

Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM



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Infantry

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FRONT COVER

The most precious commodity with which the Army deals is the individual soldier, who is the heart and soul of our combat forces. (General J. Lawton Collins)

USAIS

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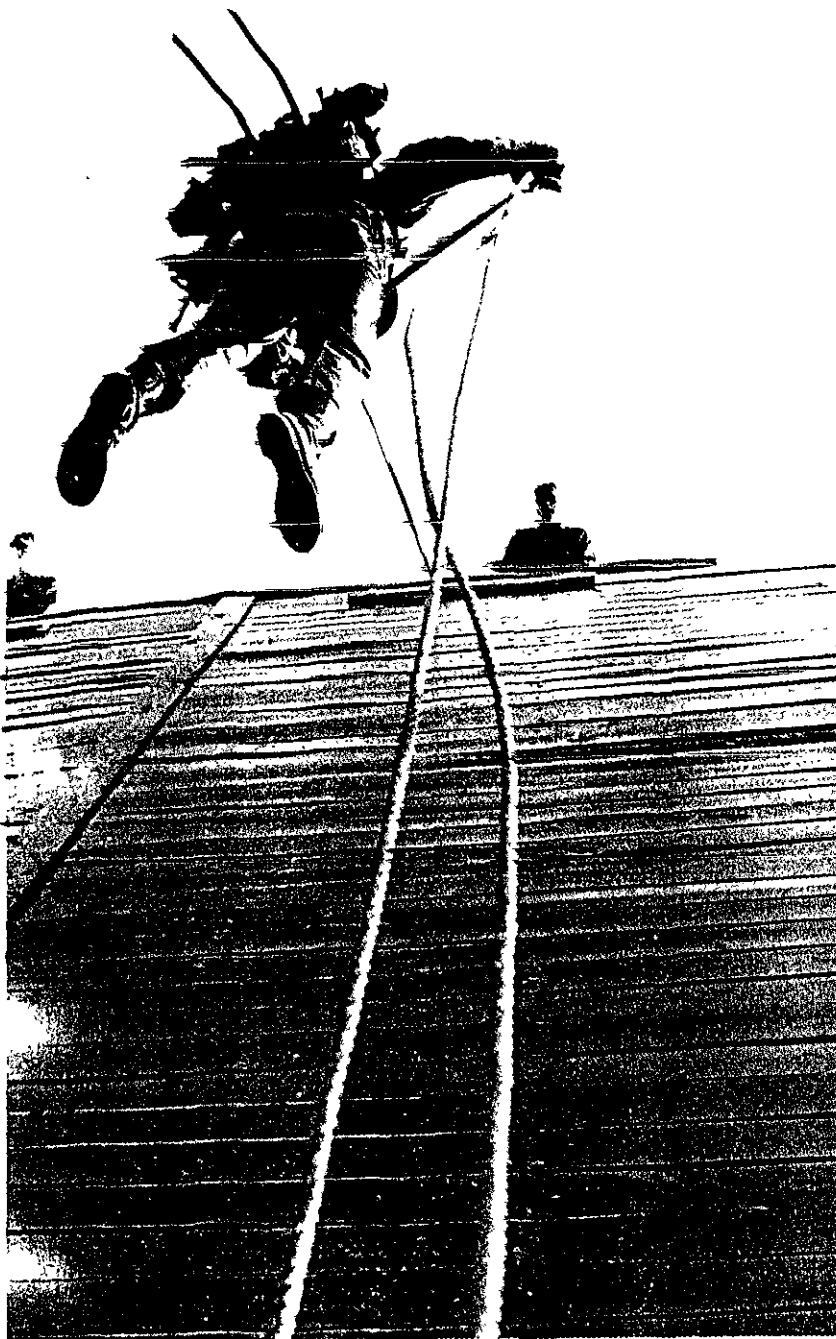
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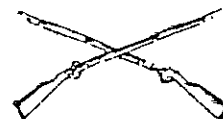
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Commandant's NOTE



Major General Edwin H. Burba, Jr.

Chief of Infantry

RIFLE MARKSMANSHIP

During the past several years, we at the Infantry School have devoted a considerable amount of time to the subject of rifle marksmanship. We have done so for two reasons: First, we are convinced that in any future war—and particularly in low- and mid-intensity conflicts—our infantry squads and platoons will often live or die on the basis of their ability to place accurate small arms fire on the opposing force.

The second reason stems from the simple fact that, in general, our unit marksmanship programs have not been turning out the kind of proficient shooters we want our infantrymen to be.

Several years ago we began a marksmanship study to determine the extent of the problem and to explore possible solutions. We looked at various parts of the Army's past and present marksmanship training programs, including known distance shooting, a more challenging record firing course, and longer range shooting. And we tested several of our findings using soldiers from the Infantry Training Center and from other TRADOC training centers.

We did develop a program that improved the marksmanship skills of our soldiers. But it was eventually decided that the cost of the new program was not justified by the amount of improvement that was shown.

The data from the study, however, did show that many improvements could be made in our existing

marksmanship programs that would require little or no additional resources. Our modified program, accordingly, includes the following improvements.

By doing away with some of the shooting previously being done at 25 meters and moving the time and ammunition saved there to other periods of instruction, we can increase the time spent on dry fire and other marksmanship fundamentals such as sight manipulation and immediate action drills before live firing.

This extra time also permits the more extensive use of the Weaponeer for diagnosing individual shooting skills. Unit leaders can now tell whether their soldiers have learned the fundamentals of shooting and, if they have not, what additional training they need. At the same time, the individual soldier benefits from this earlier and more intensive training in the fundamental skills.

Along the same line, downrange feedback has been shown to be one of the most significant contributors to better shooting skills, particularly for the new or inexperienced shooter. Accordingly, some of the rounds from the 25-meter firing exercises can now be used in other places to get more downrange feedback at all ranges out to 300 meters.

The M16A2 rifle, now being fielded, has been the subject of a number of interesting discussions as to its effect on the rifle marksmanship programs,

largely because of its increased accuracy at the longer ranges. We have studied the issue of firing at ranges beyond 300 meters and have conducted such firing tests with basic infantry trainees. From these tests, it has become quite clear to us that to train all of our soldiers to fire at long ranges—say out to 800 meters—would require a significant increase in training resources, the most important of which would be time. Our review of past conflicts has also shown that the great majority of small arms engagements have occurred within 200 meters. Thus, using precious resources to train our soldiers to shoot at ranges beyond 300 meters simply would not be cost effective.

