Engineer

THE MAGAZINE FOR ARMY ENGINEERS

FALL 1985

LEADERS FOR THE AIRLAND BATTLE

ALSO: MODERN POINT OBSTACLES □ TASK FORCE ENGINEER
COMMAND CHALLENGE □ COMMAND UPDATE CONTINUED

Initiative—The Key Ingredient

A Personal Viewpoint

by CPT William Scully

The other day while I was instructing an EOBC class, a student was wrestling with many of the new terms, acronyms, and jargon that he was encountering. He was confused about a term called "AirLand Battle." He said that he really did not know what it was and asked me to explain it to him.

Without going into the tactics involved, I said that AirLand Battle doctrine extended the main battle area to incorporate the full scope of the battlefield—forward, rearward, and vertically. More important, however, from the human dimension, it reversed the defensive posture mentally to one fully incorporating the spirit of the offense. I took a moment to digress and tell the class how I felt about this new doctrine and what must be done to make it work.

It is very important to me that the AirLand Battle doctrine was developed. The doctrine gives soldiers the psychological advantage of initiative associated with offensive operations. My belief is supported by the age-old cry of the football sportscaster who complained that the defense was on the field all day, and thus it was inevitable that they wore down to defeat.

The defense no longer has to worry about wearing down, and the offense can have a little fun focusing their efforts in putting some points on the board. We must have leaders who will take initiative and capitalize on the offensive opportunities provided by the AirLand Battle. To have leaders who will demonstrate initiative means we must do two things.

First, our Army must be able to recognize dynamic leaders who have the ability to *take charge*. Second, the Army must develop other leaders to the point that they can employ this new doctrine. The answer is to structure a leadership climate that will thrive on initiative and innovative spirit.

The Army is constraint oriented. At the company commander level, success is judged too much by a person's ability to cope with a myriad of checklists (i.e., IG reports, SOPs, readiness reports, inventory) and not enough with the ability to take charge, create, and succeed. The saddest part of all is that not enough attention is paid to the bottom line—mission accomplishment.

Instead, the success factor is based upon partial successes which are checked-off along the way. In this case, the sum of the parts does not equal the whole. ARTEPs, FTXs, and even the NTC have become a G-2 game and not honest displays of ability. Commanders enter these exercises understanding what they must accomplish in order not to lose—instead of focusing on all-out fighting to *win!*

The Army as a whole must encourage more dynamic leaders—more self-starters. The AirLand Battle was not made for the Jim O'Leary's (Jim's name has been changed to protect the innocent) of the world.

Who is Jim O'Leary? He is a kid who played high school sports with me. He was never cut from a squad, and he started on a few teams. The problem with Jim was also the thing that made him a success. Jim had "coach's eyes." That's right, no matter what sport he played, he always sought the coach's approval after every play. He would back-pedal down the basketball court looking at the bench to check the coach. He would look in from the infield or over at the sidelines.

It is true that the coach felt some security in putting Jim on the playing field, but you could never get the big play from him. He never created any real advantage because he lacked the assertiveness or the innovation to take charge on his own volition. What he did well was minimize the losses . . . not create the win.

AirLand Battle embodies the spirit of the offense. It must have leaders who can create the advantage even at times when there is none, or to initiate action in the absence of instruction. Jim O'Leary was ultimately unsuccessful because when the game got heated, there was never enough time to check with the coach; and he didn't know what to do.

The stakes of the AirLand Battle demand that our leaders are better than Jim O'Leary. The good news is that we have people who fit the bill. The bad news is that the leadership climate does not allow them to come into the spotlight. The leadership climate that will produce winners in the AirLand Battle is mission oriented, observes more than it directs, and rewards initiative on site.

A German general once explained to me how the German army trains its armor leaders. The system works on a series of mission-type orders in which the young leader is given the mission and must develop his own solution. The general explained that "initiative" was the key. The observers watched to ensure that the young leader took action. Even if the action was doctrinally unsound (this could be coached), it was better than no action at all. A shrug of the shoulders by the young leader helped choose another career for him.

For maximum effectiveness of our force under the AirLand Battle doctrine, the American Army must do more to create an environment as described by that German general. The organization must sift out the "shoulder shruggers," and it must watch, develop, and reward those who *take charge*. This climate must start in

(Continued on page 15)

Engineer

VOLUME 15 NUMBER 3 FALL 1985

UNITED STATES ARMY
ENGINEER CENTER
AND FORT BELVOIR, VA

COMMANDER/COMMANDANT
MG Richard S. Kem

ASSISTANT COMMANDANT
COL Don W. Barber

CHIEF OF STAFF/DEPUTY INSTALLATION COMMANDER
COL Peter D. Stearns

COMMAND SERGEANT MAJOR
CSM Charles T. Tucker

DIRECTOR OF TRAINING AND DOCTRINE
LTC Robert L. Keenan

CHIEF OF PUBLICATIONS
Stanley Georges

EDITOR
Marilyn Fleming

MANAGING EDITOR
1LT Louis J. Leto

DESIGN DIRECTOR
Thomas Davis

ASSISTANT EDITOR
Alan VanderMolen

THANKS, LOU!

Special thanks to LTC James W. Sholf II, CPT Richard J. Cashman, and the Department of Combined Arms.

On the Cover

Soldiers of today continually train to become the effective leaders of tomorrow. Teamwork, one of the many facets of leadership, is necessary as these engineers hustle to connect a short ramp to an MGB during Operation Pontonier (U.S. Army photo).

FEATURES

DEPARTMENTS

ENGINEER (ISSN 0046-1989) is an authorized publication of the U.S. Army Engineer Center and Fort Belvoir, VA. Unless specifically stated, material appearing herein does not necessarily reflect official policy, thinking nor endorsement by any agency of the U.S. Army. The words he, him, or his are used to represent personnel of either sex. All photographs contained herein are official U.S. Army photographs unless otherwise credited. The use of funds for printing this publication was approved by Headquarters, Department of the Army, on July 22, 1981. Material herein may be reprinted if credit is given to ENGINEER and to the author. ENGINEER's objectives are to provide a forum for the exchange of ideas, to inform and motivate, and to promote the professional development of all members of the Army engineer community. Direct correspondence with ENGINEER is authorized and encouraged. Inquiries, letters to the editor, commentaries, manuscripts, photographs and general correspondence should be sent to: ENGINEER Magazine, ATZA-TD-P Stop 291D, Fort Belvoir, VA 22060-5291. Phone: (703) 664-3082, AV 354. ENGINEER may be forwarded to personnel in military units. Address changes should be sent to ENGINEER. Subscriptions to ENGINEER are available through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. A check or money order payable to Superintendent of Documents, must accompany all subscription requests. Rates are \$11.00 for domestic (including APO and FPO) addresses and \$13.75 for foreign addresses. Individual copies are available at \$3.00 per copy for domestic addresses and \$3.75 for foreign addresses. Second Class postage paid at Fort Belvoir, VA, and additional mailing offices. POSTMASTER: send address changes to ENGINEER, ATZA-TD-P, Stop 291D, Fort Belvoir, VA 22060-5291.

A survey party on elephants passes a bulldozer working on the Ledo Road in northern Burma. The 500-mile road was constructed by U.S. Army engineers during World War II to connect northeastern India with the Burma Road leading into southwestern China (U.S. Army photo).

Past in Review

The Ledo Road

by Dr. William C. Baldwin
Historical Division, O.C.E.

After the Pearl Harbor attack, the Japanese empire spread rapidly into southeast Asia. By May 1942, Japanese forces conquered most of Burma and threatened India. Because Japanese troops already controlled the Chinese coast, their conquest of Burma severed the last ground lines of communication between China and the western Allies.

During the early years of the war, American leaders believed that China could become a major theater in the war against Japan but would require huge infusions of military equipment and supplies. With Japan in control of southeast Asia, the Allies had to airlift supplies across the vast Himalayan range that separated India from China. Many doubted that this hazardous air route could transport the enormous quantities of supplies that China needed.

In late 1942, the Allies planned an offensive that would clear the Japanese from northern Burma and allow the construction of an overland line of communication to China. American engineers would build a road from the town of Ledo in northeastern India to connect with the old Burma Road which led to southwestern China. Construction of the 500-mile Ledo Road through the remote and inhospitable jungles and mountains of north Burma was one of the largest and most demanding tasks given to U.S. Army engineers in World War II.

Primative roads already existed for the southern half of the route, but the first 275 miles of the road passed through uncharted jungles and mountains. In November 1942, three engineer units, which had received only part of their equipment, began work under the command of COL John C. Arrowsmith, who told his troops to put the leading piece of equipment ahead as fast as possible and build the best road they could to keep up with it.

Work progressed rapidly until the monsoons came in April 1943. Throughout the summer, torrential rains washed out bridges and collapsed embankments. The combination of rain and worn-out equipment stopped progress on the road as engineers struggled to save what they had already built.

In the fall of 1943, COL Lewis A. Pick, later Chief of Engineers, took charge of the project. Gradually, more engineer units and equipment arrived to work on the road; local labor and Chinese army engineers assisted. During early 1944, COL Pick had to provide combat support to Allied troops who were pushing the Japanese out of north Burma. In February work stopped because the roadhead was too close to Japanese lines, and in May the monsoons again brought progress to a halt.

With north Burma recaptured and the monsoons over, the road moved forward rapidly in late 1944. One engineer battalion built 104 bridges totaling 5,105 feet in three months, and a light pontoon company built a 1,200-foot pontoon bridge over the Irrawaddy River. In late January 1945, COL Pick left Ledo with a large convoy and, after several delays, reached Kunming, China, on February 4 amid great celebration. The Ledo Road, dubbed *Pick's Pike* by the soldiers and officially named the Stilwell Road, now provided a ground link to China.

U.S. Army engineers provided almost half of the labor required to build the Ledo Road. Their existence, according to the official history of the theater, was a "grim monotony of rain, damp, heat, mud, mildew, mold, insects, isolation, boredom, and physical effort in an obscure corner of the world." Their work, however, produced one of the major engineer accomplishments of World War II.

Suggestions for further reading:

Leslie Anders, *The Ledo Road: General Joseph W. Stilwell's Highway to China* (Norman: University of Oklahoma Press, 1965).

Karl C. Dod, *The Corps of Engineers: The War Against Japan, US Army in World War II* (Washington, D.C.: Government Printing Office, 1966).

Letters to the Editor

The DEH Management Course in Europe

In support of Mr. Ketchum's article, *"Preparing for your DEH Assignment,"* ENGINEER, Spring 1985, I want to urge attendance at "functional" training courses for personnel enroute to DEH, or DEH-equivalent, assignments in Europe.

The Facilities Engineering Management Course (FEMC), a general overview of the DEH business, and the DEH Executive Management Course, current issues facing the DEH, provide a preparatory base necessary for enhanced job performance and are offered at the United States Army Engineer School (USAES), Fort Belvoir, VA. In Europe, at their Munich facility, the 7A Combined Arms Training Center (7A CATC) offers the DEH Management Course, which provides the USAREUR perspective of the DEH business. This course complements the USAES DEH training.

Particular emphasis should be placed on attendance at the FEMC, with an eye toward a well-rounded DEH Training Program including all three complementary courses. To this end, review by DA of current assignment procedures was requested, so that appropriate training can be scheduled enroute.

C. Cary Jones
Assistant Deputy Chief of Staff
Engineer (Engineering & Housing)
HQ, U.S. Army, Europe, and Seventh Army

Bailey Bridge . . . A Back Breaker

I read with some interest an article from the May 6th edition of the *Philadelphia Inquirer* regarding the recent death of Sir Donald Bailey. I think it might be of interest to other members of the Army engineer community considering the role that the Bailey Bridge has had in the Corps of Engineers. I would think that just about every engineer soldier, officer, enlisted and NCO alike, has had the opportunity and challenge of assembling a Bailey Bridge.

However, having been a Bailey Bridge platoon leader for over a year as a second lieutenant and having humped with the 500-plus pound panels and 800-plus pound stringers along with my troops, I would take issue with the comment that its components "could be carried easily by a few men."

MAJ Timothy P. Drozd
U.S. Army ROTC Instructor Group
University of Pennsylvania

Note: See tribute to Sir Donald Bailey in ENGINEER, Summer 1985.

112th and 121st Vital to Normandy Landing

I would like to note an omission made in your winter edition article, *"WWII Engineers in the European Theater."* The Normandy Landings section of that article failed to note this battalion and the 121st Engineer Combat Battalion. The 112th and 121st closely followed the 146th Engineer Battalion and preceded the Engineer Special Brigades ashore.

Besides eyewitness accounts from former members of this organization, I have attached three items taken from this organization's history files to support this letter. Enclosure number one is a landing diagram with the 112th highlighted. Enclosure two is a portion of the 146th Engineer Combat Battalion's Field Order Number 1 noting the missions of some of the 112th units on Omaha Beach. Enclosure number three is an extract from a letter by the 1121st Engineer Combat Group noting the actions by the 112th Engineer Battalion.

The actions of this battalion at Omaha beach earned it the Presidential Unit Citation (see enclosure four).

While I'm aware that not every engineer unit can be mentioned, the vital role as assault engineers with the 116th Infantry could hardly be overlooked when it is placed with the roles of the 5th and 6th ESBs. The 146th Engineer Battalion lost nearly 40 percent of its troops and 80 percent of its equipment upon landing. I would strongly suggest that this battalion played a vital role on that historic day that deserves a notation in your magazine.

LTC Louis V. Leo
HQ, 112th Engineer Battalion (CBT)(CORPS)
Ohio Army National Guard

Engineer Unit Designations

I just finished reading the Summer issue of ENGINEER Magazine and was impressed with the Engineer Command Update.

One of the questions that arose in my mind was whether ENGINEER Magazine has ever published a series of articles on how the various engineer units obtained their unit designations. I have seen a similar series of articles on the division-sized units in the SOLDIERS Magazine over the last three years.

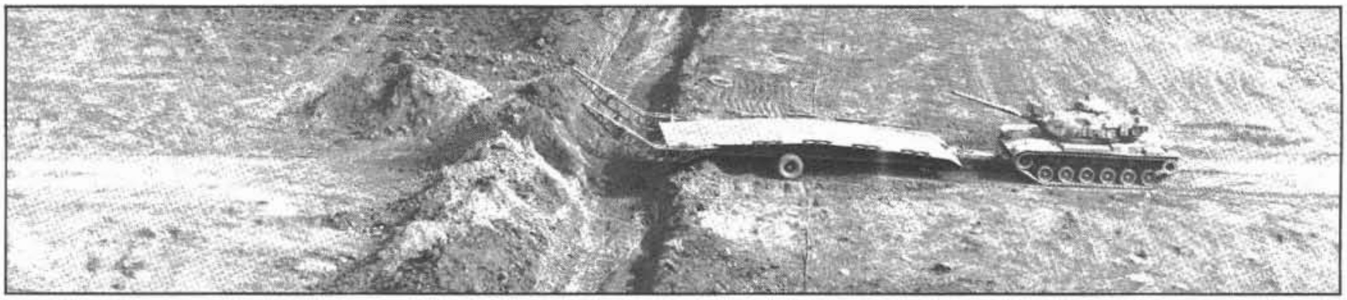
I believe that such a series of articles on engineers would be informative and a significant teaching tool for our younger engineer officers and soldiers. If such an article has already been published, or a book has already been written on the subject, I would appreciate knowing about it.

Winston V. Coley
CPT, EN
USAR

Note: ENGINEER has not printed such articles. Readers, can you help provide the information?

News & Notes

Assault Bridges to be Evaluated



New bridging systems to support the Army and Marine modernization programs will be tested during the next 18 months. This Class 70 assault bridge can breach terrain gaps of 30 feet and can be split down the middle for easier transport by air, sea, or rail.

The Combat Systems Test Activity (CSTA) at the Aberdeen Proving Ground, MD, will test new bridging systems for the Army and Marine Corps during the next 18 months. Actual test sites, however, will be at Fort Lewis, WA, and installations in Pennsylvania.

According to Nancy Troccoli, CSTA test director, plans are being developed for a heavy assault bridge (HAB) and a light assault bridge (LAB) for the Army and a trailer-launched bridge (TLB) for the Marine Corps. Both the HAB and the TLB are Class 70 bridges, making them capable of supporting the heaviest tank in the Army inventory (63-ton M1A1 Abrams). The LAB, a Class 30 bridge, is intended for light engineer units not equipped with heavy tanks.

According to Byron Hawley, Troop Support Division, the new systems will improve battlefield mobility, enabling commanders to overcome "channelizing" effects of obstacles.

"By taking advantage of deep gullies, streams, and destroyed bridges . . . an enemy commander can channel forces opposing him into areas where his defenses are best. The bridges we're developing will allow our forces to cross these obstacles quickly and reach areas where the enemy's defense is weaker. The bridges will also enhance our ability to conduct retrograde movements when the situation requires," he said.

New Tool Ideas Wanted

The Army has established a new entry point within the Army Materiel Command for new tool ideas or suggestions for minor items of equipment. This is to assist and encourage tool users to submit their suggestions to the Army's maintenance community for evaluation and possible acquisition.

The new screening point is:

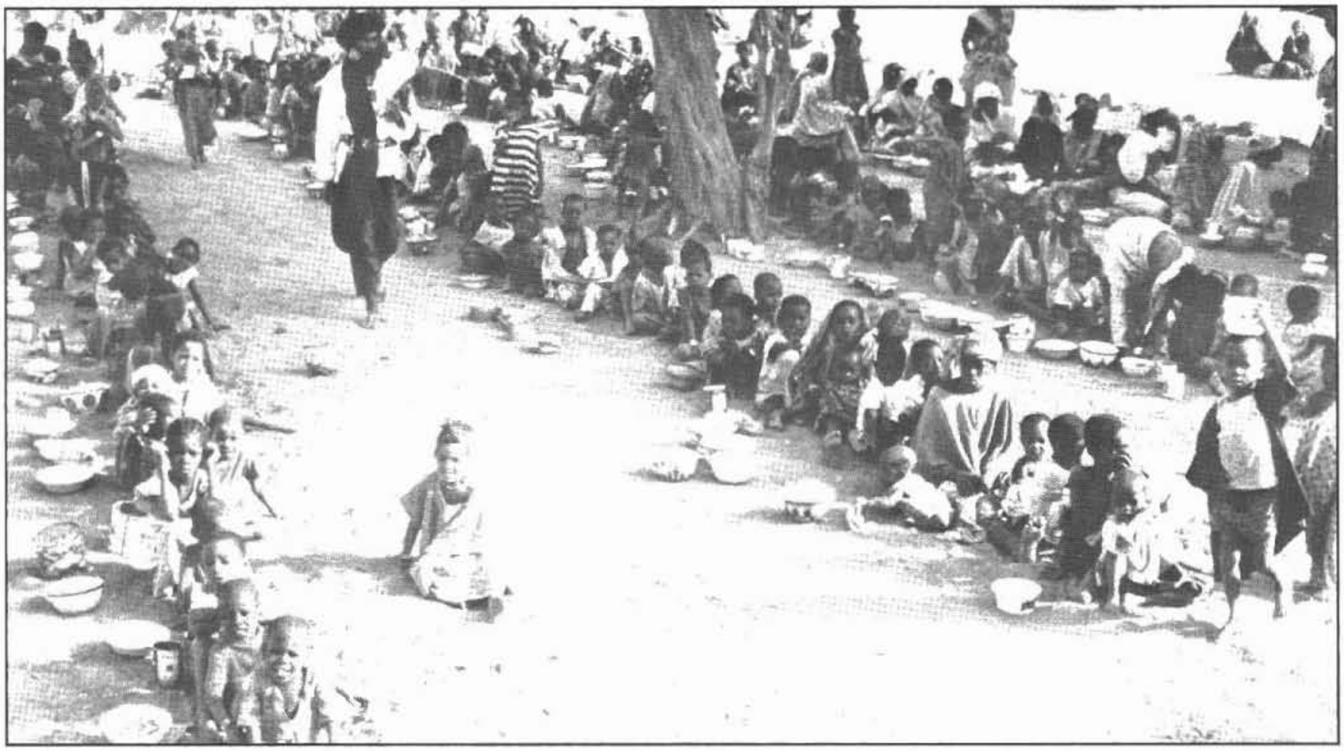
Commander
USAMC Materiel Readiness Support Activity (MRSA)
ATTN: AMXMD-MD
Lexington, KY 40511-5101

New ideas may also be sent to MRSA through SMART channels. That address is:

Commander
U.S. Army Logistics Center
ATTN: ATCL-CST (SMART)
Ft. Lee, VA 23801-6000

The M998 series high mobility multipurpose wheeled vehicle (Hummer) is one of two replacements for the M151 ¼-ton truck. The Hummer, which is being fielded now, is equipped with an air-conditioning unit that will be maintained by engineers in the 52C MOS. The 15 varieties of the Hummer include two cargo/troop carriers, eight weapons carriers, three ambulances, and two communications carriers (photo courtesy of the LTV Corporation).

Engineers Help Feed Hungry Children



Over 2,000 children at six feeding centers in Gao, Mali, now get two meals a day instead of one, thanks to the 565th Engineer Battalion which built an M4T6 assault bridge to transport grain (photo by SP4 Craig Beason).

U.S. Army combat engineers are bringing food to thousands of hungry children in drought-stricken Mali, on an M4T6 assault bridge they built and now operate.

A 15-man detachment from the 565th Engineer Battalion, 7th Engineer Brigade, Karlsruhe, West Germany, built the tactical pontoon raft near the southern Sahara village of Gao and began to ferry truckloads of grain across the Niger River on May 24.

The grain, which is donated by the U.S., France, Switzerland, Holland, and Denmark, is distributed from 160 Red Cross feeding centers in the district most affected by the two- year drought.

"The extra grain brought in the raft allows us to double the amount of food we give out," Red Cross nutrition advisor Pascal Villenueve said. Instead of one meal a day, the six feeding centers in Gao now feed about 2,000 children twice daily.

Supplies to the town dwindled while the ferry that normally connects Gao with seaports to the south was being repaired in the capital city of Bamako. The ferry can't make the 550-mile return trip until the Niger River rises, which normally happens by September. The engineers will operate their raft until then.

Before the Army raft was built, few trucks made the three-day journey from ports in Benin, Senegal, Togo, and Ivory Coast where the donated grain arrives. The ones that did were delayed two days at Gao while their shipments were off-loaded by hand into small dugout canoes and paddled across the river.

