containers that are airdropped from 600-foot altitudes at aircraft speeds up to 150 knots. The new ECDS will allow containers to be dropped from 300-foot altitudes at airspeeds up to 250 knots. ECDS development consists of two phases. The first phase, which is currently being tested, incorporates simple modifications to the current G-12 parachute, thereby, allowing for 300-foot drops at 150 knots. Test results for the first or interim phase of ECDS have been promising. Operational 300-foot, 150 knots CDS deliveries may be possible by next year. The second phase, or final ECDS, will increase 300-foot drop speeds to 250 knots and will complement the low level, high speed airdrop capabilities of the future C-17 aircraft. The final system will require extensive developmental work and is dependent on the scheduled 1992 fielding of the C-17.

STATIC LINE/CONNECTOR STRAP EXTRACTION SYSTEM

In November 1987, a message was sent to the field (DTG 251409Z Nov 87) announcing that the static line/connector strap is no longer an authorized method of extraction on the Type V platform. This decision was made by NRDEC and announced originally by Natick message 161535Z Oct 87.

PROCEDURES FOR RIGGING TYPE V AIRDROP PLATFORMS

The U.S. Army QMS started development of eight Type V rigging manuals during FY 86/87. Two of these manuals, FM 10-573 (130G Grader) and FM 10-575 (Water Distributor), have already been sent to the field in interim manuscript. The six remaining manuals will be published in interim manuscript during the next 8 months. Twelve Type V manuals are scheduled to start development during FY 88 and an additional 14 manuals are scheduled for FY 89. To determine the current needs of the field, a working group consisting of key U.S. Army and U.S. Air Force representatives met and identified 178 Type V platform loads that could be rigged using current Type II and LAPE platform procedures. When approved, these procedures will be published to the field by the U.S. Army QMS.

NEW AIRDROP CONCEPT

A new airdrop concept is being developed by the QMS, and it is designed to provide the best airdrop support at the least cost in terms of equipment and personnel spaces. The main thrust of the new concept is to develop two types of airdrop supply companies. A light company designed to rig primarily "A Series" containers will support each Corps. A heavy airdrop company designed to rig platform loads and containers will be located at Theater level. There are other innovative ideas contained in the concept designed to improve our overall airdrop support. The concept is currently being staffed by the U.S. Army Logistics Center, and concept approval is expected by the end of FY 88.

FM 10-400

This field manual (FM) outlines the operation of the Airborne Division's Air Equipment Support Company (TOE 10-337H), the Corps' Airdrop Supply Company (TOE 20-407H), and the Corps Air Equipment Repair and Supply Company, TOE 10-417H. Revision of this manual will begin the 3d Qtr FY 88. We only have limited numbers of these units, Active Army and United States Army Reserve (USAR), so recent expertise is limited. Those who have experience in these units should review FM 100-400 and submit recommended changes to: Commandant, U.S. Army Quartermaster School, ATTN: ATSM-DTL, Fort Lee, Virginia 23801-5036.

AIRDROP COMMON COLLECTIVE TASK

The U.S. Army QMS has developed an Airdrop Common Collective Task which has been approved and published as part of the Combined Arms Training Activity (CATA) Common Task Book. The Task Book is available for use by the various service schools who will be incorporating requests for Airdrop Resupply Missions as a routine part of the training program for selected units.

ELIMINATION OF 260 INCH REEFING LINE ON 15 FOOT EXTRACTION PARACHUTE

There is no longer a requirement for the 260 inch reefing line for the 15 foot extraction parachute. The unreefed 15 foot extraction parachute will be used as follows:

C-130	Extracted load ranges	2520 lbs to 8000 lbs
C-141	Extracted load ranges	2520 lbs to 10,000 lbs

MINIMUM POUNDS PER SQUARE FOOT (PSF) FOR HSLLADS CONTAINERS

MAC message, DOXT, 082230Z Jul 87, advises the minimum PSF is changed to 35 PSF. PSF is based on total rigged weight to include the parachute and the largest surface area of the container. This information will be included in FM 10-542/TO 13C7-51-21.

CAREER NOTES:

76C20 TO 76Y30 TRANSFORMATION

JERRY W. HENDERSON

"Yesterday I was a Sergeant (E5) with a 76C (Equipment Records Parts Specialist) Military Occupational Specialty (MOS). Today I am a Staff Sergeant (E6) with a 76Y (Unit Supply Specialist) MOS." The promotion is great, but there is a problem -- confusion for both the commander and the individual soldier.