Like long range shooting, proficiency in shooting at moving targets is another area of concern to many infantrymen. We know that such training requires a lot of extra time and effort and yields only questionable rewards. Our studies have shown conclusively that soldiers who are proficient at hitting stationary targets will also do well at hitting moving targets.

While our program does not require that all soldiers become proficient in shooting at moving targets, we recognize that this is a valuable skill for infantry soldiers to be exposed to. Therefore, they will receive this kind of training when they pass through the training base. In addition, they will shoot at moving targets during their collective (squad and platoon) training periods.

Training for the individual sustainment of moving targets skills in units will not be taught on a firing range. We feel that the valuable time now being devoted to this training should be spent on learning and sustaining good marksmanship basics to standard. One possible solution to the individual sustainment of moving target skills is the development of a training device to give our soldiers practice on moving targets without using limited range training time.

For this purpose, and for both initial training and unit sustainment, we are currently analyzing several training devices. An upcoming test will look at the merits of a multi-purpose arcade combat simulator (MACS), a device that uses a personal computer to teach shooting skills; of LOMAH, or location of miss and hit, which is a device that provides immediate feedback on the range; and of the currently fielded Weaponeer.

All of these changes will go a long way toward

sustaining and improving a soldier's proficiency with his basic weapon. According to test data, however, the most important improvement that can be made is to ensure that unit and institutional trainers are knowledgeable in all aspects of marksmanship and instructional techniques. Instructor and cadre training programs are paramount to the successful execution of marksmanship programs.

The School has begun several initiatives to address this subject. For more than a year the Infantry Officers Advanced Course and the Pre-Command Course have included instruction on marksmanship training. Similar instruction has been integrated into the Infantry Officers Basic Course and the Advanced Noncommissioned Officer Course to improve the marksmanship training of these key leaders. Marksmanship instruction is planned in the future for the Basic Noncommissioned Officer Course.

The School has also developed a training certification program for those marksmanship instructors in the training base, and has improved the weapons training program that is presented in all TRADOC Drill Sergeant Schools. Since drill sergeants and BRM instructors are the ones who first teach shooting skills to our young soldiers, they are an important factor in improving marksmanship throughout the Army.

To keep our leaders current on the more recent marksmanship training techniques, we are revising Field Manual 23-9, M16 Rifle and Rifle Marksmanship. The rewritten manual, which will appear as Field Circular 23-9 this year, will also address the M16A2 as well as new alternate courses of record fire. At the same time, it will incorporate the most significant portions of FC 23-11, The Unit Guide to Rifle Marksmanship.

Although we have taken several important steps to improve our marksmanship training programs, the most significant one is the more thorough training we are giving to our leaders and trainers. The best weapons and most modern training techniques and devices will have little effect if our leaders cannot train their soldiers, evaluate the results, and then sustain their soldiers' shooting skills.

Like so many of our soldiers' skills, marksmanship must be reinforced or it will decay. Only highly trained and knowledgeable trainers can keep our soldiers' shooting skills sharp and ready for use on the battlefield.

INFANTRY LETTERS



FLAG SIGNALS

Since I wrote the article "Flag Signals" (INFANTRY, November-December 1986, page 38), there have been some changes in doctrine, and I would like to correct myself.

Field Manual 7-7J has eliminated one of the formations previously used by armored vehicles, the "VEE," thereby precluding a signal for it.

Also, I recommend these signals for two additional reasons: Infantrymen of "normal" stature such as I am (66 inches) usually cannot stand high enough outside the hatch or cupola to perform the standard signals now in use, nor can they stand that far out while the vehicle is moving quickly cross country. I find that balance and safety are maintained when I ride mid-torso high in the hatch, which does not allow the full range of lateral downward motion of the arms for the signals currently in use.

FC 21-60, Visual Signals (USAIS, September 1986) has some vehicular signals in it, but they are limited and no differentiation is made between administrative (range) and tactical signals. Again, the same problem occurs with the use of three flags for tactical signals. In a moving vehicle, three flags are difficult to hold and also to see (two flags must be held in one hand, thereby masking one flag from observation from either side). In addition, signals with three flags are harder to remember than with two.

EDWIN L. KENNEDY, JR.
CPT, Infantry
3d Armored Division

CAPABILITIES AND LIMITATIONS

I was delighted to read Colonel Huba Wass de Czege's article "More On Infantry" in the September-October 1986

issue of INFANTRY (page 13). It caused me to ponder several issues that affect our profession, and this reflection prompted me to offer my views on the specialization of the Infantry arm.

While the shift to Bradley-equipped mechanized infantry on one end of the spectrum and light infantry on the other may be the correct move, we must fully understand how it changes the capabilities of our entire infantry force.

Colonel Wass de Czege says that "having made our infantry types most effective near the ends of the spectrum . . . we have a void in the middle." This is a problem, because the middle of the spectrum contains missions that require heavy firepower, position defense, and assault of fortified positions. We accept a risk if we decrease our ability to respond to these traditional infantry missions.

In a major conventional war, the strength of an army is found in its standard infantry units. From John English's *On Infantry*, we learn that the Russian and Allied armies of World War II were victorious only after the German infantry, the backbone of the Wehrmacht, had been defeated on the battlefield.

As we move away from the center and tailor our forces for specialized conflict, we must also be aware of the limitations of those forces. Although standard infantry, either mechanized or "straight leg," has normally been able to handle demands on the extreme ends of the infantry spectrum, specialized infantry rarely is able to make a successful shift to the center. In fact, many Allied armored operations in World War II, such as Operation Goodwood in 1944, fell short of their goals primarily because of a lack of infantry support. Additionally, the United States found in that war that specialized infantry units such as mountain troops were not suited to the demands of the European battlefield and, except for the 10th Division, converted them to standard infantry divisions. The greatest

hindrance to our operations in 1944-45 was the widespread shortage of *basic* infantry troops.