This method cost the drivers about $100 daily, and one ton in fifty was lost to spillage or theft. The U.S. alone has donated 17,000 tons of grain to Mali in 1985. Much of that sat at the seaports until word of the raft reached the truckers there.

The engineers used C-130s to deploy the equipment from the capitol to the remote desert town of Gao, and 20 Malian soldiers helped the Americans transport the bridge by truck to the raft site. An Air Force airlift team packed the three C-141 loads at Ramstein, reloaded the equipment at Bamako for nine C-130 flights to the smaller Gao airport, and helped off-load there.

Once the raft reached the river, the engineers built the five-float M4T6 raft in less than two days, working through sandstorms and daily temperatures of over 135 degrees. "Twelve soldiers laid on all the deck plating in four hours," 1SG Douglas Masterson said. "That's good time for twice that many people."

The Malian Army gets its training and some equipment from the Soviets, French, and West Germans. This is the first time Malian and American soldiers have worked together and is the largest American presence ever in the country.

(SP4 Craig Beason, 7th Engineer Brigade)

News & Notes

Dealing a New Deck

Catherine Kominos examines a completed model of her new bridge design. If tests are successful, this concept could reduce the weight of Army bridges by almost 20 percent (photo courtesy of Belvoir R&D Laboratories).

A new design for bridge decks that could reduce the weight of the Army's future bridges by 20 percent was developed by the Belvoir R&D Center.

Catherine Kominos, an engineer in the Engineer Support Laboratory, began work on the deck design as an independent research project after her branch chief suggested that she experiment with a membrane and shell structure as a design for a bridge deck.

Bridge mobility is directly related to the weight of the bridge components, and the heaviest part of the bridge is its deck. Traditionally, military bridges were designed as deck-floor beam systems which carried vehicle loads to truss girder support systems. Deck surfaces were flat and carried only local loads. Following World War II, engineers began to design deck surfaces which were part of the support structure, creating a composite deck structure.

"We knew that a membrane structure was the most efficient means of weight distribution, but there was no record of its being used in either civilian or military bridge structures," Kominos said.

The new design consists of a curved membrane stiffened by a series of opposing curved shells which formed the deck surface. The structure would reduce the weight of the bridge by eliminating the top cord of the bridge deck. Computer tests show that the design could "theoretically support a Class 70 vehicle," Kominos added.

After further testing and producing models, the Belvoir R&D Center plans to let a contract for producing 10-foot sections for initial evaluations later this year.

Fort Bragg . . . or Bussed

It began as a training mission . . . B Company, 27th Engineer Battalion was to parachute into Fort A. P. Hill, VA; march one mile to an airstrip; destroy it with explosives; and return to Fort Bragg, NC, by helicopter. Engineers of the 82nd Airborne Division would then rebuild the landing zone.

What the 27th Engineers didn't know was that fate had other things planned for them. Almost everything that could go wrong, did.

Trouble first started when the engineers' transportation to Fort A. P. Hill was delayed for two hours because of mechanical problems with the C-130 Hercules aircraft. The airplane was eventually fixed, but high winds over the drop zone forced the paratroopers to cancel their jump.

The engineers did, however, airdrop 500 pounds of tools and 1,200 pounds of explosives on two of the several passes made over the drop zone.

After landing at the Richmond, VA, airport, the engineers returned to the drop zone by bus where they picked up their equipment and marched to the airstrip.

Upon arriving at the airstrip, the paratroopers learned they were unable to use their explosives because an extension on the midnight deadline to destroy the runway could not be granted.

Determined to complete their mission, the engineers used their picks, shovels, posthole diggers, and a lot of muscle to crater the airstrip during the night. They also showed ingenuity in using a D-7 bulldozer to destroy the runway. As the sun began to rise, Company B's crew completed their mission with a total of 30 potholes, each measuring approximately 5 x 5 x 4 feet, dug into the airstrip.

But the ordeal was not over for the soldiers. The final straw was drawn when inclement weather approached Fort Bragg. The CH-47 Chinook helicopters scheduled to fly the paratroopers home were grounded, once more leaving them to travel by bus.

CPT Minihan, Company B commander, later credited his troops for a job well done. "They continued to drive on and get the job done when things began to go wrong." **(PFC Ruben Maestas, PAO, Fort Bragg, NC)**

Mapping on Video Disc

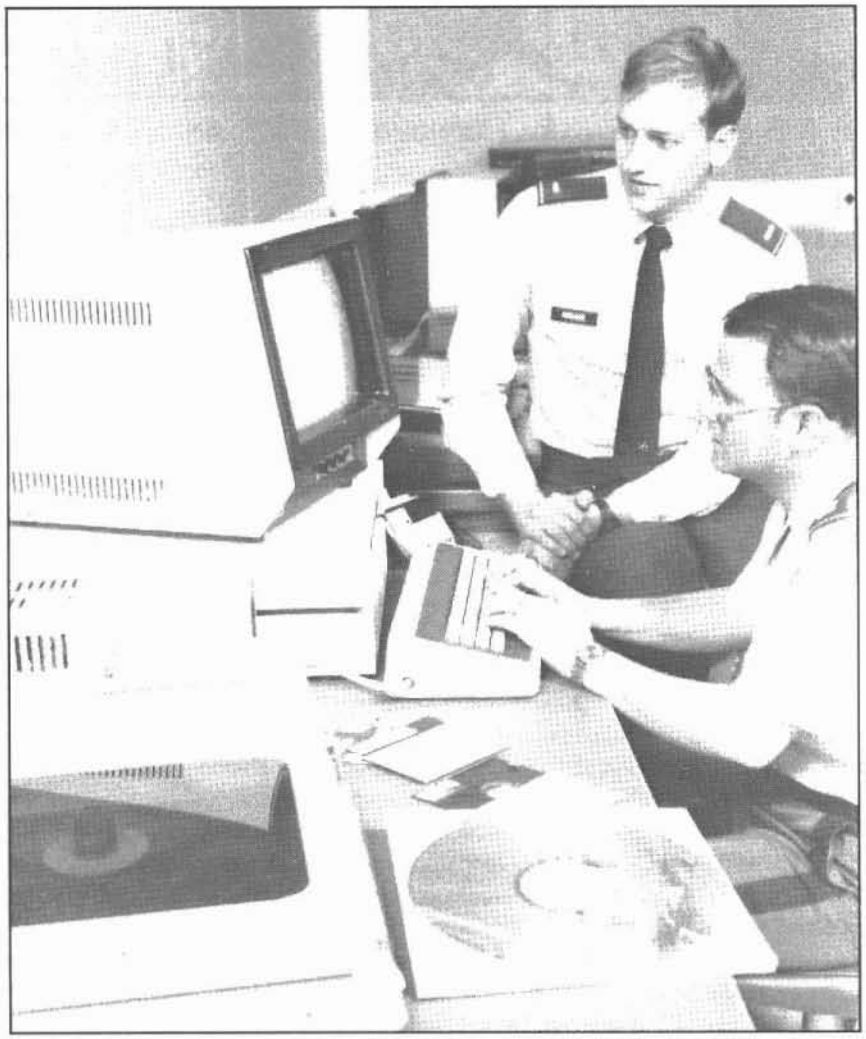
Video disc technology may soon help commanders map out their battle plans. Scientists at the U.S. Army Engineer Topographic Laboratories (ETL) have assembled a microcomputer-controlled video system which makes it easy to store, retrieve, and display maps and manage other military information.

Army groups in West Germany observed how the system works when ETL researchers demonstrated the equipment at the USAREUR Military Engineering Conference in Berchtesgaden. After the conference, they conducted hands-on sessions for officials at USAREUR Headquarters in Heidelberg, the 1st Armored Division in Ansbach, and the 649th Engineer Battalion in Schwetzingen.

"We wanted to show how the microcomputer/video disc combination could be used to manage large amounts of mapping and tactical data," said Rob Lambert, an ETL project engineer who demonstrated the system in Germany.

The system has a microcomputer, a video disc player, a television signal decoder, and a touch-panel controlled television monitor. ETL scientists wrote software programs and designed a special video to demonstrate the military planning applications of this equipment. The demonstration disc contains maps, aerial photographs, and three-dimensional terrain views for selected areas in Germany.

Microcomputers can increase the data management capabilities of video disc systems. By teaming the two technologies, ETL scientists have created a unique mission-planning tool.



A microcomputer-controlled video disc system assembled by the Engineer Topographic Laboratories provides a unique mission-planning tool (photo courtesy of ETL).

Operators can take military symbols stored on a magnetic disc and arrange them over the recorded map displays to show the location of friendly and enemy forces. They can use the resulting "situation maps" to keep track of troop units by adding, deleting, or moving symbols as the battle progresses.

Users can also call up climate information and weapons data stored in the microcomputer. Climatological listings describe the temperature, precipitation, and ground conditions expected in the field. Weapons data files catalog the contents and capabilities of U.S. and enemy arsenals; photographs of these weapons systems are included on the video disc. An "order of battle" program breaks each army down into smaller units and shows their locations and strengths. These programs can support a variety of planning functions.

ETL's demonstration system is a first step in exploring the mapping applications of video disc technology. Researchers are examining other aspects of this technology which might be useful to the military. These studies may eventually pay off in improved techniques for managing and manipulating mapping and tactical data.

CLEAR THE WAY

by MG Richard S. Kem, Commandant, U.S. Army Engineer School

Engineers: Key Members of the Combined Arms Team

We Must Train Our Young Leaders to Meet the Challenge

Warfare on the modern battlefield will be characterized by highly mobile forces equipped with lethal and highly technical weapons systems. To win on this battlefield, we need capable leaders. Combat power must be synchronized and brought to bear on enemy weaknesses at decisive times and places. AirLand Battle doctrine, therefore, requires that modern techniques and technology can be exploited to the greatest extent possible. This can only be accomplished through competent leadership. But the questions may arise, "Can leaders be trained? Can they be taught to be competent, especially in such adverse conditions as the modern battlefield?" The answer is a resounding yes!

In the Spring 1985 issue of ENGINEER, I emphasized three main ingredients of success—leadership, technical competency, and tactical proficiency. Again, I reiterate the importance of leadership. We have a responsibility to train our young leaders to be strong, aggressive, and competent. We owe them that training. We must make them all they can be for the sake of their soldiers, their Army, and their country.

History is replete with episodes in which engineers played a major role in determining the outcome of major battles. Engineers have repeatedly proven themselves to be key members of the Combined Arms team. Our goal, then, must be to continue being an assured combat multiplier. We must clearly understand the full scope of the battlefield, including the maneuver commander's concept. We must know his unit's capabilities and use our assets to complement the effectiveness of the maneuver force. Therefore, our most important mission at the Engineer School is to prepare the future task force engineers to meet this challenge.

The training which lieutenants receive at EOBC is the beginning of this process. The article, *"Final Exam in EOBC,"* by MAJ Bowen and CPT Dyer shows our progress in providing realistic and challenging training in scenarios similar to those that will be encountered by the lieutenant in support of a task force. Task force engineers need to be as conversant in all factors of METT-T as the maneuver commanders they support. In addition, the engineer lieutenant must know how to get the most out of his men and equipment. The Engineer School plays an important role in developing young officers; but engineer commanders must continue the training process, stressing the importance of dynamic leadership.

The task force engineer should participate in the planning phase of all operations. After-action reports from the National Training Center reveal that the task force engineer is frequently not a participant in the task force planning process and often does not attend operations order briefings. This lack of coordination almost always results in mission failure.

The normal associations that foster the teamwork among the maneuver commander, his staff, and the engineer platoon leader begin in garrison and are essential for working well in combat. Engineer commanders must ensure that their platoon leaders attend maneuver battalion training meetings and participate in CPXs, FTXs, and other training exercises to develop their tactical sense and to foster team spirit. Only then will engineers become fully integrated and truly become combat multipliers.

The task force engineer must also be imaginative, innovative, completely reliable, and have a desire for action. The article, *"The Will to Lead,"* by MAJ Benham and MAJ Kershaw describes how the task force engineer must develop an accurate understanding of himself, his subordinates, and the situation if he is to impose his will successfully in adverse conditions.

The task force engineer plays a key role in the engineer support of the Combined Arms. We have a responsibility to ensure that he is well prepared and totally integrated into all aspects of the Combined Arms team.

BRIDGE THE GAP

by CSM Charles T. Tucker, U.S. Army Engineer Center & School

NCOs: The Passport to Effective Training

The NCO Is the Heart of the Army's Training Concept

All NCOs are trainers. A trainer is a role model, mentor, instructor, coach, and leader. This requires substantial time and effort. Usually, NCOs train their soldiers independently—unsupervised and unobserved by the chain of command. Consequently, the most critical evaluators of the trainers' performances are the NCOs themselves.

All trainers have one objective: To develop the best possible soldier with the available time and resources. Obviously the emphasis is on developing a soldier's technical and leadership skills for combat. To develop these two skills, NCOs must concentrate primarily on the soldier's ability to successfully accomplish individual tasks. They must also teach their soldiers how important unit cohesion is for mission accomplishment. Individuals do not win wars; squads, platoons, and companies do.

NCOs must be professional in all respects. Your credibility is directly related to your knowledge, technical expertise, conduct, conditioning, appearance, and demeanor. You should be knowledgeable of small unit tactics, basic weapons, MOS expertise, equipment, vehicles, and the capabilities and vulnerabilities of the opposing force.

As an NCO trainer, you will demand high standards of conduct from your soldiers. Conversely, you must always demonstrate these same high standards.

First, profane language should not be used. It rarely contributes to increased learning or effective training.

Second, soldiers are going to make numerous and repeated mistakes as they learn. Be patient in training slow learners.

Third, never demean, belittle, or embarrass your soldiers.

Fourth, you are a trainer and not one of the students. You must maintain *distance*. Only you can judge the correct measure of distance depending on your experience and confidence level as well as the group personality of your soldiers.

Fifth, you cannot afford to be a prima donna. Always be willing to set the example, fully participate in all activities, and share the hardships as well as the triumphs.

Finally, do not jeopardize your effectiveness as an NCO trainer with marginal weight, uniform, haircut, or improper footwear. Do you carry yourself erect? Do you salute smartly? Do you communicate in a military, effective, and respectful manner? Do you appear professional, or do you take shortcuts? If after some introspection you find yourself deficient in some areas, you must dedicate yourself to improvement.

There are many responsibilities inherent in training soldiers. Here are some of the most important:

- Use your training time effectively. Have a contingency plan, present hip pocket training, always carry abbreviated lesson plans for two or three subjects.
- Plan ahead and in detail. Use every minute, involve all soldiers, develop detailed checklists for field problems.
- Document soldier performance in detail.
- Improve your counseling techniques and approach to developing soldier performance.
- Know your soldiers.
- Be accessible to your soldiers.
- Enforce safety.
- Enforce personnel and property accountability.

The NCO is the heart of the Army's concept for training. Your individual skills and knowledge, your professional manner, and your ability to counsel and develop the students in your class or soldiers in your platoon all contribute to your effectiveness as a trainer. Never be satisfied with your present level of performance. Your responsibilities to the young officers you may train in EOBC and to the soldiers you may lead in a combat engineer platoon demand nothing less than your best effort, all of the time.

School News

Directorate of Evaluation and Standardization (DOES)

Engineer Orientation Team:

The Engineer Orientation Team (EOT) will visit engineer units during FY 86 in an effort to improve communications with these units. The team will conduct presentations about current developments within the Engineer School and gather feedback on the effectiveness of various school products.

Although dates for these visits were not available at publication time, the units below are on the agenda for EOT visits. In addition, engineer units in Europe are scheduled for visits during April 1986.

Ft. Carson, CO	Ft. Stewart, GA
Ft. Riley, KS	Ft. Benning, GA
Ft. Devens, MA	Ft. Rucker, AL
Ft. A. P. Hill, VA	Ft. Ord, CA
Ft. Knox, KY	Ft. Lewis, WA

Department of Military Engineering (DME)

EOAC Computer Literacy Instruction:

An additional 13 hours of computer literacy instruction was recently added to the EOAC curriculum. The 20 hours of training which students receive now includes word processing, spreadsheets, and database management applications.

Instruction is divided into two phases. The first phase consists of six hours of classroom instruction and a one-hour test covering basic computer terminology and applications. The second phase consists of two hours of classroom instruction, but also includes eleven hours of hands-on training with microcomputers and their applications. This material is taught concurrently with the computer-assisted instruction (CAI) which students receive throughout the course on the Engineer School's PLATO computer-based instructional system.

For more information, call CPT Leonard Whitehead at the Training Technology Branch. His telephone number is (703) 664-3953, AV 354.

Field Engineering Update:

Input from the field has indicated that although engineer lieutenants graduating from EOBC are technically proficient in such skills as installing minefields and emplacing obstacles, they are deficient in integrating these obstacles into an overall plan. This makes them less efficient as task force engineers.

In response, the Field Engineering Branch has increased the course hours taught at the basic course in an effort to integrate the technical skills of mobility, countermobility, and demolitions with tactical expertise. Conducted in close conjunction with Combined Arms instructors, the objectives of the increased course hours are the following:

- Future platoon leaders become proficient mangers and supervisors of field engineering skills such as obstacle emplacement and mine warfare.
- Future platoon leaders learn to perform better as viable Combined Arms members by seeing the overall plans of the battlefield and by properly representing the engineers to the task force maneuver commander.
- New lieutenants learn how to use their NCOs better and how to delegate tasks. (For this reason, the primary field engineering instructors will be NCOs.)

Professional Engineers Exam Guide:

A new *Guide to Registration for Professional Engineers* has been published by the U.S. Army Engineer School. Subjects covered are: benefits of registration, requirements for registration, overseas exam locations, organization of exams, preparation for the exam, addresses and phone numbers of all state boards, examples of military experience that are accepted by some boards, and a selected bibliography of preparatory study material.

Requests should be addressed to the Commandant, USAES, ATTN: PE/EIT Coordinator, ATZA-TE-RA, Fort Belvoir, VA 22060-5331.

New Director:

This department recently welcomed COL Peter O'Neill as its new director. COL O'Neill is the former chief of the Engineer Management Division, MILPERCEN, and a recent graduate of the Industrial College of the Armed Forces.

Already having spent two tours at Fort Belvoir, COL O'Neill has also served in Vietnam; Germany; Fort Carson, CO; the Corps of Engineers District in Philadelphia; and the Office of the Chief of Engineers.

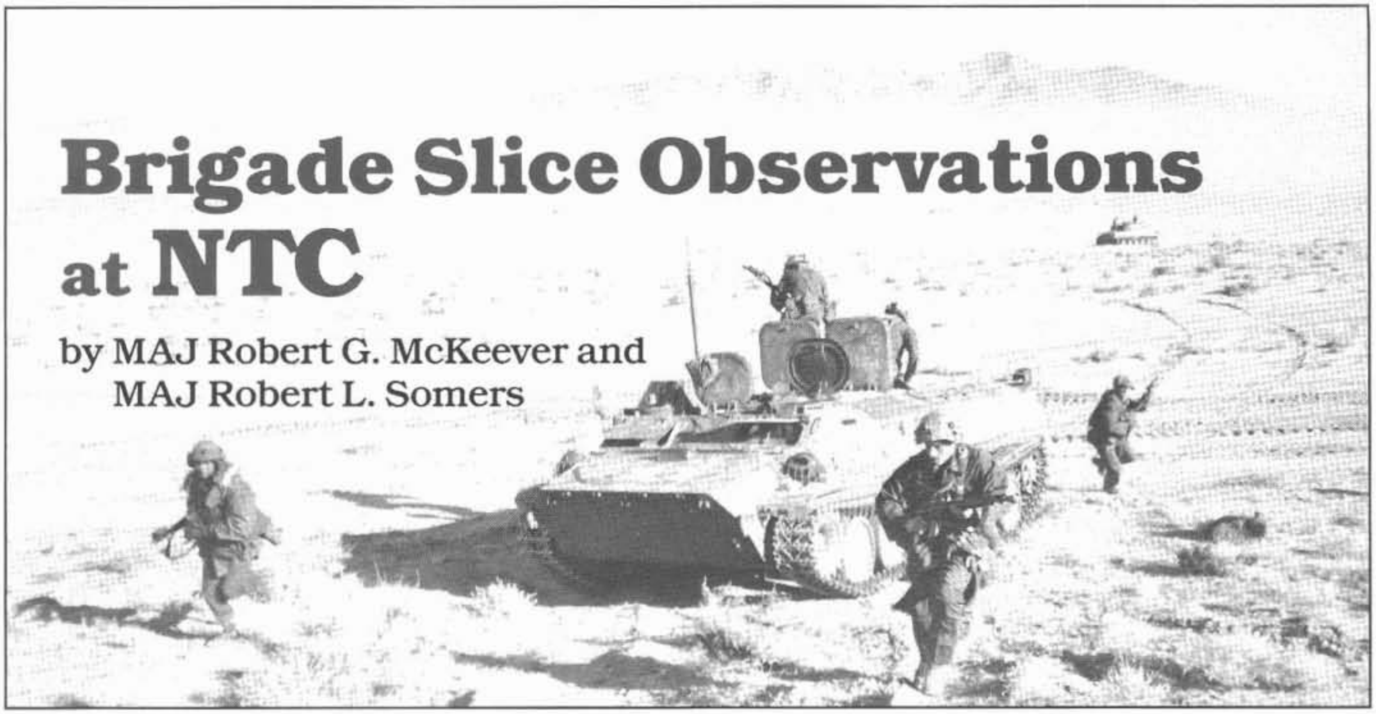
Directorate of Training and Doctrine (DOTD)

Cableman's Handbook:

The Lineman's and Cableman's Handbook (ISBN 0-07-035678-5), recently replaced TM 5-765, *Electric Transmission and Distribution*, and will be issued free to users once. Units authorized the 52G MOS should send names of their property book officers, DODAAC (Department of Defense Activity Access Codes), and document number to: U.S. Army Engineer School, ATZA-TD-P, Stop 291D, Fort Belvoir, VA 22060-5291.

Brigade Slice Observations at NTC

by MAJ Robert G. McKeever and MAJ Robert L. Somers



Opposing force (OPFOR) soldiers participate in recent brigade slice operations at the NTC. The OPFOR is equipped with a Soviet MT-LB for this exercise. During brigade slice operations, engineers are concerned mainly with command and control, planning and coordination, and offensive and defensive execution (U.S. Army photo).

