Engineer

THE MAGAZINE FOR ARMY ENGINEERS

FALL 1984

TRAINING ENGINEERS

ALSO: BREACHING MINEFIELDS ☐ BTMS WORKING FOR YOU
BONNET CARRE SPILLWAY OPERATION

Soldiers First, Engineers Second

A Personal Viewpoint

by MG John H. Moellering

Have you ever met a soldier who couldn't remember his drill sergeant in basic training or AIT? Probably not.

Moreover, I've never met one who couldn't remember his drill sergeant's *name*!

Why is that?

It's because the drill sergeant is the soldier's first glimpse of the Army.

He's the role model.

He helped the soldier make the transition from being a civilian to becoming a soldier and assuming the responsibilities inherent to our profession. He taught him to march, to fire a rifle, to don a protective mask, to move under direct fire, and more. He taught him to discipline himself and function as part of a team.

The drill sergeant set the pace and made the soldier adhere to high standards of performance. And that soldier will judge the competence of *every* officer and NCO he encounters in his career by how well they measure up to his drill sergeant's standards.

That's why our focus at Fort Leonard Wood is on excellence. The effectiveness of Army operational units is crucially affected by the habits and techniques soldiers learn in the training base. It is the job of TOE units to create cohesive squads, platoons, and companies. But without fundamentals and discipline, soldiers would never be molded into effective fighting teams.

For years there has been a perception among "up and coming" Army people that an assignment to a training post was a "kiss of death." TOE units were where the action was. Training base assignments were to be avoided at all costs.

Fortunately, today there is a growing awareness by the senior leadership of the Army that assignments in the training base are critically important—in fact, it is not an exaggeration to say that many now realize that training base assignments are as important as TOE jobs.

I've been in command at Fort Leonard Wood for four months now, and I must tell you that I am terrifically impressed by the quality of the officers and NCOs in training units here. The drill sergeants assigned here are some of the best NCOs I've seen in the Army. The commanders—all of whom have been centrally selected just like TOE commanders—can hold up their head with any group I've seen in the Army. There is an electric atmosphere here, one in which standards are high, enthusiasm is rampant and professional excellence is the norm.

If you've never been to a training center before, you ought to come to Fort Leonard Wood and see for yourself. See the confidence of the young enlistee, the raw material that we are receiving into the Army today. See the desire and emotion that he exhibits as he negotiates the most difficult aspects of basic training: bayonet training, the obstacle course, physical training, basic rifle marksmanship, NBC training, and all those basic essentials that comprise soldiership.

See the motivation and enthusiasm with which he approaches everything he does, and experience the thrill of fulfillment with him and his parents on graduation day. If you've ever thought that the quality of American youth has diminished or that patriotism is dead, then just come and sit through a basic training graduation. It will send chills down your spine. I guarantee it.

But Fort Leonard Wood is not just for basic trainees. Some years ago when I was commanding the 326th Engineer Battalion of the 101st Airborne Division, I arranged to bring two of my line companies to Fort Leonard Wood for much-needed float and fixed bridge training because of the facilities, equipment and expertise available. It was outstanding training which I could not have duplicated at home station. A week after I assumed command at Fort Leonard Wood, I stood on one of our drop zones and watched a company of the 307th Engineer Battalion, 82d Airborne Division, jump into Fort Leonard Wood for a week's worth of nearly identical training to that which I arranged for my people years ago.

There is a very active and growing partnership program between active Army FORSCOM units and Fort Leonard Wood. We want you to come here and take advantage of the great training facility we have. We want you to come and see where the basics are taught. We want you to experience the motivation and enthusiasm of young soldiers and drill sergeants.

Why should basic training and advanced individual training mean so

(Continued on page 35)

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On the Cover

In 17-foot rubber assault boats, an advance party of Combat Engineer recruits cross the Big Piney River at Fort Leonard Wood, MO. (Photo by SP5 Vicky A. Lipps.)

FEATURES

DEPARTMENTS

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News & Notes

Lake Allatoona: Project of the Year

Project of the year. (U.S. Army photo.)

Lake Allatoona, located 40 miles north of Atlanta, GA, and one of the most visited lakes in the United States, was selected by the Corps of Engineers as its "Project of the Year."

The selection of the 12,000-acre lake and its recreational and nature facilities was announced by LTG Joseph K. Bratton, then the Corps Chief of Engineers.

Bratton cited the lake's personnel and Mobile District for exceptional efforts in "public involvement, safety education programs, natural resources and environmental protection, and leadership in establishing joint recreation programs with other federal, state and local agencies."

Allatoona, which was completed by the Corps' Mobile District in 1950, attracted eight million visitors last year. It is one of more than 420 Corps' lakes nation-wide, and the fourth most visited.

In addition to its 12,000-acre expanse of water, the Allatoona project also encompasses 25,000 acres of adjoining land, much of it devoted to recreation, wildlife management and nature preservation.

David G. Grabensteder, resource manager at Allatoona, said he is "extremely pleased with the recognition given to the project and feels that it is a tribute to the hard work of the staff here and the excellent support given to us by the Mobile District."

The Chief of Engineers' Annual Project award was created in 1978 to recognize exceptional managerial achievement at one of the Corps' recreational resource projects. This is the second year that a project managed by a district in the South Atlantic Division has been selected for the award. Last year Hartwell Lake in the South Atlantic Division's Savannah District was selected.

Field Printer Completed

A new electrostatic color printer has been developed to meet the Army's need for a fast, cost effective way to reproduce maps in the field, according to Engineers at the Topographic Laboratories, Ft. Belvoir, VA.

The advanced model of this Quick Response Multicolor Printer (QRMP) developed in Pasadena, CA, is being tested by the Army to produce full-color, full-size (24 x 30-inch) maps from both paper originals and digital data files.

The QRMP matches the print quality achieved by the lithographic presses used in the field today. This new equipment, however, eliminates much of the set-up and production time associated with offset lithograph—and cuts hours off the map reproduction process.

Unlike conventional lithographic presses, the QRMP uses a dry printing process similar to that found in commercial color copiers. The addition of a laser scanner improves the dry copying process and provides the high resolution for reproducing maps.

This combination of color xerography techniques and laser technology allows the QRMP to print maps and other graphic products with the speed and accuracy needed to support combat operations. The printer produces 75 full-color maps per hour.

The QRMP, however, won't be limited to copying maps from paper originals. A digital interface planned for the printer will allow troops in the field to produce maps directly from digital data recorded on tapes or disks. Soldiers will also be able to use the equipment to make quick overlays, overprint new information onto existing maps and copy photographs.

ETL scientists began acceptance tests for the QRMP prototype in late March 1984. Current plans call for fielding the printer early in the next decade.

Paint Test

U.S. Army—CERL has fielded a prototype Paint Test Kit for testing. The paint test will evaluate drying time, hiding power, appearance, gloss, adhesion, cleanability, and other basics. The kits were tested at Forts Sheridan, Campbell, Polk, Gordon, Devens, and Leonard Wood. Installation personnel used these kits this past summer to provide feedback necessary to develop the final paint test kit in FY85.

Marine Explorer Jacques Cousteau Visits Vicksburg Engineer District

COL Dennis J. York explains construction of articulated concrete mats to Jacques Cousteau at the Delta Mat Casting Field. (Photo by Gary Dill.)

COL Dennis J. York, district commander, and LTC Stephen Shepard, deputy commander, Vicksburg, MS, U.S. Army Corps of Engineers, greeted Jacques-Ives Cousteau, international marine explorer, on a recent filming expedition.

York hosted Cousteau and members of his expedition aboard the Corps' patrol boat, *Lipscomb,* for a tour of the Delta Point mat casting fields, various river works, and a briefing session. The *Lipscomb* was undergoing engine tests in the area and participating in the "load-out" of mats in the casting field. York briefed Cousteau on the role of the Army Engineers on the Mississippi River, explaining the methods used and need for the annual revetment and bank stabilization program.

Cousteau appeared impressed with the mat field and other Corps works, according to York. "He about ran us to death. You really had to hustle to keep up with him. He walked up close to where the work was being done on the casting field and was interested in every detail of the job," York said.

The casting field is used in construction of articulated concrete mats for use in the Corps of Engineers annual revetment and bank stabilization program along the Mississippi River.

Following the trip to Delta Point, Cousteau went to the U.S. Army Engineer Waterways Experiment Station to film the model of the Mississippi River Lock and Dam 26, which is north of St. Louis. He also filmed the reconstructed Civil War gunboat, *Cairo,* at the Vicksburg National Military Park and the Corps' 200-acre model of the Mississippi in Clinton, MS.

The purpose of Cousteau's expedition was to understand the river and its role in people's lives and the ecology. The documentary is expected to be broadcasted in nearly 100 nations, in addition to its showing at the World's Fair.

Deputy Chief

MG Norman G. Delbridge Jr., became the new Deputy Commander and Deputy Chief of Engineers of the U.S. Army Corps of Engineers in September 1984.

Delbridge, who had been serving as Assistant Chief of Engineers at the Pentagon since September 1980, succeeded MG Richard M. Wells, who retired from military service on August 31.

As the new Deputy Commander and Deputy Chief of Engineers, Delbridge is the principal assistant and advisor to the Chief of Engineers for the Corps' water resource development and management activities which include navigation, flood control, hydroelectric power generation, water supply for municipalities and industries, and recreation at Corps of Engineers projects. He also assists in management of the military engineering and construction programs for both the U.S. Army and the U.S. Air Force in the United States as well as overseas.

MG Norman G. Delbridge, Deputy Commander and Deputy Chief of Engineers. (U.S. Army photo.)

Delbridge is a registered professional engineer in the State of Iowa, and is a native of Detroit, MI.

CLEAR THE WAY

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

Engineer Commandant Stresses Training for "Excellence"

Training Our Soldiers is a Top Priority

In assuming command of the Engineer Center and School, I look forward to the opportunity of working with each of you to ensure the effectiveness of the Combat Engineers as members of the combined arms team on the AirLand Battlefield. Training in the Army, and more particularly training Engineers, will form the cornerstone of this effort.

When the Army Policy Council approved the Army Training Rules and Responsibilities Study recommendation on July 24, 1984, training officially became a total Army goal. Although the importance of training to individual proficiency and unit readiness have long been recognized, this significant decision highlights Army leadership commitment to quality training. It formally restates the fundamental role of training in the accomplishment of the Army mission.

As soldiers we must train to mobilize, deploy, fight and win anywhere in the world. Much of what we do through the day is, in fact, training. However, it is the manner in which our officers and NCOs conduct this training, the attitudes displayed, and examples set that spell the difference between ineffectual training and good training.

Two essential characteristics in our approach to this challenge must be interest and professionalism. Interest simply means that we must continually search for ways to make full use of our training opportunities. Leaders must stress performance-oriented training and effective use of resources. Interest implies commitment to a satisfactory level of training 365 days a year to ensure that we will be able to meet the challenges of the modern battlefield. Interest means that the entire leadership cadre participates in the training effort. Although officers focus a greater portion of their time on collective missions and tactical training while the NCOs teach individual training, training at all levels is the business of all.

The second characteristic, professionalism, demands that each officer and NCO constantly improves his level of military awareness and technical skills. The art of military engineering has not changed much over time. The criticality of the tasks themselves remains constant. However, the conditions under which the job must be performed and the standards that must be met have, indeed, changed.

Complex issues such as force modernization, the integrated battlefield, and the Army's new AirLand Battle Doctrine present unique challenges to the Engineer's ability to perform his traditional role. In addition to keeping skills and knowledge current, professionalism also means that trainers present the best possible instruction.

Today's troops are far past the "gee-whiz" stage. They expect training to be challenging and realistic in order to prepare them for critical field situations. All training, at Fort Belvoir, Fort Leonard Wood, and in Engineer units armywide, must concentrate on "Excellence." All of us are responsible for providing the training which will result in mission success both in peacetime and in emergency situations. It is a demanding, full-time, but rewarding job.

The future of our Army depends on how well we develop our junior leaders. These young leaders, both officer and NCO, must be allowed to make mistakes and to learn from them. Effective training is best accomplished in a no-fault environment. Assess each person's capabilities, assign challenging tasks, and then demand more. Today's soldier, more than ever before, looks for competence in his leaders. Young leaders must be allowed to grow in a tactical and technical sense in order to meet the challenge of future years.

This year will see a new emphasis on training. I expect each of you to develop your own training goals—for self-development, for the growth of those you are charged to lead, and for the mission you are expected to accomplish. The effective training and development of the Army's most precious resource, its soldiers, is a top priority.

by CSM Orville W. Troesh Jr., U.S. Army Engineer Center & School

Improved Training for NCOs

CSM Urges NCOs to Take Advantage of New Engineer Courses

With much reluctance, I now write my final chapter as the Engineer School and Fort Belvoir Command Sergeant Major. By the time this article is published, I will have relocated to Fort Sam Houston, TX, assuming the duties of CSM of the 5th U.S. Army.

In this final article, I urge each soldier to continue the dialogue that has been established with the Engineer School in an effort to further improve the training of our Engineer noncommissioned officers and soldiers. Now as I reflect on the past, present and future of the Engineer School, I feel we should be aware of the changes that have taken place and those still to come. Let us begin with the Engineer Noncommissioned Officer Advanced Course.

In August we began an entirely revised ENCOA Course, structured to produce a more complete and hard-hitting Engineer platoon sergeant. The course consists of a five-week block of common NCO subjects and five weeks of common *Engineer* NCO subjects before branching off into various lengths of MOS specific technical training. With the exception of CMF 81 students, most of the ENCOA students will be returned to their units in less time and thus help their unit's readiness.

Our Basic Noncommissioned Officer Course (BNCOC) continues to teach the most current material. An annual instructor's seminar is held each April to update the program of instruction, lesson reference, and support material. In addition, CONUS units will have a new 12F BNCOC available to them at Fort Leonard Wood, MO starting in January 1985. This will ease the training workload on the other 12F BNCOC conducted at Hohenfels, Germany.

In the area of Basic Technical Courses, the Directorate of Training and Doctrine has implemented a 51H30 Construction Supervisor Course which will be held at Fort Leonard Wood in November and December 1984, and will implement a 62N30 BTC for the Engineer Equipment Supervisors. This will provide the much needed training for our skill level 3 CMF 51 NCOs who had not received this type of training at AIT. Attendance is through unit command identification, placement on an order of merit list and submission of a DA Form 4187 to NCO Training Branch at MILPERCEN.

Our Primary Technical Courses are still in operation. The 12C Bridge Section Sergeant Course and 52D20/30 Power Generation Mechanics Courses are conducted at Fort Belvoir. The same procedures for attendance as BTC applies, however, I encourage you to send E5s or even some promotable E4s to the 12C/52D20 course. It is imperative that we train the right NCO at the 12C20/52D20 skill level. In addition, we have added 52D30 BTC at Fort Belvoir available for our more senior generator mechanics (E6s and promotable E5s).

Overall, the Engineer School has made great strides toward enhancing the professional development of our Engineer noncommissioned officers during the past two years. Not only have we developed new courses, we have also improved POIs in existing courses. Instructor quality has been upgraded, and soldier and Army standards are taught and enforced.

You, the field noncommissioned officer, have also contributed. The quality, appearance, knowledge, and physical fitness of students have improved dramatically. You have provided not only constructive criticism but also sound ideas on what is needed in NCO training and how the School could support it. I commend all of you for your efforts and encourage you to provide the same fine support to CSM Charles T. Tucker as he assumes this position, responsibilities and duties.