As we separate our infantry into Bradley and light forces, we should also be aware of the resulting effect on training. For example, we should once again examine our views on dual-tracking the students in some of our courses in both light and mechanized infantry. As the differences between light and mechanized forces become more pronounced, it becomes more difficult for infantrymen to switch from one type to another. These problems are most acute at the NCO and company-grade officer levels. (Although infantry units at higher levels may be more alike than different, within platoons and companies the difference between a Bradley unit and a light infantry unit is profound.) While most good infantry officers can successfully make the transition from a light unit to a Bradley force, they do experience a period of decreased performance while they realign their mental processes with the demands of the new force. We reduce the combat effectiveness of our units by constantly saddling them with new leaders who are struggling to make that shift.

Other branches demand specialization from their officers with good results. If we in our branch are to train today with the real possibility of fighting tomorrow, we should allow our officers to master one phase of the infantry instead of striving to make each a "Jack of All Trades."

In short, we must develop units and leaders that are capable of performing at maximum potential with minimum notice. As we undertake these changes to our Infantry arm, let us be confident of our direction and vigorously move to achieve our goals.

MARTY J. EATON
CPT, Infantry
Fort Benning, Georgia

TO "BERET" OR NOT?

Having been a reader of *INFANTRY* for quite some time, I feel compelled to respond to several views expressed in the letters section of the November-December 1986 issue (pages 4-5). I know the issue of berets and distinctive symbols is an old one, but I feel everyone has been missing the heart of the subject. A soldier's pride in himself and those around him is a powerful force in itself. Whether he thinks he can or thinks he can't do something, he's right! Half the battle is confidence; the other half is striving and training to prove that confidence is warranted. So I applaud Sergeant Stegall and Lieutenant Bobinski.

But after saying this, I must also agree with Captain R.D. Hooker's view. External symbols are nothing without competence. It is a leader's job to develop the skills and abilities of those in his charge and also to see that they are sustained. I interpret his view as a warning. Pride is one thing; over-confidence and cocksureness is quite another. It leads to underestimating an opponent and, in a combat environment, possibly defeat.

So let us put the issue to bed. If some have berets for their skills and talents, then those who do not are enraged. If all have berets, the elite are enraged. In the past year I have read many views on this issue. But the one area I have not seen addressed in any thoughtful length is the color of a beret and what it represents to those who wear it.

There are three berets authorized for wear in the Army to date—green, black, and maroon. Those who wear berets do so because they have earned the right. The berets were not given to them. A black beret means more to a Ranger than a green beret, not because he doesn't respect what the green beret stands for or what it means to those who wear it, but simply because he himself is a Ranger. This does not mean a given Ranger couldn't qualify for a green beret or that a given Special Forces soldier couldn't qualify for a black one. Each is where he wants to be. It's his cup of tea, his unit.

I believe this is the point the troops who are in favor of berets are trying to make. The difference in the comments I have

seen recently is that each individual is speaking on behalf of his unit, division, or branch, showing his enthusiasm and esprit. When someone outside his unit reads his comment, it sounds as if he thinks his unit is the sole spearhead of the total Army. In reality the man is stating his pride in his unit, and this also contributes to the big picture. Recognition is, after all, a basic human need.

So forgive me, Captain Hooker, but here is another suggestion (of many) for pacifying this issue in the combat arms. First, those who have earned the berets should keep them. For the rest, Infantry might have powder blue berets (with distinctive flashes to distinguish mechanized units from straight-leg units); Light Infantry would have royal blue berets; Cavalry, brown; Armor, light brown; Engineer, rust; and Artillery, red. This combination would take nothing from anyone. The color would carry the meaning.

Additionally, personnel who did not perform to standard could be barred from wearing the unit's beret or unit crest on their beret until they had raised their proficiency level. Instead they would wear the beret without unit crest or would revert to the BDU soft cap. This would also serve as an additional impetus to perform; it would give leaders another way to correct job performance problems.

Complicated? Not really. But whatever the color, whatever the flash, berets don't stop bullets! One unit or branch doesn't win wars. It takes proficiency and it takes the combined arms working together.

NORMAN V. PURDUE
SFC, Cavalry
Muncie, Indiana

MODERN WAR STUDIES

The University Press of Kansas invites the submission of proposals and manuscripts for its new Modern War Studies series, edited by Raymond A. Callahan (University of Delaware), Jacob W. Kipp (U.S. Army Command and General Staff College), Jay Luvaas (U.S. Army War College), and Theodore A. Wilson (University of Kansas).

In launching this series, the editors and the University Press of Kansas intend to provide a forum for the best of the new

scholarship in modern military history. The series encompasses the period from the mid-eighteenth century to the present and is international in scope. It will embrace such diverse topics as operations, biography, strategy and politics, civil-military relations, the impact of technology on warfare, and institutional, organizational, and social history.

Inquiries should be directed to me at University Press of Kansas, 329 Carruth, Lawrence, Kansas 66045.

MICHAEL BRIGGS
Acquisitions Editor

CANADIAN MAGAZINE AVAILABLE

The Canadian Embassy's magazine, *CANADA TODAY/D'AUJOURD'HUI*, considers the ongoing modernization of the Canadian Forces; Canada's role in NORAD, NATO, and peacekeeping; and its defense production industry.

The topics vary from issue to issue, but the magazine is basically about the people, economy, and politics of Canada, with a special emphasis on its relations with the United States. It is distributed free of charge to 100,000 people in the United States.

U.S. residents may obtain a copy or a subscription by writing the Public Affairs Office, 1771 N Street, NW, Washington, DC 20036.

DONNA THOMSON
Communications Assistant

FIRST DIVISION REUNION

The Society of the First Division (Big Red One), composed of the members of the First Infantry Division in World War I, World War II, and Vietnam, will hold its 69th annual reunion in Charleston, South Carolina, 9-13 September 1987 at the Charleston Place Hotel.