Recently, the National Training Center started observing operations above the task force level. This effort, the Brigade Slice Observation Program, has been conducted by personnel assigned on a temporary duty basis from the various TRADOC schools. Objectives of the program included exploring ways to improve training for brigade and brigade slice elements, determining methods for feedback to brigade players and support assets, and providing feedback to the service schools.

Responsibility for conducting these observations soon will transfer to a team of 13 subject matter experts permanently assigned to the NTC. The engineers are represented on this team by MAJ Mel Saxton, who worked with us during four rotations. This article will focus on the organization and operation of the brigade slice observations, as well as on the observations made of brigade engineer operations during the four rotations.

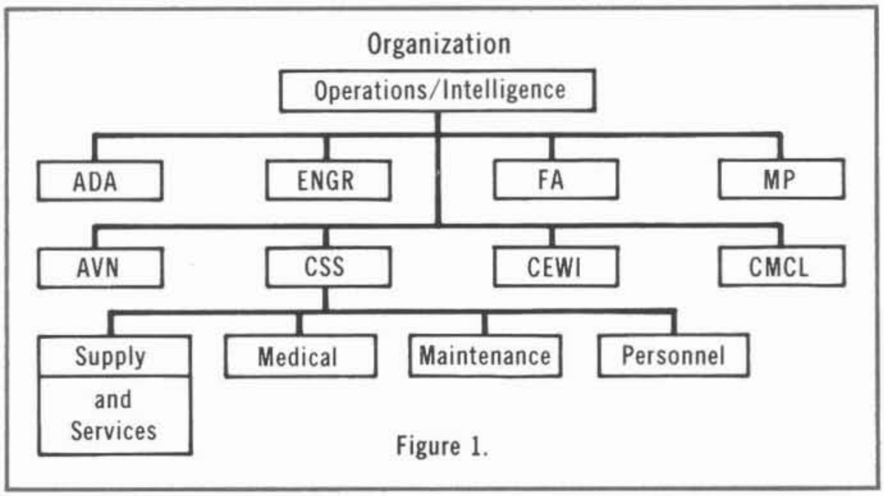


Figure 1.

Organization

In the brigade slice observation (Figure 1), combat service support (CSS) personnel operated as a team and conducted a separate CSS after action review (AAR). Their efforts were, of course, focused on the combat trains of the battalion task force and on the brigade support area (BSA). Combat arms and combat support arms personnel operated semi-independently (transportation was the major limiting factor) and reported to the operations observer. The findings were then integrated and condensed into the interim and final AARs. In addition, the team members performed individual coaching and immediate feedback functions. Finally, they prepared the take-home package for the brigade.

Operation

Most of the brigade slice observers had not visited NTC before, establishing a requirement for a brief orientation period before the rotation began. Early in the rotation (Figure 2), the subject matter experts observed their respective functional areas, coached, and provided feedback. Comments were consolidated, integrated, and condensed into interim and final AARs. NTC operations groups personnel formed the link between the brigade and battalion operations and coordinated with the observers/controllers for observations from the battalion task forces.

The engineer approach (Figure 3) focused on command and control, planning and coordination, and offensive and defensive execution. Key brigade engineer missions were identified (Figure 4) and were considered in formulating observations.

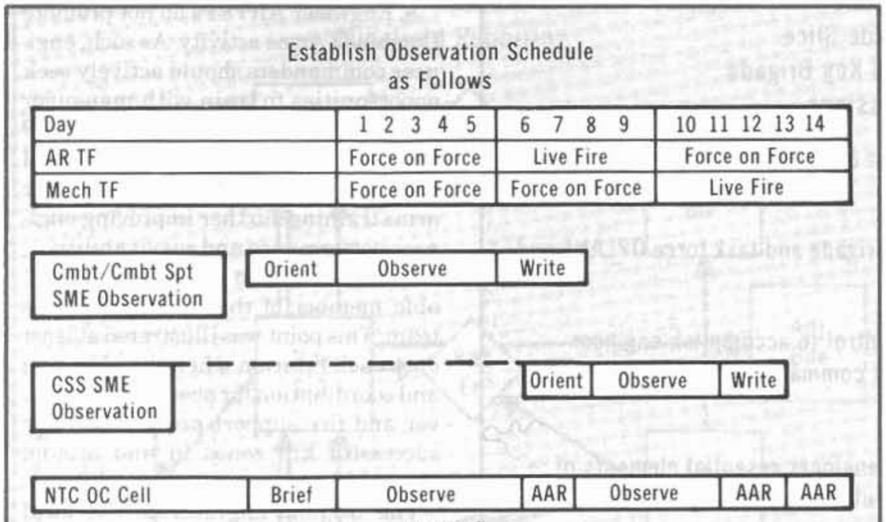


Figure 2.

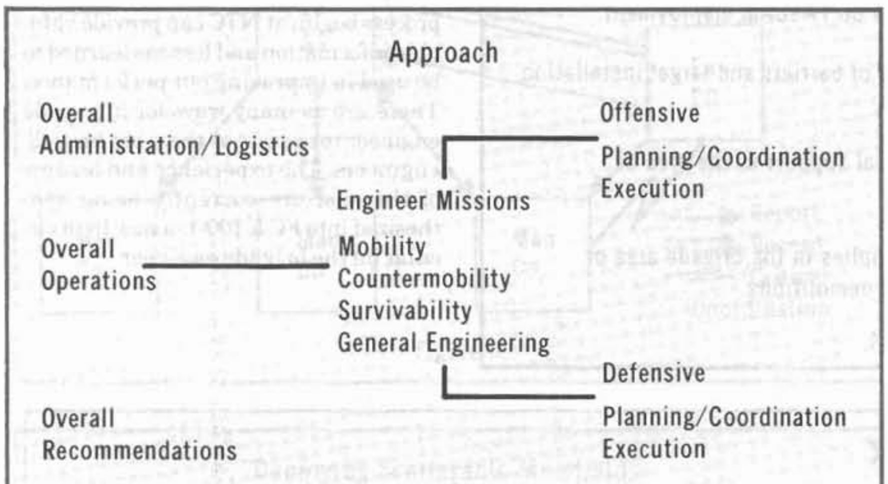


Figure 3.

Brigade Engineer Observations

This section will give brief observations followed by specific examples. In keeping with NTC practice, names and units will not be disclosed.

1. A functional brigade engineer section is critical and must be supported with its proper fill of people and equipment. The grade of 04 for the engineer provides the maneuver commander with a qualified combat engineer expert who can support the scheme of operations. Dual-hatting the company commander or downgrading the brigade engineer position is not a solution.

The brigade engineer section must also be supported with transportation and communications equipment commensurate with the unit to which assigned. For mechanized and armor units, the engineer should have the use of an M-577 with at least two radios.

2. Planning the execution of obstacles is weak, and reporting and recording of minefields is poor. For example, a unit not reporting an emplaced minefield caused an adjacent friendly unit to suffer casualties in the minefield. In another example, a unit failed to record and report a minefield and entered its own minefield, not once, not twice, but three times. The use of Figures 5 and 6, *Minefield Reporting* and *Deploying Scatterable Minefields,* would correct this problem.

3. Coordination, command and control, is weak. Specific examples are numerous. One engineer platoon attached to a task force went 36 hours without support from its attaching unit. This resulted in hungry soldiers and vehicles with no fuel. Not uncommon was the sight of a dozer sitting idly by on a trailer for six hours while the crew waited in the cab for further instructions.

4. Engineer assets at all levels are poorly preserved. A ¼-ton truck provides the brigade engineer with absolutely no protection from small arms or shrapnel; yet he needs to go forward for reconnaissance, planning, and coordination with the task force engineer. When forward, the survivability of the brigade engineer is probably defined in terms of minutes. Manuever commanders consistently did not provide security for the engineers working in front of their sectors, usually resulting in heavy losses or total annihilation for the engineers.

5. Priority of engineer missions is flexible. Different commanders will rank missions in a different order. For example, on one defensive mission, a commander's priorities of engineer tasks were as follows: countermobility, survivability, and mobility. On a similar defensive mission from a different rotation, the commander's priorities were survivability, mobility, and countermobility. Both missions succeeded, in part, because each commander's priorities for the engineer tasks supported his own scheme of maneuver.

6. Engineer equipment requires special consideration at brigade level to ensure continuous operations. One task force lost its engineer platoon, including equipment, to enemy artillery before the task force defensive positions were complete. However, the brigade engineer was able to task additional assets to assist the maneuver commander in completing his obstacles. Without the intervention of the brigade engineer, the mission would certainly have failed. This special consideration applies no less to equipment down due to maintenance problems.

7. Maneuver units are generally not involved in obstacle construction. Engineers should assist, supervise, and operate equipment for the supported unit (FM 71-2J, *Task Force Operations*). Manuever units should heavily exercise their responsibility to prepare obstacles and defensive positions for themselves. By doing so, the maneuver forces free engineers to construct additional obstacles. On one mission, the engineers worked alone on survivability positions for the maneuver force and then worked on obstacles. Insufficient time remained before the battle for the engineers to construct survivability positions for themselves.

Engineer Brigade Slice Considerations and Key Brigade Engineer Missions

1. Keep the maneuver commander abreast of all engineer operations in the brigade area of operations.

2. Provide engineer input (annex) to all brigade and task force OPLANS and OPORDS.

3. Task engineer assets under brigade control to accomplish engineer missions in accordance with maneuver commander's scheme of operations.

4. Collect and disseminate (as required) engineer essential elements of information (i.e., gap crossing data, route classification, bridge data, trafficability data).

5. Plan and advise maneuver commanders on FASCAM employment.

6. Plan and advise maneuver commanders of barriers and target installation and execution.

7. Ensure engineers have required logistical support in the area of operations.

8. Keep accountability of key engineer supplies in the brigade area of operation such as FASCAM, mines, and demolitions.

Figure 4.

8. Engineer ARTEPs do not promote Combined Arms activity. As such, engineer commanders should actively seek opportunities to train with maneuver forces. Also, the forthcoming ARTEP Mission Training Plans (AMTPs) will integrate engineer tasks into maneuver arms training, further improving engineer performance and survivability.

9. Engineers are a viable and valuable member of the Combined Arms team. This point was illustrated at least once each rotation when the planning and coordination for obstacles, maneuver and fire support produced highly successful kill zones in and around obstacles.

The brigade engineer is the focal point of all engineer activities in a brigade. The brigade slice observation process begun at NTC can provide valuable information and lessons learned to be used in improving our performance. There are as many ways for a brigade engineer to operate as there are brigade engineers. The experience and lessons of the past are currently being synthesized into FC 5-100-1, a new field circular on the brigade engineer.

Countermobility is a primary engineer mission on the AirLand battlefield. The Soviet MT-LB is one vehicle which engineers must engage (U.S. Army photo).

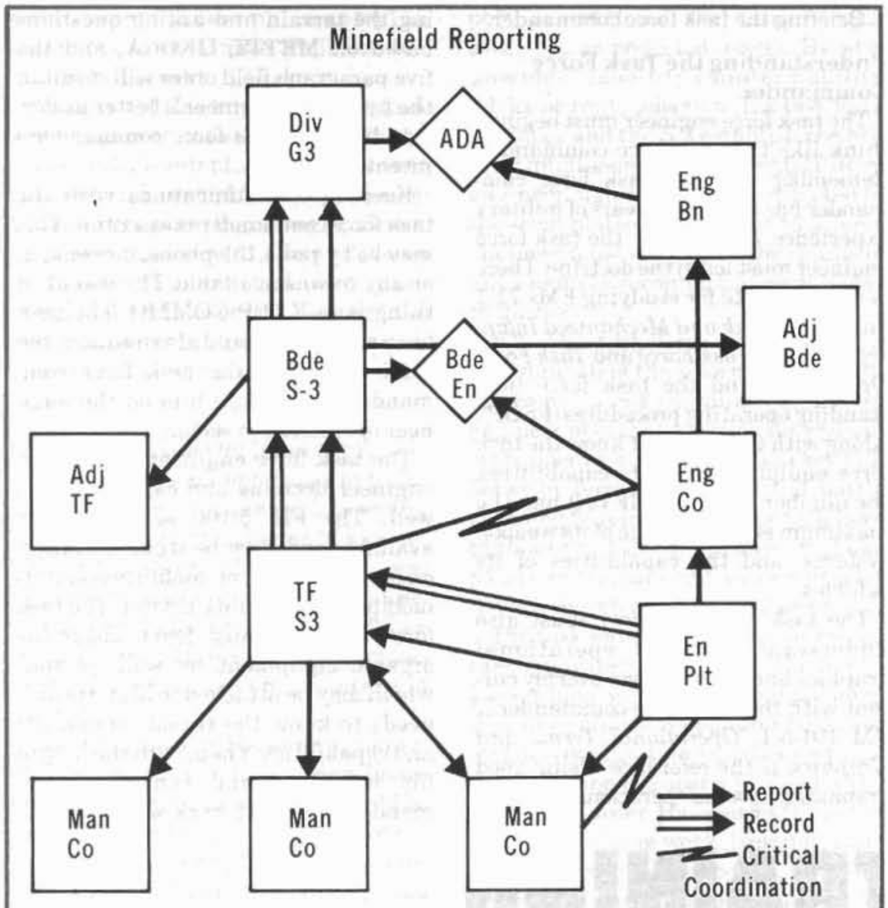


Figure 5.

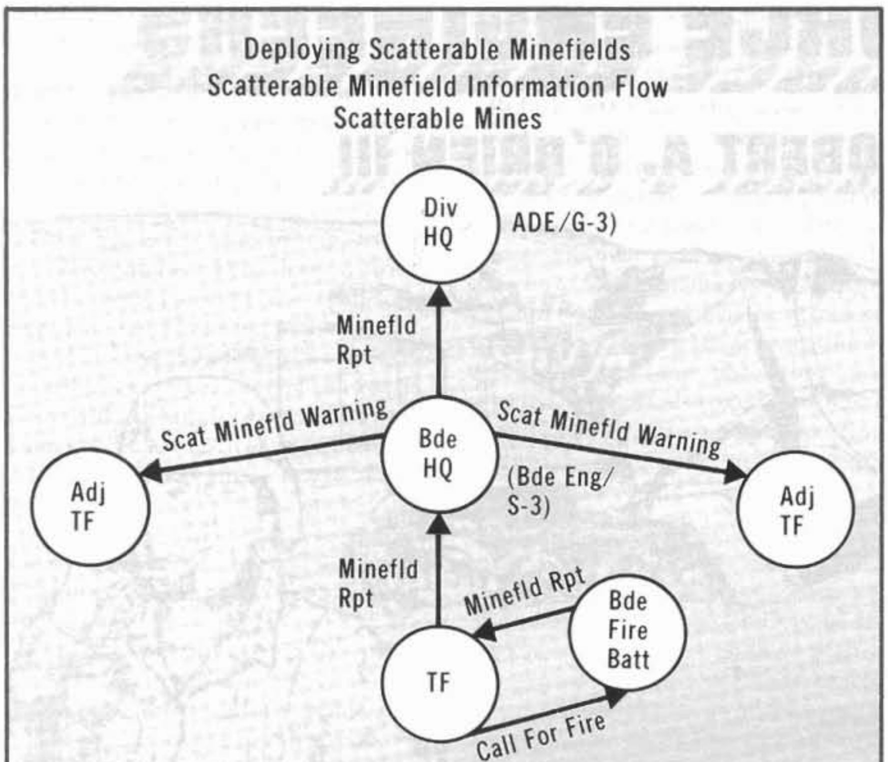


Figure 6.

MAJ Robert G. McKeever is the section chief of the new Doctrinal Foundations Section, Department of Combined Arms, USAES. He has had varied assignments in Germany, Korea, and the United States and is a 1972 ROTC graduate from Indiana University of Pennsylvania. He has a master's degree in geoenvironmental studies from Shippensburg State College.

MAJ Robert L. Somers is the chief of Field Engineering Branch, Department of Military Engineering, USAES. He has held command and staff assignments in Germany and the United States. A graduate of both the U.S. Military Academy and the Command and General Staff College, MAJ Somers obtained his MBA from Central Michigan University.

Initiative—The Key Ingredient

A Personal Viewpoint

(continued from inside front cover)

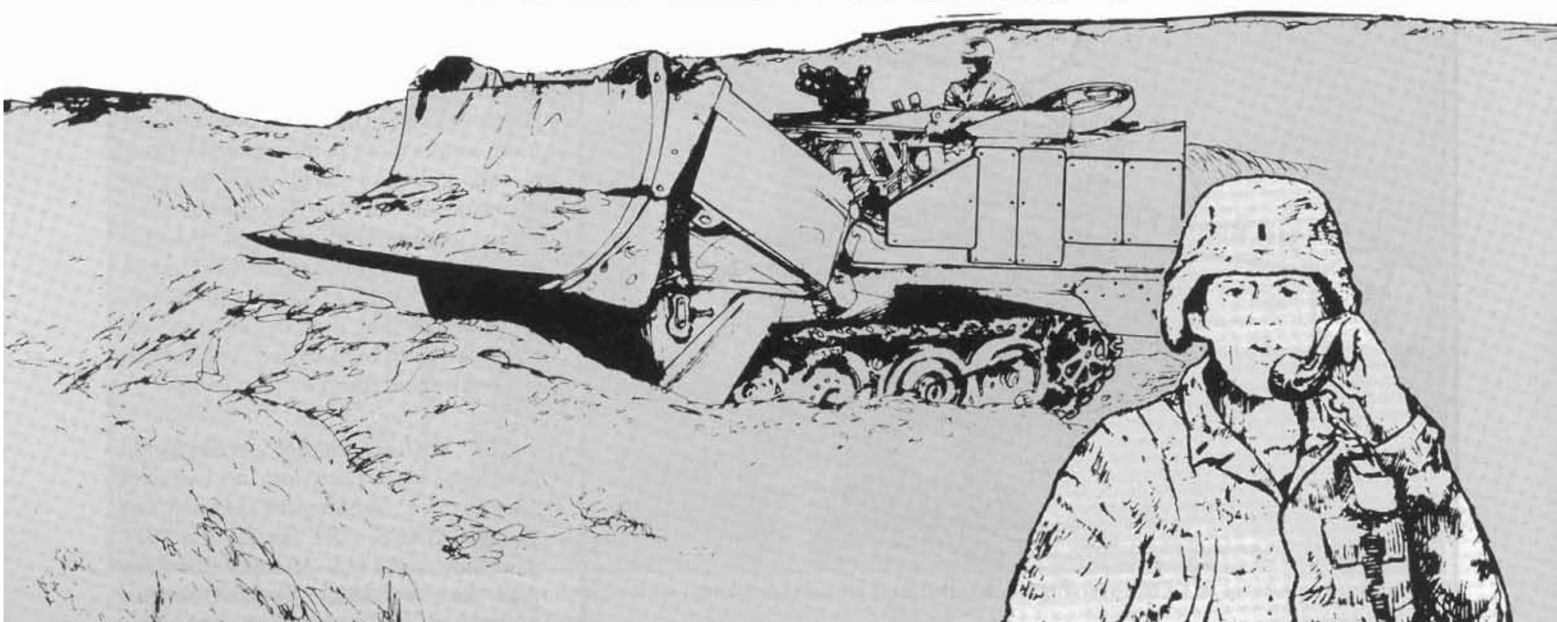
the precommissioning sources, be extended through the schools such as Fort Belvoir, Fort Benning, and Fort Knox, and show itself at the National Training Center and Reforger.

Truly creating this atmosphere requires bold and courageous changes in many leaders in our system who are more comfortable in micromanaging. If we are going to experience the true synergy derived from developing innovative leaders, then we must be brave enough to change our mind set. The net result will be an AirLand Battle doctrine which not only looks good on paper, but will be stamped indelibly in the hearts and minds of our leaders.

CPT William Scully, formerly an instructor in the Command and Leadership Branch, Department of Combined Arms, USAES. CPT Scully is a 1977 graduate of the U.S. Military Academy and has an MBA from American University.

TRAINING TASK FORCE ENGINEERS

CPT ROBERT A. O'BRIEN III



Engineer platoon leaders serving in divisional engineer line companies have to perform one of the most demanding junior officer roles on the entire battlefield. While leading their platoon, they also normally serve as task force engineers. Because of this, engineer battalion and company commanders, as well as task force commanders, must place significant emphasis on training, monitoring, and supporting the platoon leader/task force engineer.

The engineer company commander trains the task force engineers subordinate to him. With his battalion and task force commanders, the company commander develops the training program to meet the needs of the task force. When developing the task force engineer training program, the company commander should consider at least the following:

- Understanding the task force commander.
- Getting into the decision flow.
- Conducting staff coordination.
- Building confidence and mutual respect.
- Briefing the task force commander.

Understanding the Task Force Commander

The task force engineer must begin to think like the task force commander. Remember that the task force commander has at least 15 years of military experience. Specifically, the task force engineer must learn the doctrine. There is no substitute for studying FMs 71-1 and 71-2J, *Tank and Mechanized Infantry Battalion Task Force* and *Task Force Operations,* and the task force field standing operating procedures (FSOP). Along with this, he must know the task force equipment and its capabilities, the number of tanks or IFVs it has, the maximum effective range of its weapon systems, and the capabilities of its vehicles.

The task force engineer must also understand detailed operational graphics and keep his own overlay current with the task force commander's. FM 101-5-1, *Operational Terms and Graphics,* is the reference. Using good graphics to discuss operations overlooking the terrain and asking questions based on METT-T, OKOCA, and the five-paragraph field order will result in the task force engineer's better understanding the task force commander's intent.

Keeping communications with the task force commander is essential. This may be by radio, telephone, messenger, or any means available. The essential thing is to KEEP COMMO. The task force engineer should also frequent the same places as the task force commander and update him on the engineer operations in sector.

The task force engineer must know engineer doctrine and capabilities as well. The FM 5-100 series is now available and must be studied. A thorough knowledge of mobility/countermobility/survivability is vital. The task force engineer must learn about his organic equipment as well as that which may be attached to him. He also needs to know the threat equipment and capabilities. Then, with the help of his battalion and company commanders, he must work with the task force commander on employing engineers to maximize their combat multiplying effect.