Commanders in the field are confused about training, the promotion process, and assignment requirements for the soldier with a 76C MOS converting to 76Y MOS upon promotion. "How do I train the soldier, and where should the soldier be assigned," are the two questions most frequently asked. The soldier in turn is confused about how he gets the needed training, and where he will be assigned.

Regarding the training, the commander may have to "just let go" and request that Department of the Army (DA) provide a slot for the soldier to attend the Basic Noncommissioned Officer Course (BNCOC) for the 76Y. The soldier may have to request this training through his commander to DA. This course contains 1 week of common core material and 6 weeks of training in 76Y tasks. All 76Y tasks trained are doctrinal, based on current regulations, and do not include unit or local standing operating procedure (SOP) uniques. The BNCOC gives the newly promoted 76Y soldier the supervisory skills and the unit supply specialist knowledge to perform in his new grade. An alternative to BNCOC is Army Correspondence Courses, which are available for group or individual use in the field. The Quartermaster School has one correspondence course, Unit Supply Specialist Primary Technical, with 21 subcourses for the 76Y20 level, and another correspondence course, Unit Supply Specialist Basic Technical, with 15 subcourses for the 76Y30 level. The tasks within these subcourses are the same tasks taught in the resident courses at the Quartermaster School, minus the common core curriculum.

The assignment of the newly promoted 76Y soldier should be based on the major duties outlined in AR 611-201. The 76Y30 supervises personnel in a large supply activity performing the duties of a Unit Supply Specialist (76Y20). The commander may assign the soldier to supervise the Equipment Records and Parts Specialist (76Y20) before acceptance to BNCOC, or until the soldier becomes proficient in his new MOS through completion of the 76Y subcourses from the Quartermaster School correspondence course.

Jerry W. Henderson, GS-12, is a Supervisory Training Specialist at the Supply Department, U.S. Army Quartermaster School, Fort Lee, Virginia. He is a retired Sergeant Major, and holds a B.A. in Psychology from St. Leo College, Florida.

QUARTERMASTER WARRANT OFFICER UPDATE

CW4 BILL MULLINS

As a result of the 1984/1985 Total Warrant Officer Study, and as approved by the Chief of Staff, the Army is making the transition to managing warrants by years of warrant officer service as opposed to years of federal service. Another major change resulting from this study is the establishment of a Total Warrant Officer (TWO) System, which parallels the developmental concepts of the Officer Personnel/Management System and the Enlisted Personnel Management System. The most significant changes incorporated to date are those implemented by the Department of the Army (DA), effective 1 October 1987, as follows:

1. The Obligated Volunteer Service (OBV) agreement for all newly appointed warrant officers (WO 1) is now 5-years. Previously, OBV agreements extended 4-years for technical warrants and 5-years for aviator warrants. Individuals holding enlisted grades E8 or E9 and accepting appointment to CW2 will be required to accept a 6-years OBV.

2. The Conditional Voluntary Indefinite (CVI) process for warrant officers is eliminated. The Voluntary Indefinite (VI) process is still in effect, but will now occur in the last year of OBV service. The CVI/VI selection board meeting in January 1988 will consider all applicants under previous rules, but will designate all selectees VI under the rules effective 1 October 1987. Warrants previously selected for CVI will be notified by letter that their status has been changed to VI.

3. Other Than Regular Army (OTRA) warrant officers in the grades of WO1 or CW2 will be allowed to remain on active duty beyond 20 years of active federal service (AFS) to allow them to be considered for automatic integration into the Regular Army (RA) upon promotion to CW3. Currently, all OTRA warrant officers must leave active duty at 20 years of AFS unless a service obligation carries them beyond that time frame.

4. RA integration will be required for those warrants whose current tour of active warrant officer service commences on or after 1 October 1987. Those declining RA integration upon selection for promotion to CW3 will be released from active duty. Warrant officers on active duty prior to 1 October 1987 will be permitted to decline RA integration upon promotion to CW3, but must separate from active duty at 20 years of AFS if still in an OTRA status.

Instructions for the implementation of these changes were sent to the field in late September and early October of 1987. Changes will be incorporated into applicable regulations at the normal update cycle.