CSM Tucker comes to you from the U.S. Army Chemical School at Fort McClellan, AL, where he served as Command Sergeant Major.

Together, as a solid Engineer noncommissioned officer support channel, we have constructed the bridge to lessen the gap between the school house and the field and have improved our Corps. To all of you, a fond farewell. I look forward to seeing and serving you again.

School News

Department of Combined Arms (DCA)

ENCOA Course Revision:

The curriculum for the Engineer Noncommissioned Officer Advanced Course (ENCOA) has been revised, and instruction has begun using it. Both the 12 and the 51 series courses have been redesigned to include common core subjects developed by the Sergeant Major's Academy followed by MOS/CMF USAES-developed specific training. These new courses should prove to be challenging, exciting and professionally rewarding and should prepare the Engineer NCO for increased responsibilities.

Directorate of Evaluation and Standardization (DOES)

Follow-up Evaluations:

The Directorate of Evaluation and Standardization (DOES) has been conducting graduate follow-up evaluations of Engineer training. The purpose of these evaluations is to determine if the Engineer School (Ft. Belvoir) and the Engineer Training Center (Ft. Leonard Wood) are training soldiers to perform the critical tasks to an acceptable standard meeting the needs of the field units. The initial evaluation conducted was of the 12B10 (Combat Engineer) One Station Unit Training (OSUT) course. The mail-out evaluation was conducted from January 1984 to June 1984. The results of this evaluation indicated that the 12B10 soldier can accomplish those tasks trained in OSUT and that those tasks are important to the unit's mission. The trainers and training developers are commended for their efforts with this course.

DOES is completing the reports from our evaluations of the 52C10 (Utilities Equipment Repairman), 12C10 (Bridge Crewman) and 52D10 (Power Generation Equipment Repairman) courses. These evaluations are providing valuable feedback to both the trainers and training developers concerning the utility of these courses. DOES would like to thank the soldiers who have supported this evaluation program and encourages support in the future. This program is designed to help provide the best training to Engineer soldiers.

Department of Military Logistics (DML)

Name Change:

The Department of Maintenance (DOM), established as an academic department on Jan. 4, 1984, has been officially redesignated as the Department of Military Logistics (DML). In addition, the Maintenance Management Branch has been redesignated as the Logistics Branch. These changes were made to better convey the overall mission of the training department and to reduce confusion with other Engineer Center maintenance activities.

Directorate of Training and Doctrine (DOTD)

Warrant Officer Training:

Warrant Officer Training Branch is revising and updating all Engineer Warrant Officer training to coincide with TRADOC's Warrant Officer Training System. New courses, depending on the MOS, will vary in length from 7 to 16 weeks and are scheduled to be implemented in June 1985. POC is Officer Training Branch, AV 354-1166/4994.

FM 5-100:

The Army's keystone "How to Fight" manual for Combat Engineers, FM 5-100 was published in May. It presents basic Engineer doctrine and implements the AirLand Battle Doctrine described in FM 100-5. Together, these manuals set forth the concepts for winning the battles and campaigns in modern warfare.

Department of Military Engineering (DME)

SC23 Training:

Officers who are en route to, or assigned to, Directorate of Engineering and Housing positions at military installations or Corps of Engineer District positions will be interested in the Facilities/Contract Construction Management Course being taught by the Department of Military Engineering at Ft. Belvoir, VA. Officers with SC23 should make every effort to attend this course en route to their next assignment.

The FY 85 classes are scheduled to begin January 18, May 24, and Aug. 16, 1985. The course is nine weeks long and is divided into two parts. The first part includes horizontal and vertical construction design, quality assurance, project management, procurement and contract management. The second part is dependent on the officer's assignment.

Officers en route to Engineer Districts will attend local training conducted by the Corps' Huntsville Training Division, while those en route to DEH assignments will attend the Engineer School's Facility Engineering Management Course. Requests to attend the course are made through channels to MILPERCEN Education Branch, ATTN: DAPC-OPA-E. Additional information on the course is available from the SC23 training coordinator, MAJ David White, at AV 354-2628 or 354-3998, Commercial (703) 664-2628 or 664-3998. Correspondence should be directed to the Department of Military Engineering, ATTN: MAJ David White, Ft. Belvoir, VA 22060-5331.

The 12 Bush Combat Engineer

by SGT Debbie Drew

With a mighty shove the 17-foot rubber assault boat is on its way across the narrow Big Piney River. The Combat Engineers are on the move.

12B Combat Engineers perform simulated combat tasks during field exercises. (Photo by Marilyn Fleming.)

Learning about the 17-foot rubber assault boat is only one aspect of the challenging and physically demanding training that Combat Engineers receive during their 13-week One Station Unit Training (OSUT) at Fort Leonard Wood, MO.

OSUT is a program which enables prospective Engineers to complete their basic training and 12B AIT training at the same installation. Soldiers who are male and obtain a score of 85 in CO (combat) may qualify as Combat Engineers.

After seven weeks of basic training, 12Bs participate in an "Essayons" ceremony, similar to a basic training graduation ceremony. ("Essayons," a French term for "Let us try," is the Corps of Engineers' motto.) The ceremony is conducted by the students themselves with permanent party cadre as spectators. The only exceptions are a host commander and a reviewing officer who participate in the ceremony.

The next six weeks are extremely fast-paced; soldiers now learn to be Combat Engineers. The soldiers first learn how to build non-explosive obstacles such as barbed wire barricades. They study rigging, learn various knots and how to use pulleys, and also help to build a three-rope bridge using the knots they have been taught to tie.

The next subject is land-mine warfare. The soldiers are taught how to arm and disarm antitank and antipersonnel mines and are shown mine detection techniques.

The proper use of carpentry tools and power tools is also taught at the 12B OSUT. Every Engineer squad and platoon is issued a tool box (called a pioneer tool box). Besides carpentry tools, the box contains other essential Combat Engineer tools such as shovels, sledge hammers and axes.

Two days of demolition follow the carpentry phase. Here, trainees learn to prime and detonate explosives. Students are shown a demonstration in various special purpose demolitions such as bangalore torpedoes, which are used to create paths through wire obstacles and minefields. A week of training is then devoted to float and fixed bridges.

A highlight of Engineer training is a five-day, four-night tactical training field exercise called "Engineer Week." Soldiers can learn teamwork in applying individual skills they've acquired. They strive to complete missions which they will be required to perform as members of a Combat Engineer company.

During this tactical exercise trainees install and remove minefields, construct wire obstacles, use explosives to create a road crater which is 30 feet long, 10 feet wide and eight feet deep, and learn to rappel. Testing is held after each phase and at the end of the cycle.

Engineer units are located at installations throughout the United States and overseas in Europe, Korea and Panama. They participate in field training exercises to enable them to efficiently perform their mission. When they are not in the field, their specific job depends on the unit to which they are assigned. Combat Engineers frequently help with post construction projects and spend a lot of time maintaining their equipment.

MOS 12B is a large, challenging and rewarding career field for soldiers. Advancement opportunities abound for Combat Engineers because it is a diversified career field and noncommissioned officers are in high demand.

Adapted from an article appearing in the May 1984 issue of *Recruiter Journal*.

SGT Debbie Drew is the editor of Guidon, the newspaper for the U.S. Army Engineer Training Center and Fort Leonard Wood. She has a bachelor's degree in journalism from Southern Illinois University.

PFC Scott Shephard, Company B, 307th Engineer Battalion, 82nd Airborne Division, packs his parachute after a successful jump at Fort Leonard Wood, MO. (Photo by SP4 Thomas Copeland.)

SP5 James Stevens and SP4 Jean Holman, MEDDAC, search their "prisoner," SP4 William Hays, Military Police Command. (U.S. Army Photo.)

New Tracked Vehicle Course Makes Better NCOs

by 1LT John P. Chagaris

1LT Thomas M. Thanos, project officer of the CEV Video Disk Gunnery Trainer, explains the new device to SGT John G. Rappell, section sergeant of SPED platoon, track section, 902nd Engineer Company (AFB) (R). (Photo by 1LT L. J. Leto.)

The Engineer School is helping 12F NCOs to become better trained soldiers. The *way* they're trying to achieve it is through a six-week Combat Engineer Tracked Vehicle Supervisor's Course.

Although the first 12F BNCOC started in West Germany in 1982, it wasn't until last October that it was initiated at Fort Leonard Wood. The course, designed for E4s through E6s, stresses hands-on training. The students are given a diagnostic test at the beginning of the course to determine their proficiency in skill levels I and II, and those who are found deficient in these areas are given additional training.

NCOA instructors teach students the non-technical portion of the course. During the first week, students are taught the Battalion Training Management System, an NCO's general duties and responsibilities; counseling; total physical fitness; preparing a rater's section of an Enlisted Evaluation Report; the Geneva Convention; drug and alcohol abuse prevention; equal opportunity and prevention of sexual harassment; and the Multiple Integrated Laser Engagement System.

Other subjects, such as communications, are taught by 12F instructors. Students learn how to prepare and operate an FM radio set, call for and

adjust indirect fire, connect a CEV to a CEV hot loop using the external telephones, and to communicate with an automated CEOI and KTC-600.

Students are also shown how to prepare and submit an NBC-1 (Initial) Nuclear, Biological, and Chemical report during the Nuclear, Biological and Chemical portion of the course. They also study detection and protection from NBC hazards.

During the vehicle maintenance portion, students learn how to inspect organizational maintenance historical records. They also perform daily preventative maintenance on the gunner's and commander's station of the CEV, supervise daily preventative maintenance on a CEV, and learn how to supervise daily preventative maintenance on an AVLB and launching system.

In studying land navigation, students are taught how to interpret a route reconnaissance overlay, conduct a map reconnaissance and participate in a land navigation exercise.

The gunnery phase of the course gives students the opportunity to issue a fire command; prepare a circular range card and a sketch range card; remove, install and operate the M36 periscope; sight and zero the .50 caliber M85 machine gun; sight and zero the main gun; and sight and zero the 7.60 coax machine gun in addition to other gunnery functions.

During the non-gunnery CEV crew functions phase, students supervise various tracked vehicle operations during nuclear warning drills for a CEV. They also learn to supervise abandon tank drills, moving material with the winch and boom, self-recovery tank drills, and towing a disabled CEV using the tow cable.

While also learning about AVLB crew functions, students learn to supervise other soldiers bridging a gap using an AVLB launcher, self-recovery of an AVLB launcher and a nuclear warning drill for an AVLB.

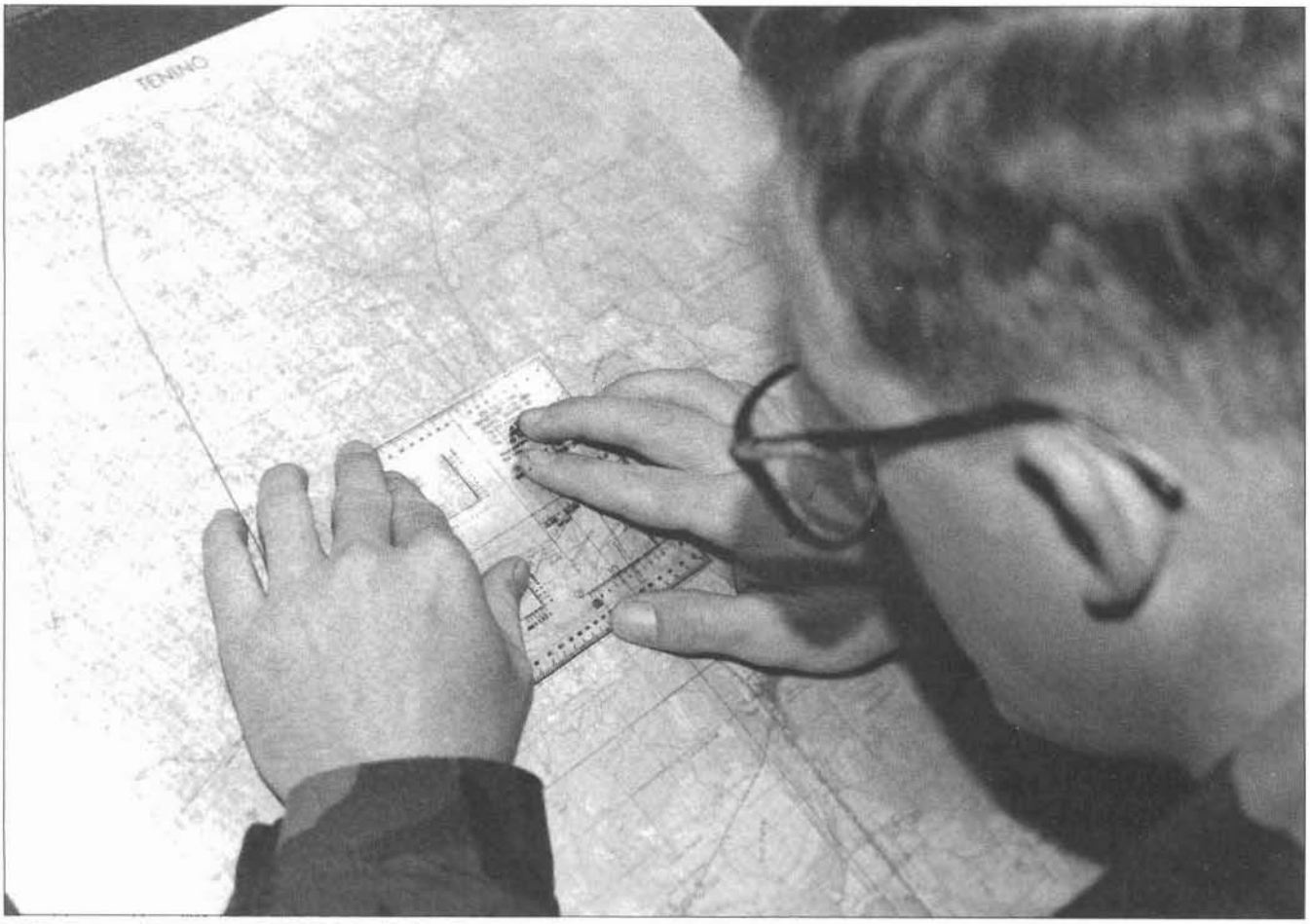
The course is designed to place each soldier into stressful, realistic situations. For example, while supervising an "evade missile drill," a student, as a CEV commander, takes his vehicle onto a live fire move-out range. Within 10 seconds after seeing a smoke cloud, he designates the firing position of an antitank missile, issues correct fire commands enabling the gunner and himself to bring suppressive fire onto the enemy position with their machine guns, and directs the driver to take evasive action.

At the end of this fast-paced six weeks, students take a comprehensive examination covering all of the subjects taught during the course. This is in addition to the tests given after each block of instruction.

The course helps soldiers to become more familiar with the duties of a CEV commander and an AVLB section sergeant. This knowledge will help the soldier when he returns to his unit to lead and train his subordinates and to fulfill the missions assigned to him. The result is a professional, well-rounded NCO who is an asset to his unit and to the Corps.

1LT John P. Chagaris is chief, 12 BNCOC-12F-TRACK at Fort Leonard Wood, MO. He is a 1982 Junior Officer Maintenance Course graduate and has a bachelor's degree from Georgia College.