Using all of this knowledge, the task force engineer must understand the commander's intent, translate it into specified and implied tasks, and develop the engineer plan. Becoming proficient in these tasks will help develop credibility with the task force commander. This is necessary so that the task force engineer can be the expert on engineer activities in the task force sector.

Getting Into the Decision Flow

The next area of importance in training the task force engineer is teaching him how to get into the decision flow. FM 101-5, *Staff Organization and Operations,* explains how staffs function and includes the engineer officer. Detailed study of this manual is important. Concentrate on chapters 4 through 7.

Being included in the orders group is also important. When the orders group meets, the task force engineer should be there. This includes warning orders, terrain walks, staff planning sessions, decision briefings, OPORDS, and AARs. The task force engineer must be confident and *assertive* to be an effective member of the orders group. He can be this way only if he is properly trained and well organized.

Conducting Staff Coordination

The task force engineer must execute numerous staff responsibilities to properly support the task force. As a staff officer, he must interface regularly with the S-2, S-3, S-4, scouts, fire support officer (FSO), and Air Force liaison officer (ALO). Let's consider the task force engineer's coordination with each.

S-2: The task force S-2 supervises the intelligence preparation of the battlefield (IPB). He analyzes the enemy, terrain, and weather. All of these areas are critical to the task force engineer. Based on the S-2 analysis of the enemy that the task force will encounter, the task force engineer must determine with the S-2 the expected engineer capability of the enemy force. FMs 100-2-1 and 100-2-3, *The Soviet Army: Operations and Tactics* and *The Soviet Army: Equipment,* provide useful information on threat tactics and organization.

From the terrain and weather estimates, the task force engineer recommends how to best provide mobility support or reinforce the terrain with available or projected assets. He also provides mobility/countermobility advice on route selection. The task force engineer and the S-2 establish the priority intelligence requirements (PIR) of engineer significance to be directed to the scout platoon leader. The task force engineer must also report the results of any engineer reconnaissance in sector to the S-2.

S-3: The task force engineer must translate all of the information resulting from the S-2 coordination into an engineer plan that supports the concept of the operation. He should be a key link between terrain analysis and battle planning by reinforcing to the task force commander the significance of choke points and terrain and water obstacles in both the offense and the defense.

The task force engineer recommends task organization inputs to the S-3 on paragraphs 3a, mobility/countermobility/survivability; 3b, subunit missions; and 3c, coordination instructions, and helps develop the obstacle plan for the operations order. He ensures the inclusion of priority of work, link ups, rally points, logistic release points, locations of primary and fallback positions, follow-on missions, and evacuation times. He must also continually stress that obstacles in the attack or defense are covered by direct and indirect fire. In addition, he advises the S-3 on deception and FASCAM missions.

Before attacks, the task force engineer must learn from the S-3 of intended battle positions or defense sectors on the objective in order to preplan the logistics needed for a hasty defense. Those supplies and equipment will then be ordered and may be moved forward in conjunction with the attack so that they will not delay preparation of defensive positions once they are selected. He must also coordinate hasty and deliberate marking and reporting of breach or bypass lanes through enemy obstacles.

In the defense, the task force engineer must coordinate obstacle turn-over procedures, safe lanes through obstacles, and obstacle marking techniques. He must ensure that the obstacle plan is integrated into the task force surveillance and patrol plan to guard against breaching by the enemy during darkness. He must also coordinate for work-site security to be provided by the maneuver unit. Security elements *must* be positioned between the work parties and the enemy to prevent enemy weapons systems from engaging the critical and vulnerable engineer assets at maximum effective range. Just overwatch is not sufficient.

S-4: The task force engineer coordinates with the S-4 to ensure that logistics are projected, requisitioned, and acquired in a timely manner. Together they must ensure that logistics release points and Class IV and V prestock points (task force run) are established and SOPs are developed to ensure the proper functioning of these systems. The S-4 must also be made aware of the Class III requirements for supporting engineers.

Scouts: The scout platoon leader and the task force engineer must coordinate to ensure that PIR concerning engineer matters are met. The task force engineer will normally send an engineer representative with the scout platoon reconnaissance effort to assist in collecting and reporting intelligence. Important are:

- Trafficablity.
- Existing natural, cultural, and man-made obstacles.
- Routes, roads, fords, AVLB sites, and bridges.
- The locations of stockpiles of engineer assets.

FSO: The task force engineer and the FSO coordinate to determine the availability of Class V to support engineer operations. Obstacles should appear on the fire support overlay to ensure that indirect fire is plotted to cover them. RAAM and ADAM missions must be carefully analyzed and planned and must be included on both the fire support plan and the obstacle overlay.

S-3 (Air) or ALO: Obstacles must appear on overlays given to supporting aviation so that gunship and close air support (CAS) pilots will know where to expect clusters of targets. Air-delivered FASCAM must be planned and coordinated.

Building Confidence and Mutual Respect

Company commanders can help to develop confidence and credibility in the task force engineers they train. Through officer professional development (OPD) classes, task force engineers can become more proficient in doctrine and staff functions. There are at least a few ideas for OPD classes contained in this article.

Becoming an active participant in task force regular staff, training meetings, and OPDs will help to develop a solid relationship. Get task force engineers involved in the task force training management cycle. Monitor this closely to ensure that brigade, task force, and engineer battalion and company training cycles mesh. Train together whenever possible. The more the task force and the task force engineer see of each other, the better.

Task force CPXs, TEWTs, and MAPEXs are other good sources of education. Training his own platoon will also give the task force engineer a realistic picture of the time and effort expended in tasks that provide mobility/countermobility/survivability support to the task force.

Briefing the Task Force Commander

The only way to become proficient at briefing is to brief, brief, and brief. Use FM 101-5 and the five-paragraph field order as guides. Establish an SOP with the task force commander on what he wants in a briefing. Always include a mission statement (Sir, my mission is . . .). Also consider the following:

- Priority of work (mobility/countermobility/survivability).
- Obstacle overlays including FASCAM for both offensive and defensive operations.
- The execution matrix (time vs task).
- The survivability plan for each company/team and weapon system (don't forget ADA, FA, and engineer assets).
- The engineer equipment, weapons, and personnel status.

Obstacle delay times are of interest as well. While the task force engineer will quality-control the construction of obstacles, the key to long delays at good obstacles is effective direct and indirect fire. Great obstacles not covered by fire can be rapidly breached. FM 5-102, *Countermobility;* FM 20-32, *Mine/Countermine Operations at the Company Level;* and FM 71-2J, *Task Force Operations,* are the references for obstacles.

The Engineer School is doing its part to improve task force engineer training. A field circular on the duties of the brigade task force engineer is scheduled to be published in the fourth quarter of FY 85. The program of instruction for the Engineer Office Basic Course is also being analyzed to determine what else potential task force engineers should be taught.

The task force engineer has finally gained the full attention that the position deserves. Through proper training and emphasis on the part of engineer platoon leaders, company and battalion commanders, and maneuver commanders, the task force engineer will soon truly be the task force commander's engineer expert on the battlefield.

CPT Robert A. O'Brien III is an ROTC instructor at Seton Hall University. Before that he was a project officer, Department of Combined Arms, USAES. Also, he was a platoon leader, 842nd Engineer Company, South Dakota National Guard, and commanded Company B, 1st Engineer Battalion, Fort Riley, KS. CPT O'Brien was twice a company commander at the NTC. He graduated from EOBC, EOAC,and has a bachelor's degree from the University of Nevada-Reno.

Engineer Matrix

Obstacle control and security must be coordinated in addition to a matrix. Experience has shown that obstacle handover and position security, while being the most critical, are habitually mismanaged. A matrix, by itself, will not suffice.

by 1LT Charles A. Radke

It is 0100 hours, and moonrise is still two hours away. You've been driving through blackness for over an hour with no lights and few terrain features to guide on. Soon you'll be at the task force TOC (tactical operations center), and the time to switch from engineer platoon leader to TOC staff officer will be at hand.

Although you are the junior officer at the TOC, the knowledge you have as a task force engineer is vital to the success of the operation. The task force commander expects you to be the expert on all engineer aspects of the operation. He also expects you to prepare the obstacle plan and to write the engineer annex to the operations order. Even so, the subdued castle you wear on your shirt collar does not guarantee that you can meet his expectations.

In most cases, you will have the largest platoon in the task force. Often the assets you control will outnumber the personnel in one of the maneuver company teams. You will have control over your platoon and the additional heavy

COUNTERMOBILITY

Obstacle Number and Priority	Description	Location	Who Secures	Emplaced By	Class IV, V, Personnel Time, Equipment Required

SURVIVABILITY

Priority	Location/Battle Position	Equipment Devoted	Type Position To Emplace	Time Required	Special Notes

and armored equipment attached to your platoon. Additionally, the task force will place any corps level engineers under your control. With all these people and their equipment at your disposal, the engineer contribution to the operation can be awesome.

Still, these assets must fit into the concept which the task force commander has outlined. In the early stages of the planning phase, the task force engineer outlines his suggestions to support the operation. Upon approval, these suggestions become the plan; and it's the task force engineer's task to put the plan into writing.

As in all orders, the need for brevity is balanced by the need for the engineer to convey his intent. In an offensive operation, the five-paragraph field order will often suffice. However, when this format is used in a defensive operation, the written explanation of subunit missions becomes long and hard to interpret. This is due primarily to the intense engineer effort required in a defensive operation.

One solution to this problem is to adopt a matrix to substitute for some of the written portions of the order. This method makes the order easier to read and usually takes less space than a lengthy mission statement. It also allows the engineer to include additional information in the order without reducing its clarity.

Those engineer operations most often addressed in a task force operations order include three different areas of possible engineer effort: mobility, countermobility, and survivability. The task force engineer will most likely concentrate his defensive efforts on countermobility and survivability and leave most of the mobility tasks to the supporting engineer forces.

Concentrated on countermobility and survivability operations, the engineer assets can become the biggest combat multiplier on the battlefield. In order to use all the assets available to produce the optimum effect, careful planning of the operation becomes the first step to success. The plan will deal with the use of men, machines, and material as well as allocation of the time available for each of these assets.

Use of manpower will usually include your platoon members, available manpower from the task force, and any additional engineer soldiers allocated to the task force from higher levels. Planning to get them to the right place at the right time is easier if the matrix is used. It shows their priorities in conjunction with all other assets which affect their mission.

Class IV will be used by all units within the task force and transported by a variety of haul assets. When the engineer makes the plan for the distribution of the Class IV, he adheres to priorities for obstacle emplacement. Using a separate column on the matrix greatly reduced the need for lengthy coordination with other staff sections.

With the men and material taken care of, machines, the most productive asset, need close attention. These pieces of heavy equipment must be put to work as soon as possible. As in all other defensive planning steps, the use of heavy equipment needs to be organized. Usually the dozers go to one battle position to dig in tanks while the backhoe goes to another to dig in dismounted infantry. The trick is to keep the assets together as much as possible, but constantly productive. Again, use the matrix to outline what the heavy equipment does. List the missions in order of priority and make sure all the task force leaders understand how the assets are being used.

The objective of a written order is to ensure that the commander's intent is understood by everyone in the chain of command. The objective of the matrix is to convey this intent, but to do it in an easily understood manner. Attempts to communicate the information included in the matrix would take many written pages and make it very difficult to pick out a specific event or coordination point. Usually the need for brevity causes a degradation of the written plan.

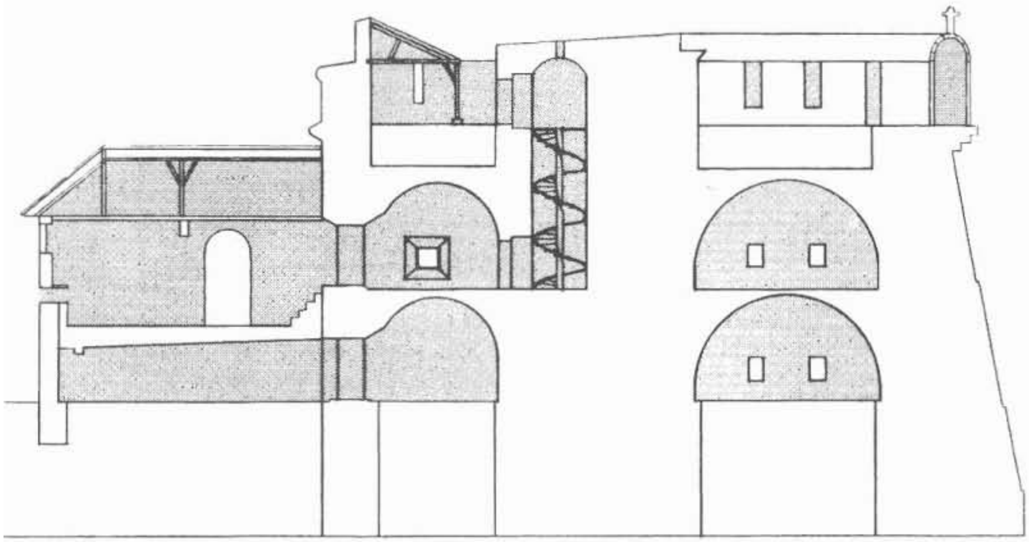
The matrix used at the National Training Center fits the bill for planning of all engineer assets and responsibilities, according to observers/controllers. The matrix has withstood the test of actual use and can make the task of the engineer planner many times easier.

1LT Charles A. Radke is the executive officer of the 522nd Engineer Company, Fort Knox, KY. He was a platoon leader in the 194th Armored Brigade, Fort Knox, and served as the task force engineer for the 4/54th Infantry at the NTC. 1LT Radke has a degree in mathematics and computer science from the State University of New York at Albany and was commissioned as an engineer officer through ROTC. He has been selected to attend the Armor Officers Advanced Course.

Task Force Engineer/Combined Arms Integration Package

A copy of the newly revised *Task Force Engineer/Combined Arms Integration Package* is being sent to all engineer units. The package focuses on task force engineers. The Directorate of Evaluation and Standardization plans to update the package every quarter by publishing lessons learned (or when new lessons are identified).

For additional copies, write: Commandant, U.S. Army Engineer School, ATTN: ATZA-ES-E, Stop 271, Fort Belvoir, VA 22060-5271. Platoon leaders scheduled for rotations at NTC as task force engineers may call CPT Craig Tavani at (703) 664-3668, AV 354 for additional information.



18th Century Fortress Design Principles:

Modern Point Obstacles

by MAJ Steven H. Myer and MAJ Jefferson J. Irvin

We applied the basic principles of the 18th century system of fortification to the design of modern obstacles in two previous articles (ENGINEER, Spring and Summer). In this final article, we will discuss the dimensioning and layout of the inner fortress communications (gates, bridges, stairs) of the same 18th century defensive system and apply them to today's principles governing point obstacles.

Specifically, the design of the fortress provides insight into answering the following questions.

- Given bridges of varying classifications (i.e. Class 30, Class 60) passing over a stream, which bridges should be demolished first and which left open to handle inner battlefield movement of friendly forces?
- What types of fail-safing techniques can we employ in designing critical, command-executed point obstacles?
- How does siting of a point obstacle affect its effectiveness?

As stated in our last article, the 18th century European fortress was designed as a series of linear obstacles in depth (Figure 1). An attacker had to cross several ditches, bordered on each side by high masonry walls, before reaching the inner fortress positions. The ditches were laid out in a jagged pattern, allowing cannons on the inner fortress wall and the platforms of the detached outworks to fire along the length of each ditch segment. Crossing the ditches was therefore a difficult operation for an attacker.

For the defender, inner fortress movement was much simpler. How was the fortress designed to allow easy movement of friendly men and materiel between the various fortress components without making the attacker's job easier? The defenders supplied, resupplied, and counterattacked using gateways and passageways through the main inner wall, bridges over the ditches, and stairs. The dimensions and positions of these features pertain to our questions concerning point obstacles.

Capacity of Lines of Communications

The dimensions of the bridges, passageways, and stairs were convenient for movement of the friendly troops or equipment. Artillery passages were 10 to 15 feet wide, with maximum inclines of 1/6. Infantry passages were 4 to 6 feet wide. These choices seem obvious.

Less obvious is the simple fact that infantry passages, either stairs or narrow ramps, could not pass artillery. Look again at Figure 1. The forward edge of the fortress (the covered way) was manned by infantry. The only access to this outer edge passed through narrow stairways. This meant that if enemy infantry successfully stormed part of the outer fortress edge, and then one of the detached forts, the enemy would still not be able to move his own artillery across the ditch to the secured fort. There were no artillery passages breaking through the continuous outer edge of the outer fortress ditch.

A modern analogy to the infantry on the covered way is a unit being used as a screening or covering force. Assume the unit's largest vehicle is Class 30. Leaving a four-lane Class 60 bridge intact to retrieve a delaying unit would be equivalent, in our fortress example to having ramps 16 feet wide leading from the covered way to the detached forts. The Class 60 bridge is too big for its purpose and is an invitation to high-speed enemy approach. A bridge more suited to the purpose, if available, should be chosen for the unit withdrawal; and the Class 60 bridge should be destroyed.

Redundant Safeguards

Critical fortress communications were designed with many redundant safeguards. The critical passageways (tunnels) through the main rampart are called posterns. The design of a postern, given in D. H. Mahan's 19th century text, *An Elementary Course in Permanent Fortification,* is described below.

"The most important postern is the one leading from the parade (plain inside the main perimeter) to the main ditch. This generally receives a width of 12 feet. . . . For greater security from surprise, its outlet is at least 6 feet above the bottom of the ditch, this difference of level being overcome by means of a tem-

porary ramp. . . . Besides two strong doors at the two ends of the postern, there is a partition of masonry about midway between the two ends, which is pierced with a doorway of the same size as the doorways of the ends, and closed by a strong door which, as well as the partition wall, is loop-holed for musketry.

In cases where the postern forms the main entrance to the work, an arched chamber is placed at one side of it, at the outlet, which serves as a guard room for a few men, to secure the outlet from surprise. The wall between this chamber and the postern is loop-holed, so that fire can be brought to bear on the doorway of the postern. . . ."

Note the successive layering of features designed to seal the passageway. Removing the ramp makes storming or ramming the entrance from the ditch difficult. The entrance, exit, and midpoint are sealed by doors, each covered by musket fire. These expensive precautions against surprise attack were taken because the fortress is like a turtle. Once you pass through the hard outer shell, the insides are soft. The area within the main perimeter was unprotected once an enemy gained access. The main perimeter had no defenses against an attack from the rear.

The modern equivalents of the postern leading from the parade to the main ditch are the critical road communications through a defense. The entrances and exits are our point obstacles. Bridges crossing major rivers and mountainside road crater sites are examples of these point obstacles.

These critical obstacles require an entire series of precautions to ensure completeness of their execution. Obstacle demolition must—like the fortress postern—provide layered safeguards. Typical precautions include installing dual firing systems, electric and non-electric, for each set of demolitions.

The fortress tunnel hints at some additional precautions. We can provide a steep drop at the enemy end of a bridge by cratering the end of the abutment and installing easily removed ramps. We can demolish floor slabs at intervals along a bridge and install easily removed temporary floors. In extremely important cases, we can demolish the bridge span nearest the friendly bank and replace the span with tactical bridging. Then, if all the demolitions on the bridge fail, we can remove the enemy end ramp, remove the temporary flooring, and retrieve the tactical bridging. Another extreme option is to demolish the bridge before the last friendly unit crosses, pre-position enough tactical rafting to handle the remaining non-amphibious vehicles, and let the remaining amphibious vehicles swim across the stream.

Siting Point Obstacles

The positions of the inner fortress passageways provide insight into how the careful siting of a point obstacle enhances its effectiveness. Look at Figure 1. Note the following principles are employed in siting the main gate and the bridges leading from the gate.

1. Forward passages are always covered by rearward friendly fires.
2. Passages are protected from enemy fires because the areas forward of the passages are blocked by the series of detached, triangular-shaped forts (outworks).
3. Openings in the main perimeter are placed in the recessed part of the perimeter. This allows overlapping friendly fires to rake the front of the opening.
4. There is no opening on the sides of the detached forts allowing communication between laterally adjacent forts. Openings only appear in the rear of the forts. This prevents a captured fort from compromising the communications or security of adjacent forts.

All these principles apply to point obstacles today. We use the first principle when we site obstacles so they can be covered by friendly fire. We use the second when, in the defense, we clearly assign road communications security to specific units. We do not draw our unit boundaries along roads (and along the road's bridges). We ensure clear assignment of coverage of major avenues of approach.

The third principle gives useful advice. Assume you have six bridges crossing a stream in your sector (Figure 2). You decide that three, including contingencies, are needed. Which bridges should be demolished early and which retained for use in counterattacks or withdrawal? Using the third principle, the best choices for retention are those

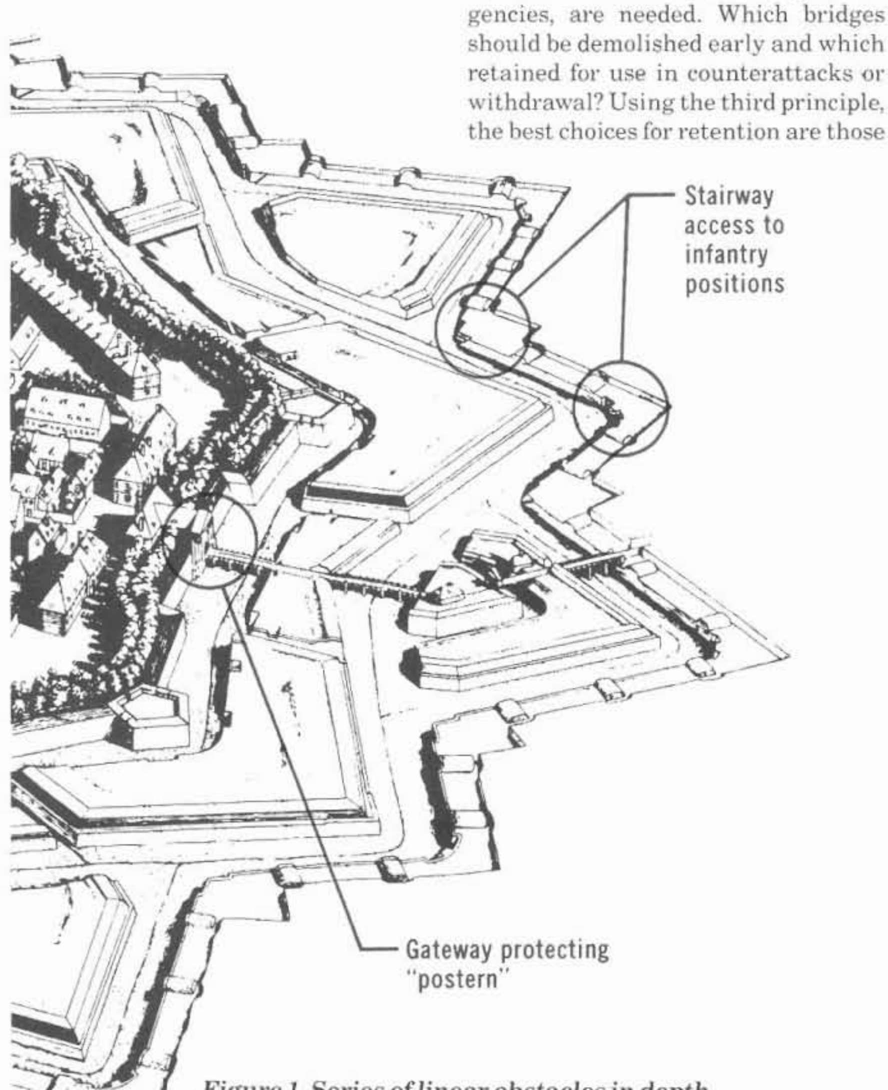


Figure 1. Series of linear obstacles in depth.