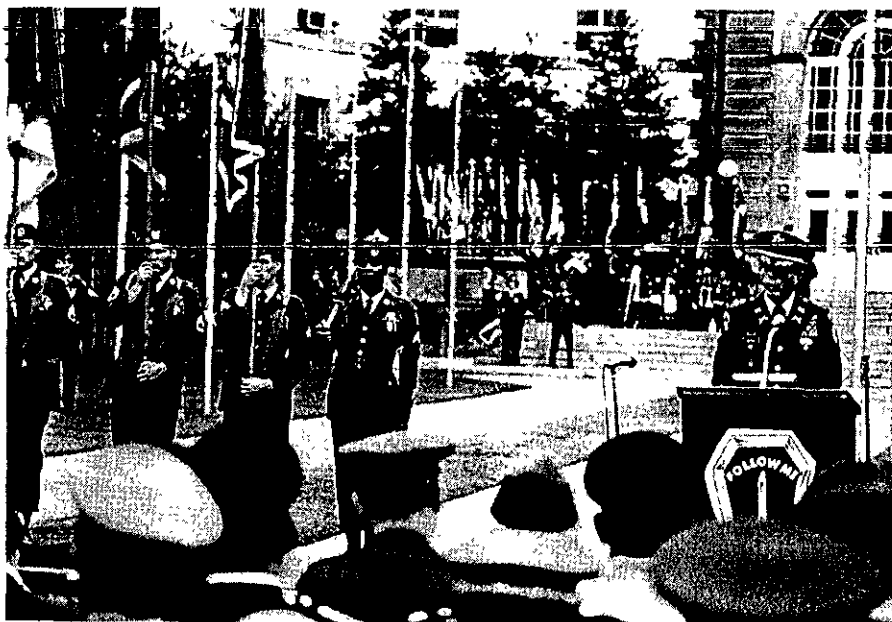
For further information, write to me at Society of the First Division, 5 Montgomery Avenue, Philadelphia, PA 19118.

ARTHUR L. CHAITT
Executive Director

INFANTRY NEWS



THE U.S. ARMY SCHOOL of the Americas (USARSA) was formally welcomed to its new home in a ceremony in November 1986, after Fort Benning was selected as its permanent location. The school's mission is to train Latin American military personnel in various military and professional development skills designed to contribute to their countries' internal defense and national development.



Major General Edwin H. Burba, Jr., formally welcomes the School of the Americas to Fort Benning.

The School, which had operated in the Republic of Panama for 38 years, was moved to Fort Benning on a temporary basis in December 1984.

A unique U.S. Army service school in many ways, it has provided instruction and training to more than 46,000 students over the years. The instruction, based on U.S. Army doctrine, is taught completely in Spanish. The subjects range from in-

dividual and small unit techniques to high-level command or general staff service, joint operations, and resource management.

The commandant of the school and his staff are members of the U.S. Army, while the deputy commandant is a Latin American officer requested from a different participating country every two years. The school has a multinational in-

structor group made up of both commissioned and noncommissioned officers. Although most of the instructors are from the Armed Forces of the United States, about 40 percent are requested from Latin American countries to serve tours of from one to two years at USARSA.

Each participating country was honored in the ceremonies as its flag was unfurled and raised on the school's grounds.

THE FIVE-QUART COLLAPSIBLE canteen (FSN 8465-141-0924), which was available in the Vietnam era, is re-entering the supply system. It is expected to be in the Defense Logistics Agency

(DLA) stocks by June 1987.

Units will be able to buy this item using OMA funds. It will be listed in CTA 50-900, Clothing and Individual Equipment.

THE U.S. ARMY INFANTRY Board, during November-December 1984, conducted an operational assessment of commercially available night vision goggles (NVGs). On the basis of this test and of a market survey by the Center for Night Vision and Electro-Optics, a decision was made to purchase two types of commercial NVG for testing. These NVGs have been designated the AN/PVS-7A and AN/PVS-7B.

Both models are lightweight (about 1.5 pounds) image intensification (I²) devices using a single tube instead of two (binocular) tubes as are used with the AN/PVS-5 NVG. They can be head-mounted, by means of a head harness and face mask, or detached and used handheld.

The two models were provided in versions using second- and third-generation I² tubes. The second-generation tubes amplify light within the visible spectrum, while the third-generation tubes amplify light beyond the visible spectrum ranging into the infrared light bands.

During a follow-on evaluation, conducted 20 October through 16 December 1986 by the Infantry Board, the functional performance of the AN/PVS-7A and 7B was compared with that of the AN/PVS-5 NVG. The performance of the second- and third-generation versions of the NVGs was also compared. Performance testing included target detection and recognition, night firing, and night movement (mounted and dismounted). Data on training; human factors and safety; reliability, availability, maintainability; and logistics were obtained concurrently throughout testing.

The Infantry School will use the test results to support further procurement decisions.

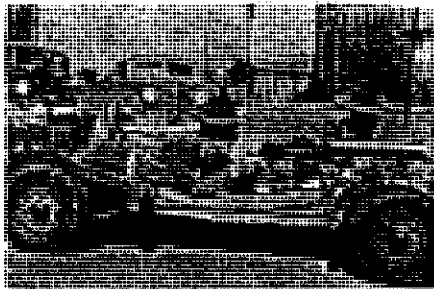
THE NATIONAL INFANTRY Museum has added some important and interesting items recently to its store of unique artifacts used to depict the military history of the infantry.

One item is a rare World War II M22 "Locust" tank, a lightweight armored vehicle used to support airborne units. The tank, which was air-delivered by glider during a combat jump of the British in March 1945, is the only M22 light tank to be found at a U.S. Army museum. It was donated by a private citizen who is also a military collector.

Also donated by a private citizen was a rare German 9mm carbine, Serial Number 2, with scope and silencer.

A G-3 Portuguese Army assault rifle, which had been presented to U.S. Army Chief of Staff General John A. Wickham, Jr., by the Chief of Staff of the Portuguese Army, was then presented to the museum by General Wickham to be added to its large collection of firearms from around the world.

Acquired by transfer from the Patton Museum of Cavalry and Armor at Fort Knox is a vehicle called the "Belly Flopper," which was designed, built, and tested at Fort Benning in the mid-1930s.



The "Belly Flopper."

The vehicle was invented by Captain Robert G. Howie and a Master Sergeant Wiley, who worked to assemble it from spare parts and used an Austin Bantam engine to power it.

It is a low, lightweight, motorized platform to be used as a carrier for a .30 caliber water-cooled machinegun. It earned its nickname because the bottom of the vehicle scraped as it traveled over rough terrain.