The new tracked vehicle crew supervisor course helps all Engineers to become more proficient with their tracked wheel equipment. (U.S. Army Photo.)



SP5 James Stevens, MEDDAC, finds the PLDC map reading exam challenging. (Photo by SGT Debbie Drew.)

PLDC:

The First Step for NCOs

by SFC Danny L. Bussey Sr.

If NCOs are the "backbone of the United States Army," then Engineer NCOs must be the stronghold of the Corps of Engineers

How do Engineer soldiers develop into noncommissioned officers? How do they learn the necessary skills needed to lead troops? And how do they learn to train other troops?

The first step is the Primary Leadership Development Course (PLDC), which was started at Fort Leonard Wood in December 1983. It is a four-week resident course conducted at NCO academies worldwide. Replacing the Primary Noncommissioned Officer Course (PNCOC) and the Primary Leadership Course (PLC), PLDC provides NCO training to newly appointed or prospective sergeants at skill level II.

The goal of PLDC is to teach these junior leaders to lead others and to build confidence in themselves. It emphasizes leadership in combat situations by placing the students in stressful situations. The course curriculum includes six different areas: leadership, resource management, communications, training management, professional skills, and military studies. Finally, in a 72-hour field exercise, students demonstrate and practice what they have learned throughout the course.

The defensive/offensive operations field exercise is divided into two phases. During the initial phase, students concentrate on establishing a defensive position while preparing for offensive operations. Many tasks throughout the course are taught by the students themselves and are followed by a practical exercise.

Phase II is designed to be a stressful, fast-paced leadership exercise. Students are placed in leadership positions such as first sergeant, platoon sergeant, or squad leader on either the defensive or offensive force. They are evaluated by the cadre for their ingenuity, leadership ability, and overall performance.

Small group instruction is a key feature of PLDC. These groups, consisting of 12 students and two instructors, allow students to give and receive feedback and to share personal experiences with each other. It fosters teamwork and allows collective reasoning in problem solving.

The most current leadership doctrine in FM 22-100, *Military Leadership* and FM 100-1, *The Army,* is the basis for the leadership instruction at PLDC. The training block includes Principles of Leadership, Character of a Leader, Problems and Decision Making, and Responsibilities and Authority of NCOs. The Battalion Training Management System (BTMS) also requires students to present at least one training session during the field training exercise.

The primary goal during the communication block is to teach junior leaders the necessary skills to better communicate as small unit leaders. They are taught different communication techniques to ensure information is properly exchanged within an organization. The tactical communication instruction during military studies teaches students how to operate an FM radio set and how to use an automated CEOI. They learn to code and to decode messages such as grid coordinates and how to transmit NBC reports.

Also during the military studies, students participate in a practical land navigation exercise and performance examination. Any student who does not receive a "Go" must be retained and retested.

PLDC works on a merit system. Students are given merits for volunteering for details as well as for exceeding uniform standards. They are, however, also given demerits for failing to meet standards. Then, after all of the testing, after all of the field exercises, after all of the physical training, a soldier has taken the first step. He is on his way to becoming a leader, an NCO.

SFC Danny L. Bussey Sr. is the operations NCO at Fort Leonard Wood Drill Sergeant School. He served with the 4th Infantry Division in Vietnam, the 72nd Engineer Company at Fort Benning, and the 237th Engineer Battalion and 15th Ordnance Battalion in Germany. SFC Bussey also has an associate's degree in general studies.

PLDC students cautiously exit a box culvert during their 72-hour field exercise. (Photo by SGT Debbie Drew.)

Command of an Initial Entry Training Company

An Alternate Path to Success

by LTC Barry W. Levine

Not many company grade officers have as much opportunity to directly affect the lives of young soldiers as do Initial Entry Training (IET) company commanders. Because many more command positions exist in TOE units than in IET, the opportunities and the challenges of IET remain hidden from the majority of young officers. Some of these challenges are different from those found in a TOE unit.

Since most junior officers serve in a TOE company at some time, there is a general knowledge and appreciation for this duty. By comparing the challenges and the desirable traits of the IET company commander with those of his counterpart in TOE units, a better understanding of the training company and its path to success can be reached.

Listing the challenges of company command—any company command—is a formidable task. In TOE units the commander must personally set standards for the company. He must motivate his unit in all of its varied activities—from maintenance to field duty to physical training. He must be a leader for his troops, an advisor and a subordinate for the battalion commander, a trainer for the officers in his company, and the Engineer to supported units. Just as important, he must be a member of the community and a good citizen.

The IET commander has all of these same challenges to varying degrees. The standards he sets for his company must be extremely high, but attainable. These are the standards first encountered by new recruits and, since these standards affect these soldiers throughout their careers, the impact on all other Army units is significant. Because it is easier to begin and maintain high standards than to attempt to raise them later, IET companies must rigorously establish and enforce the highest standards to ensure TOE units receive quality soldiers.

The challenges in motivating cadre and trainees are different from those in a TOE unit. An IET unit operates in cycles. All of the work, time and effort that made the last cycle great are gone with each new cycle. There is a new group of civilians to turn into soldiers, and they may not respond to the same techniques as did the last group of trainees.

The company cadre—the drill sergeants—must also remain highly motivated cycle after cycle. These highly trained, professional NCOs look to the company commander for direction. After a few cycles, even the most professional NCO or officer might become a bit complacent and may not put the same enthusiasm and extra effort into training as he did in the beginning. It rests with the company commander to avoid this trap and to motivate his subordinates so that training does not suffer.

In IET, training is the only mission. Instead of taking ARTEPs, there are frequent tests to ensure that the trainees meet Army standards in every phase of training. These tests are graded and the results carefully scrutinized at all levels of command. Because of this, much time and effort goes into preparing trainees for the tests and into analyzing the results.

The traits of a soldier taken for granted in TOE units (saluting, shining shoes, recognizing rank, wearing the uniform) are all taught in IET. As in TOE units, there never seems to be enough time to completely prepare.

Two major challenges in TOE units, which are much less formidable in IET units, are maintenance and logistics. On the other hand, there is a very small company staff which is provided to deal with maintenance and logistics. But the requirements for sound leadership are the same wherever one is assigned. Soldiers are soldiers. They have a right to expect professional leadership regardless of the mission.

In a TOE unit one seldom has a chance to profit from earlier mistakes. Any company commander embarking on a mission relies on his own experience on similar missions as well as the experiences of his key personnel. The cyclic nature of IET allows a company commander to perfect his company's actions in a particular area. To be able to profit from one's own successes and mistakes and not merely write an after action report for one's successor is satisfying.

Another difference seen in IET is the profound change which occurs during each cycle in a group of soldiers for

whom one has responsibility. The change from civilian to soldier is significant and is always a source of immense job satisfaction.

Even though the challenges of IET and TOE command sometimes may differ, the traits required of all commanders regardless of the type of company are identical. While there can be no finite and definitive list of traits which make a commander, some must be present in any good commander.

The first, and perhaps the most important, is integrity. An IET commander must be completely honest and trustworthy. He is setting the example for the soldiers who will comprise the Army of the future. Other traits which produce successful IET company commanders are initiative, attention to detail, moral and physical courage, self-confidence, humility, adaptability, sound judgment, and maturity.

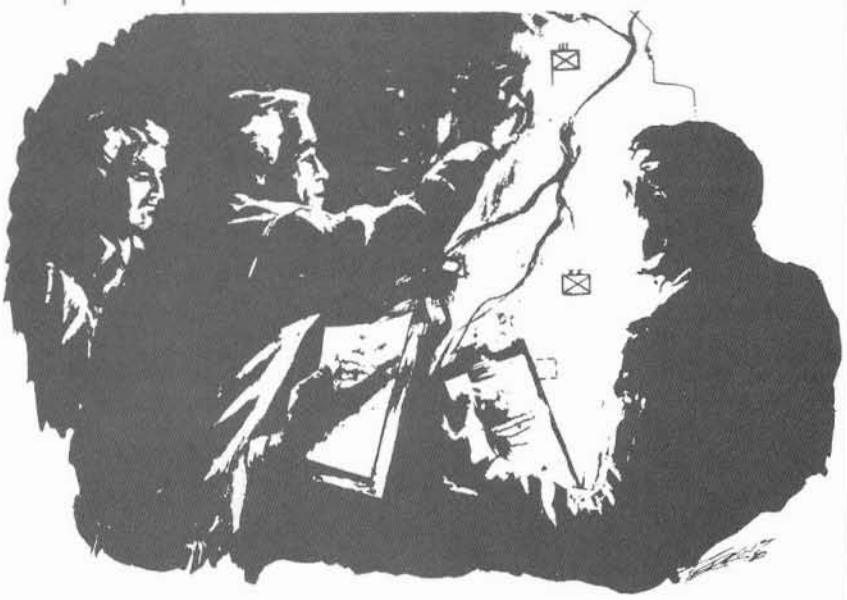
Of course, these same traits produce good TOE company commanders, good general officers, good bank presidents and good U.S. Congressmen. Each trait is applied a bit differently in the IET environment, but the requirement is the same as in any field of endeavor.

Considering the challenges which exist in IET and the traits which produce successful commanders, it is evident that experiences gained in an IET assignment are in some ways different but in most ways similar to that available in a TOE unit. Both paths can lead to success for those who deserve it.

Officers who have had experience in TOE units are better able to produce properly trained soldiers when assigned in IET. Officers who have had experience in IET can better understand the soldiers coming to their TOE units and thus can quickly make them productive soldiers. As always, success is not a function of which unit an officer is in, but how he performs in that unit.

LTC Barry W. Levine commands the 4th Battalion, 2nd Training Brigade at Fort Leonard Wood, MO. Among other assignments, he has served as a company commander in the 65th Engineer Battalion in Vietnam; Director of Engineering and Housing at Grafenwoehr and Garmisch, Germany; executive officer of the 237th Engineer Battalion; and as a faculty member at the Defense Systems Management College. LTC Levine is a graduate of the United States Military Academy, the Command General Staff College, and the Defense Systems Management College. He also has a master's degree in engineering physics form the University of California—Davis.

Engineer Problem



You are located in a remote part of a developing country. Pit privies and latrines are currently the only provisions for handling human waste. Your unit was just tasked to build a 2,500-man base camp for continuous operations in this remote area. Since facilities are not available, your commander decided that a sewage lagoon will be a simple and economical solution to the water-treatment requirements. Sufficient land and construction capabilities are available for a sewage lagoon construction. The soil absorption rate is 30 min/inch and the water table level is 14.7 feet.

Based on the following information supplied by Army Medical Services and general Army standards, design a lagoon for a 2,500-man base camp.

a. Water flow from supported population

$$Q_p = \frac{40 \text{ gal/day}}{\text{man}}$$

b. Pipe infiltration

$$Q_i = \frac{2 \text{ gal/min}}{1{,}000 \text{ ft of pipe}}$$

c. Flow due to rainfall (Q_r), evaporation (Q_e), and seepage (Q_s) are negligible.

d. Pipe length within the base camp L_p = 1250 ft

e. Biological Oxygen Demand (BOD)

$$\text{BOD} = 0.20 \text{ lbs } O_2/\text{man} \quad \frac{}{\text{day}}$$

f. Design BOD, Surface Loading Factor

$$\text{LF} = 60 \text{ lbs } O_2/\text{acre} \quad \frac{}{\text{day}}$$

g. Retention time

T_r = 60 days

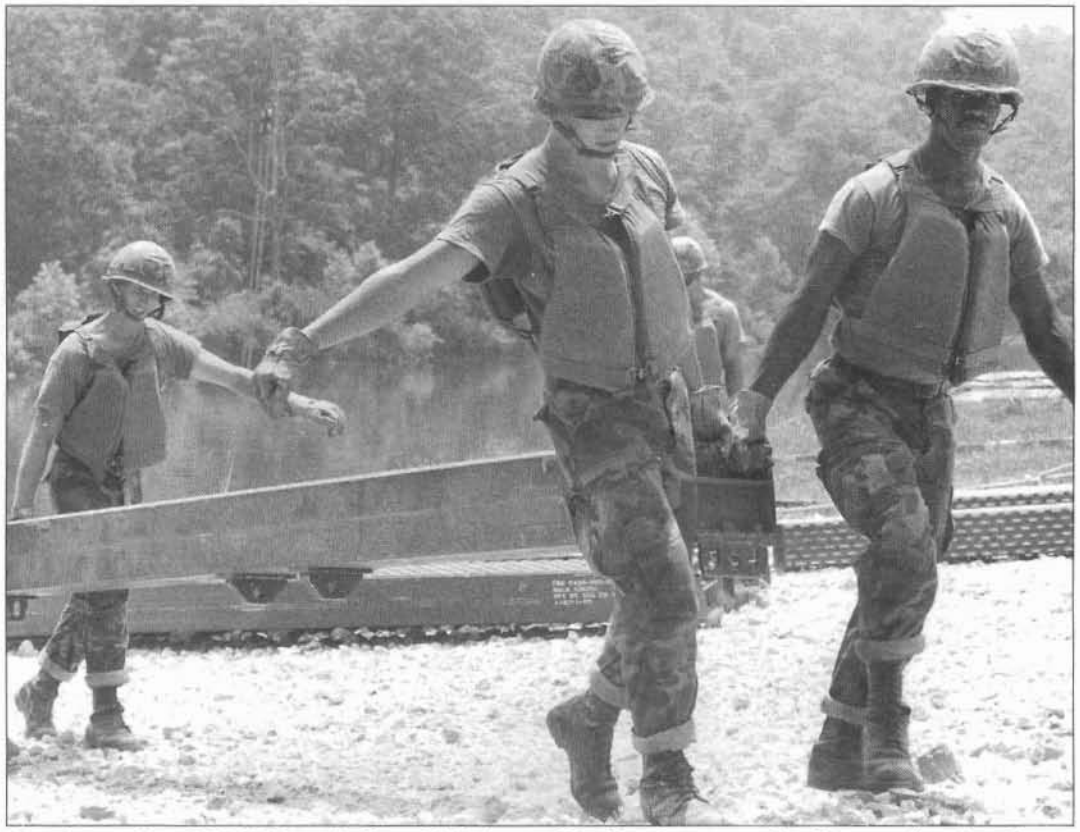
ENGINEERS TRAINING FOR

Combat Support Boat (above) carries bridge building equipment to soldiers (below), who prepare to launch the M4T6 Pontoon. (Photos by SFC Dennis O. Lindsey.)

Troops launch an M4T6 Float. (Photo by SFC Dennis O. Lindsey.)

EXCELLENCE

Helicopter (above) delivers a Bridge Erection Boat. (Photo by SFC Dennis O. Lindsey.)



Engineers haul M4T6 long balk, which is used by Engineers as decking on fixed or float bridging. (Photo by SFC Dennis O. Lindsey.)

A crane atop Bonnet Carre spillway lifts one of the 7,000 "needles" to begin opening one of its bays. (U.S. Army photo.)

High Water, Hard Decisions

The 1983 Bonnet Carre Spillway Operation

by MG William E. Read (RET) and Dr. Michael C. Robinson

The Bonnet Carre Spillway was opened by the U.S. Army Corps of Engineers for the seventh time in its 52-year history, on May 20, 1983. To the spectators who observed the event, the operation seemed a simple, routine process. Once again water was diverted from the Mississippi River into Lake Pontchartrain to protect New Orleans and downstream parishes from undue risk of flooding.