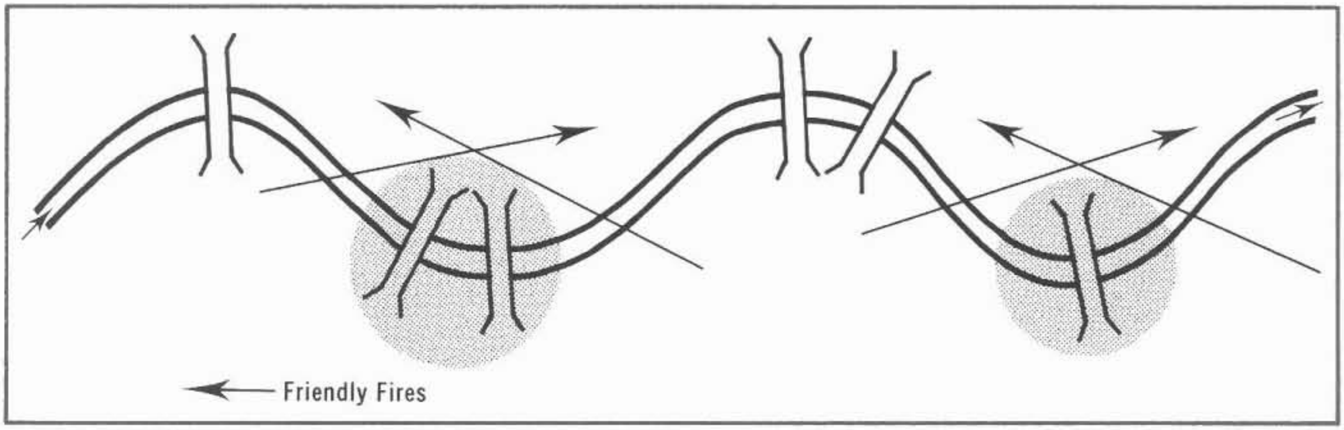


Figure 2. Sector of six bridges crossing a stream.

circled. At these sites, fires from the friendly bank overlap across the area leading to the far abutment.

The fourth principle is also familiar. We routinely assign supplementary positions in our defenses to handle attack from unexpected or secondary avenues of approach. This principle advises that communications along the supplemental avenues (which are required for friendly lateral movement early in a battle) must be prepared for command-executed demolition. Apparently harmless bridges pointed at a flank may not be harmless if the adjacent position is lost.

We have proposed little that is new. The 18th century fortress is a visual reminder of many important principles pertinent to planning inner battlefield road communications.

- Size communications to the need.
- Fail-safe critical command-executed obstacles with many redundant precautions.
- Where choices between communications routes exist, cut off the routes which are difficult to cover by fire or cannot be protected from enemy fire.
- Prepare to cut off lateral communications in case an emergency arises.
- Meet your needs, but deny the enemy his.

These three articles apply the basic principles of 18th century fortifications to the modern battlefield and, by example, demonstrate the lessons that history can provide us. History examined with our minds attuned to today's challenges can provide insights into basic principles, simplified models to order and structure today's more complex problems, and even lessons that can be directly applied to the battlefield. Whether strategy, tactics, leadership, or any aspect of our profession, history is a valuable, but too often forgotten source of wisdom. READ IT.

MAJ Steven H. Myer is an assistant professor of mathematics at the U.S. Military Academy and served as a platoon leader in the 1/27th Infantry Battalion, 25th Infantry Division in Hawaii. He was a company commander with the 1/504th Infantry and was the assistant G-3 OPS in the 82nd ABN Division at Fort Bragg, NC. MAJ Myer has a bachelor's degree from the U.S. Military Academy and a master's degree from Stanford University.

MAJ Jefferson J. Irvin is an assistant professor of geography and computer science at the U.S. Military Academy. He served as a platoon leader and company commander in the 94th Engineer Battalion in Germany. MAJ Irvin has a bachelor's degree from the U.S. Military Academy and a master's degree from Stanford University.

Engineer Problem

Your squad is tasked to control traffic at a bridge crossing in the division rear. The bridge is a single-lane timber trestle with a wheeled vehicle classification of 27. Two vehicles approach your bridge. One is a standard combination 10-ton tractor, pulling a 25-ton lowboy with a D7E on top. Its load classification was previously determined by a corps level ERP as 33. The other vehicle is a combat loaded 2½-ton cargo truck pulling a loaded bolster trailer. The load classification of this vehicle has not been determined. Will your bridge support these vehicles, and if so, what type of crossing should they make?

(You collect the following data to support your calculations.)

W_T (2 ½T) = 5,530 lb **A_T = Average tire contact area (trailer) = 30 in^2**

W_T(load) = 2 tons **P_T = Tire pressure (trailer) = 55psi**

N_T = Number tires (trailer) = 4

REFERENCES: FM 5-34; FM 5-36; FM 5-12B2/3/4

Problem/Solution submitted by 1LT Michael Mazzuki, Directorate of Evaluation and Standardization.

Do you have any challenging Engineer Problems? We are looking for original Engineer Problems and Solutions that can be solved by using appropriate engineer references. Your problems should be checked for technical and doctrinal accuracy, and should strengthen combat engineer skills. ENGINEER Magazine
ATTN: ATZA-TD-P, Stop 291D
Fort Belvoir, VA 22060-5291

Daily LOGPAC Operations

by CPT Paul A. Petzrick Jr.

The approach of using a modified LOGPAC procedure has enabled the 8th Engineer Battalion to overcome logistical support difficulties in the field. FM 5-100, *Engineer Combat Operations*, states that logistical support for the forward elements of an engineer battalion is provided in varying degrees by the supported maneuver units, depending upon the command and support relationships specified in the tasks organization and coordinating instructions.

An engineer battalion should attempt to enforce doctrinal support responsibilities of the supported units and should use existing logistic channels from the division support area (DSA) and the brigade support area (BSA) before operating an in-house LOGPAC operation.

In early 1984, the 8th Engineer Battalion (CBT) was confronted by two major problems affecting the way it conducted field support operations. Companies routinely spent significant amounts of time returning to the rear to obtain support; and staff visits to companies were conducted in a haphazard, disorganized manner. Often key personnel were absent from the battalion trains when needed to coordinate with higher headquarters.

Further compounding these problems, the recent organizational changes of the Army of Excellence made it necessary for the battalion headquarters to substantially increase its role in providing supply and service support to organic companies.

To assist in resolving these problems, the battalion adapted and modified the Logistics and Administrative Package (LOGPAC) procedures used by maneuver units.

The LOGPAC is a supply and service package from the battalion trains that meets elements from the company trains at designated rendezvous points. It has a flexible organization that can be tailored to meet various situations. During a recent exercise, the LOGPAC ranged in size from a jeep with trailer to a column consisting of two 5,000-gallon fuel trucks, two 5-ton trucks with flatbed and refrigerator trailers, a 2½-ton truck, and a 5/4-ton truck.

Supervision is essential for efficient LOGPAC operations. A responsible NCO or officer must accompany every LOGPAC. Besides serving as the commander of the LOGPAC, he serves as a liaison between the battalion trains and companies. He is one of the few persons to conduct actual face-to-face coordination with the companies. Since the bulk of the LOGPAC is normally logistics, it may be helpful for the LOGPAC commander to come from the S-4 section.

The LOGPAC uses a flexible cycle of preparation, planning, and execution to support sustained operations. The execution phase of the cycle occurs at night and is followed by the preparation phase. Individual staff sections plan continuously. Their efforts culminate in a daily staff planning meeting.

The planning meeting is held before the uploading of supplies for that night's LOGPAC. The S-1, S-4, maintenance, medical, and communications officers or their representatives should attend. The meeting is intended to determine exact transportation requirements, pass information, select the LOGPAC commander, and resolve problems. If the availability of vehicles is limited, augmentation from other sources, such as DISCOM or bridge company trucks with pallets, may be necessary. Tactical issues, such as the situation, route selection, and rendezvous points, are determined and operational plans developed.

Upon departure, the LOGPAC moves directly to a designated linkup point and sets up. The transfer of supplies to the companies should be timed to ensure that departure from the battalion trains area is after dusk. As companies arrive, they are met by guides and escorted through the LOGPAC site. Accountable supplies and paperwork, mail, and other items requiring special handling are verified by the LOGPAC commander before each company departs the area. A representative from each staff section accompanies the LOGPAC to conduct customer service. Delivery of replacement personnel and evacuation of personnel returning to the rear also takes place. As soon as all units are serviced, the LOGPAC returns to the battalion trains.

The preparation phase consists of three distinct elements. Maintenance of vehicles and identification of potential maintenance losses occurs as early as possible so that sufficient time is available to arrange for necessary augmentation. It is also essential that personnel routinely involved in the LOGPAC, such as drivers, get adequate rest. In addition, staff sections conduct routine business with support agencies during this phase. Vehicles and personnel required for these actions may impact on sustaining the LOGPAC as previously mentioned.

The LOGPAC's key advantages are its flexibility and efficiency. Supplies are pushed forward, allowing companies to maintain their focus on engineering missions without the burden of supply and support issues. Consolidation of supplies allows for a more efficient use of trains personnel and vehicles and enhances security for vehicles going forward. The LOGPAC enables the battalion to provide maximum support to the companies and sustain it with minimal effort.

CPT Paul A. Petzrick Jr. is the G-1 Plans Officer for V Corps, Frankfurt, Germany. He was the Organizational Effectiveness Staff Officer, 130th Engineer Brigade, Hanau, Germany, and the S-4, 8th Engineer Battalion, 1st Cavalry Division, Fort Hood, TX. Commissioned from the U.S. Military Academy, he has served in infantry and engineer troop assignments in the U.S. and Germany.

The Final Exam in EOBC

by CPT Duane A. Dyer and MAJ David R. Bowen

The Captain in battle dress uniform with helmet, load-bearing equipment, and camouflage spoke first:

"I am the task force S-3. At 0530 hours, the United States was invaded by elements landing from the two Soviet fleets off our eastern seaboard. One force has gone ashore in southern New England; and the other has landed near Newport News, VA. In accordance with prepared contingency plans, your platoon has been mobilized to support my task force which is part of 1st Brigade, 52nd Infantry Division."

The blurry-eyed lieutenants sat in the auditorium of Humphreys Hall at Fort Belvoir and listened as various staff officers poked at maps, gave briefings, and recited required reports. This was the day before the final FTX for the Engineer Officer Basic Course (EOBC). The training company had just been plucked from the physical training field without notice. The opening scenario suddenly became real. Two weeks before "D-Day," the EOBC students had received build-up intelligence briefs. Now, this was war!

Priming a shaped charge, 2LT Jay P. Still and 2LT Michael L. Rogers prepare to detonate explosives to create a hasty road crater. Demolitions is one of the many challenging tasks for EOBC students during an FTX at Fort A.P. Hill, VA (photo by 1LT L. J. Leto).

The final FTX for EOBC students emphasizes coordinated staff planning and independent actions of a task force engineer.

The New FTX

The high point of EOBC is not graduation, but the final FTX which acts as a final "field" examination and evaluates the lieutenants' technical and tactical skills gained through previous classroom instruction. Doctrine, theory, and class notes are now put into practice where it counts—the field.

In the past, each EOBC training company had planned, coordinated, and controlled its own FTX. Not only was there duplication of effort, but often not enough planning was done; and an important exercise became disorganized. The company commander was unable to adequately advise, check, and inspect his platoons—his primary mission.

In late 1984, the final FTX was rewritten and standardized so that the problems of planning, coordination, and control at the company level were eliminated. The new FTX is designed to be more realistic and incorporates five phases: lead-in scenario, D-Day briefing, initial actions, main exercise, and recovery (Figure 1).

Using a European scenario of defend-hold-counterattack, the EOBC students build up to the FTX; and then they conduct it. The FTX itself is five days long, starting on a Thursday and ending on a Monday. The FTX is conducted at Fort A.P. Hill, VA. The lead-in scenario begins 15 days before the FTX on D-Day −10; the D-Day briefing is the day before moving to Fort A.P. Hill; and recovery is on Day 5.

Lead-In Scenario

The lead-in scenario provides a realistic background to the FTX and follows a buildup to open hostilities between the United States and the Soviet Union. Each day (−10 through −1), information is provided to the EOBC students to set the stage for the increasing tensions. On D-Day, the United States is invaded.

D-Day Briefing

Not knowing that the invasion has occurred, the EOBC officers start the day at 0600 with PT. Shortly after they begin their physical exercises, an EOBC trainer arrives and moves the platoons into the auditorium where they are given the D-Day briefing. The EOBC officers are informed of the invasion and told that they have been mobilized as Company A, 52nd Engineer Battalion, to support an armor-heavy task force (TF) organized under a J-series TOE. The briefing is conducted with EOBC cadre representing the following command and staff positions:

TF S-1
TF S-2
TF S-3
TF S-4
Brigade Engineer
Engineer Company Commander
TF Commander

The EOBC students are restricted to Fort Belvoir and told to report the next morning (Day 1) with their baggage ready to go to war.

Initial Actions

On Day 1, the lieutenants are issued their weapons and NBC protective masks and clothing and transported to Fort A.P. Hill where they pick up prepositioned equipment and vehicles. They are briefed by their training company commander and given their first missions. From this point, until FTX completion, subsequent missions and other messages are sent to the platoons by radio or briefed at the Task Force Tactical Operations Center (TF TOC).

Main Exercise

Each platoon is controlled as if it were directly attached to the task force. Each

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			Lead-In Scenario (Fort Belvoir) -10	-9	-8	
	-7	Lead-In Scenario -6	-5	-4	-3	
	-2	-1	D-Day	Initial Actions 1	Field Training (Fort A.P. Hill) 2	3
Exercise 4	Recovery 5					

Figure 1. Five-phase FTX.

platoon leader assumes the role of task force engineer and reports directly to the S-3 or commander through the TF TOC. The engineer company commander (EOBC training company commander) advises his student officers, but does not assist them. He acts as an ARTEP evaluator throughout the FTX. Essentially the EOBC officer is "on his own."

The lieutenant is responsible for everything his platoon does (or does not do) when he or she is the platoon leader. The platoon must accomplish all missions assigned as well as plan for all logistics support such as requesting Class IV barrier materials or feeding tactically in the field. Engineer equipment is available to the task force engineer from an entire company of the 11th Engineer Battalion (CBT) (HVY) which supports every EOBC FTX.

Twice daily, operations/staff meetings at the TF TOC keep the commander, his S-3, the engineer company commander, and the platoon leaders informed. Each platoon leader is required to brief the activities of his platoon at this time. Prepared overlays, operational situation reports (OPSITREPs), and periodic intelligence reports (PERINTREPs) are used to make each briefing more realistic. The operations/staff meetings give the lieutenants an idea of how such meetings are conducted. Additionally, lieutenants from each platoon work in the TOC to gain an appreciation for task force staff procedures.

The chain of command in each platoon changes every 12 hours, and both the new and old command chains attend the meetings in the TOC. This "constant" chain of command change does cause some minor continuity problems; however, missions are designed for the 12-hour time frame. Also, mission completion is not the aim of the FTX—excercising good leadership skills with technical proficiency in a stressful environment is the main goal.

Evaluation

Evaluation and critique are constant. The EOBC training company commander (FTX engineer company commander) and the EOBC trainers accompany their lieutenants throughout the entire FTX and provide periodic critiques to keep all platoon members informed of what is being done correctly and what needs to be improved.

Each EOBC trainer uses ARTEP task evaluation checklists to record the platoon's progress; EOBC trainers rotate among the platoons to ensure an objective analysis is being conducted. Mission accomplishment is only a small part of the evaluation—organization, coordination, proper use of troop-leading procedures, delegation of tasks, attention to detail, safety, and leadership are the major elements being emphasized and appraised.

The TF TOC maintains a status board of all missions assigned and completed by the platoons (Figure 2). Mission accomplishment, the ARTEP checklists, and cadre input all contribute to the platoon's evaluation. Competition between the platoons is keen. How well each platoon progresses through the FTX determines the "winner." As incentive, the best platoon may be able to terminate the exercise early or receive other benefits, such as being excused from PT for a week upon return to Fort Belvoir.

Future

Future plans for the EOBC final FTX include alerting the training company and moving to a holding area, tactical road marching to Fort A.P. Hill, an assault river crossing of the Rappahannock River, and an air assault on an objective. As part of the alert procedure, a modified EDRE (Emergency Deployment Readiness Exercise) is also being planned.

The final FTX is challenging, competitive, realistic, and above all an excellent training opportunity for new engineer platoon leaders to demonstrate their technical skills and leadership potential. The FTX is demanding and, at times, stressful—it was specifically designed to be conducted under these conditions. The EOBC training detachment's mission is to train young officers to be confident in themselves and to be professionally competent as combat engineer platoon leaders. The final FTX is a major catalyst in accomplishing this mission.

CPT Duane A. Dyer is an instructor in the Tactics and Operations Division, Department of Combined Arms, USAES. He was an EOBC platoon trainer and has served with the Albuquerque District, Corps of Engineers, and the 10th Engineer Battalion, Third Infantry Division. An EOAC graduate, CPT Dyer has been a combat engineer platoon leader, a bridge company commander and executive officer, an assistant S-3, and a brigade engineer. He graduated from the University of Maine at Orono with a degree in forest management and was commissioned through the Maine Army National Guard OCS.

MAJ David R. Bowen commands the EOBC Training Detachment at Fort Belvoir. He has led a platoon and commanded a mechanized infantry company and a squadron of the Royal Australian Survey Corps. MAJ Bowen has been a staff officer at battalion, brigade, division, and DoD level. He completed his graduate studies at Arizona State University and was an assistant professor at the U.S. Military Academy. MAJ Bowen is a graduate of the Infantry and Engineer Officer Advanced Courses, the Command and General Staff College, and the Armed Forces Staff College.

Day	First Platoon	Second Platoon	Third Platoon
	(All Move to Fort A.P. Hill; Issue Vehicles and Equipment)		
1	M4T6 Dry Span Reconnaissance Target Folders	Reconnaissance Target Folders Bailey Bridge	Construct Log Crib Construct Road Crater Bridge Demo
2	Construct Log Crib Construct Road Crater Decontamination Bailey Bridge	M4T6 Dry Span Hasty Minefield Decontamination Assault River Cross	Reconnaissance Target Folders Hasty Minefield Decontamination
3	Bridge Demo Remove Minefield Assault River Cross	Construct Log Crib Construct Road Crater Bridge Demo	Destroy Log Crib Fill Road Crater Bailey Site Layout Assault River Cross
	Blocking Positions		
4	Destroy Log Crib Fill Road Crater Road Improvement Construct Heliport	Destroy Log Crib Fill Road Crater Remove Minefield Construct Culvert	M4T6 Dry Span Remove Minefield Construct New TOC
	(All Move To Fort Belvoir)		
5	Recovery	Recovery	Recovery

Figure 2. FTX master schedule.

Engineer Solution

1. 2½-ton w/trailer

Temporary classification of wheel vehicles is 85 percent of the gross vehicle weight (in tons). A 2½-ton truck pulling a bolster trailer is considered a standard combination since the weight on the trailer is distributed to the axles of the truck. The temporary classification of the combination is 85 percent of the sum of their weights. The weight of the truck is taken from its data plate, and the weight of the combat load was estimated. The weight of the trailer and its load are unknown, but it may be estimated using the tire pressure and contact area. With the data provided and the estimation formula found in FM 5-34, it follows that:

$$W_T \text{ (bolster trailer \& load)} = \frac{(A_T)(P_T)(N_T)}{2{,}000} = \frac{(30)(55)(4)}{2{,}000} = 3.3 \text{ tons}$$

Therefore, the load classification of the combination is

$$C = .85\,(2.77T + 2T + 3.3T) = 6.86 \text{ or } 7 \text{ tons}$$

The 2½-ton with bolster trailer can make a normal crossing (100 feet between vehicles, maximum speed of 25 mph).

2. 10-ton combination

The 10-ton combination exceeds the bridge classification for a normal crossing. Caution crossing of a nonstandard fixed bridge is 1.25 times the normal classification. In this case, 27 x 1.25 = 33.75, safeside round to 33. Therefore, with the approval of the tactical commander, the 10-ton combination can make a caution crossing (50 meters between vehicles, maximum speed of 8 mph, no stopping, accelerating, or shifting gears while crossing).

NOTE: The third type of crossing, risk crossing, would not apply in this situation since the timber trestle bridge is not a standard military bridge.

Broken Heart International Airfield

The Broken Heart Battalion got its name during the Korean War when hastily deployed combat engineers left their wives and sweethearts behind in the U.S. "Broken Heart" was their code name during the Inchon landing led by GEN Douglas MacArthur.

by LTC William D. Brown and 1LT Blake Middleton

Broken Heart International—an unusual name for an engineer mission completed by C Company, 44th Engineer Battalion (CBT)(HVY) in support of Team Spirit '85, a major training exercise held annually in the Republic of Korea. The name was given to the airfield by the 44th "Broken Heart" Engineer Battalion.