After extensive testing, it was determined that the vehicle was too low for cross-country travel and too light for rough use. Nevertheless, it is considered the forerunner of the Jeep because the Chief Engineer of Willys Overland Motors, on seeing a demonstration of the "Belly Flopper" at Fort Benning in early 1940, saw possibilities for the develop-

ment of a lightweight, flexible military car.

A rare Hudson .50 caliber machinegun, tested during the mid-1920s and weighing nearly 200 pounds, was recently transferred from the Fort Meade, Maryland, museum.

Other donations include:

- An important collection of 19th and early-20th century medals received by an infantryman who fought in the Spanish-American War.

- Historical information and photographs of Company C, 6th Infantry Regiment at Jefferson Barracks, Missouri, in 1935.

- A large number of pages on military subjects from the Civil War newspapers *Harper's Weekly* and *Frank Leslie's Illustrated Newspaper*.

- A World War II Polish paratrooper's uniform, complete, and Polish paratrooper and glider badges, along with printed information about Polish paratroopers.

- A British spike bayonet, No. 4MK#11, with metal scabbard.

- Korean period "Ike" jackets.

- A large, enameled 25th Infantry shoulder patch.

- World War I items—a pair of wool leggings, a canvas "housewife," and a webbed pistol belt used by the donor's father, a member of Battery F, 6th Field Artillery, 1st Infantry Division.

- Vietnam items including a small notebook with daily notations of an operation, booklets, and an ID tag of the type used for enemy prisoners or materials.

- A bronze bust of Adolf Hitler.

- An 1847 edition of a manual called *The Recruit*.

The Museum has also purchased other items to help round out its collection: an 18th century British pistol, a U.S. pistol (circa 1800), and a pair of winged type epaulettes of the War of 1812 era.

A ceremony dedicating the Bond Gallery on the Museum's third floor is planned for March 1987. General William R. Bond's late wife's family and other dignitaries will be present for the unveiling of a large, handsome oil painting of the general and a bronze plaque. The Bond Gallery was furnished using funds from the estate of General Bond's

widow, which were given to the Museum by her family.

A major exhibit is being prepared to honor the 200th anniversary of the signing of the Constitution of the United States. It, too, is planned for March.

The National Infantry Museum Society, formed at Fort Benning a number of years ago to assist with financial and volunteer support, is open to anyone who is interested in joining. The cost is \$2.00 for a one-year membership or \$10.00 for a lifetime membership.

Additional information about the Museum and the Society is available from the Director, National Infantry Museum, Fort Benning, GA 31905-5273; AUTO-VGN 835-2958; or commercial 404/545-2958.

FOUR CASUALTY REGULATIONS have been consolidated into one—AR 600-8-1, Casualty and Memorial Affairs and Line of Duty Investigations. It was published and distributed to the field late last year, with an effective date of 17 October 1986.

This regulation, the first in a series of personnel and administrative function work center publications, fully consolidates AR 600-10, Army Casualty System; AR 638-40, Care and Disposition of Remains; AR 638-1, Disposition of Personal Effects; and AR 600-33, Line of Duty Investigations.

It also consolidates policies and procedures for investigating the circumstances of the disease, injury, or death of Army personnel, including Army Reserve and National Guard soldiers.

The requirement to conduct psychological investigations of the facts surrounding all suicides and attempted suicides of soldiers is new to the investigation process. It is directed by the Army's Suicide Prevention Plan.

A HOOD/MASK COMBINATION has been developed to protect our soldiers' dependents (or any civilians nearby) from the effects of chemical or biological warfare in Europe, should the need ever arise. The soldiers themselves would wear the standard field protective masks.

Developed by the U.S. Army Laboratory Command's Human Engineering Laboratory at Aberdeen Proving Ground, Maryland, the mask protects the head, face, shoulders, and respiratory system against the full range of chemical and biological agents. It offers protection regardless of beards, long hair, or moustaches and even allows spectacles to be worn with it.



The compact, commercially-designed equipment consists of a durable hood, an integral lens, a nasal breathing compartment, a neck seal, and a canister. It weighs two pounds, which is less than the soldier's mask, and takes up only half as much space.

Since it also has been shown to have military applications, it is conceivable that both soldiers and their spouses could wear the compact hood and mask in the event of a chemical or biological threat.

THE INTEGRATED TRAINING Area Management (ITAM) program has been developed to help installations manage their training grounds. ITAM offers an organized approach for ensuring that these areas continue to support realism in training both now and in the future.

ITAM is a unique approach in that it has integrated several existing land management technologies to form a single, structured program. As a long-term effort, ITAM operates on the principle that it is more cost-effective to

maintain property than to repair or replace it. The program has an impressive scope, potentially affecting more than 11 million acres of training lands in the United States alone.

The program is designed to support the installation land managers and environmental officers who oversee training grounds. It has been field-tested at Fort Carson, Colorado, since fiscal year 1984 and is being implemented at the Hohenfels Training Area, West Germany (FRG).

ITAM also supports the installation training mission. The goal is to create a cooperative atmosphere between environmentalists and military leaders so that all sides of the problem receive equal consideration. Using ITAM, a land manager can make a series of trade-offs that will satisfy mission-critical demands and ensure realistic training grounds over the long term.

For more information on this program, contact Dr. William D. Severinghaus or Dr. Edward W. Novak, U.S. Army Construction Engineering Research Laboratory, P.O. Box 4005, Champaign, IL 61820; telephone (217) 373-7744/7231; FTS 958-7744/7231; or toll free 800-USA-CERL (outside Illinois), 800-252-7122 (within Illinois).

THE XM138 DISPENSER (Flipper)—being loaded with mines in the accompanying photo at the Cold Regions Test Center, Fort Greely, Alaska—consists of a launcher, case, and support mounting hardware.



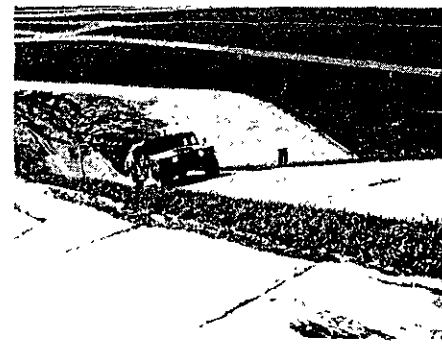
Mines are fed into the launch exit post and launched on edge, discus style, to ensure that they come to rest in proper orientation. The launcher can be manually rotated to the right and left to permit dispensing on each side of the mission vehicle.