Another issue that is rapidly becoming a reality is that of Master Warrant Officer (MWO). On 8 December 1987, DA will convene the first MWO selection board to select senior CW4s for schooling and subsequent assignment to coded positions as technical systems and functional/branch integrators. Quartermaster MWO positions and the number of warrants in the zone for consideration of each are:

MOS	TITLE	AUTH	PZ	BZ
920A	Property Book Technician	15	4	2
920B	Repair Parts Technician	11	5	2
921A	Airdrop Systems Technician	1	0	0
922A	Food Service Technician	4	1	1

As the above chart indicates, it will take some time to fill all Quartermaster MWO requirements because of a lack of personnel meeting selection criteria. The December 1987 selection board will use the following to select the first group of MWOs:

1. Must be Regular Army.
2. Must have executed the oath (DA Form 71) to be a commissioned warrant officer.

3. Must be a graduate of a Warrant Officer Advanced Course or the Warrant Officer Senior Course (Military Education Level (MEL) Code B or A respectively).

4. Must have completed at least 2-years of college (Civilian Education Level (CEL) Code 6).

5. Zones of Consideration:

   a. Primary Zone: Temporary Date of Rank (TDOR) as a CW4 of 31 December 1981 or earlier.

   b. Secondary Zone: TDOR as a CW4 of 1 January 1982 through December 1983.

To be eligible for consideration for MWO, these criteria must be met without exception. Note that dates of rank are "temporary", not permanent.

During the week of 19-23 October 1987, a Task and Site Selection Board for MWO training met at Fort Rucker, Alabama. The board selected 55 tasks for training (17 for resident and 38 for nonresident.) This MWO training is replacing the current Warrant Officer Senior Course as part of the transition to the Total Warrant Officer System. Resident courses are expected to be 6 to 8 weeks in length, and nonresident training for those selected by the MWO selection board of December 1987 will commence not later than the second quarter of fiscal year 1988 with read-ahead correspondence requirements to be mailed no later than 31 March 1988.

Reserve Component (RC) MWO training requirements are being developed and will be available 1 October 1988. The Task and Site Selection Board voted to keep the RC resident training module to 2 weeks, rather than the proposed 4 weeks, allowing RC individuals to complete their MWO training within a single year.

Upon successful completion of the resident and nonresident phases of the MWO course, both AC and RC MWO selectees will be required to report to their military occupational specialty (MOS) school for certification by the MOS proponent prior to being utilized in MWO positions.

As changes continue to occur, you need to be aware of how they effect you. The TWO's Implementation Branch at DA has distributed two excellent publications in an effort to update warrants and commanders; the September 1987 "Special Issue" of Officer's Call magazine and the TWO's pocket guide should be considered required reading by all warrants.

* * *

On 12 May 1987, the Chief of Staff, Army, approved the reduction of over 2000 warrant officer spaces from the force structure. The Quartermaster branch was one of the hardest hit, and several Quartermaster warrants have expressed concern over the security of their positions. It should be understood that the Army has stated that this reduction applies only to spaces, not faces, and that the cuts are not effective until the end of fiscal year 1989. Once the cuts are made, some QM MOSs will be in an overstrength posture, but the only Quartermaster warrants that may fall into a possible reclassification category are Food Service Technicians. We currently have a strength of 180, after reductions; the authorization for FY 89 is 111. The Army hopes to reduce strength through normal attrition, retirements, and voluntary reclassification actions; bottomline, the Army has stated that no warrant officers will be forced to leave the Army as a result of these reductions.

CW4 Bill Mullins is the Senior Warrant Officer in the Office of The Quartermaster General, Fort Lee, Virginia. He is the Chief Advisor to the Quartermaster General concerning Quartermaster Warrant Officer professional development issues. He holds a B.A. in Business Administration from Troy State University, Troy, Alabama, and is a graduate of the Warrant Officer Senior Course.

CPT IRA S. NAIDITCH

TRAINING WITH INDUSTRY

A UNIQUE TRAINING EXPERIENCE FOR QUARTERMASTER OFFICERS

Temperatures on a wintery Minnesota morning may dip well below zero. Even so, the daily delivery of produce must be inspected before being put on the shelves of the local supermarket.

Who's supervising the inspection this particular morning - as well as verifying inventory in the company's new dry grocery warehouse which uses a new state-of-the-art, high-density storage system? None other than Jody Sherrill, whose 1-year "tour of duty" with Super Valu Corporation dovetails with his status as an Army major.

Under a special Army-sponsored program called "training with industry," Major Sherrill has embarked on training in the company's purchasing section, where he'll become intimately familiar with civilian grocery purchasing policies and procedures. According to the program's theory, with this on-the-job training he'll be better equipped to perform his next military job, which will be with the Defense Logistics Agency, where he'll head a branch in the Defense Subsistence Region in Seattle.