Located 60 miles south of Seoul, the medium-lift forward area airfield was constructed using M-19 matting, a system of interlocking aluminum panels. The airfield featured a 3,500-foot runway, a parallel 3,500-foot taxiway, and associated parking and warmup aprons. A similar airfield constructed to support Team Spirit '84 resulted in using the M-19 airfield as a major port of entry and exit for troops participating in Team Spirit '85.

C Company, commanded by CPT John Bailie, was tasked to build the airfield; and 2LT Kun M. Yi was given the primary responsibility for the construction. Planning began several months before actual construction. A complete support structure had to be developed for the operation to accommodate construction and to sustain the company. Coordination was required to:

- Arrange movement of over 2,000 tons of matting by rail and contract truck haul to the worksite.
- Set up shower, laundry, and water supply operations.
- Provide FM and AM communications with the home station at Camp Mercer.
- Plan for rations and refrigeration support.
- Develop a bivouac site.

An advance party, comprised mainly of the earth-moving platoon, was dispatched to Yoju a week ahead of the main body to do preparatory earthwork for the matting operation. The airfield site, a peanut field 10 months of the year, is comprised of sandy soil which proved to be a training challenge for SFC Stephen Walls, the project NCOIC. The layout of the airfield, selected by the Air Force, necessitated extensive earth-moving operations along the entire length of the runway—eventually totaling over 6,000 cubic yards of cut and fill.

This effort was complicated by the unseasonably mild weather which caused an alternate thawing/freezing cycle, resulting in poor drainage due to large ice lenses throughout the soil. The ice lenses were a perplexing problem as they drew moisture from surrounding soil and caused large soft spots where compaction was impossible. Efforts to remove these ice lenses were hampered by the weather which alternately brought rain then snow, warm temperatures then numbing cold.

A solution was found in TM 5-330, *Planning and Design of Roads, Airbases, and Heliports in the Theater of Operations.* Bulldozer teams used rippers to cut grooves parallel to the runway surface. Ice lenses then began to form in these uncompacted areas which drew the water from under the compacted runway surface. Though not a "school solution," the procedure effectively solved the problem.

The main body arrived on site and began to lay the first of over 39,000 panels (4 feet x 4 feet) required to complete the project. As panel crews worked, the earth-moving equipment from C Company and the other line companies, as well as the 802nd Engineer Battalion, prepared the laying surface. The "matlayers" of C Company, with support from the battalion's 30th Korean Service Corps Company and a Republic of Korea engineer platoon, placed over 2,250,000 pounds of metal and completed the laying operation in only 12 days.

Although the M-19 matting provides temporary landing facilities and requires frequent repairs, Broken Heart International Airfield held up well during over 410 sorties of C-130s. One minor repair was completed in under three hours without affecting landing operations. The entire experience provided training for the battalion and ensured the smooth deployment of forces into and out of Korea.

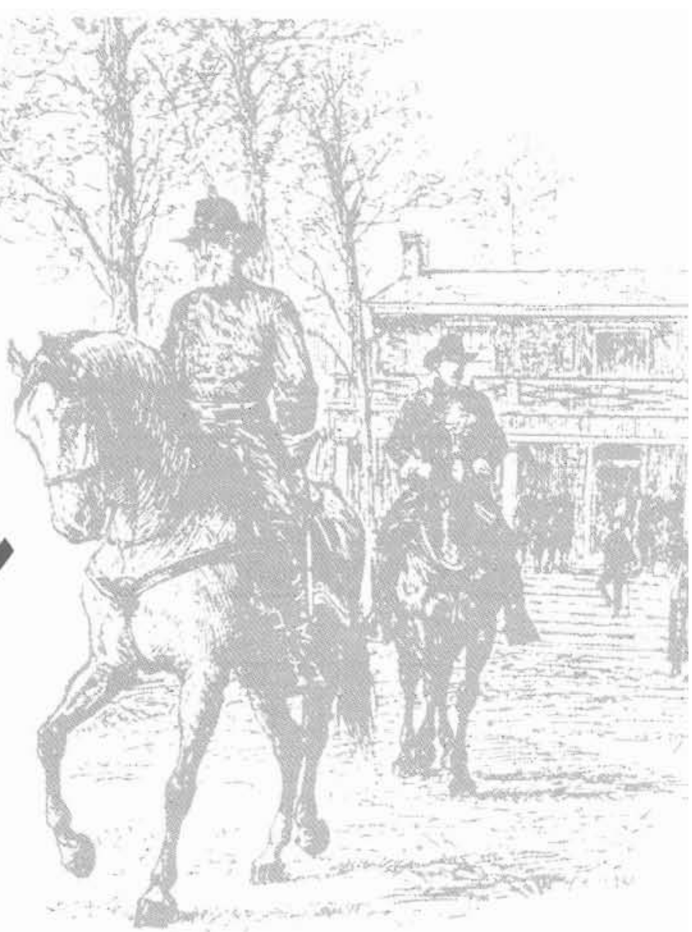
The bivouac site provided heated GP medium tents with M-19 flooring, showers, Korean and English movies at night, flag-raising ceremonies at work call, plus reliable and secure communications with battalion.

The dismantled airstrip is now history, but the skills and the leadership experiences have enhanced the combat readiness of the "Broken Heart" Battalion and once again demonstrated its role in the defense of the Republic of Korea.

LTC William D. Brown commands the 44th Engineer Battalion (CBT)(HVY), Camp Mercer, Korea. He was a staff officer in the Program Analysis and Evaluation Directorate, Office, Chief of Staff, Army; Executive to the Chief of Engineers, OCE; and executive officer of the 20th Engineer Battalion (CBT), Fort Campbell, KY. LTC Brown completed the Project Manager Course, the Defense Systems Management College, CGSC, and EOAC. He has graduate degrees in nuclear engineering from MIT and in operations research from George Washington University.

1LT Blake Middleton is assigned to the staff of the U.S. Military Academy at West Point. He was a platoon leader and construction officer in C Company, 44th Engineer Battalion (CBT)(HVY), Camp Mercer, Korea. 1LT Middleton has a bachelor's degree from Montana State University.

The Will to Lead



by MAJ Philip Benham and MAJ Charles Kershaw

Throughout history, distinguished military leaders have proved effective at imposing their will. The importance of this quality of leadership, especially in the face of adversity and its attendant risks, is emphasized by Clausewitz. He contended that the success of a leader's effort is the product of two inseparable factors—the total means at his disposal and the strength of his will. A leader with ample means at his disposal who lacks the resolve to act and to compel others to follow, as did George B. McClellan in opposing Robert E. Lee, will, as Clausewitz predicted, fail. And failure on the battlefield is catastrophic.

History is replete with examples of leaders coercing their soldiers into battle. John Keegan in *Face of Battle* describes instances of French leaders under Napoleon pushing against the backs of soldiers using their halberds horizontally in both hands to keep men in place. On the Western Front in World War I, battalions appointed squads of "battle police" to prevent stragglers from seeking refuge in the trenches during an attack.

These coercive measures will undoubtedly be inadequate, however, on the AirLand battlefield of tomorrow. The accelerated pace of operations, lethality, and decentralized nature of the AirLand battlefield will require more sophisticated and diverse methods for imposing one's will. The defiant "Nuts!" of Anthony C. McAuliffe to the German request for surrender at Bastogne will continue to serve as the legacy of confidence and courage of the commander imposing his will, but the conditions for the successful imposition of one's will extend to the careful consideration of the following factors:

- Know your situation.
- Know your subordinates.
- Know yourself.

Know Your Situation

Commenting on the dearth of good generals, Marshal Saxe observed wryly that not knowing what they (good generals) do, they (the less adept ones) do what they know. The commander who is to impose his will successfully has to be aware of what he must know about his situation. Too narrow and limited a view of the requirements for success can prove disastrous.

Writing of the German army's failure on the Eastern Front in World War II, Field Marshal Erich von Manstein derided Hitler's inability to realize that any long-range offensive operation called for a steady buildup of troops over and above those committed in the original assault. Hitler's inability to understand that any long-range offensive operation called for a steady buildup of troops over and above those committed initially resulted in heavy losses to the German army. As Hitler himself later acknowledged, it also contributed to his loss of control over his generals.

Poor assessments of tactical situations detract from one's tactical competence. They also indicate an insensitivity to the needs of one's troops. Frequently this condition results in orders given and not executed properly. In some instances, orders are regarded as impossible; and the consequence is often disobedience, a clear manifestation of failure in imposing one's will.

Know Your Subordinates

Cohesiveness and competence perhaps are the two most important qualities units need to perform well under adversity. Cohesiveness and competence provide the confidence that subordinates and leaders need to confront adversity and its attendant risks with expectations of succeeding.

As Henry Boetlinger indicated in his article, *"Is Management Really an Art?"*

veterans play a key role in building confidence in military units. Veterans, using the wisdom that typically accrues from experience, serve as role models for less experienced troops. They frequently establish the behavioral norms for the unit, and they reinforce the value of performance standards to mission accomplishment.

What's key for the leader here is the value of experience. Knowing the capabilities of your troops is essential. Where deficiencies exist, leaders successful at imposing their will "build veterans" to create the bond of trust necessary to confront the adversities of combat. The validity of this point has been confirmed by many. MG Norman S. Cota, who commanded the 28th Infantry Division in World War II, summed up his thoughts on the subject this way:

"Men have a right to go into battle as members of a trained unit flanked by friends and associates and, if possible, led by leaders who have trained with them and whom they have come to trust."

The regrettable incidents of troop rebellion during the latter stages of the Vietnam War stem in part from the few opportunities leaders had to "build veterans" before confronting the adversities of combat. The conflict between the survival ethic and the duty ethic precluded the confidence that some units needed to perform. Few small unit leaders knew their men before they were required to rely on them.

Know Yourself

In *The Power of Personality in War,* MG Baron von Freytag-Lovinghoven remarked that the most capable officers develop their own powers of understanding through constant, critical examinations of the past and present. They may well start with historical profiles of great leaders. They must then be extended, however, to an introspective analysis of one's personal attributes and the degree to which they are compatible with the values of the profession and the requirements of command.

The list of attributes describing the consummate military leader is justifiably long. Thus, any reflection on one's own capability to lead is necessarily a complicated and time-consuming task. The examples of history suggest two attributes in particular which seem important—competence and consideration. The first needs little emphasis here; the second, however, may require some elaboration.

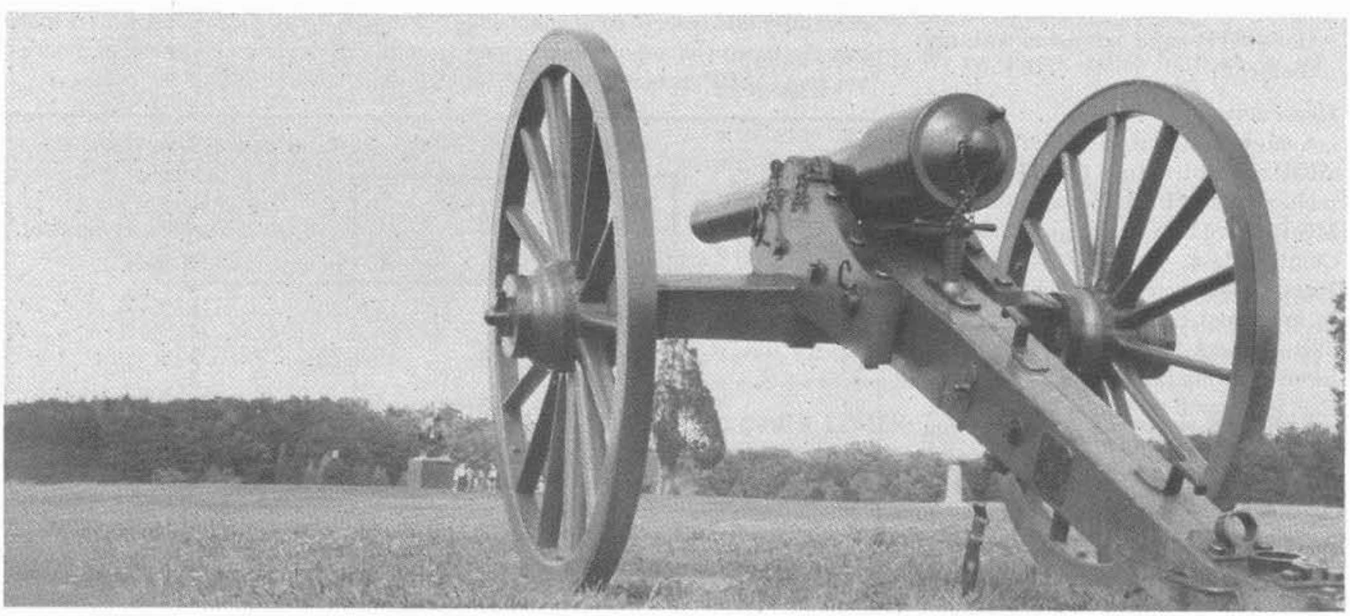
The brillance of Robert E. Lee's leadership is well documented. Perhaps his most distinguishing characteristic which served him so effectively on the battlefield was his consideration for others. To his officers, as Douglas Southall Freeman described him, "... he was sensitive to their hardships and unfailing in his consideration for them."

For the men in the ranks, Lee's continuing concern for their welfare was extraordinary. On many occasions he personally administered to the physical and psychological needs of his men. So effective was Lee that, as Freeman again describes it, one soldier remarked, "... the rest of us may have developed from monkeys; but I tell you none less than God could have made such a man as 'Marse Robert.'"

The essence of effective military leadership is the ability to impose your will. That ability is derived from an accurate understanding of your situation, your subordinates, and yourself. By combining tactical and technical competence with genuine consideration for others in building the confidence and cohesiveness characteristic of high-performing veterans, leaders can impose their will successfully despite the conditions of adversity posed by future battle.

MAJ Philip Benham is an assistant professor of management at Bucknell University and an Individual Mobilization Augmentee (USAR) instructor with the Command and Leadership Branch, Department of Combined Arms, USAES. His active duty experience included service in Vietnam and company command with the 5th Engineer Battalion (CBT). MAJ Benham has a bachelor's degree from the U.S. Military Academy and master's and doctoral degrees in business administration from the University of Colorado.

MAJ Charles Kershaw was chief of the Command and Leadership Branch, Department of Combined Arms, USAES. MAJ Kershaw is assigned to the 193rd Infantry Brigade in Panama.



Trainees perform before-operation services on a 621B scraper, one of the newest pieces of equipment in the Army's system. The training for soldiers in the 62B10 MOS has been extended from over five weeks to nine weeks (photo by Ray Crosby).

Engineer Construction Equipment Repairer

by CW3 Melad Smith Jr.

An MOS Under Change

A complete analysis of the 62B MOS identified the need for several changes for the construction equipment repairer.

- Restructuring the 62B MOS in skill levels 1 through 4.
- Selecting a different training mode and extending the AIT course.
- Discontinuing the 62B20 Primary Technical Course (PTC) taught at Fort Leonard Wood and converting it to nonresident instruction.
- Designing a new Basic Technical Course (BTC) for 62B30, beginning in FY 87.
- Analyzing the need for resident training for skill level 4 soldiers.
- Revising Soldier Training Publications (STPs) and extension training material.

Restructure

A Memorandum of Understanding (MOU) to restructure the 63 CMF to include the 62B MOS was signed by MG Richard S. Kem, Engineer School Commandant, and MG William E. Potts, Ordnance School Commandant, in February 1985. This MOU allows 62B soldiers to progress from skill levels 1 through 4. The 52C, 52D, and 52F MOSs will no longer feed into the 62B MOS at skill level 4, but will feed into the new 52X MOS (Figure1).

Restructuring the 62B MOS will go into effect in March 1986. This will increase unit readiness by ensuring the senior maintenance NCOs are technically proficient as construction equipment maintenance supervisors.

62B10

The training requirement for 62B10 soldiers was extended from over five weeks to nine weeks. The new course will use a "lock-step" instruction mode and will include shop operations, engines, scheduled services, power trains, hydraulics, maneuver of equipment, and welding. This course is scheduled to begin by October 1985.

62B20

This PTC was expanded from four to six weeks. The curriculum is highly technical and includes repair of diesel engines, power trains, mechanical systems, and special purpose engineer equipment. This course applies to both active duty and reserve component soldiers. An Army Correspondence Course Program (ACCP) is being prepared for skill level 2 soldiers to replace the resident course at the end of FY 86.

62B30

Analysis of the 62B MOS, supported by surveys, also indicated a critical need for a BTC for the first line supervisor. The Course Administrative Data (CAD) was approved by TRADOC for a six-week course to be implemented in October 1986 at Fort Leonard Wood, MO. A learning analysis is being prepared for the highly technical course.

The BTC will concentrate on maintenance management and operations and will provide the skill level 3 soldiers with the skills they need to become maintenance supervisors. The curriculum includes advanced troubleshooting of engineer equipment systems, equipment inspection procedures, and maintenance operations and management as it applies to engineer units.

The course will also develop an NCO's skills and knowledge for training his soldiers in engineer equipment repair. Finally, it will align 62B soldiers more with other career management progressions within the 63 CMF.

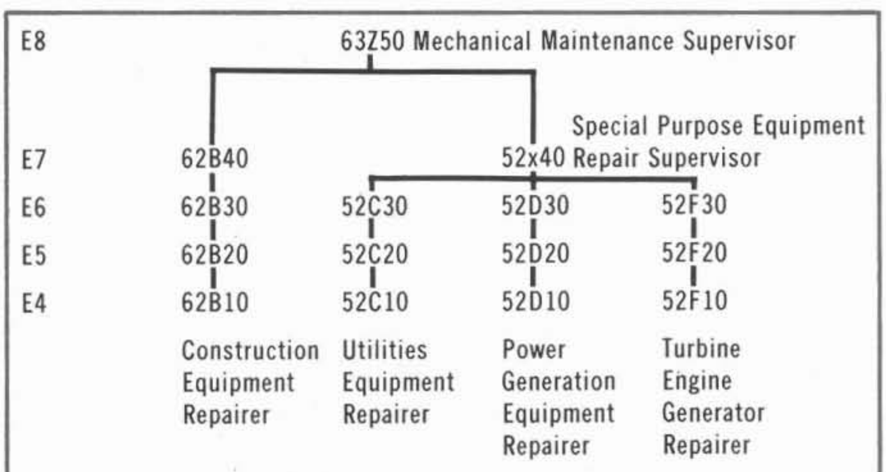
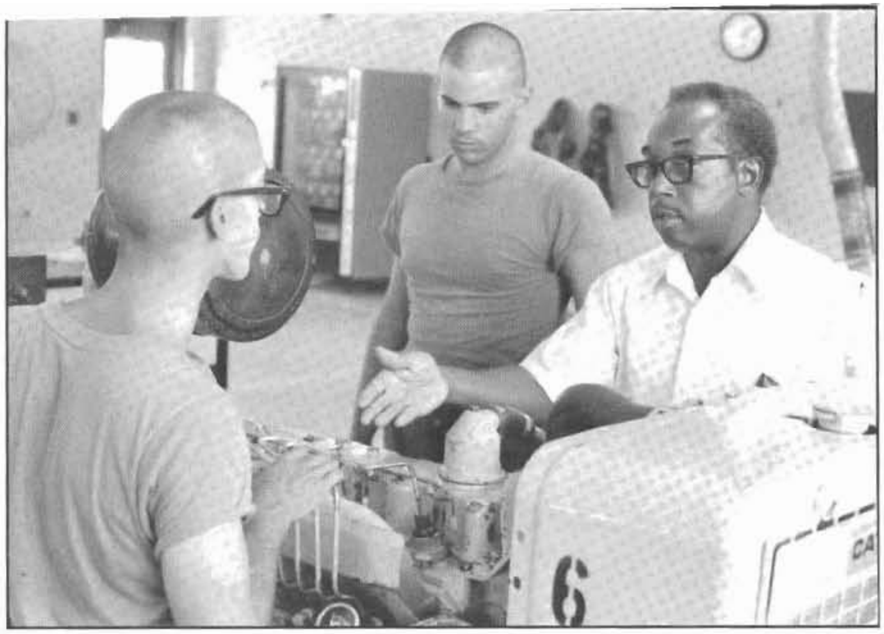


Figure 1. MOS restructure diagram.

Artie Wright, 62B10 instructor, explains adjustments on a CAT engine to two of his students at Fort Leonard Wood, MO (photo by Ray Crosby).



62B40

The Engineer School is analyzing the 62B40 tasks to determine the need for resident technical training at skill level 4. Once the analysis is complete, a board will convene to determine the extent of technical training needed. Meanwhile, skill level 4 soldiers may attend ANCOC at Aberdeen Proving Grounds in Maryland.

Soldier Training Publications

Several new Training Extension Course (TEC) lessons are being developed for 62B10 soldiers at the rate of one per quarter. These will include hydraulics, cooling systems, and electrical systems.

A job book was also developed for the 62B. A new 62B soldier's manual for skill level 1 and a soldier's manual/trainer's guide for skill levels 2 through 4 were published in draft form, and recommended changes were received from the field. The soldier's manuals are undergoing a final edit by the Publications Division at the Engineer School. All such publications, to include job books, are scheduled to be fielded in September 1985.

Implementing the new 62B AIT course, developing the nonresident course materials, restructuring the 62B MOS, and developing the STPs will help to streamline and improve training in the MOS.

Anyone interested in additional information on training and development for the 62B should write or call: Training Development Field Office, USAES, Building 465, Fort Leonard Wood, MO, 65473-5895 (AV 581-1174).

CW3 Melad Smith Jr. is chief of the 62B Training and Development Team at Fort Leonard Wood. He previously served as the 3rd forward detachment commander of the 15th Maintenance Company, 19th Maintenance Battalion, 3rd Support Command. CW3 Smith has a bachelor's degree in political science/history from Austin Peay State University and a master's degree in human resource development/public administration from Webster University.

Writer's Guidelines

Do you have any articles, photographs, or artwork to submit to ENGINEER? Here are some tips.

TOPIC: We focus on combat engineering; however, any articles of interest to engineers are welcome. Write your articles in active voice and be as concise as possible. Please give your article a title, too.