THE INDIVIDUAL MULTIPURPOSE shelter is demonstrated in its different configurations by soldiers from the 2d Battalion 187th Infantry, U.S. Army Tropic Test Center, Republic of Panama.



The shelter is part of the Individual Integrated Fighting System Program. The soldier on the left is wearing the poncho that converts into the one-man tent (behind soldiers).

THE HIGH MOBILITY Multipurpose Wheeled Vehicle (HMMWV), which replaces the jeep, travels up a 40 percent slope at the Munson Test Area, U.S. Army Combat Systems Test Activity, Aberdeen Proving Ground, Maryland. The



1 1/4-ton truck is designed to meet the Armed Forces' need for mobility in a tactical environment.



Soldier Load When Technology Fails

MAJOR RICHARD J. VOGEL
MAJOR JAMES E. WRIGHT
LIEUTENANT COLONEL GEORGE CURTIS

As most infantrymen today will agree, an infantry soldier's ability to fight is directly related to his load, and there is a maximum individual load limit that cannot be exceeded if that soldier is to accomplish his combat mission.

Soldier loads do represent a serious problem; they always have. While technology has reduced the weight of many single items, it has been unable to reduce the overall weight the individual soldier has to carry into combat. As a result, U.S. infantrymen are more heavily burdened today than the soldiers in the ranks of the Roman legions some 2,000 years ago. (See "The Soldier's Load," by Major General Edwin H. Burba, Jr., Commandant's Note, *INFANTRY*, May-June 1986, pages 2-3.)

Although analysts and technicians continue to research and test lighter equipment and clothing, technology will never furnish more than a partial solution to the problem. For example, when the Army replaced the 7.62mm M14 rifle with the 5.56mm M16 rifle, it achieved thereby a weight reduction of some four pounds. But because the 5.56mm round of ammunition weighed less than the 7.62mm round, infantry leaders insisted that their soldiers carry more rounds. As a result,

the net weight reduction of the rifle and its ammunition turned out to be negligible.

We spend millions of dollars reducing the weight of our soldiers' clothing by using nylon and Gore-Tex, and then our combat leaders negate that reduction by having their soldiers carry additional M16 or M18 mines, extra water, and even more ammunition. And some high-technology devices such as night vision aids will continue to *add* weight.

LOAD PLANNING

Regardless of technology, then, leaders tend to load their soldiers too heavily, primarily because current unit SOPs represent worst-case planning instead of educated-risk analysis.

Today, the Infantry School's Light Infantry Task Force has identified these primary areas of concern in the soldier load problem and is working with the Army Development and Employment Agency (ADEA) and the Soldier Physical Fitness School (SPFS) on some possible solutions.

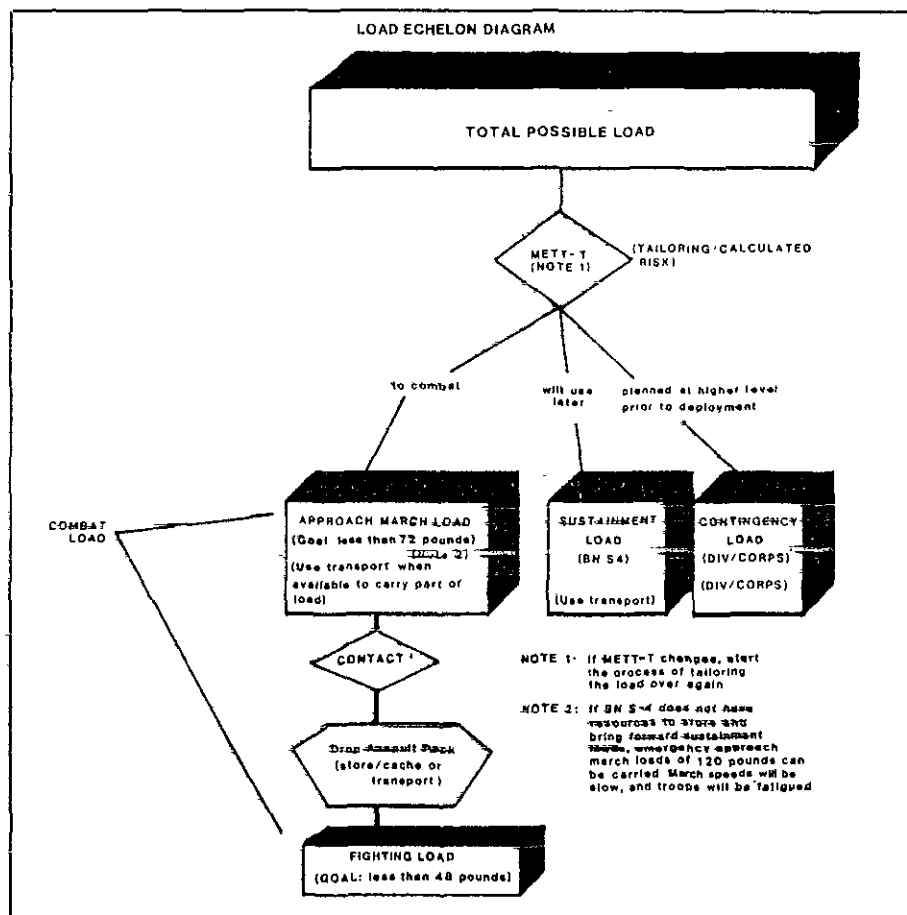
In its approach, the Infantry School is paying particular attention to the impor-

tant roles proper load planning and physical conditioning play in fielding combat ready soldiers.

Load planning has two purposes. First, it allows commanders to use METT-T and the estimate of the situation to determine how much ammunition and what kinds of equipment are necessary for a given mission. Secondly, it recognizes the soldier load problem and requires a commander to emphasize preparing his soldiers to carry the prescribed load and, when possible, to use his available transportation assets to help move that load.