The Army's TWI program seeks to provide Army officers the chance to experience state-of-the-art management practices in areas undergoing rapid technological or managerial advances. This is done by selecting officers (normally captains and majors) to serve with successful civilian industries for 1-year. While in that assignment, the officer serves as a middle-management executive on the staff of the firm, gaining hands-on experience considered valuable to future military assignments.

Right after the TWI period, the officer serves a 3-year "utilization tour" to best enable the Army to benefit from the training. These positions, which are board validated, are closely tied to the TWI training the officer has just received.

In the Quartermaster Corps, officers currently have the chance to train with industries in such fields as food service management, supply management, commissary management, petroleum management, inventory control and distribution management, procurement, and clothing and textiles management. Providers of the training include such major firms as Sun Oil, Super Valu, Marriott, McDonnell-Douglas, and Hart, Shaffner, and Marx.

During the past 5-years, the Quartermaster Corps' portion of the training with industry program has expanded to the point where there are currently opportunities for over 15 officers each year. The program is expected to grow even more as high technology industrial training becomes needed in Army logistics.

Officers interested in the program should contact their professional development officer at the Total Army Personnel Agency (formerly MILPERCEN) in Alexandria, VA.

CPT Ira S. Naiditch is a Logistics Staff Officer, HQDA, Management Division, Directorate for Resources and Management, Office of the Deputy Chief of Staff for Logistics.

Current Quartermaster Training With Industry (TWI) programs*:

PROGRAM	INDUSTRY	LOCATION	AOC/GRADE
Supply Mgt	Proctor and Gamble	Cincinnati, OH	92B/04
Supply Mgt	McDonnel-Douglas	Huntington Bch, CA	92B/03
Food Service Mgt	Marriott,	Washington, DC	92G/04
Food Service Mgt	Marriott,	Washington, DC	92G/03
Commissary Mgt	Super Valu	Minneapolis, MN	92G/04
Petroleum Mgt	Sun Oil	Philadelphia, PA	92F/04
Clothing/Textiles	Hart, Shaffner and Marx	Chicago, IL	92B/04

*Additionally, approximately six 1988 Procurement TWI programs will be filled by Quartermaster officers.

QUARTERMASTER OFFICER ADVANCED COURSE IN TRANSITION

MAJ MURRAY J. RUPERT

Officers attending the Quartermaster Officer Advanced Course (QMOAC) during FY 88 are reaping the benefits of some major curriculum changes that will better prepare them to fill command and staff positions around the world.

During FY 87, the United States Army Training and Doctrine Command (TRADOC) commander declared that "small group instruction is the primary educational method of leader development within TRADOC." According to the TRADOC definition, small group instruction is the purposeful utilization of small group process methods and techniques to stimulate learning. To maximize learning opportunities in small groups, it was determined that the following conditions must exist:

- War fighting is to be the basis of all instruction.
- The focus is on "how to think," not "what to think."
- Students are responsible for their own learning.
- Team leaders are trained in team development and small group learning processes.
- Learning group size is limited to 12 to 16 participants.

To date, the small group process is functioning well within the framework of the QMOAC. The small instructor to student ratio creates a close and stimulating relationship between group members and facilitator which greatly enhances the learning process. Other benefits realized under this program include:

- A reduction in competition among students and an increase in cooperation - a working philosophy that will benefit students in the establishment of successful staff relationships in the future.
- Increased participation, cognition, and response from students engaged in the active learning of small group instruction as opposed to passive learning within large group lecture conference settings. (There is nowhere to hide in a small group.)
- Students work as a team to arrive at the best solutions to problems, rather than being fed a school solution, thus stimulating and honing the student's reasoning processes.
- The use of war fighting and leadership as a common thread in all small group instruction serves to focus the thinking of future company commanders towards the challenges of the AirLand battlefield.

Finally, the personal and professional example set by the Team Leader as a role model allows students a firsthand view of what qualities are necessary to achieve success as a Quartermaster officer.

Another recent and significant change to the QMOAC is the establishment of a 20-week common program of instruction for all students with add-on training modules for Advanced Logistics Management (ALM), Advanced Petroleum and Water Logistics (APWL), and Subsistence. The previous program of instruction (POI) consisted of a 12-week common phase for all students and an 8-week track phase that provided specialized training for officers in the areas of materiel management, petroleum management, and subsistence management. The new add-on modules vary in length from 4-weeks for ALM to 6-weeks for Subsistence and 8-weeks for APWL.