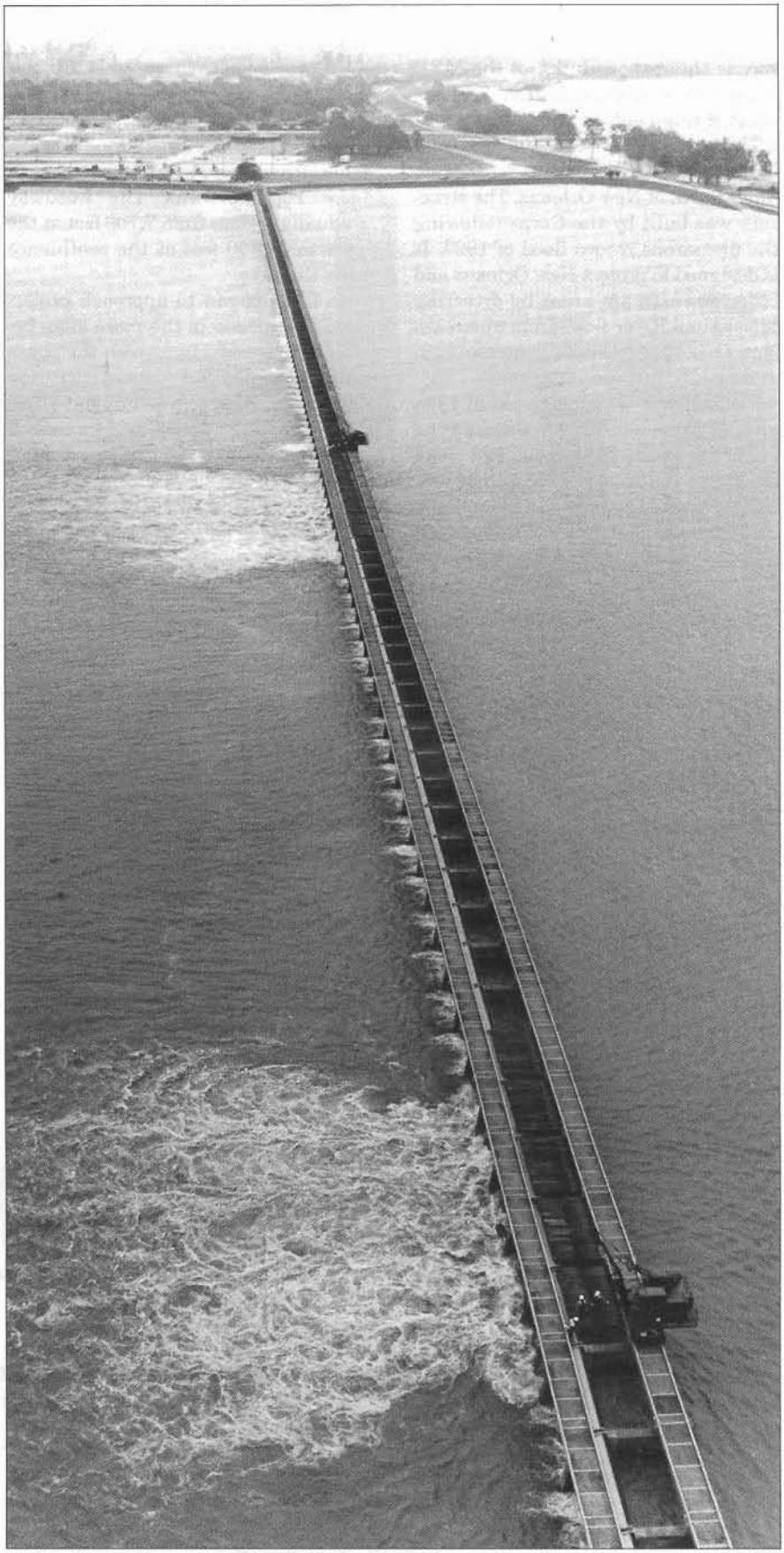
The fact is, though, the Bonnet Carre operation entailed a complex, highly disciplined public works management process. The decision-making scenario involved Corps officials and other professionals pooling their talents to arrive at a tough decision. Will predicted Mississippi River stages and discharges subject the main flood protection system to unacceptable stress and require the relief Bonnet Carre provides?

Louisiana is far from the Mississippi River's source that trickles out of Lake Itasca in Minnesota. However, on its way to the Gulf of Mexico, North America's greatest river gathers the runoff of 31 states—a drainage basin that ranges from the Continental Divide, northward to Canada, and as far east as the Appalachians.

The Missouri, Illinois, Ohio, and Arkansas rivers as well as hundreds of smaller streams directly or indirectly discharge into the Mississippi. Lower Louisiana forms the spout of this 1,246,000-square mile, funnel-shaped drainage basin that encompasses 41 percent of the continental United States. Therefore, during major floods, such as the 1983 event, the river's enormous hydraulic forces severely test this area's flood control works as well as the skills and ingenuity of Corps and other professional emergency managers.

The Bonnet Carre spillway is but one important feature of the Mississippi River and Tributaries Project (MR&T) which was authorized by Congress in 1928. This still incomplete system of levees, floodways, channel improvements, and other elements provides flood protection along the Mississippi's main stem, as well as to portions of tributary basins in the Lower Mississippi Valley. The main stem features of the MR&T project are designed to safely convey the project flood to the Gulf.

The entire MR&T project is under the direction of the Mississippi River commission (MRC) located at Vicksburg, MS. Operational responsibility for Bonnet Carre rests with the Corps' New



Water flows from the Mississippi River through a few of Bonnet Carre's 350 bays to Lake Pontchartrain to protect New Orleans and downstream Louisiana parishes from flooding. (U.S. Army photo.)

Orleans District (NOD). However, the decision of whether to open the spillway is the responsibility of the MRC president, after consultation with the Chief of Engineers in Washington, D.C.

The spillway is located on the east bank of the Mississippi River, 32 river miles north of New Orleans. The structure was built by the Corps following the disastrous record flood of 1927. It is designed to protect New Orleans and other downstream areas by diverting Mississippi River flows from upstream New Orleans into Lake Pontchartrain and finally into the Gulf of Mexico.

The spillway was completed in 1931 and its guide levees were finished the following year. The 7,000-foot long structure contains 350 bays or openings separated by concrete piers. Each bay is closed by twenty 8 x 11½-inch timbers called "needles." They are either 10 or 12 feet long depending on the elevation of the weir crest. Cranes atop the spillway lift the individual timbers during operations. Guide levees confine the flow along the 5.7 miles from the Mississippi River to Lake Pontchartrain. The floodway gradually widens from 7,700 feet at the river to 12,400 feet at the confluence with the lake.

As flows began to approach project flood magnitude in the main stem below Old River during April, the possibility of a Bonnet Carre operation became a major concern of the MRC, the NOD, and non-Federal interests.

During the first two weeks of May, Corps employees monitored weather and stage predictions, evaluated New Orleans' need for temporary flood protection at certain locations, considered the affects of Bonnet Carre flows on shellfish in Lakes Pontchartrain and Borgne and studied the probable impacts of storm surges from the Gulf on river stages at New Orleans. They also poured over laws and regulations governing the spillway's use, and consulted with local interests on levee conditions and the influence of high stages on navigation activities.

These activities took place as other floodfighting efforts were underway throughout the Lower Mississippi Valley.

The prospect of a Bonnet Carre operation weighed heavily on Corps officials' minds because of environmental considerations. Diverting a great deal of fresh water into Lakes Pontchartrain and Borgne would reduce salinity

Water pours through one of Bonnet Carre's 350 bays. (U.S. Army photo.)

A crane atop Bonnet Carre Spillway pulls an 8 x 11½-inch timber "needle" from a bay. (U.S. Army photo.)

levels and further damage the shellfish harvest already seriously affected by record spring rains. In the long run, nutrients from the Mississippi River water would improve the shellfish industry, but the immediate impact would be largely adverse.

On May 12, a meeting was held at the New Orleans District between Corps officials and representatives of various federal and state agencies that manage fishery resources in Louisiana and Mississippi. All parties agreed that if Bonnet Carre had to be opened the Corps would provide ample notice so that the agencies could lessen the impact, prepare to conduct samplings, and monitor the affects of the event.

By May 15, the National Weather Service predicted a peak stage of 18.0 feet for May 29 for the main stem at the Carrollton gage in New Orleans. (The authorized grade for the flood control system is about 25 feet there.)

During the 1983 flood, permanent protection through the entire New Orleans reach existed only for a river elevation of 19 feet on the Carrollton gage. Above that elevation, reaches of increasing lengths for higher stages require temporary construction to provide the authorized freeboard.

Temporary flood control works were being added at areas with deficient grade that would provide the city protection for a river stage of 21 feet on the Carrollton gage. Relying on hastily constructed temporary protection to convey long duration floods through metropolitan New Orleans is at best very risky.

To further assess conditions, the MRC President and various MRC and NOD staff and local levee board officials inspected the temporary protection on May 16 and consulted with local officials on navigation-related and other issues.

Thus, after considering a host of hydrologic, structural, navigational, legal and other factors, the need and schedule for operation of the Bonnet Carre Spillway was decided. Discussion between the MRC and NOD ensured that all factors were considered and appropriate alternatives weighed.

On May 18, the MRC President, after consulting with the Chief of Engineers, accepted the District Engineer's recommendation to open Bonnet Carre on May 20 when the river was expected to reach a flow of 1.25 million cubic feet per second (cfs) and to limit the river discharge to no more than 1.30 million cubic feet past New Orleans during the flood. This range in discharges (1.25 to 1.30 million cfs) was considered a practical necessity due to inability to precisely measure river flows or control the spillway discharge.

This flow corresponded to a 17-foot stage on the Carrollton gage, based on the stage-discharge relationship of that time. Subsequently, the stage at New Orleans never exceeded 17.2 feet but would have exceeded 19 feet without the spillway's operation.

Two weeks prior to the decision to operate the spillway, the New Orleans District began to implement a comprehensive plan to ensure that the spillway was ready. Test bay openings were performed to familiarize work crews with proper procedures and verify that all equipment was in good working condition.

A general reconnaissance of the guide levees was made and roadways along their crests were judged capable of facilitating inspection during the spillway's operation. Contacts were made with the Louisiana Office of Emergency Preparedness as well as the Red Cross, and all interests with property in the floodway were advised to remove it.

Furthermore, liaison was established with owners of pipelines, bridges, and powerlines that cross the floodway. Finally, the U.S. Coast Guard was asked to close a ship anchorage area near the spillway, and the Corps' picket boat, *Beinville*, was stationed near the site to prevent wayward tows from being drawn into it.

Thus, by the middle of May most preparations had been already made for the spillway operation. The first "needles" were removed from 70 bays on May 20 and by May 24 all 350 bays were in full operation. Based on the preliminary stage-discharge relationship, the maximum flow through the structure was approximately 260,000 cfs, which corresponded to about a 2-foot stage reduction at and below New Orleans. (Subsequent detailed analysis of the stage-discharge relationship could result in minor revision.)

Once the Mississippi began to fall, bay closings commenced on June 13 and the process was completed 10 days later. Corps officials determined that the closings operation should achieve a gradual decrease in the main stem stages to allow the levees and river banks to dry more slowly and help preclude the possibility of slides and cracking. Follow-up inspections of the spillway structure and guide levees revealed little damage or scouring. However, some minor seepage was observed in several areas along the guide levees near Lake Pontchartrain.

Once again Bonnet Carre did its job and reinforced public confidence in the flood control system. The foresight of those leaders who founded the project more than a half century ago, and the cooperative efforts of the local levee boards, the State of Louisiana, and the Corps of Engineers have resulted in saving hundreds of lives and thousands of dollars in property.

MG William E. Read (RET) is the former Division Engineer of the Army Corps of Engineers Lower Mississippi Valley Division. From 1980 to 1984 he was the president of the Mississippi River Commission. He is a graduate of the United States Military Academy, and is currently engaged in private practice as a civil engineer. He resides in Gulfport, MI.

Michael C. Robinson, the division historian for the Lower Mississippi Valley Division and Mississippi River Commission, Army Corps of Engineers, Vicksburg, has published widely in the field of public works history. In 1984 he was the co-editor of: The U.S. Army Corps of Engineers and Environmental Issues in the Twentieth Century: A Bibliography, as well as having written or co-written a number of other books earlier.

Corps Writers Assistance Program

"High Water, Hard Decisions: The 1983 Bonnet Carre Spillway Operation" was published in the December 1983 *Louisiana Engineer,* the publication of the Louisiana Engineering Society, located in Baton Rouge, LA. This story was brought to the attention of ENGINEER through the Corps Writers Assistance Program (CWAP), a newly formed program in the Headquarters, United States Army Chief of Engineers office.

The program gives Corps employees encouragement, assistance and recognition for writing articles centered around the Corps, and helps by placing their articles in magazines as well as by discussing book publishing opportunities. HQUSACE Chief of Public Affairs awards a Certificate of Merit for Journalistic Achievement to those who have articles published.

Although submission of Corps-based articles is not required before publication, authors (both published and unpublished) are encouraged to contact the CWAP office for assistance. For further information, anyone interested should call Ms. Lu Christie DuCharme, Public Affairs Specialist, Public Affairs Office, Department of the Army, Office of the Chief of Engineers, DAEN-PAI, Washington, DC 20314. Her phone number is (202) 272-0011, AV 285-0011.

MAJ Skip Morrow, executive officer, 3rd Battalion, 3rd Brigade, and CPT Robert Lentz, Commander, E Company, 2nd Battalion, 3rd Brigade discuss the Junior Officer Skill Sustainment Program. (Photo by SP4 Thomas Copeland.)

Developing Our Junior Officers

by COL Samuel J. Ady

Have you ever found yourself as the only officer of your branch assigned to your unit? That being the case, have you ever tried to get adequate branch training? Not so easy, is it? Especially for a junior officer.

Unless their training center is co-located with a service school or has tenant TOE units, many junior officers who are assigned to training units often cannot practice their branch skills as do their contemporaries who are assigned to line companies. While some officers lead infantry platoons, tactically employ tanks, or conduct RSOPs (reconnaissance, selection, and occupation of position), others find themselves totally isolated from their branch.

But in order to make amends, the 3rd Basic Training Brigade at Fort Leonard Wood, MO, is introducing a new program which provides junior officers the opportunity to practice their branch skills. The program is called the Junior Officer Skill Sustainment and Development Program and it has three major goals:

- to develop and sustain war-fighting capability among junior officers during their tours with the training base;
- to develop junior officers using technical equipment and resources beyond the capability of training battalion commanders;
- to keep junior officers, serving with the training base, reasonably competitive with their contemporaries in TOE units.

To meet these objectives, two subprograms were instituted. These programs are in addition to the normal battalion professional development programs and systems for common skills testing. These are the Branch Counselor Program and a cross-fertilization program for company commanders.

Currently, there are 47 junior officers (excluding chaplains) in the 3rd Brigade. They are represented by several branches: Infantry with 23 officers; Armor and Field Artillery each have 8; Engineer is represented by 1; Quartermaster has 1; Air Defense Artillery has 4, and Adjutant General Corps has 2 officers.

In order to give each junior officer access to a senior, knowledgeable branch officer, five field grade branch counselors have been appointed, one from each of the first four branches and a fifth officer to be responsible for all others.