On the basis of previous research and combat experience, the Infantry School has established the following goals for the weight to be carried by infantrymen: 45 percent of a soldier's body weight on approach marches (for the average soldier, about 72 pounds), and 30 percent (about 48 pounds) as a tactical load in a combat zone.

These weights are not absolute, of course. Leaders must be aware that a well-conditioned 160-pound soldier will be able to carry more than a poorly conditioned 200-pound soldier. The key point is that some men are stronger than others. Squad and platoon leaders should know the physical condition of their men



and adjust their loads accordingly.

Leaders must recognize, however, that physically preparing the soldier can only do so much. A leader may be able to improve his soldiers' ability to carry loads on approach marches, but their fighting loads must be reduced to the bare minimum in combat. Otherwise, their ability to fight successfully can be seriously affected by what S.L.A. Marshall called the "shock in battle." At that critical time, a soldier may lose not only his ability to think rationally but some of his physical abilities as well. For these reasons, every extra pound he has to carry reduces his ability to fight.

To assist the commander in conducting his risk analysis, ADEA has developed a new concept of dividing the total soldier load, as well as new terminology to support it. The new concept divides the total soldier load into a combat (fighting and approach march) load, a sustainment load, and a contingency load.

The combat load is made up of the minimum mission-essential equipment a commander determines that his soldiers need to accomplish the mission. It is car-

ried by the individual soldiers or on transport that travels with the platoons and companies. There are two levels of combat load: *fighting loads*, carried in operations where contact with the enemy is expected, and *approach march loads*, carried when transportation means are not available to carry equipment over and above the fighting loads.

The fighting load is made up of a bayonet, an individual weapon, a small assault pack, a reduced amount of ammunition, clothing and a helmet, and the load-bearing equipment. Soldiers designated for hand-to-hand combat missions or for *stealth patrol missions* should carry no more than the weapons and ammunition required to accomplish their task, while assaulting troops should carry severely limited loads. Because of cross-loading machinegun ammunition, mortar rounds, antitank weapons, and radio operator's equipment, however, the average assault loads may be well above the desirable limit of 48 pounds. Leaders, therefore, must reconfigure the fighting loads so that any excess can be redistributed to supporting weapon units or shed by as-

saulting troops before making contact with the enemy, or immediately upon contact.

The approach march load consists of the basic items of clothing, a weapon, a basic load of ammunition, the load-bearing equipment, and a lightly loaded rucksack or poncho roll. On prolonged operations, soldiers must carry enough equipment and munitions to fight and exist until a planned resupply can take place. In offensive operations, soldiers designated as assault troops must also have readily available the items they will need to support the consolidation phase.

The approach march load will vary with the situation and may, on occasion, exceed by a large margin the desirable goal of 72 pounds. Troops can carry rather heavy emergency approach march loads successfully. For instance, in a recent Infantry Board test, soldiers successfully carried 154 pounds over a distance of 20 kilometers. During the Falklands action, British soldiers carried approach march loads of between 120 and 145 pounds.

If a mission demands that soldiers be employed as porters, they can carry loads of up to 100 pounds for several days over distances of 20 kilometers a day. They may even be able to carry loads of up to 150 pounds, but at an increased risk of fatigue and injury. (When they do carry such loads, their contact with the enemy must be avoided, their march speeds must be quite slow, and they must have a chance to rest before entering combat. Rucksacks, assault packs, and other items of the approach march load should be cached or put on the available transport before the soldiers go into battle.)

The sustainment load consists of the equipment required by a commander whose unit must conduct sustained operations. This equipment should be stored by each battalion, normally at the brigade support area (BSA), and brought forward as it is needed. It may include such items as rucksacks (if they were dropped earlier), squad bags, sleeping bags when they are not required for survival, and such spare equipment as platoon early warning systems.

In actual combat, protective items for specific threats, such as armored vests and chemical suits, may be stored in pre-

configured unit loads, but in training, this equipment must be stored and carried in the sustainment load, possibly using squad bags. Additionally, items such as Dragon night sights, grappling hooks and ropes, and engineer tools also need to be stockpiled at a point from which the battalion support platoon can push them forward as required.

The contingency load includes all the other items of individual and unit equipment a commander does not deem necessary for a particular operation—extra clothing and personal items and possibly Dragons and TOWs when there is no air threat. The critical element here is for a commander to determine the make-up of the contingency load and to decide who will be responsible for storing it and for pushing it forward.

The weight an individual soldier carries, then, still depends upon his commander's ability to perform a risk analysis. In the past, planning for all contingencies has made our commanders overly cautious. Certainly no commander wants to be responsible for omitting something that his unit may need on a battlefield. At the same time, he must recognize that carrying additional weight increases fatigue and decreases mobility. In the analysis outlined here, commanders must accept risk on the basis of all available information while still ensuring mission accomplishment. They must learn to see that proper loads are tailored for each mission and must use whatever transportation assets they have to shuttle critical equipment forward to the fighting men.

Research indicates that infantry soldiers must be conditioned for more than

running. In fact, most infantrymen in combat will do little running, but must be able to perform high levels of such anaerobic activity as sprinting, jumping, climbing, and low crawling once they make contact with an enemy unit.

For the infantryman, therefore, the important thing is his ability to sustain a given effort for a period of time, and his march speeds and loads must be so set that he will go into battle with a good reserve of anaerobic capability and energy with which to fight.

Accordingly, road marches with the proper loads must be incorporated into a unit's physical fitness program to improve the soldiers' load-bearing capacity under combat conditions. A train-up and sustainment program should incorporate several types of routines.

The train-up portion of the program might consist of four one-hour daily workouts and up to a day per week for road marching.

Two of the four workouts should be aerobic and should include such activities as exercising to music, circuits, intervals, relays, short (one hour) speed marches with loads, aquatics, bench stepping, target heart rate (THR) training, and unit runs.

The other two workouts should be for muscular strength and endurance to emphasize the upper body. These should include free weight and machine training, obstacle and confidence courses, partner-resistance exercises, pushups, situps, and pullup improvements.

The road marches should be progressive in nature, with the distances and times increasing until the established goal is reached. These marches can be com-

bined with tactical exercises, and load bearing should be integrated into all training to the maximum extent possible.