LENGTH: Let your subject dictate length; generally, articles should be two to six pages, double spaced.

PHOTOGRAPHS AND ARTWORK: Besides photographs and artwork which supplement articles, photographers and artists should submit any work that may be of interest to engineers. Your photos should be 5x7 black and white, glossy. (We can also use good quality color slides.) Please include a caption and photo credit. Drawings should be legible, but do not have to be camera ready.

DEPARTMENTS: We are always looking for items for our departments:

- Letters to the Editor.
- Engineer Ingenuity.
- Engineer People.
- News and Notes.
- Personal Viewpoint.

ENGINEER PROBLEM: Please submit your challenging, but not too hard Engineer Problems. Problems should be referenced to a manual, but must be original. They should be checked for accuracy and should strengthen combat engineer skills as well.

COVER LETTER: When submitting material to ENGINEER, enclose a cover letter with your name, address, and phone number. Also, please include biographical information such as military and civilian education and past and present assignments.

If you have any questions, please call us.

(703) 664-3082, AV 354.

External Air Transport Procedures For Bridge Erection Boat

Pending the publication of FM 55-450-1, *Army Helicopter External Load Operations*, the following procedures should be followed for rigging and externally transporting the bridge erection boat, shallow draft.

First, safety tie the beach legs, securing the pins on the diving platform. Then secure the hydrojet compartment hatches with the nylon cord and the engine compartment hatches with a tiedown strap, load binder, and D-ring (Figure 1).

Next, safety tie the mast retaining pin, secure the map locker, secure all lights on the mast with tape, tape all windows and lights on the cab, ensure the cab is secured to the floor of the forward compartment (Figure 2), and attach the small clevis assemblies to the lifting eyes. These preparation steps should take two soldiers 20 minutes.

You are now ready for rigging.

First, place the apex fitting centered on the engine compartment hatches. Route the outer sling legs to the front lifting eyes (bow) and the inner sling legs to the rear lifting eyes (stern).

Next, loop the chain end of each sling leg through the clevis at its corresponding lifting eye and insert link #46 of each chain in its own grab hook. Now loop each chain end of the other sling legs through the clevis assemblies at its corresponding lifting eye and insert chain link #3 in its own grab hook.

Secure the free-running end of the chain with tape and pull up the apex fitting. Then trace all sling legs to the cab with one turn and tape. Take up all remaining slack in the sling legs and place the apex on the engine compartment hatches. Rigging this load should take two soldiers approximately 10 minutes.

You are finally ready for hook-up. The hook-up man should stand on the engine compartment hatch near the center.

Note that these instructions are applicable for the CH-47C at speeds not exceeding 80 knots. When hooked to the aircraft in flight, the load's long axis should be approximately 75° to the direction of flight. The 25,000-pound capacity sling set may also be used to rig this load by placing link #3 in the grab hook for sling legs 1 and 2, and link #35 in the grab hook for sling legs 3 and 4.

Materials needed for this operation are as follows:

- 2-inch wide adhesive tape.
- Type II nylon cord.
- 15-foot tiedown strap with load binder and D-ring.
- ¼-inch cotton webbing.
- Small clevis assembly. (Shackle provided with boat may be used in lieu of clevis assembly.)

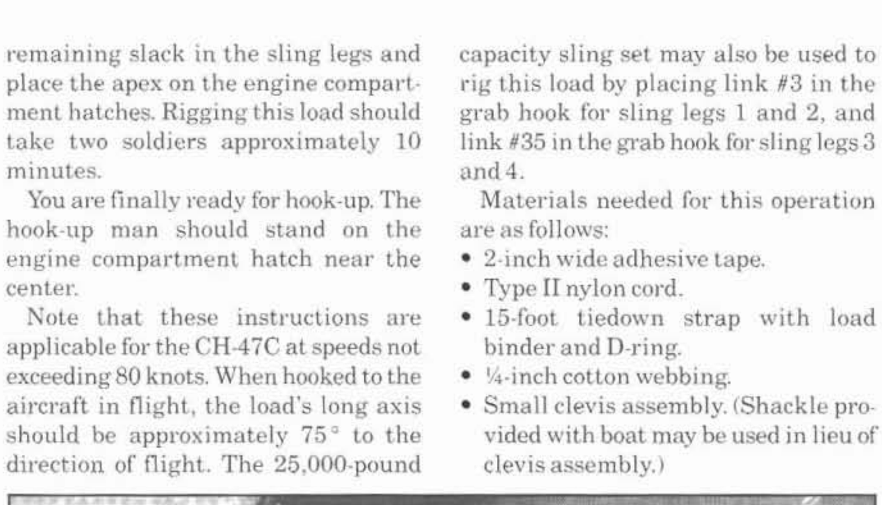
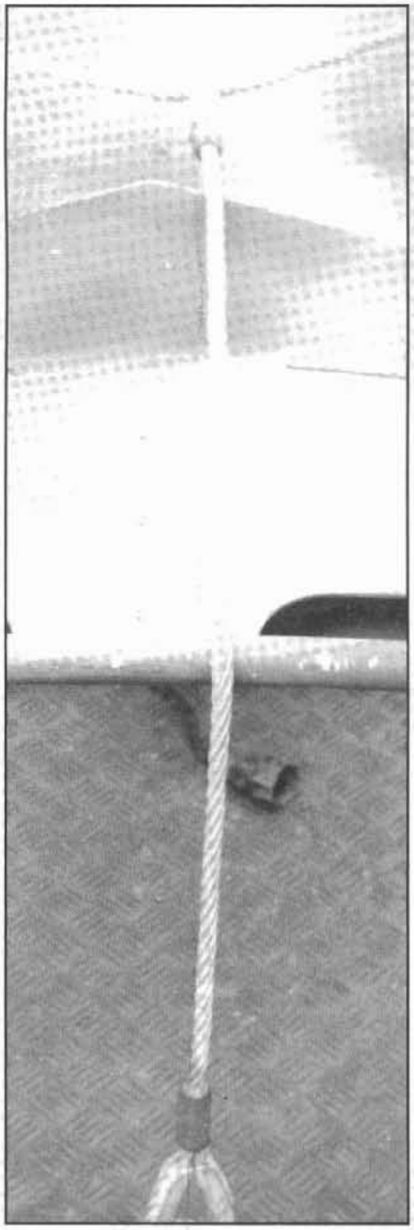


Figure 1. Secured hydrojet and engine compartment hatches.

Figure 2. (Top) Cab secured to floor of forward compartment. (Bottom) Side view of bridge erection boat ready for air transport.



Hotline Q & A

Q. I have a letter from Fort Leonard Wood, MO, which authorized the use of calculators during last year's 12B and 12B40 SQTs. I would like information on the use of calculators during the SQT.

A. The letter of approval referred to the 1983 SQT, not the 1984 or 1985 SQTs. USAES does not allow calculators to be used unless they are necessary to perform the task, but the school is negotiating with USATSC to allow their use on future engineer SQTs.

Q. In FC 5-102, *Mine Warfare,* dated January 1985, brigade commanders have the authority for hasty protective minefield emplacement. ARTEP 5-115, *Engineer Combat Battalion, Heavy,* also dated January 1985, says that battalion commanders have the authority for hasty protective minefield emplacement. Which is correct?

A. FC 5-102 is the correct reference. The brigade commander is the authority for hasty protective minefield emplacement. But, the authority may be delegated down to battalion or company level on a mission basis.

Q. Is the school evaluating the issue of reinstating chaplains in the heavy division engineer battalions?

A. Due to personnel constraints, USAES cannot reinstate chaplains in the heavy division engineer battalions. However, the issue is being evaluated.

Q. What is the minimum area required on the far shore to conduct bridging operations for rafting and mobile assault bridges?

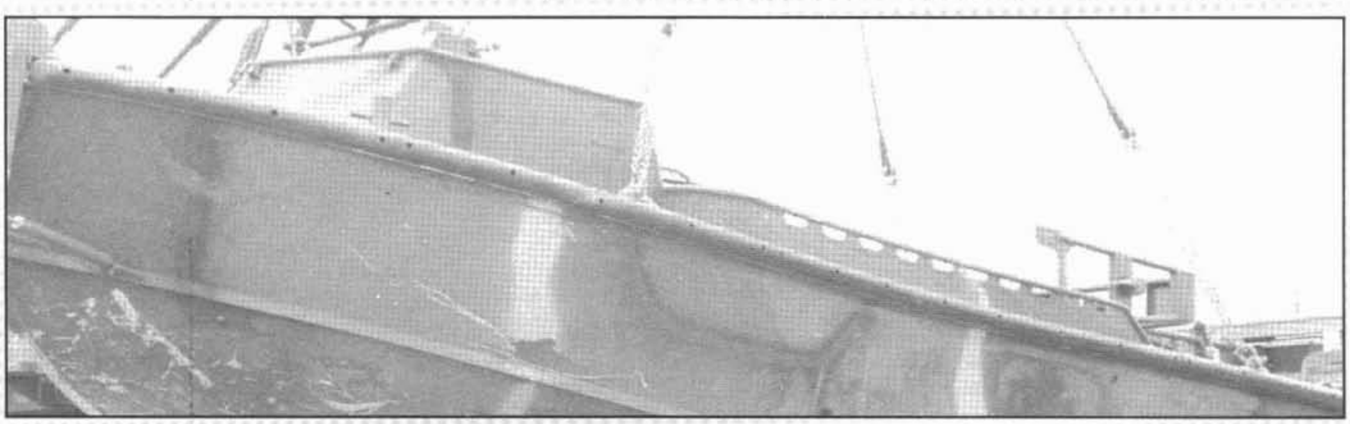
A. There is no minimum area requirement on the far shore for rafting or bridging. Far shore area requirements are normally governed by the size of the crossing force, the nature of the terrain, and the tactical objectives for the assault force. A bridgehead line and release points will be established accordingly.

Q. When is the new ARTEP 5-500, *Engineer Cellular Teams,* scheduled for publication?

A. The new ARTEP 5-500 is scheduled for February 1987.

Q. How can we identify good crossing sites for training analysis overlays?

A. Good characteristics of river crossing sites include road networks into the near shore area and away from the far shore area, good bank conditions with a slope of less than 10 percent, and minimal river obstacles such as sandbars and submerged, dead trees. In addition, the water current should be under 10 feet per second; and, if possible, there should be cover and concealment for engineer regulating points and engineer equipment parks.



TOC Operations Revisited

by LTC John W. Braden Jr.

In the Winter 1980-81 ENGINEER magazine article, *Molding an Effective Tactical Operation Center,* I presented some considerations to improve command and control of engineer units in the field. The feedback from that article has been very encouraging. Now, I would like to supplement that article with a checklist that may further assist your organization in this important area.

Certainly there will be variations among engineer units as to how each organizes its Command Post (CP) or Tactical Operations Center (TOC). For purposes of this article, however, I will use a style that assumes the following is part of a Standing Operating Procedure (SOP) and that the checklist is directive in nature.

Organization

YES NO

References. As a minimum, are the following references on hand? FMs 3-10, 3-10-1, 3-12, 3-22, 3-50, 3-87, 5-15, 5-20, 5-25, 5-30, 5-31, 5-34, 5-35, 5-36, 5-100, 5-101, 5-102, 5-103, 5-104, 20-32, 21-41, 30-5, 90-2, 90-3, 90-4, 90-5, 90-6, 90-10, 90-10-1, 90-13, 90-14, 100-2-1, 100-2-2, 100-2-3, 100-5, 100-5-1, 101-10-1, 101-10-2, and TMs 5-210, 5-277, 5-312, 5-330, 5-725. (Circle any that are missing. Note that the list is **not** all inclusive.) ___ ___

Supplies and Equipment. Do you have the following items? Flashlights, spare batteries, range cards, spare microphones, fuel and water cans, trash bags, light bulbs, overlay paper, acetate, grease pencils, alcohol-base pens, tape of various types, map tacks, unit symbols, manifold paper, rags, stapler and staples, paper clips, envelopes, correction fluid, string, stencils and duplicating fluid, carbon paper, pens and markers, battery or gasoline lanterns with spare lantern parts, document protectors, two-prong fasteners, hole punches, candles, matches, tire chains, chemical lights, tow cable, minefield marking signs, camouflage sticks, first aid kit, rope. (Circle any that are missing. Note that the list is **not** all inclusive.) ___ ___

Blank Forms. Do you have the following forms? DD Form 173; DA Forms 1155, 1156, 1171-R, 1248, 1249, 1250, 1251, 1252, 1355, 1355-1, 1594, 2496; blank target folders; Joint Tactical Air Reconnaissance and Surveillance Request Forms. (Circle any that are missing. Note that the list is **not** all inclusive.) ___ ___

Maps.

1. Is the situation map (SITMAP) on hand and does it provide sufficient coverage of the area of operations (perhaps 1:50,000 coverage of the battalion's area and 1:250,000 coverage of the Corps' area)? ___ ___

2. Are there standard overlays for use by each staff section? ___ ___

3. If special maps are available of the area (road and bridge maps, trafficability maps, special products by division and corps topographic units and detachments), are these on hand? ___ ___

YES NO

Journal. Is a staff journal set up to control incoming and outgoing messages and to record operational events? (One way to set up a journal is to staple manila folders together into a three-piece logbook with two-prong fasteners at the top of each section. Mark the left section "INCOMING" and the right section "OUTGOING." Fasten DA Form 1594 into the center section.) ___ ___

Standing Operating Procedures. Is there sufficient quantity to provide copies of the SOP to units that may be attached or placed under your operational control (OPCON)? ___ ___

Mission Status Boards. Is there some means to keep track of missions: location, type, unit assigned, unit supported, progress? (Note that these boards should look much like your mission status reports required by SOP.) ___ ___

Reports Book. Is there a binder prepared which contains all required report formats so that when, for example, an NBC-1 report is submitted, the journal clerk can turn to the NBC-1 section and copy the incoming message directly onto a preprinted form rather onto scrap paper, the wall, or his hand? ___ ___

Duties and Responsibilities. Are these clearly defined by SOP and are shifts specified? ___ ___

Amenities. Do you have the following items? Soap, paper plates, plastic ware, paper towels, cups, toilet paper, sugar and creamer packets, tools, heat tablets, insect repellent, igloo containers. ___ ___

Operations

Staff Journal (DA Form 1594).

1. Is the journal being posted with consecutively numbered events (to preclude confusion by having two events with the same number)? ___ ___

2. Are all incoming and outgoing messages being logged into the journal—with the journal number on the message—and (is "hard copy") fastened into the folder rather than being loose in the TOC/CP? ___ ___

3. Does the "ACTION TAKEN" column of the DA Form 1594 actually reflect some action taken such as "Posted on the SITMAP," "Notified 1st Platoon," "Sent forward to Brigade," "See Message # ___" rather than "Logged" or something else that doesn't indicate any action? ___ ___

SITMAP.

1. Does the SITMAP have the friendly situation, enemy situation, and logistics information posted or available via overlays? ___ ___

YES NO

2. Does the SITMAP have the missions posted on it? (One way to do this is to use the system shown below.)

. T1234 (RC) 1/C
a b c

. = mission location
/ = mission initiated
X = mission completed
a = mission number
b = mission (road crater)
c = unit assigned (1st Platoon, Co. C)

Missions.

1. Once missions are received, are they being checked and analyzed at the TOC/CP as opposed to being "stovepiped" straight down to subordinate units?

2. Is the TOC/CP working to stay on top of missions by requiring updates and taking action if nothing is heard or is it content to find out how a mission went only after the troops return?

3. Are TOC/CP personnel knowledgeable as to personnel and equipment assets committed and available? VERY IMPORTANT

4. Are required reports to higher headquarters being made as specified by SOP and/or by the OPORD?

5. If multiple requirements are received and/or if requirements appear to exceed capabilities, is there an effort to ascertain priorities?

6. If it appears that a mission cannot be completed within the specified time (and this should usually be determined during mission analysis), are efforts made to influence the action (lay on more troops and/or equipment or find ways to increase efficiency) or does the TOC/CP wait until late and then report the bad news and request an extension?

7. Does the TOC/CP use warning orders or other means to enable subordinate or supporting units to begin troop-leading procedures and thereby maximize their time for mission execution?

Nuclear, Biological and Chemical (NBC).

1. Are chemical alarms set upwind of the TOC/CP?

2. Is there a metal-on-metal alarm set up near the TOC/CP to enable TOC/CP personnel to warn other personnel in the area?

3. Do TOC/CP personnel have their personal chmical-biological defense equipment and their spare protective garments and mask filters?

YES NO

4. Are there spare batteries for chemical alarms and radiometers and are there spare refill kits for chemical detectors?

5. Is there a trained chemical detection team among TOC/CP personnel? (Recommend this team be formed from among the SS clerks and drivers.)

6. Does the TOC/CP actively seek the latest effective downwind message and expeditiously pass this information on to subordinate and supporting units?

7. Does the TOC/CP analyze enemy NBC capabilities and possible intentions and recommend a mission-oriented protective posture to the commander?

8. Are there personnel for each shift who are trained to prepare NBC-3 reports, plot downwind chemical hazards, and make radiation fallout predictions?

9. Are operation exposure guide (OEG) analyses being performed? Is the radiation status (RS) of subordinate units being monitored, and do TOC/CP personnel know the prescribed point at which further exposure is prohibited without higher authority?

10. Are at least 20 each "GAS," "BIO," and "ATOM" NBC working signs on hand?

Command, Control, and Communications.

1. Command and Control.

A. Has an alternate TOC/CP been designated and does this alternate have the redundant maps, plans, references, and other equipment to perform the TOC/CP mission?

B. Have liaison officers (LNO) been identified and is there a package of material (maps, radio, telephone, references, date sheets, administrative items) for each LNO to carry with him?
Note: The LNO may also require his own transportation.

C. Is the TOC/CP configured for a "JUMP" capability, to include designated personnel and equipment?

D. Has a rally point or reconstitution point been designated in the event the TOC/CP is overrun or otherwise disbanded or separated?

2. Communications.

A. Does the TOC/CP have a complete copy of the CEOI to include operations codes, authentication tables, command and staff packets, and supplemental operating instructions?

YES NO

B. Do all stations have proper and compatible communications security (CONSEC) keying material for all nets?

C. Does the communications-electronics staff office have additional copies to provide LNOs and attached or OPCOM units?

D. Are radio communications minimized via use of messengers and couriers, wire, arm and hand signals when moving or maneuvering, and authorized brevity codes? (Note that use of International Morse Code is also of value in this area, although not taught to most operators.)

E. Are all TOC/CP personnel knowledgeable of procedures to deal with meaconing, jamming, intrusion, and interference?

F. Is there a plan to respond to situations of total or temporary radio outages?

G. Are TOC/CP personnel knowledgeable of procedures to protect radio equipment from electromagnetic radiation when given warning of friendly use of nuclear weapons?

H. Do TOC/CP personnel use proper procedure when making a scheduled frequency and call-sign change? (Note that most supplemental operating instructions *do not* require existing stations to reenter the net.)

I. Are the TOC/CP vehicles prewired to facilitate rapid establishment/reestablishment of wire communications?

Equipment. Are TOC/CP personnel trained and licensed to operate and maintain the vehicles, generators, radios, light sets, lanterns, and other TOC/CP equipment?

Operations Security (OPSEC).

1. Physical Security

A. Is access to the TOC/CP controlled?

B. Are all personnel rehearsed on actions to take in the event of a ground or air attack on the TOC/CP?

2. Information Security.

A. Are the sign-countersign, access rosters, and badges being used to identify personnel, verify clearances, and ascertain need-to-know?

B. Are classified papers and maps inside the TOC/CP covered when not in use and are there clearly labeled containers for classified waste?

C. Upon displacement of the TOC/CP, is there an effort to ensure that trash or other waste is not left which would reveal information about the unit?

YES NO

3. Signal Security.

A. Are antennas erected away from the TOC/CP and are remotes used to maintain distance from emitters?

B. Are directional antennas being used?

C. Are radio operators using proper prowords and keeping transmissions brief?

D. When operating in an unsecure mode:

(1) Is authentication being required?

(2) Are authorized operations codes being used vice clear text or pseudocodes?

4. Deception and Countersurveillance.

A. Are camouflage and concealment procedures being followed?

(1) Are nets at least 18 inches above vehicles, tents, and equipment?

(2) Are glass and mirrors covered?

(3) When using the Woodland Camouflage Screen System, is the proper side being used to conform to the season/general background?

(4) When using fresh vegetation, is the vegetation being changed regularly?

(5) Is there an effort to preclude vehicle tracks or communications wire from identifying the location of the TOC/CP?

B. Are noise and light discipline being maintained?

C. Are efforts being made to reduce the infrared signature of the TOC/CP?

D. Are helipads and vehicle parks located at a distance from the TOC/CP?

LTC John W. Braden Jr. is the deputy commander of the 7th Engineer Brigade in Europe. He has served in engineer units in the United States, Germany, and Vietnam, and commanded the 20th Engineer Battalion, Fort Campbell, KY.

LTC Braden graduated from the Command and General Staff College and the U.S. Army War College and was an instructor at the U.S. Army Engineer School. He has a bachelor's and a master's degree in civil engineering from Purdue University and is a registered professional engineer in Virginia. Besides Specialty 21 (Engineer), LTC Braden holds Specialty 54 (Operations, Plans and Training).