It is critical that the counselor be an experienced, branch qualified field grade officer. Battalion commanders often have neither the time to devote to the intensive management nor the experience and expertise to advise officers of other branches on branch related skill development or appropriate career management.

Within the 3rd Brigade the five battalion commanders represent Military Intelligence, Engineer (two), Field Artillery, and Armor branches; yet the greatest number of junior officers are Infantry. Fortunately, there are some-

times field grade infantry officers in battalion executive officer and brigade staff positions who can be called upon to serve as branch counselors.

Counselors are formally appointed by letter from the brigade commander and operate across battalion boundaries. They are required, however, to keep each battalion commander advised of the branch skill development plan which is devised by each of his junior officers, problems encountered, and the progress of each officer. They are also required to brief the brigade commander semiannually on the status of each of these junior officers. Shortly after arrival to the brigade, each junior officer receives a letter from the brigade commander advising him of the Branch Counselor Program and the name of his counselor.

The Branch Counselor Program has two primary objectives. The first objective is to maintain and increase officers' branch proficiency while assigned to the training base. In close coordination with each officer, counselors formulate a specific program tailored to the needs of the officer.

The program includes hands-on training with branch units, which normally involves temporary duty. It may also involve association with reserve components, enrollment in correspondence courses, use of Fort Leonard Wood resources, and some in-house unit development.

The major problems associated with the program are the lack of time and, as always, TDY funding. Funding is particularly important because TDY is one of the few ways to obtain hands-on training (particularly, collective training) with TOE units.

The second objective is to educate the officer on planning his career and to assist him in the effort. He is informed of his next promotion window, the officer educational system through senior service college (including the time of his eligibility), the alternate specialty program, the requirement for branch qualification as a junior officer, the necessity for submitting periodic preference statements, and other matters related to career progression and development.

In early 1984, LTG Charles W. Bagnal, the TRADOC Deputy Commanding General for Training, and MG Maurice O. Edmonds, TRADOC Deputy Chief of Staff for Training, were briefed on this program. They agreed to provide funds exclusively for junior officer TDY to gain practical field experience with TOE units.

Since the program started, nine lieutenants have participated in field exercises with TOE units for 12 to 28 days and another seven are scheduled during the next several months. Because each TDY is carefully planned, the average cost has been about $350 per trip.

Two armor lieutenants recently participated in tank gunnery with the 4th and 1st Engineer Battalions at Fort Riley. Four other infantry, armor, and field artillery lieutenants served with the 1st Engineer Battalion as scout platoon leaders, tank platoon leaders, and as members of a fire support team. These officers gained experience that was impossible to obtain at Fort Leonard Wood.

The 1st Infantry Division has been especially helpful in this program by publishing a policy directive. Their directive assigns internal staff responsibility to ensure that the program is administered effectively and that junior officers gain the maximum benefit from the training. The 4th and 5th Engineer Battalions at Fort Knox as well as other units at Forts Sill and Hood are also making significant contributions.

Our officers are eager for this training. They want to learn and practice their branch skills. It is a credit to TRADOC that this need has been recognized and that funds have been provided. Equally important, FORSCOM units have done a superb job in providing rigorous field training during each trip.

In addition to the branch-related TDY trips, more than 85 percent of the junior officers are enrolled in a rigorous series of correspondence courses, as well as taking advantage of branch-related, hands-on training. A sizeable number are enrolled in advanced courses of either their branch or another branch to sharpen their combined arms skills, and almost all are enrolled in tactical refresher and maintenance courses. Branch counselors provide advice and assistance in the selection of these courses and monitor each officer's progress.

The second major brigade-level subcomponent in the program encourages cross-training among company commanders. The rationale for the program is that junior officers can often become so involved in the daily business of running their units that they fail to see and learn what is happening in other units. In some cases they work hard, thinking they are meeting high standards, however, their standards are only mediocre.

The program forces them out of the small universe of their own companies and teaches them how to profit from the ideas and practices (both good and bad) of their contemporaries.

In order to accomplish this goal, five

ENGINEER HOTLINE

Problems, questions, and comments relating to Engineer doctrine, training, organization, and equipment can be addressed by telephone to the U.S. Army Engineer School's "Engineer Hotline." The Hotline's auto-answer recorder operates 24 hours a day, seven days a week. Callers should state their names, addresses and telephone numbers, followed by a concise question or comment. You'll receive a reply within three to 15 days. The Hotline is not a receiving agency for formal requests.
Call commercial (703) 664-3646; WATTS 800-336-3095, extension 3646; or AV 354-3646.

company commanders (one from each battalion) have lunch with the brigade commander every two or three weeks. These are working luncheons and last from 1½ to two hours. They are relatively informal and included a healthy interchange among junior officers and between the company commanders and the brigade commander.

Each company commander then visits a specific company in another battalion for at least one-half day within a certain period. He is given a list of things to accomplish during the visit and a list of questions which may be useful to ask his fellow company commanders during the visit.

The program forces the visiting commander out of his company, introduces him to standards in another company, allows for an exchange of ideas, and introduces him to other commanders on a professional basis. During the year each brigade company commander will have visited units five times and will have himself been visited approximately five times.

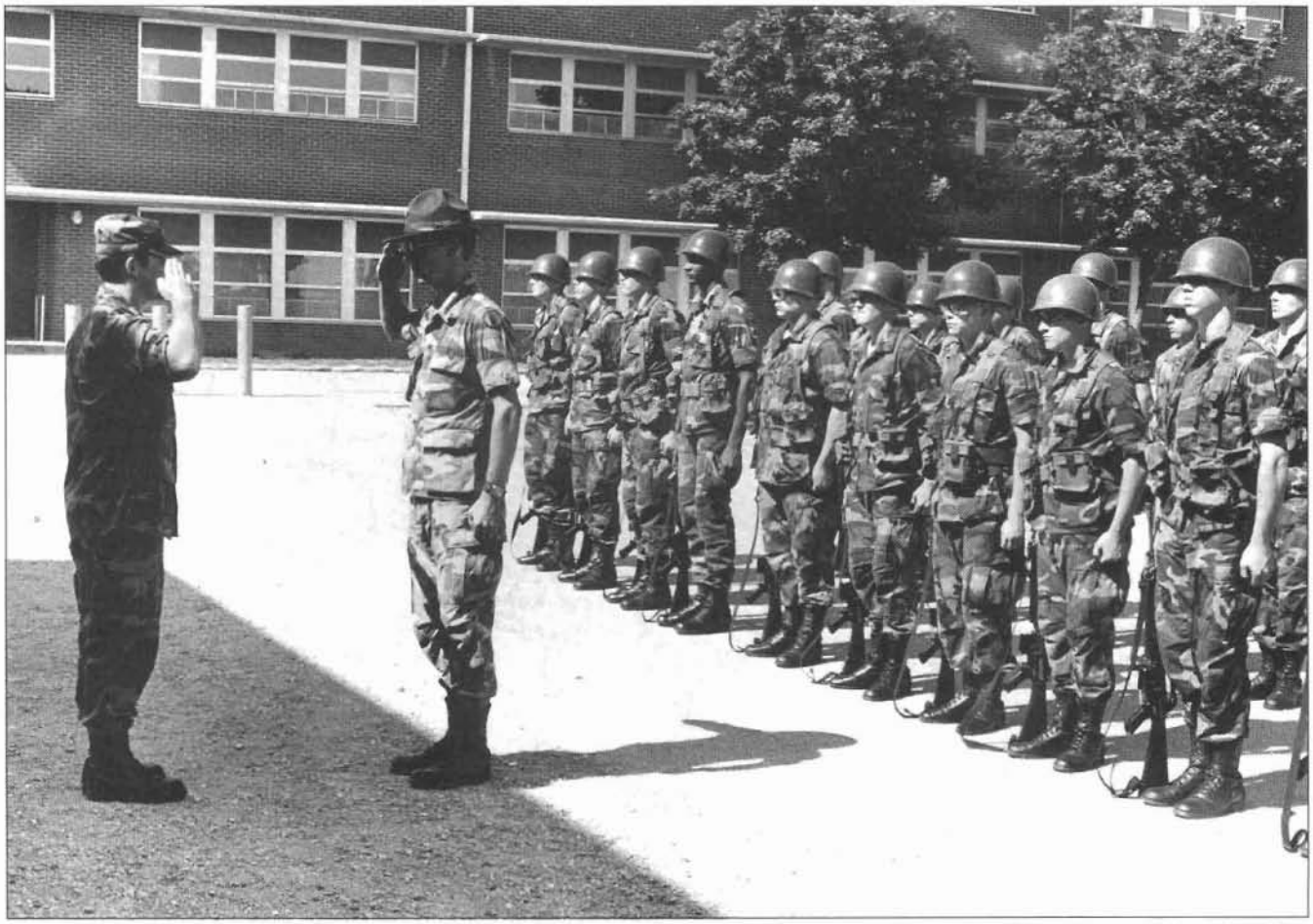
The program's short-term objective is to increase professionalism within the brigade. The long term objective is to teach each junior officer the habit of profiting from the ideas, techniques and standards of contemporaries and, consequently, accelerating his own growth process as he advances in rank.

The Junior Officer Skill Sustainment and Development Program is not a cure-all for sustaining officers in their branch skills while in the training base, but does accomplish important objectives:

- it gives each junior officer 1½ to four weeks of field training with a TOE unit of his branch;
- it forces the officer to devise a plan with a milestone schedule on how he is going to maintain his branch skills while stationed at the training base;
- it introduces him to the correspondence course system and forces him to take a fairly rigorous schedule of courses;
- it provides him with a field grade officer from his branch to advise him on career matters;
- it forces company commanders to begin acquiring the habit of profiting from the ideas of their contemporaries.

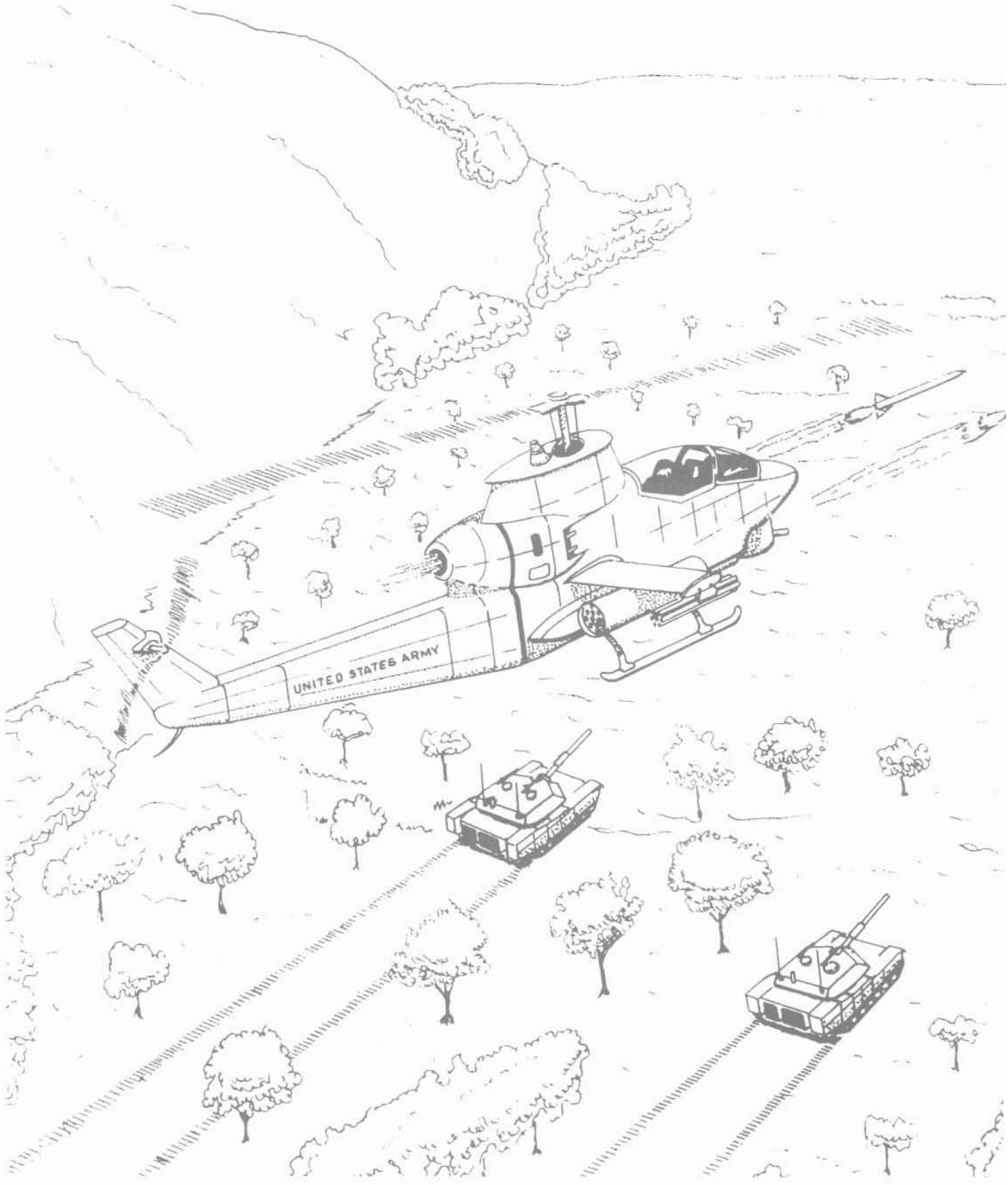
The program has been successful and will continue to succeed in the future only through the collective efforts of the officers and NCOs in the 3rd Basic Training Brigade, TRADOC, and the FORSCOM units who provide such truly outstanding support.

COL Samuel J. Ady commands the 3rd Basic Training Brigade at Fort Leonard Wood, MO. He has served in Vietnam as an advisor in 1963 and with the headquarters of the 1st Infantry Division from 1967 to 1968. Among other assignments, COL Ady has also served as executive officer and S-3 of the 4th Battalion, 3rd Artillery, 1st Armored Division and as G-3 of the Southern European Task Force in Vicenza, Italy. He has a bachelor's degree in political science from Loyola College and a law degree from Harvard. COL Ady is also a graduate of the Command and General Staff College and of the Army War College.