The best way to illustrate the changes that have taken place is to examine and compare the transformation of the QMOAC Training Goals:

- PREVIOUS POI - 12-WEEK COMMON PHASE
  To train company grade QM officers in the skills necessary to command at the detachment/company level, and to perform as battalion and brigade staff officers.
- PREVIOUS POI - 8-WEEK TRACK PHASE
  To develop functional competence in selected company grade QM officers in the areas of materiel management, petroleum management, and subsistence and food service management.
- NEW 20-WEEK POI
  To train company grade QM officers in the skills necessary to command at the detachment/company level, and to perform as battalion and brigade staff officers. To develop functional competence in all company grade QM officers in the area of materiel management.
- NEW ADD-ON MODULES
  To develop "world class" competence in selected company grade QM officers in the areas of logistics management, petroleum and water management, and subsistence management.

The new 20-week POI and add-on modules were implemented with QMOAC Class 87-6, commencing on 3 September 1987.

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Q.M. SCHOOL HOTLINE

The Directorate of Evaluation and Standardization in the Quartermaster School has assumed the responsibility for collection of immediate feedback from the field. Through the addition of a 24-hour per day telephone answering service we are able to record incoming calls after normal duty hours, and respond to the caller the next duty day. Comments are requested on strengths and weaknesses of all officer, WO, and enlisted Quartermaster graduates. Also, comments on the comparison of Quartermaster soldiers graduating from Fort Lee, Fort Jackson, and Fort Dix are needed. In addition, feedback is encouraged and changes to Quartermaster doctrine, equipment, Field Manuals (FMs), Technical Manuals (TMs), Army Training and Evaluation Programs (ARTEPs), Soldier's Manuals/Trainer's Guides (SMs/TGs), Skill Qualification Tests (SQTs), Training Extension Course (TEC) Lessons, Correspondence Courses, and other exportable instructional packages. Questions pertaining to the above subjects are also welcome. The Quartermaster School Hot Line Number is:

AUTOVON 687-3767
Commercial (804) 734-3767

Collect calls cannot be accepted. Units or individuals unable to call the school should send their comments to the following address: Commandant, U.S. Army Quartermaster School, ATTN: ATSM-EV, Fort Lee, Virginia 23801-5034

TRAINING MATERIAL ACCESS

Requests for training material should be directed to Commandant, U.S. Army Quartermaster School, ATTN: ATSM-DTO-ET, Fort Lee, Virginia 23801. Only requests for Quartermaster School prepared materials will be supplied by the Quartermaster School. To order doctrinal publications Army Regulations (ARs, FMs, DA Pams, DA Cirs, TGs, SMs, SQTs, ARTEPs), use DA Form 4569 or Autodin and send to: USA AG Publications Center, 2800 Eastern Boulevard, Baltimore, Maryland 21220. Orders for technical and supply publications (TMs, Supply Bulletins (SBs)) will be accomplished using DA Form 4569 or Autodin and send to: USA AG Publications Center, 1655 Woodson Road, St Louis, Missouri 63115. Emergency publications may be obtained (5 copies) by calling Baltimore, AUTOVON 584-2308 for ARs and AUTOVON 584-3521 for all other publications. Unit identification code is required.

Quartermaster
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The Quartermaster Professional Bulletin welcomes submissions by its readers on all topics pertinent to the past, present or future of the Quartermaster Corps. In order to provide us with the most complete information available on all materials submitted, we ask that you use the following form and enclose a copy of it when you send us any items intended for future publication. If you find that you require more space, use a piece of plain paper and follow the guidelines on the form to provide additional information.

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QMFL Form 55-88 (OT)
Jan 88

Editor's Note: In this first edition of the *Quartermaster Professional Bulletin*, the covers were counted as pages. Page 47, the inside back cover, was left blank.

In all other issues, pagination begins with the index page, following the outside and inside front covers.

KCW
4 August 2009

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REGIMENTAL CREST

SYMBOLISM

The device utilizes the traditional Quartermaster Corps branch insignia with the eagle in a slightly different configuration known historically as the "Regimental Eagle". The eagle symbolizes our nation: the wagon wheel is symbolic of transportation and delivery of supplies. The stars and spokes of the wheel symbolize the original colonies. The sword, indicative of the military forces, and the key, alluding to storekeeping functions, symbolizes the control of military supplies by the Quartermaster Corps. The wreath signifies honor and achievement.