Engineer Command Update

NATIONAL GUARD

KANSAS

169th Engineer Co.
Emporia, KS
MAJ Eugene Kramer
1SG Dale Putnam

242nd Engineer Co.
Wichita, KS
CPT Dave Wheeler
1SG Johnny Newman

NORTH DAKOTA

164th Engineer Group
Bismarck, ND
COL Virgil A. Rude
CSM Donald T. Marx

141st Engineer Bn. (CBT)
Valley City, ND
LTC Robert E. Schulte
1SG Lloyd A. Nelson

164th Engineer Bn. (CBT)
Minot, ND
CPT John L. Hocking
CSM David C. Cichos

231st Engineer Bn.
Grand Forks, ND
LTC Gereld F. Gurnholz
CSM Dewey J. Garceau

816th Engineer Co.
Fargo, ND
CPT Thomas L. Wilson
1SG Harlan C. Muehler

957th Engineer Co.
Grafton, ND
CPT Allen L. Nygard
1SG Thomas R. Spicer

UTAH

115th Engineer Group (CBT)
Murray, UT
COL Dee R. Russon
CSM Donald Nielsen

1457th Engineer Bn. (CBT)(CORPS)
American Fork, UT
LTC Joseph Ford
CSM Gayle Whatcott

116th Engineer Co. (CSE)
Springville, UT
CPT Clark Christensen
1SG Marvin Baker

117th Engineer Co. (AFB)
Lehi, UT
1LT Craig Morgan
1SG Max Smith

118th Engineer Co. (AFB)
Tooele, UT
CPT Michael Johnsen
1SG Donald Wickham

ARMY RESERVE

FIRST ARMY

411th Engineer Bde.
Brooklyn, NY
BG Roger L. Kresge
CSM Ronald P. Busz

308th Engineer Group
Pittsburgh, PA
COL Samuel P. Contacos
CSM Donald D. Lewis

315th Engineer Group
New Cumberland, PA
COL Donald K. Emig
CSM Anthony W. Lippert

329th Engineer Group
Brockton, MA
COL Bruce B. Ellsworth
CSM Richard R. Bourbeau

330th Engineer Bn. (CBT)(CORPS)
Worchester, PA
LTC James J. Carroll Jr.
CSM Lynwood J. Vogel

365th Engineer Bn. (CBT)(HVY)
Schuylkill Haven, PA
LTC James F. Lent
CSM Kermit B. Tolbard

368th Engineer Bn. (CBT)(HVY)
Manchester, NH
LTC Robert H. Ropp
CSM Arthur E. Starkweather

429th Engineer Bn. (CBT)(HVY)
Uniontown, PA
MAJ Jeffrey L. Barton
CSM Rudolph V. Bartuch

458th Engineer Bn. (CBT)(CORPS)
Johnstown, PA
LTC Rodney D. Ruddock
CSM Richard P. Philage

463rd Engineer Bn. (CBT)(HVY)
Wheeling, WV
LTC Joseph Miker Jr.
CSM Donald L. Showalter

464th Engineer Bn. (CBT)(CORPS)
Schenectady, NY
LTC John M. Paris III
CSM Ogden Tuttle

469th Engineer Bn. (CBT)(HVY)
Jersey City, NJ
LTC William Mercurio
CSM vacant

479th Engineer Bn. (CBT)(CORPS)
Watertown, NY
LTC David Bent
CSM Laurence T. Graves

483rd Engineer Bn. (CBT)(CORPS)
New Bedford, MA
LTC Thomas R. Meler
CSM John E. Macedo

854th Engineer Bn. (CBT)(HVY)
Kingston, NY
LTC Anthony R. Kropp
CSM Edward C. Dougherty

SECOND ARMY

412th ENCOM
Vicksburg, MS
MG Robert E. Louque Jr.
CSM Charles A. Rule

348th Engineer Group
Birmingham, AL
COL Richard B. Burleson
CSM Lindsey R. Hadley

926th Engineer Group
Montgomery, AL
COL Julian F. Botts
CSM James H. Lamon

391st Engineer Bn. (CBT)(CORPS)
Greenville, SC
LTC Eskel N. Miller III
CSM Ronald H. Owensby

448th Engineer Bn. (CBT)(HVY)
Ft. Buchanan, PR
LTC Luis M. Garcia
CSM Julio Fuentes

467th Engineer Bn. (CBT)(CORPS)
Memphis, TN
LTC Charles A. Ingram
CSM John M. Nichols

478th Engineer Bn. (CBT)(CORPS)
Ft. Thomas, KY
LTC Dennis L. Grant
CSM William L. Eggemeier

841st Engineer Bn. (CBT)(CORPS)
Miami, FL
LTC Joseph L. Budreau III
CSM Alvin G. Baughns

844th Engineer Bn. (CBT)(HVY)
Knoxville, TN
MAJ Morris G. Herndon
CSM Harold E. Berry

926th Engineer Bn. (CBT)(HVY)
Birmingham, AL
LTC H. Inge Waddle Jr.
CSM Roland Barnwell

FOURTH ARMY

416th ENCOM
Chicago, IL
MG Max Baratz
CSM Dave Moore

364th Engineer Group
Columbus, OH
COL James C. Myers
CSM Lauren H. Calvin

372nd Engineer Group
Des Moines, IA
COL May L. Shardein
CSM William S. Gates

385th Engineer Group
St. Paul, MN
COL William Thom
CSM Ronald Levendoski

367th Engineer Bn.
St. Paul, MN
LTC Alan L. Beeler
CSM Mike Danberry

389th Engineer Bn.
Dubuque, IA
LTC Bruce B. Wands
CSM Lloyd L. Smith

397th Engineer Bn.
Eau Claire, WI
MAJ Michael Metcalf
CSM Richard Madsen

863rd Engineer Bn. (CBT)(CORPS)
Aurora, IL
LTC Jack H. Kotter
CSM Donald C. Phillips

961st Engineer Bn. (CBT)(HVY)
Milwaukee, WI
MAJ David D. Parkinson
CSM Conrad H. Dazer

972nd Engineer Bn.
Ft. Benjamin Harrison, IN
LTC James L. Bauerle
CSM Willard D. Gibbons

983rd Engineer Bn.
Toledo, OH
MAJ John C. Blanchard
CSM Kenneth R. Garrett

FIFTH ARMY

420th Engineer Bde.
Bryan, TX
BG Alvin W. Jones
CSM Jess Phillips

353rd Engineer Group
Norman, OK
LTC Clifford Cantrell
CSM Gayland Griffin

493rd Engineer Group
Dallas, TX
COL Jerry L. Selby
CSM Wayman Hemphill

245th Engineer Bn.
Baton Rouge, LA
LTC Ronald Gentry
CSM Robert L. Bundick III

430th Engineer Bn.
Tomball, TX
LTC Michael Griffith
CSM Robert E. Smith

489th Engineer Bn.
Little Rock, AR
MAJ Woodrow Cummins
CSM Thomas Terryman

871st Engineer Bn.
Austin, TX
LTC John M. Gosdin
CSM J. R. Langerhans

980th Engineer Bn.
Wichita Falls, TX
LTC William A. Long Jr.
CSM Charles W. Peterson

SIXTH ARMY

244th Engineer Bn. (CBT)(HVY)
Aurora, CO
MAJ Donald V. Labrot
CSM Paul E. Nesselroad

321st Engineer Bn. (CBT)(CORPS)
Boise, ID
LTC Glen L. O'Dell
CSM Gregory P. Gleason

820th Engineer Bn. (CBT)(CORPS)
San Pablo, CA
LTC William W. Applegate Jr.
CSM Lynn G. Datwyler

ACTIVE ARMY

588th Engineer Bn.
Ft. Polk, LA
LTC Wayne Murphy
CSM Charles D. Crim

3rd Engineer Bn., USAESB
Ft. Belvoir, VA
LTC Al Jansen
CSM Terry A. Cougill

864th Engineer Bn.
Ft. Lewis, WA
LTC Steve Young
CSM Charles Nobles

Individual Army headquarters provided the names of commanders and command sergeants major for Army Reserve units. The state headquarters supplied information on National Guard units. Readers are encouraged to send any additional information to ENGINEER.

The Command Challenge

Preparing Officers for CVI Selection

by CPT Micheal A. Lansing

The newly implemented, centralized Conditional Voluntary Indefinite (CVI) selection process raises new challenges for commanders in their Other than Regular Army (OTRA) officers' professional development. Unlike RA officers who remain in a career status as long as they are competitive for promotion, OTRA officers must compete for voluntary indefinite status.

The first step in obtaining career status is getting selected by the CVI centralized selection board. This board, consisting of a representative from each of the combat, combat support, and combat service support branches, convenes to select only the best OTRA officers for continuing active duty. Unlike lieutenant and captain promotion boards, which select officers on a fully qualified basis, the CVI selection board uses criteria that select only the best qualified officers. This distinct difference in selection criteria makes it critical to document OTRA officers' duty performance.

It is paramount that all commanders fully understand the CVI process, the criteria for selection, and the impact of the initial and subsequent OERs for their OTRA officers. Failure to comprehend the impact of the CVI process may deny a deserving young officer the opportunity to further develop on active duty.

To apply for CVI consideration, officers must meet certain minimum requirements and be willing to make some tough choices to obtain career status. CVI applications are forwarded through command channels once the officer meets these requirements:

- Have served at least two years active federal commissioned service (AFCS) on the current tour.

* Submit the CVI application before the 27th month of AFCS. This requirement applies to both a three-year and four-year OBV (obligated volunteer) officer.

More important, the officer must state a willingness to accept a branch transfer as part of the awarding of CVI status. During professional development counseling, commanders should explain to their OTRA officers that rebranching junior grade officers is necessary to meet Army officer requirements at the captain and field grade levels. Of course, those officers wanting to volunteer for branch transfer to underaligned branches should be encouraged to state their desires on their CVI applications.

A separate DA board is convened to determine required branch transfers to meet Army needs. This board chooses a proportional number of top, middle, and lower-third officers from the CVI selection results to enter underaligned branches. Therefore, it is imperative that commanders counsel their Reserve officers so even the top performers may be chosen for mandatory rebranching. Subsequently, it is vital that all officers give careful consideration before indicating their preferences for branch transfer. The choice may have long-term consequences.

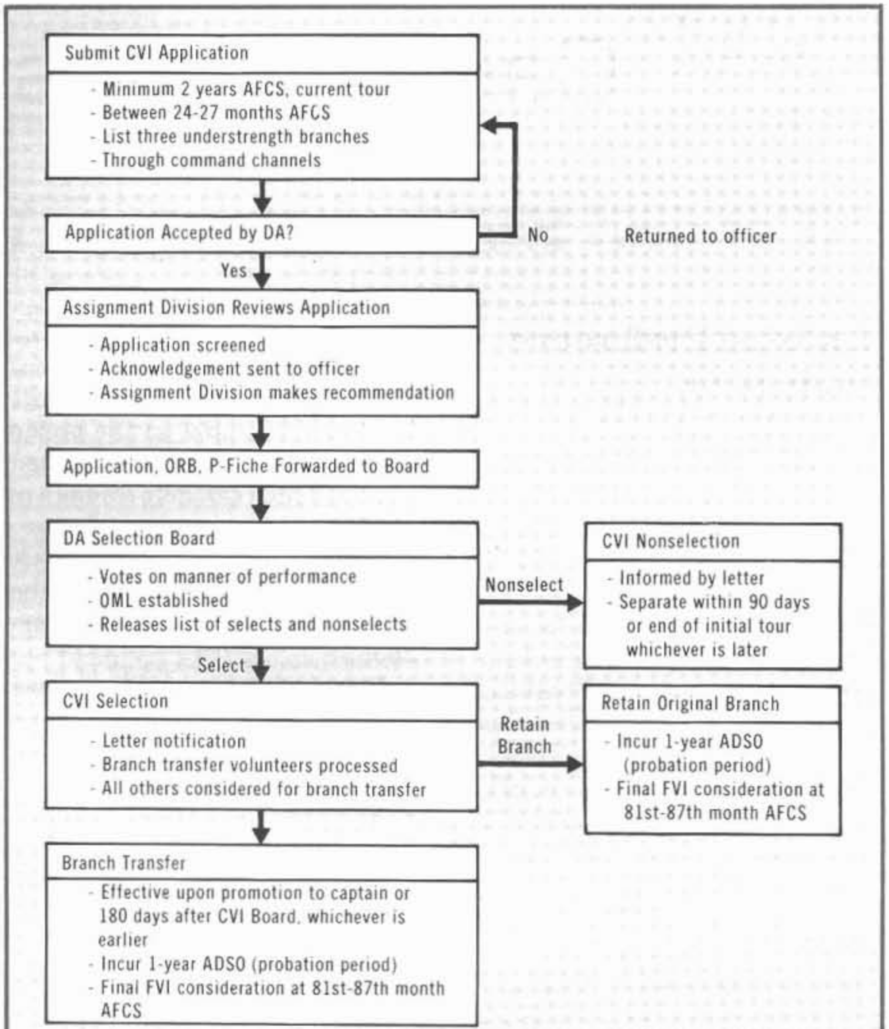


Figure 1. CVI selection process.

The recently released CVI results clearly demonstrate the board's highly competitive nature. Only 78 percent of the officers were selected for retention, and in some branches the selection rate was only 59 percent. Those officers not selected for retention will have to separate within 90 days of written notification or at the end of their initial obligated tour, whichever is later.

Officers must understand there are no regulatory provisions for appeals or reconsideration, unless there is a material positive change to their Official Military Personnel File (OMPF). In addition, active duty extensions will not be granted pending results of a request for reconsideration or awaiting the outcome of an OER appeal.

Once an OTRA officer has been selected for CVI status, commanders should know that the first year is a probationary period. In addition to incurring a one-year active duty service obligation, the OTRA officer is on probation. To the commander, this means that any misconduct, failure at an Army-sponsored school, or downturn in duty performance is reason for revocation of CVI status. If CVI status is revoked during the probationary period, the officer will separate from active duty within 90 days.

The Army demands high standards of performance from all its officers, whether RA and OTRA. The CVI selection process is one tool the commander has to ensure that only the best qualified OTRA officers are permitted to serve on active duty in a career status. Acts of misconduct, integrity issues, and failure to meet APRT and height and weight standards are obvious discriminators.

Commanders, however, must ensure that officers who are slow to develop, but show potential, have their duty performance documented to clearly indicate the officer's potential. In light of the CVI board's competitive nature, OERs designed to "get an officer's attention" will likely deny him continued active duty.

The CVI process is the most competitive process a junior OTRA officer faces. A commander with a complete understanding of the process and its impact toward achieving career status will have met the command challenge of mentor and coach. To do otherwise is a disservice to our quality OTRA officers.

CPT Micheal A. Lansing is the personnel management officer in the Combat Support Arms Division, MILPERCEN. He has served as a recruiting company commander; a military police company commander; the battalion adjutant of the 716th Military Police Battalion at Fort Riley, KS; and a platoon leader with the 3rd Armored Division. CPT Lansing graduated from the Military Police Advanced Course and has a bachelor's degree in history from Wheaton College and a master's degree in systems management from the University of Southern California.

Career Notes

NCO and Enlisted Soldiers Branch

Enlisted Preference Statement:

The *Enlisted Preference Statement* (DA Form 2635) has often been called the "dream sheet." In the real world, however, career planning by soldiers and their families can often result in assignments to at least one of those locations indicated on the preference statement.

The preference statement, dated August 1984, also contains vital information which can help soldiers in choosing assignments. When preparing their preference statements, soldiers should seek counsel from the PAC NCO, PSNCO, MILPO NCO, commander, or command sergeant major. Soldiers should also ask themselves the following questions before speaking to any of these persons and before completing the DA Form 2635.

- Is my grade and MOS authorized at the locations I choose?
- When should I submit the preference statement?
- What type of assignment should I ask for to gain experience in my MOS?
- Are dependent schools available?
- Is there a military hospital nearby?
- Are there civil service employment opportunities for my spouse?
- What programs and locations are available for exceptional family members?

AR 614-200, *Selection of Enlisted Soldiers for Training and Assignment,* and DA PAM 600-8, *Military Personnel Management and Administrative Procedures,* contain detailed procedures for completing the preference statement; soldiers are advised to thoroughly acquaint themselves with these publications.

The preference statement plays an important role in the personnel assignment system. When correctly submitted, it improves soldiers' opportunities for assignment to desired locations.

Engineer Ranger Training:

The Engineer Career Management Branch at MILPERCEN is seeking combat engineers (12B) to volunteer for ranger training. This anticipated shortage of ranger-qualified engineers is a result of the new light infantry divisions.

Soldiers who wish to volunteer for ranger training should apply through command personnel channels to the Engineer Branch, MILPERCEN. The basic qualifications and application procedures are outlined in Chapter 6, AR 614-200, and in DA PAM 600-8. The only exception to these procedures is that those selected engineers will not be reassigned to ranger battalions. However, a special qualification identifier (SQI) will be awarded: SQI G (Ranger) or SQI V (Ranger-Airborne).

Any questions should be directed to SGM Welsh at the Engineer Branch, MILPERCEN. His telephone number is (202) 325-8326, AV 221.

Initial EERs Eliminated:

Soldiers will no longer be rated three months after they are promoted to E5, MILPERCEN officials announced. The requirement for initial EERs was eliminated on May 1.

MILPOs are accepting initial reports with a "thru" date of April 1985 or earlier, but any reports with a "thru" date later than this are being returned as unauthorized.

All other provisions of AR 623-205, *Enlisted Evaluation Reporting System*, are still in effect.

MILPERCEN officials also said that some units may still not be aware that the Army-wide EER weighted average was eliminated on January 1, 1984. The last EER weighted average was published in December 1983, and some units may still be using it or calculating a local EER average.

Officials said the EER weighted average was misleading because it was based on EER scores collected over a five-year period. It also contributed to inflated EER scores, which caused DA selection boards to emphasize the narrative sections in the selection process.

MILPERCEN has prepared an instructional package to teach soldiers and raters the proper preparation of EERs. A copy may be obtained by writing: Commander, MILPERCEN, ATTN: DAPC-MSE, 200 Stovall St., Alexandria, VA 22332-0400. For more information on EERs, call MSG Hendrix at (202) 325-9610, AV 221.

Revised Promotion Worksheet:

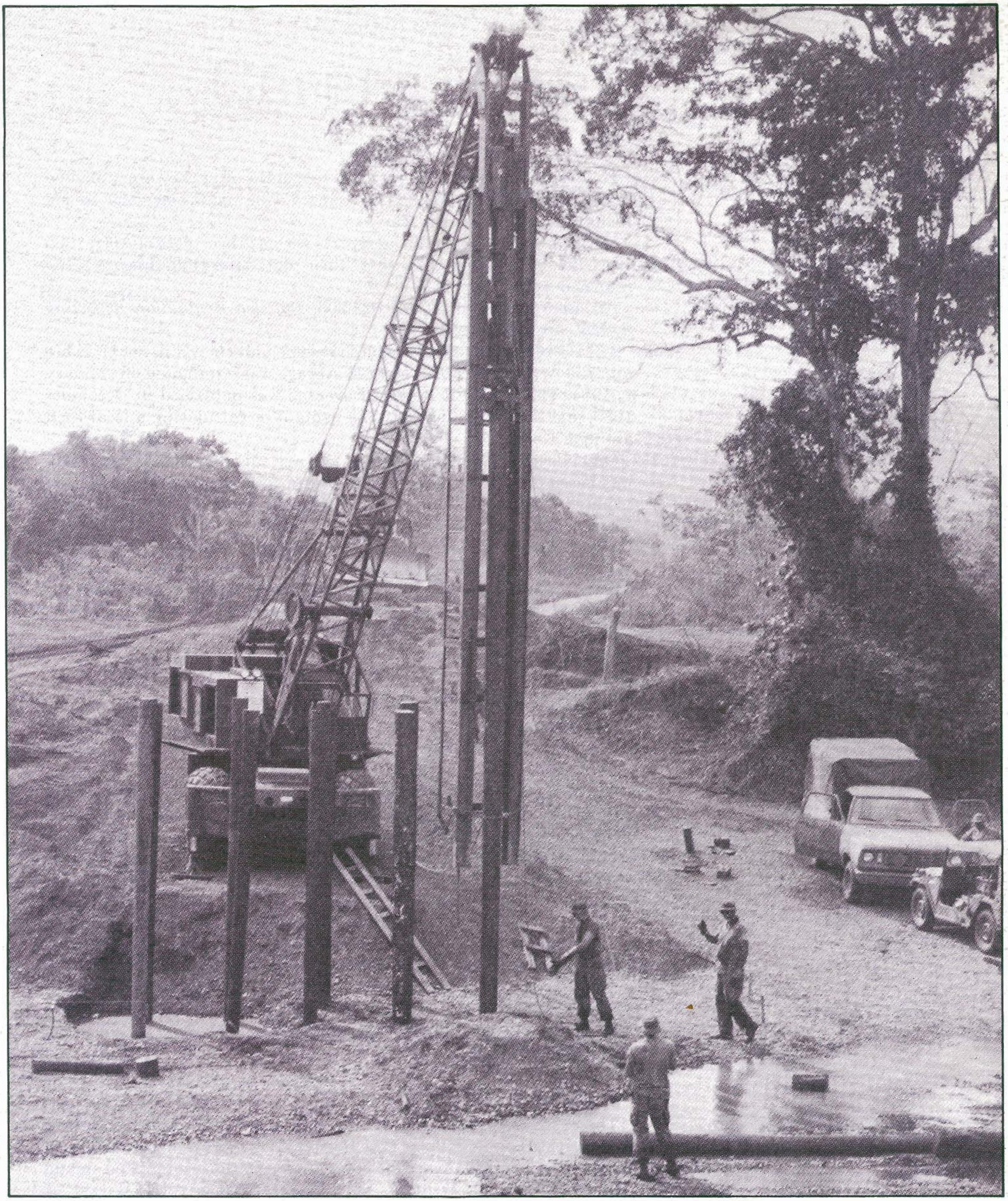
A revised promotion worksheet (DA Form 3355) was recently adopted into the Army personnel system for soldiers being recommended to E5 or E6, or already on these respective promotion lists, MILPERCEN officials said.

The revised form emphasizes physical fitness, self-discipline, professional competence, and a commitment to self-improvement and achievement. The form also allots more points for commanders' evaluations, SQT scores, military education, weapons qualification, and APRT scores. However, points are no longer awarded for time in service, time in grade, and high school completion.

Promotion points are now computed annually instead of semi-annually. The next recomputations will be in February 1986 for soldiers on an E5 promotion list and in May 1986 for those on an E6 list. These recomputations will occur during the same months every following year. However, soldiers will still be allowed to reappear before promotion boards earlier than the scheduled recomputations in order to add points for recent achievements.

New Recruitments:

The 299th Engineer Company, a new ribbon assault bridge company, was activated on July 20 at Fort Belvoir. Many positions in this Army Reserve unit are still available to engineers. Anyone interested should contact 2LT Umana-Williams at (703) 664-2739 or MSG Wicker at (703) 664-2525.



Soldiers from the 135th Engineer Group use a pile driver to construct a bridge at the Rio Pabo bridge site in Panama. Engineers from the Missouri National Guard built six bridges in the 9½ miles of road constructed during Blazing Trails '85 (photo by CPT Lynda Mann).