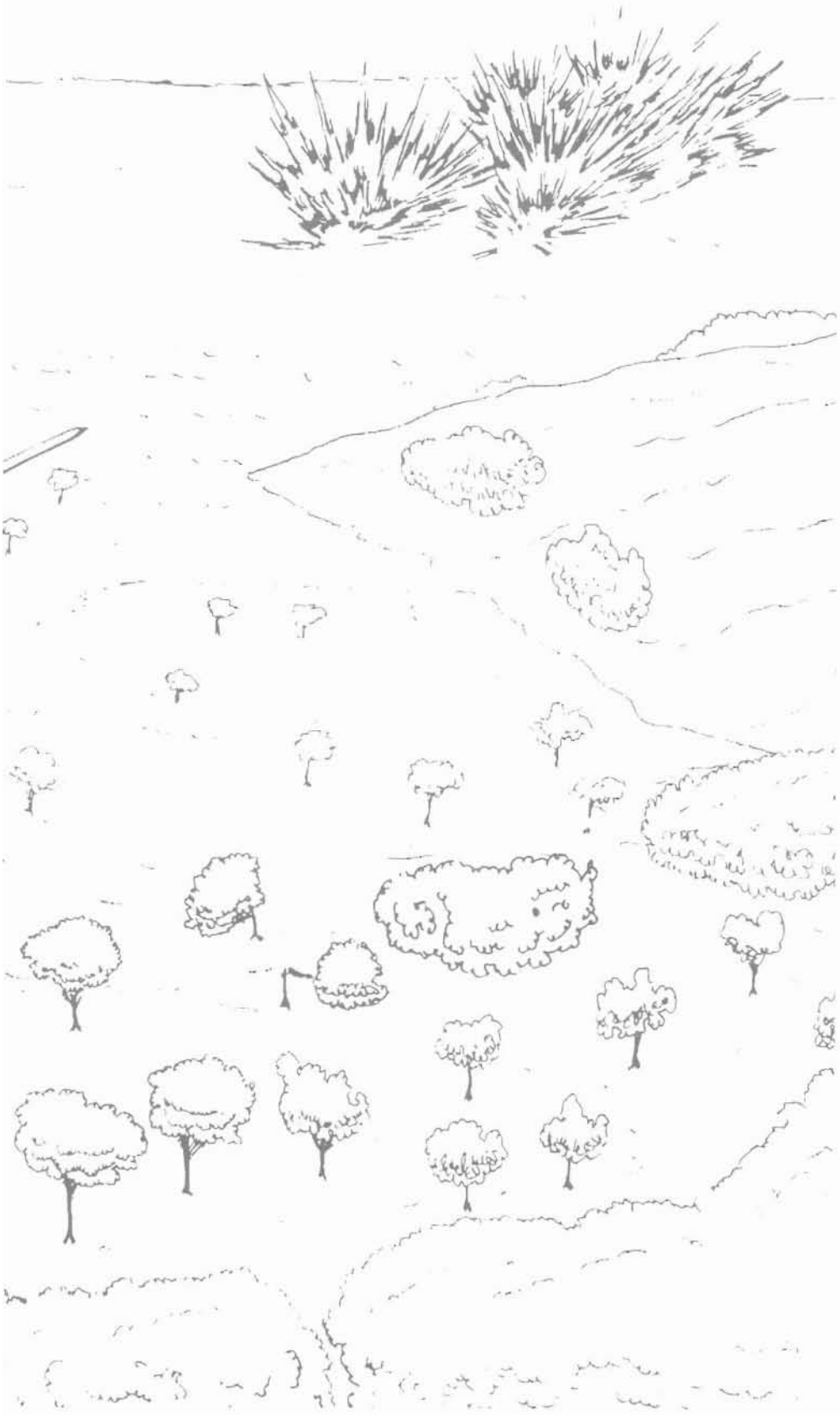
SFC Ronnie Guy reports to his company commander, CPT Robert Lentz. (Photo by SP4 Thomas Copeland.)

A New Way to Breach



Minefields

by: Harry N. Hambric and MAJ Edwin L. Booth



The lack of viable counterobstacle doctrine has long been a problem for an armed force desiring unimpeded battlefield maneuver.

When we examine the U.S. Army's requirements in this area, we find that there are five basic missions:

- counterobstacle missions such as negotiating craters;
- countermine missions such as clearing or breaching minefields;
- gap crossings missions such as river crossings, tank ditches, and overbridging existing structures;
- force mobility tasks such as constructing combat roads and trails;
- forward aviation Combat Engineering tasks (FACE) to construct landing zones and strips, low altitude parachute extraction system (LAPES) sites and forward arming and refueling points (FARPS).

In reviewing each of these missions we find that our capability to accomplish counterobstacle, gap crossing, mobility and FACE tasks are sufficient to provide U.S. forces with all the support necessary to operate on the Air-Land Battlefield. Countermine missions, however, are another matter.

For years, the methods we have used in breaching minefields have been so inefficient that they not only threatened the lives of our soldiers, but the success of important missions as well.

Modern technology and knowledge of potential adversaries require that we base our countermine requirements on a threat that routinely employs current mine delivery systems as part of a combined arms effort. The Warsaw Pact, as well as other countries trained by them, have well learned the lessons of mine warfare from World War II. They have continued to build on this knowledge by using information gained from the numerous conflicts and battles since then.

A simple review of the mine and countermine equipment available to threat forces reveals that they have substantial amounts of current hardware to both install and breach minefields. Threat force commanders have combined this equipment with viable doctrine and tactics to allow either system to be located well forward in the battle area. They have gone so far in their development of doctrine, that special combined arms teams or detachments are formed to install minefields and obstacles, or to breach those in their path.

The serious student of military science has little difficulty in recognizing that a U.S.-equipped force encountering a Warsaw Pact minefield on today's battlefield would experience serious difficulty. The mines by themselves would have a small impact and could be overcome with existing technology and doctrine. Combined, however, with the direct and indirect fires available to the defender, they would be capable of quickly and substantially degrading the combat effectiveness of an attacking U.S. force.

The threat commander has the capability to quickly locate, target and mass indirect fires anywhere within his sector. This capability requires that an attacker must overcome minefields rapidly. Loss of momentum by the attacking force gives the defender an opportunity to catch it in a devastating "fire sac" as well as gaining time to call forward reinforcements.

Current U.S. Army doctrine for overcoming minefields stresses "bypassing" the minefield. If bypassing is not possible, either a "hasty" or "deliberate" breach must be conducted.

If the defender has made the mistake of leaving a tactically sound by-pass, there is no requirement for countermine activities and the assault can continue. When there is no alternative but to cross the minefield, a breach is conducted.

A "hasty" breach is defined as one which uses assets organic to the force and is accomplished without loss of momentum. Although a hasty breach is accomplished as fast as possible, it may take hours.

A "deliberate" breach occurs when a hasty breach has failed or when the tactical situation dictates. The deliberate breach requires a build-up of substantial combat power and will usually be conducted by Combat Engineers brought forward for the mission. A deliberate breach may take several hours or even days depending on the strength of the defenders and magnitude of the minefields and other obstacles.

Because of the threat's ability to locate and target our forces quickly, a hasty breach taking longer than 30 minutes or a deliberate breach will receive severe opposition. The longer it takes to accomplish the breach, the greater the opposition—the greater the attacker's casualties.

Current U.S. Army combined arms doctrine specifies that an attacking force be organized into three elements: a support force to suppress the defenders with direct and indirect fires and obscure the breaching mission; a breaching force to conduct the breach, mark the lanes and secure the far side; and an assault force to continue the attack against the objective.

The breaching force will have tank-mounted mine rollers for detection and proofing; line changes for breaching lanes; or as most Engineers and infantrymen are aware, the mine detector and probe.

Although there are other items such as plows and fuel air explosives, they are not available now and there is no assurance that they will be available in time for the next war.

Some U.S. commanders, realizing that they cannot rely on a capability that does not exist, have developed expedient breaching methods such as pushing disabled vehicles through the minefield, aiming unmanned vehicles at the objective, using Engineer equipment to scrape the ground, or employing indirect fires in an attempt to provide a safe lane. Some commanders have given serious thought to "bulling" through a minefield to maintain momentum and escape the effect of massed fires.

Even with our current hardware and doctrine there is little doubt that crossing a defended minefield is a dangerous undertaking. There is also no doubt that until we provide a better means through equipment, techniques or doctrine, enemy minefields will dangerously impede mission accomplishment.

As mentioned earlier there are items which are developed and waiting to be called forth. Other systems and concepts using special sensors and electronics to detect and neutralize minefields are being studied, but some require major technology breakthroughs before they can be available for actual battlefield use.

Because of limited advances in the countermine arena we can expect that our force's capability to breach minefields on today's battlefield will be at or below what we had in World War II!

Perhaps some relief to this problem can come from existing equipment or weapon systems. The question is: "Which ones, and how can we employ them to provide the capability we need?"

One such proposal is to consider the combat power of attack helicopters. These helicopters can carry 76 2.75-inch free flight rockets.

There are currently two warhead options which may be suitable for breaching a path through minefields. One is the 17-pound high explosive warhead, and the other is the flechette warhead. By launching the rockets at a predetermined air speed, altitude and aircraft attitude in quick sucession as specified in FM 17-40, *Helicopter Gunnery*, a narrow, but long "beaten area" is produced. Mines close to this path would be detonated or destroyed by the 17-pound warhead explosion.

Flechettes from the other warhead would penetrate the mine case and damage internal components but may not detonate the mine.

Perhaps with minor modifications flechettes could be made even more effective by making them pyrophoric or capable of providing the flame necessary to initiate the mine's explosive charge.

At this time we do not have the techniques or a doctrine, or for that matter, assurance that this concept would be effective. If it were proven effective, it would be the only system ever available which could provide U.S. forces with the capability to conduct a truly hasty breach through a conventional or FASCAM minefield.

Explosive Warhead Rockets

In considering the results from actually using these proposals, we can see where they might be effective. The 17-pound warhead rockets would be fired in pairs. The helicopter's firing attitude and altitude, its speed, and launch sequence of the rockets could be correlated to cause the rockets' path to form a clear lane of a specific width and length.

Width of the lane would be based on the effective radius of the warhead to detonate, destroy or clear mines from the lane. The length of the lane provided by a single aircraft would depend on aircraft speed, launches per second and the number of rockets fired. The deeper the minefield depth, the greater the number of firing runs which would be required to breach the entire depth.

The effect of the rockets on the minefield could be as follows:

- Mines close enough for sympathetic detonation would, of course, explode. The combined force of the rocket and

mine explosion may destroy or detonate other nearby mines.

- Through the forces transmitted from the ground, mines not detonated may be displaced or crushed. By shifting the mine from the horizontal position, more force would be required to activate the fuze mechanism. In addition, the ground would be disturbed and could conceivably be so loose that the mine would sink into the ground without exploding. An undesirable factor resulting from this is that some mines may become *sensitized*.
- Mounds of debris covering the mine would also transfer a vehicle's weight over a greater area so that the fuze does not receive sufficient pressure to activate.
- Mounded dirt and debris would also expend some of the explosive force even if the mine did detonate, thereby decreasing the damage probability.
- Mines with anti-handling devices would be disturbed and might detonate.
- Magnetically fuzed mines might also explode when quickly shifted. They would be vulnerable to being displaced, detonated, covered by debris or rolled into craters resulting from explosions.
- The resulting path (lane) from warhead explosions would be readily visible because of the close proximity of the linear crater path.
- The entrance and end of the cleared path could be designated by using perhaps a "marking" rocket which emits a colored smoke. White Phosphorous (WP) would not be feasible because it would mask the clear lane.
- Resulting mounds and craters would preclude the effective use of proofing devices such as rollers, but the self-bridging capability of armored vehicles would allow them to stay on mounds and other debris. This practice would drastically reduce the probability of detonating a mine.

Flechette Rockets

Flechette rounds would be employed in the same manner as the explosive warhead. They would be employed at an airspeed, altitude, aircraft attitude and range which would create a thin, long, beaten area in which flechettes would cover the beaten area in any density desired.

The current flechette would have a low probability of detonating a mine, but two or three of them hitting a mine could damage the fuze or firing chain.

In addition to breaching conventional or FASCAM minefields in a unit's path, this concept, if feasible, could be the answer to a major problem which all armies have today—extricating friendly units from air or artillery-delivered mines which have been placed directly on them. A friendly force in this situation could button up and have attack helicopters fire directly onto them. Safe lanes could be quickly breached without damage to the force.

A warhead containing 2,500 flechettes could cover a 20-foot x 20-foot area with six flechettes per square foot. Firing the rockets in pairs would place twelve flechettes in each square foot. This would allow a helicopter with 76 rockets to breach a 20-foot x 760-foot lane with a high probability of damaging any mine in the lane.

Combined High Explosive and Flechette Warheads

An alternative concept would have each pair of rockets contain one high explosive (HE) warhead and one flechette warhead. This would provide a high probability that any mines in the lane would be damaged by the flechettes and exploding warhead. This concept would also provide an instant means for marking the cleared lane using the craters formed by the HE rounds.

For this reason the concept of using a mix of one HE and one flechette appears to offer advantages over firing just flechettes. Not only will the lanes be marked by craters, but the craters and resulting spoil will provide loose soil in the same manner as using purely HE warheads. The possibility of affecting each individual mine, however, increases with each flechette round used.

Certainly there is some question of the danger involved in a proposal such as this. However, when you compare it with our present breaching capability, it provides us with capabilities we have not had before. That is, the ability to maintain force momentum, the ability to safely counter air or artillery-delivered mines, and the ability to combine breaching and marking into a single operation without exposing soldiers.

The important factor is that U.S. forces would be able to plan for and cross large mined areas much quicker than the critical 30-minute time limit. This would prevent them from being exposed to the full force of the threat's direct and indirect fires.

Doctrinal Implications

Minefields would be breached in minutes rather than hours. This factor would allow the force commander to count on a much larger portion of his force to be intact when he reached the objective.

In addition, the speed with which the objective could be reached would prevent enemy reinforcement. By the time enemy fires could be brought on the attacker, it would be too late. The two forces would be so close to each other that effective supporting fires would be difficult and dangerous to deliver.

The use of air-delivered, free flight rockets in a minefield breaching role is just an idea; and there are certainly many who could argue against it. There are also many who may consider it to be a good idea, particularly since this method of delivering free flight rockets with a high degree of reliability can be trained on using existing techniques. Good or bad, it is an idea which may get other people thinking.

U.S. forces have some of the best combat vehicle systems in the world. Their speed and survivability will be worthless if they spend valuable minutes or hours waiting for a minefield to be breached.

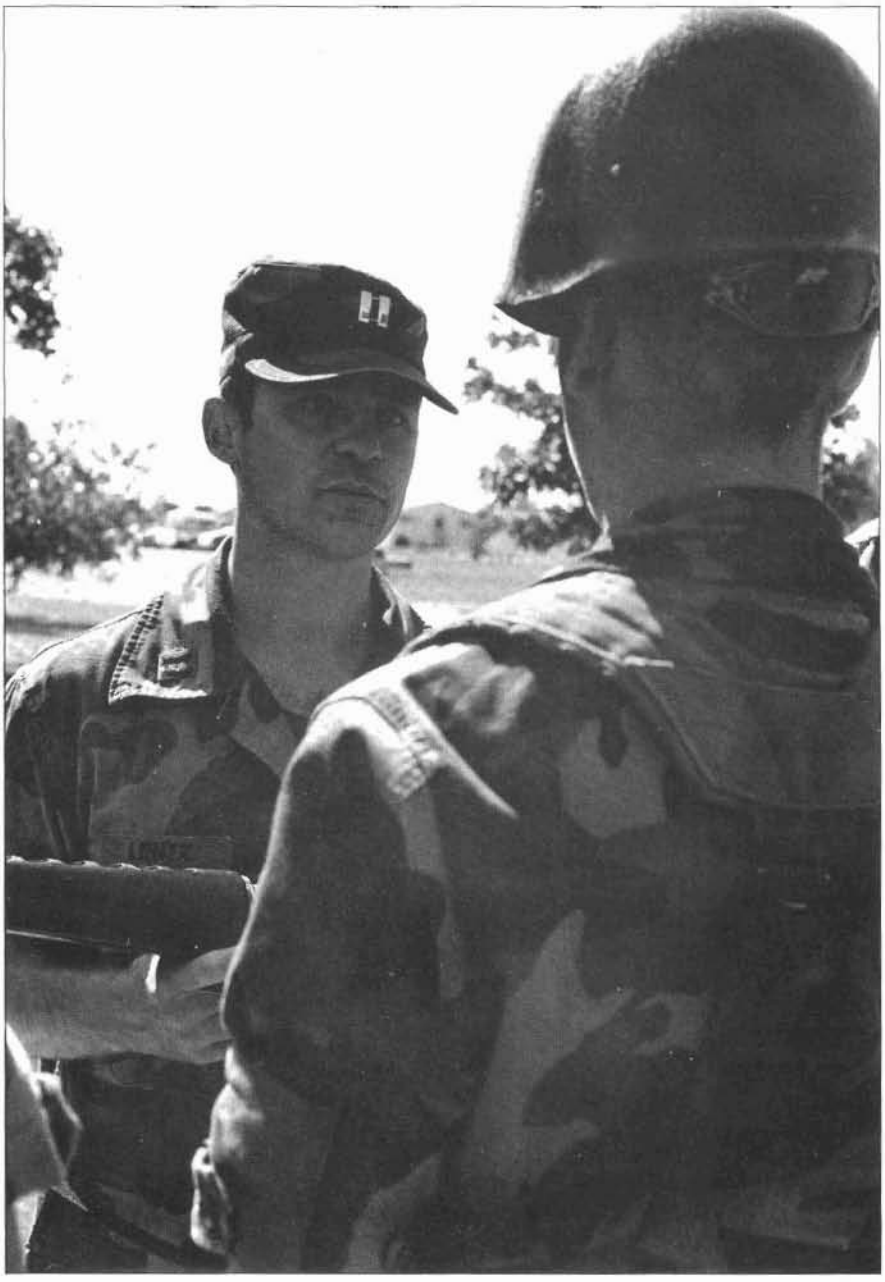
Somewhere there is a better way to breach minefields and we need to find this technique before the next battle. The concept of using free flight rockets launched from attack helicopters, a system already available to the force, may be the answer.

Mr. Harry N. Hambric is a doctrine development analyst at the U.S. Army Engineer School. He has written several articles on mobility, as well as participating in writing the key engineer publications (FM 5-100, ***Engineer Combat Operations****, FM 5-101,* ***Mobility****, and FM 5-103,* ***Survivability****. Mr. Hambric is a retired Combat Engineer officer and is currently employed with the Directorate of Training and Doctrine, U.S. Army Engineer School.*

MAJ Edwin L. Booth is the Armor-Aviation representative at the U.S. Army Engineer School. His recent assignments include Aviation Advisor in Montana, and Armor and Infantry Company Commander. MAJ Booth is a recent graduate of the U.S. Army Command and General Staff College.

Another Side of "Authority"

by MAJ Lawrence R. Sadoff



Obedience to authority is essential to the system of military discipline as we know it today.

CPT Robert Lentz, commander, E Company, 2nd Battalion, 3rd Brigade, stresses importance of personnel and weapons readiness. (Photo by SP4 Thomas Copeland.)

Obedience is one of the basic tenets of our military heritage. It can often mean the difference between success or failure on the battlefield. Yet, obedience to authority can have another dimension, a dimension which all of us who carry the baton of leadership must be aware of constantly.

The concepts of responsibility and authority, the "Siamese twins" of command, have been the subject of many penetrating and incisively written analyses during the past several years. Generally, responsibility has been defined as the obligation to perform assigned activities, while authority has been described as the right to perform or command.

We have all heard it said, "A commander is responsible for all his unit does or fails to do," which simply means that true responsibility cannot be delegated. It follows that if one is given responsibility for a mission, he must also be given the authority to carry it out. In the military, rank is bestowed upon those who are given more responsibility and more authority.

Beginning with basic officer or enlisted training, obedience to authority is ingrained in our thought patterns and in our responses. Such Pavlovian reactions are reinforced throughout our careers. However, although obedience to authority (sometimes even blind obedience) is often required by our profession, there are potential pitfalls which mandate further analysis.

In their book, *In Search of Excellence*, Thomas J. Peters and Robert H. Waterman, Jr. describe some experiments which Stanley Milgram conducted to illustrate how people can blindly obey those in positions of authority.

"*Milgram brought adult subjects off the street into a Yale lab and asked them to participate in experiments in which they were to administer electric shock to victims. (In fact, they were not doing so. The 'victims' were Milgram-conspirators and the electric shock devices were bogus.) Initially, Milgram had the 'victims' placed in one room and the shock givers in another.*

Following instructions given to them by a white-coated experimenter (the authority figure) the shock giver turned the dial which went from 'mild' to 'extremely dangerous.' On instruction shock givers administered the electricity, and all went 'all the way' in administering shock. One hundred percent followed orders, although in earlier written tests (where there was no authority figure present) over 90 percent predicted they would not administer any shock whatsoever.

Milgram added embellishments. He connected the rooms with a window, so the shock giver could see the 'victim' writhe in pain. He added victim 'screams.' Still 80 percent went to 'intense' on the dial and 65 percent went to 'extremely dangerous.' Next he made the victims appear to be 'homely 40-year-old female accountants.' He took the experiments out of the university and conducted them in a dreary downtown loft. He had the shock giver hold the victim's hand on the electric charge plate. All these steps were aimed at breaking down the subject's acceptance of the white-coated experimenter's authority. None worked well. People still by and large accepted authority."

Milgram's experiments have great meaning to those of us in uniform. The results force us to examine the consequences of authority from the perspective of both a subordinate and a superior. As superiors, we try to give clear and concise orders which we often expect to be followed without delay. Such obedience is essential to success on the battlefield. At other times, though, we simply may be doing no more than giving general direction, providing guidance or making policy.

In our own minds we are delegating and decentralizing authority, while expecting our subordinate staff and commanders to develop and execute the specifics. We expect our subordinates to provide feedback if something is extremely dangerous, wrong, irregular, or even illegal or immoral. Still, we must remember that we are the "authority figure"—Milgram's man in the white coat.

We want our subordinates to provide feedback instead of being "yes men." This expectation by itself will not ensure that this goal is accomplished. The command climate we establish is the key mechanism to ensure that our subordinates provide valuable and needed information.

We can say we want feedback, but our reactions when we receive it (especially if it is unfavorable) speak for themselves. How often have we heard our superiors say that they do not want "yes men" only to be subsequently scolded by these same superiors when we state our honest convictions. If we commanders do not establish a climate of genuine trust which allows feedback, we are little more than extensions of the rigid white coated authority figure in Milgram's experiments.

As subordinates, we are trained for total response and obedience to our superiors. We must always be aware, though, of our internal clock that tells us right from wrong. During the post World War II Nuremberg Trials, many of the accused justified their actions because, they were simply "following orders of those in higher authority."

The basic question then is, when do our internal controls override the actions that have their origin in higher authority? This is obviously a complex, not easily answered question. On one end of the spectrum we extol obedience to those in authority, but on the other end we see a need for a safety mechanism with internal controls, a sensitivity to what is right or morally correct.

Obviously all of us will draw this line differently. We must differentiate right from wrong and wrong from illegal or immoral. Many times, we as subordinates, receive orders which we feel are wrong—yet they are not illegal nor immoral. Remember that when we were in the role of superior, we expected our subordinates to tell us if the orders we gave them were dangerous or wrong. Now that we are in the role of subordinate, do we not owe our superiors that same consideration?

What happens if these orders are illegal or immoral? We still owe our superiors the same feedback. Yet, failing to execute orders which we feel are wrong is far different from failing to carry out an illegal or immoral order.

Obviously issues are not normally so simple or clearcut, nor will questions of legality or morality be solved here.

The key point is that we are all involved with complex issues involving the use of authority, as either a subordinate or superior. As Milgram's experiments imply, authority means power, and we always must be aware of this and its potential for abuse or misuse. Whether as a leader or follower, each of us must use our internal balancing mechanisms, lest we become real life players acting out Milgram's experiments.

One other aspect in Milgram's experiments warrants comment. When Milgram gave written tests (where the authority figure was not present) over 90 percent of those tested predicted they would not administer any shock whatsoever. However, this obviously changed with the "appearance" of the white coat authoritarian figure who commanded obedience and respect. This respect for those who "appear" to be authoritative is evident in the following excerpt from John Molloy's well read book, *Dress for Success*:

"*Take the raincoat for example. Most raincoats sold in this country are either black or beige . . . Intuitively I felt that the beige raincoat was worn generally by the upper-middle class (authority figure) and black by the lower-middle class.*

First, I visited several Fifth Avenue stores that catered almost exclusively to the upper-middle class customers . . . The statistical breakdown was four to one in favor of beige raincoats. I then checked stores in the lower-middle class level and found that almost the reverse statistic applied. They sold four black raincoats to each beige raincoat.

. . . On rainy days I hired responsible college students to stand outside subway stations in determinable lower-middle class neighborhoods and outside determinable upper-middle class suburban commuter stations. The students merely counted black and beige raincoats. My statistics held up four to one in favor of beige in upper-middle class neighborhoods and exactly the opposite in lower-middle class neighborhoods."

Molloy conducted similar experiments throughout the United States and hypothesized that,

"*. . . Since raincoats were an intrinsic part of the American environment, they had in all probability conditioned people by their predominance in certain classes and automatic (Pavlovian) reactions could be expected.*

In short, when someone met a man in a beige raincoat, he was likely to think of him as a member of the upper-middle class, and when he met a man in a black raincoat, he was likely to think of him as a man in the lower-middle class."

We in the military also have our beige raincoats, be they the scrambled egg of a field grade officer's hat or the wide-brimmed hat of the drill instructor. Our raincoats indicate authority instead of socioeconomic standing. While symbols of rank, position and authority are not necessarily bad, we must, however, recognize that they do exist, and the trappings of our authority can be used or abused, either intentionally or more often than not, unintentionally.

In carrying out our responsibility, we are often required to play many roles, be that of a stern taskmaster, an allocator of resources, an arbitrator. As we carry out our varied responsibilities, we must be aware of potential problems that might occur as we switch from one role to another.

Such problems were graphically illustrated in experiments conducted by Philip Zimbardo at Stanford. Zimbardo advertised in a newspaper in Palo Alto, CA, an upper-class community, for volunteers in a role-playing experiment. The volunteers were taken to a "wallboard" prison in the basement of the Stanford University psychology building and randomly assigned roles as "guards" or "prisoners."

Within hours the randomly assigned "guards" were acting as guards and the randomly assigned "prisoners" were acting as prisoners. By the end of the first day the guards were behaving brutally—both physically and psychologically. By the end of the second day two of the prisoners had to be released from the experiments because they were on the verge of a psychotic breakdown. "Warden" Zimbardo, afraid of his own behavior as well as that of others, stopped the experiment four days into the ten-day protocol.

We are all products of our environment and we all are required to play various roles in uniform. Once again, we must rely on our internal balancing mechanisms to control actions that have their origin in authority.

The proper use of authority, as we carry out the myriad of complex functions associated with our responsibilities, cannot help but make every one of us better leaders. Although our superiors are the ones who judge our leadership abilities and our potential, we are often successful because of the actions of those whom we lead and exercise authority over.

It has been said that, "No man is a leader until his appointment is ratified in the hearts and minds of his men." A conscientious effort by all of us on how we use our own authority with its explicit as well as implicit consequences cannot but help to make us better leaders not only in the hearts and minds of those for whom we work, but more importantly, in the hearts and minds of those who work for us.

Everyone of us who carries the leadership baton must ensure that we understand the implications of our responsibilities and, more importantly, all the sides and dimensions of the authority that comes with it.

MAJ Lawrence R. Sadoff is the executive officer of the Office of the Chief of Engineers. Among other assignments, he was a company commander in the 8th Engineer Battalion, 1st Cavalry Division, and in the 503rd Engineer Battalion. He was also the Deputy District Commander of the Corp of Engineers Albuquerque. A graduate with the highest distinction at the Naval College of Command and Staff in 1981, MAJ Sadoff is also a U.S.M.A. graduate and has master's degrees in civil engineering from the University of Illinois and in business administration from Southern Illinois University. He is a registered engineer in Virginia.

Let BTMS Work For You

by CPT Bryan L. Page

The Battalion Training Management System (BTMS) and its implementation poses unique problems for all Training and Doctrine Command units. Due to its unique structure and mission, each unit has to develop a program to serve its own needs.

As a commander of a Combat Engineer One Station Unit Training (OSUT) company, I was among the first to find a thousand reasons why BTMS should not apply to my company. However, after attending a Training Manager's workshop, I was surprised to discover that it was nothing more than "common sense training."

Upon completing the workshop, I was eager to develop a system which would benefit both the noncommissioned officers and our training mission. The system would have to train NCOs to reenter the FORSCOM units fully proficient in their respective MOS. Additionally, the system needed to be easily manageable, self-generating, and capable of providing reliable feedback.

The first step in developing our BTMS program was to determine training objectives and to ensure that they coincided with our ARTEP requirements. Since the company is in the only Combat Engineer Training Brigade in the Army, we used ARTEP 5-35, *Combat Engineer Battalion, Corps*, as a basis to develop these objectives and to establish the standards.

Once these goals were established, we had to determine how we would make them work for our unit. But before accomplishing this, we had to determine our current combat readiness status.

Unlike a TOE unit, the training company has no formal means of determining combat readiness such as ARTEF exercises, and, therefore, has to rely on other forms of evaluation to find its combat proficiency status.

Since BTMS in a training company is aimed at the permanent party cadre only, the system which determines our proficiency status had to be modified.

First, we closely examined the individual, and not the platoon or squad. A process of personal interviews, reviewing SQT results, and administrating self assessment surveys was used, listing every sub-task of every mission established as a training or ARTEP objective. It required individuals to take stock of their own ability and report proficiency as being either trained, needing practice, or untrained for each individual task.

Special care was taken to define standards for these three categories to ensure the survey was valid. After collecting the data, the results were compiled into one easily read chart. From it, strengths and weaknesses could be identified and long-range BTMS plans were formulated.

The long-range plan was broken into four phases, with each phase covering one training cycle (normally 15 weeks) of an Engineer OSUT company. Once the major missions listed in ARTEP 5-35 were broken down and listed in the long-range plan, it was time to turn attention to the short-range plan for Phase I.

This told us we needed to train and evaluate the basic skills necessary to survive in a combat environment. With that in mind, efforts were concentrated on command and control procedures, unit movement and security operations, intelligence gathering operations, and infantry operations. Each major mission was further broken down into sub-tasks, and classes were developed and given through the company's NCO professional development/ BTMS program.

At the end of Phase I, an evaluation was conducted to determine the effectiveness of the unit's training program while allowing modification or adjustments for future plans. This was conducted during a five-day, four-night Engineer Week exercise in which the drill sergeants removed their campaign hats and assumed platoon sergeant and squad leader roles. They were evaluated on their ability to perform under pressure while completing various missions, such as conducting an ambush patrol, establishing a tactical bivouac, performing defensive and offensive operations, and conducting reconnaissance patrols. The sergeants were also judged on their ability to care for and motivate their soldiers.

The short-range plan for Phase II called for continued reinforcement of the basic survival skills, while focusing on mobility and countermobility missions. Second only to the ability to survive, these two missions are required to enable a Combat Engineer unit to fulfill its role.

As in Phase I, the major missions were broken into sub-tasks, and classes were developed and taught in such areas as calculation and placement of explosives and installation of tactical minefields. Again, our evaluation was conducted during an Engineer Week exercise. That week, however, marked a new awakening for the company. We were no longer satisfied with just meeting the standards, we were setting

future standards for all Combat Engineers.

To accomplish this, we planned a more realistic Engineer Week by locating existing unsafe bridges on Fort Leonard Wood. Permission was given from the Directorate of Engineering and Housing to remove three such bridges through demolition use.

A target folder was developed for each of the bridges indicating the amount and placement of all demolition charges. These were placed according to the target folder by soldiers-in-training under the careful supervision of their drill sergeant squad leaders. The realism involved provided one of the most effective means to train the company's NCOs while giving the trainees the "hands-on" experience they might never have had under normal training circumstances.

At the conclusion of the Engineer Week, individual and company combat readiness was reevaluated, and we were surprised at the progress shown. From this it was determined that basic survival skills should never be taken for granted and must be constantly evaluated.

The short-range plan was modified for Phase III to reflect the continued evaluation of all survival skills, while focusing the main emphasis on fixed bridging operation. As with the previous phases, the major mission was broken into sub-tasks.

Classes were developed and given in such areas as erecting a Bailey crib pier, constructing a Bailey bridge, and constructing an M4T6 Dry Span. As before, it was the company's goal to provide the most realistic training possible.

We elected to construct a 100-foot section of Bailey bridge on an unprepared site to meet this goal. This in itself was a major undertaking, since the transportation, construction, and disassembly of the Bailey bridge "in the wild" had never before been accomplished by a Combat Engineer training unit. A Bailey crib pier was also constructed under the existing bridge, upgrading its classification from class 30 to class 65. This particular achievement had never before been accomplished on Fort Leonard Wood by any military unit, either training or TOE.

The assets to transport the bridge on five-ton dump trucks were not available, thus requiring bridge trucks and pallets. Because cranes were not available, we were dependent on the trucks' own capabilities. Special tie-downs were designed and built by the company to secure the loads during the lifting and hauling operations.

The pallets made loading and unloading the bridge easier, while allowing a greater load capacity than the standard five-ton dump truck. In addition to the support it provided during the hauling operation, the bridge truck proved to be a highly versatile piece of equipment because of its boom and wrench, used during the Bailey crib pier construction.

After careful examination of the Engineer Week evaluation results, we made minor adjustments to Phase IV, where we planned to place our emphasis on float bridging. Our short-range plan not only had to be constantly upgraded, but the long-range plan also had to be projected. For training units this can become very difficult due to the constant turnover of key personnel. However, if flexibility is built into this system, it can survive drastic changes.

Our BTMS plan has shown us that the program will work in a TRADOC unit with slight modifications to allow training unit usage.

CPT Bryan L. Page is Commander, Company E, 1st Engineer Battalion, 2nd Engineer Training Brigade (OSUT). He has served as a platoon leader and executive officer with the 237th Engineer Battalion (CBT) in Hielbronn, Germany, and as Training Standards Officer in Fort Leonard Wood, MO. He is an Engineer Basic Course and Advanced Course graduate and has a bachelor's degree from Missouri Southern State College.

Hotline Q & A

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MG John H. Moellering commands the U.S. Army Engineer Training Center and Fort Leonard Wood, MO. A 1959 West Point graduate, he has commanded Engineer troops and served in various staff positions with the 1st Cavalry Division in Korea and the 24th Infantry Division in Germany. In Vietnam he was S-3 of the 937th Engineer Group (Combat) in the Central Highlands. He later commanded the 326th Engineer Battalion, 101st Airborne Division (Air Assault) at Fort Campbell, KY. He has also served as Assistant Division Commander of the 9th Infantry Division, Fort Lewis, WA.

Soldiers First, Engineers Second: A Personal Viewpoint

(continued from inside front cover)

much to a young man or woman who is experiencing it? Psychologists tell us that a trainee experiences more stress in basic training than he does in actual combat. Basic training is a "rite of passage" and a trainee knows when he finishes that he has been through something which is tough and demanding, and has provided him with skills and discipline, and earned him the title, *soldier.*

One of the things we're placing great stress on at Fort Leonard Wood is that Combat Engineers must be soldiers first and Engineers second. The technical training is extremely important, and drill sergeants who are assigned here have much higher SQT scores than average soldiers for their grade in the Army at large. However, I have seen too many TOE Engineer units which were considered a "ragtag bunch of renegades." Too often we've used the excuse the Engineers don't ever understand how to move about the battle field tactically very well, but they're technicians!

We must change that perception in the Army. There is absolutely no reason why Engineer soldiers should not be the most disciplined and tactically proficient soldiers on the battlefield. Because of the complex nature of their assignments they, in fact, have an obligation to be the best soldiers available. One need only do a cursory study of military history to understand that Engineers have always led the way in combat.

Engineer Solution

Reference: TM 5-163

1. Pond Area (A_s):

$$A_s = \frac{(2500 \text{ men})\ (0.20 \text{ lbs } O_2/\text{man/day})}{60 \text{ lbs } O_2/\text{acre/day}}$$

$A_s = 8.33$ acres

Convert acres to square feet (1 acre = 43,560 ft²)

$$A_s = 8.33 \text{ acres} \times \left[\frac{43{,}560 \text{ ft}^2}{\text{acre}}\right] = 362{,}854.80 \text{ ft}^2$$

2. Pond Dimensions (L, W):

Rule: $L = 2.5W$

$A_s = (L)(W) = (2.5W)(W) = 2.5W^2$

$$W = \sqrt{\frac{A_s}{2.5}} = \sqrt{\frac{362{,}854.8 \text{ ft}^2}{2.5}} = 380.97 \text{ ft}$$

$L = 2.5\ (380.97 \text{ ft}) = 952.44$ ft

3. Pond depth:

a. Total flow (Q_t):

$Q_c = (40 \text{ gal/day/man})\ (2500 \text{ men}) = 100{,}00$ gpd

$$Q_i = (1250 \text{ ft} + \tfrac{3}{8} \text{ mile}) \times \left[\frac{5280 \text{ ft}}{\text{mile}}\right] \times \frac{2 \text{ gpm}}{1000 \text{ ft}} \times \left[\frac{60 \text{ min}}{\text{hr}} \times \frac{24 \text{ hr}}{\text{day}} = 9302.40 \text{ gal/day}\right]$$

$Q_r = 0$ gpd

$Q_e = 0$ gpd

$Q_s = 0$ gpd

$Q_t = Q_c + Q_i + Q_r - Q_e - Q_s$

$= 100{,}000 \text{ gpd} + 9302.4 \text{ gpd} + 0 - 0 - 0$

$= 109{,}302.4$ gpd

Conversion: 1 ft³ = 7.48 gal

$$Q_t = (109{,}302.4 \text{ gal/day}) \times \left[\frac{(1 \text{ ft}^3)}{7.48 \text{ gal}}\right] = 14{,}612.62 \text{ ft}^3/\text{day}$$

b. Lagoon Capacity (LC)

$LC = Q_t \times T_r$

$= (14{,}612.62 \text{ ft}^3/\text{day})\ (60 \text{ days})$

$= 876{,}757.20 \text{ ft}^3$

c. Pond Depth (D)

$$D = LC/A_s = \frac{876{,}757.2 \text{ ft}^3}{362{,}854.8 \text{ ft}^3} = 2.42 \text{ ft}$$

Final Dimensions:

$L = 952.44$ ft

$W = 380.97$ ft

$D = 2.42$ ft

Warrant Officers' Branch

Voluntary Indefinite Status:

In accordance with AR 135-215, "*Officer Periods of Service on Active Duty*," upon completion of initial tour of obligated service, the authority to apply for VI status is suspended for all warrant officers except those managed by the Surgeon General and the Judge Advocate General.

Warrant officers managed by MILPERCEN will no longer be authorized to apply for VI status. However, this change in policy does not interfere with an officer's right to apply for integration into the Regular Army (RA).

The policy and procedures were updated for warrant officers by MILPERCEN due to an upcoming change in the VI status policy for all officers. Officers other than RA will be considered for VI status during the third and seventh years of officer service.

Warrant officers do not have to be in a VI status to apply for RA. They must have two years of warrant service on current tour, but may still be an obligated volunteer (OBV) at the time of application for RA.

Centralized board selection of personnel applying for VI status will be part of the process. Since virtually all warrant officers apply, it has been determined that warrant records will be automatically reviewed, making the application process unnecessary.

A yearly circular will be published announcing the names of all warrant officers who will be considered by the VI status selection board. Those who do not want to continue on active duty beyond their normal ETS will notify MILPERCEN and then will separate with no further action required. For those considered by the centralized selection board, a notification of selection or non-selection will be forwarded through the local commander to the individual officer.

The warrant officer's commander must concur before VI status is awarded. Commanders will be permitted to recommend disapproval of a board-selected VI status and return the action to MILPERCEN for final determination. Declination of VI status by the individual officer will constitute a request for voluntary separation at ETS.

By going to a centralized selection process for VI status, the Army will assure that each officer is given fair, consistent, and equal consideration for career status. In addition, a large administrative workload of paperwork progressing through command channels and MILPOs will be eliminated. The Army will be able to select the best quality officers in the right numbers to meet its needs.

Questions may be directed to CW4 Edward Cole at MILPERCEN, AV 221-7839, commercial (202) 325-7839.

NCO & Enlisted Soldiers' Branch

Where Would You Like to Go:

Is your DA Form 2635 (Enlisted Preference Statement) up-to-date? Does it reflect your current desired area of assignment? Is the dependent data correct? Are personal considerations such as family requirements for special medical or educational facilities included in the remarks sections?

While sometimes referred to as a "dream sheet," the Enlisted Preference Statement was developed to establish a direct line between the soldier and the career managers at MILPERCEN. This information helps the career manager consider the soldier's desire for assignments, schooling, types of duty, and areas of preference.

Also, check your areas of preference on your DA Form 2 or 2A. Do they agree with your Enlisted Preference Statement? If they are in disagreement, or not submitted in the first place, your assignment manager cannot possibly anticipate your personal preferences. Unfortunately, the majority of soldier inquiries received by the Engineer Branch are assignment related and are received after an assignment has been completed, instead of before.

By no means do current preference statements ensure you will get your "dream" assignment. The priorities established by the Army often override personal preferences, however, when they are known they are always considered as an important part of the assignment process. CSMs should encourage members of their units to use these preference statements.

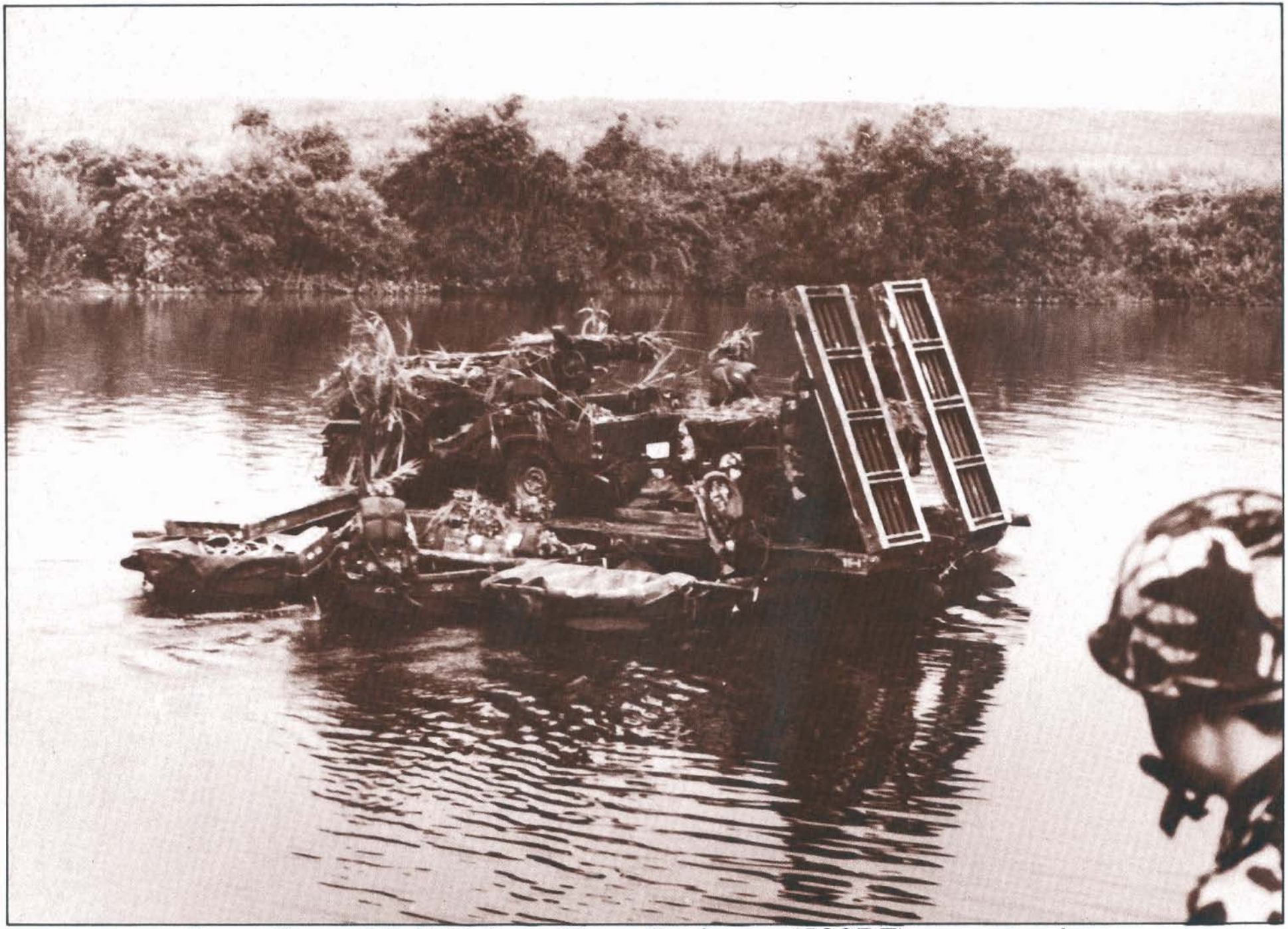
Equal Opportunity Advisors:

The Army needs Equal Opportunity advisors in PMOs 12B (Combat Engineer), 12C (Bridge Crewman), and 51H (Construction Foreman). NCOs may apply if they meet the following qualifications:

- currently serving in grade E-6 (P) or E-7
- have been selected to attend ANCOC or already graduated
- qualified in their PMOS
- eligible for worldwide assignment
- meet height/weight standards
- passed the Army Physical Readiness Test

Volunteers who are accepted will attend 16 weeks of training at the Defense Equal Opportunity Management Institute, Patrick Air Force Base, FLA. All graduates will be awarded Skill Qualification Identifier "Q" and will be assigned to Engineer units in CONUS or overseas.

For more information, contact your local MILPO or personnel staff NCO. For MOS 12B and 12C, ask for SFC Richard Markle at AV 221-7710 or commercial (703) 325-7710. For MOS 51H, ask for SFC John Lane at the same numbers.



Japan Ground Self-Defense Force Engineers (JGSDF) support a river crossing with a light tactical raft. (Photo by MAJ Greg Wojtkun.)