The sustainment (and improvement) part of the program is based upon the seven physical training principles outlined in FM 21-20: Regularity, progression, overload, variety, balance, recovery, and specificity.

A full-length article detailing multiple approaches to physical training for light infantry units will appear in a future issue of INFANTRY.

Although technology is providing the infantryman with the tools he needs to fight 24 hours a day in any environment, it will not substantially reduce a soldier's load in the near future. In fact, as in the past, new items may add weight to an already overburdened fighting man.

We must do everything we can to reduce the soldier's load, and we must make sure he is in the best possible physical condition to carry the maximum loads that he can reasonably anticipate carrying in a combat situation.

Major Richard J. Vogel is assigned to the Light Infantry Task Force at the Infantry School. He was S-3 of the 2d Battalion, 9th Infantry, 7th Infantry Division (Light) during its conversion and training for light infantry. He represented the Infantry School during all light infantry brigade and division certification events.

Major James E. Wright is Chief of the Exercise Science Branch at the Soldier Physical Fitness School. He previously commanded a medical company in the 2d Armored Division. He has represented the Soldier Support Center to ADEA during the Lighten-the-Load study.

Lieutenant Colonel George Curtis, British Army, has served in Germany, Malta, Cyprus, Norway, West Indies, and Northern Ireland. He is presently the United Kingdom's Special Project Officer on a three-year tour of duty with ADEA at Fort Lewis, with special emphasis on lightening the soldier's load.

ECWCS

CAPTAIN WILLIAM N. HENSON

The Extended Cold Weather Clothing System (ECWCS) was developed by a joint working group (JWG) made up of

several agencies, including the U.S. Army Training and Doctrine Command (TRADOC), the U.S. Army Infantry School

(USAIS), the U.S. Army Combined Arms Center (CAC), the U.S. Army Development and Employment Agency (ADEA),

the U.S. Army Natick Research Development and Engineering Center (NRDEC), and the Marine Corps Development and Education Center (MCDEC). The ECWCS was tested over a period of three years by the U.S. Army Infantry Board (USAIB), the U.S. Army Human Engineering Laboratories (USAHEL), MCDEC, and the U.S. Army Cold Regions Test Center (USACRTC).

During the testing period, hundreds of soldiers and Marines wore the ECWCS under field conditions in the Sierra Nevada Mountains of California, at Fort Ethan Allen in Vermont, at Forts Wainwright and Greely in Alaska, and in Norway. Additional data were gathered by various special operation forces that wore components of the system. The ECWCS was type classified by the Army in the summer of 1985, and the first components of the uniform have already been issued to special operations and light infantry units.

The ECWCS is designed to replace both the present cold-wet and cold-dry uniforms while providing better environmental protection and reducing the weight of the soldier's load. During testing, depending on which of the components were



used, the ECWCS provided environmental protection down to minus 60 degrees Fahrenheit. A head-to-toe system that incorporates the latest available technology, the ECWCS, as issued, consists of the following:

- A long sleeve turtleneck undershirt and long underwear made of expedition-weight polypropylene (PP). This is a synthetic material that allows moisture from the body to pass through it quickly. It therefore also dries quickly.

- A 100 percent polyester fiberpile shirt. This shirt, designed to serve as an inner insulation layer, provides excellent warmth. Because of its loose weave, it should not be worn as an outer garment. It, too, dries quickly and allows body moisture to pass through to the outer layers of the ECWCS.

- Standard field trousers. The field trousers provide an excellent outer layer when conditions are not extremely wet or windy.

- Standard four-ounce-per-yard polyester batting field trouser and field jacket liners. These are modified to include buttons on the jacket and trousers, which allows other items to be worn independently and permits a soldier to put on or take off the trouser liners without having to take off either his trousers or his footwear. (This feature is particularly useful when the ECWCS is worn during activities in which a soldier must stop and move frequently.)

- A vapor-permeable parka and over-trousers. These components are made from nylon coated with a polytetrafluoroethylene (PTFE) membrane commercially known by the brand name Gore-Tex. This breathable fabric allows water vapor to escape from the garment but will not let water droplets from the outside in. The trousers have gusseted legs so that they can be put on over footwear; they should be held up with the standard suspenders already used with the field trousers. The parka has both zipper and snap closures and features a rain hood, five pockets (two at the hip, one on the left arm, and two large map pockets in the liner of the parka), pit zippers under both arms for ventilation, a nylon liner, and a rank tab.

- Either a Nomex balaclava or the BDU hat can be used for head protection.

- Fiberpile bib overalls, for use in



regions of the world where ambient air temperatures fall below minus 60 degrees Fahrenheit. These overalls are issued as an additional layer to be worn next to the PP underwear. They also have zippers on the leg seams.

Presently, the standard white vapor barrier boot and the arctic trigger-finger mittens are issued for use with the ECWCS. Work is progressing on improved hand and footwear and an improved hood for the ECWCS parka. Test results have shown that the present rain hood does not provide enough protection in extremely cold and windy conditions. (The PTFE outer wear also is excellent as a rain suit in warmer climates to replace the wet-weather suit.)

The ECWCS is a layered system that can be adjusted to a soldier's activity level and the specific weather conditions. Because the layers transfer moisture from the wearer's skin to the outer layers of the uniform, a soldier can be more active at colder temperatures while keeping drier than with the present system. Heavy labor at cold temperatures will quickly overload the system, however, so proper ventilation is still essential to prevent overheating.

A soldier should not need to wear the entire system except at the coldest temperatures (below minus 40 degrees Fahrenheit.) The amount of clothing worn must be adjusted to meet each soldier's needs, and commanders should dictate only that the outer layer be worn. (This should always include the PTFE parka and either the field trousers or the PTFE trousers.) When taking part in such activities as skiing or road marching, in most cases a soldier should have enough on if he wears only the PP underwear and the outer shell layer. In fact, during operations, in areas where the temperatures change quite drastically during the day, some users have been known to change into regular underwear to prevent overheating. A soldier may have to change layers quite frequently as his activities and the temperature conditions change.

The ECWCS requires care that is somewhat different from that of the present cold weather system. When it is first issued, a soldier should try on all of the garments to make sure those that form the outer layers are large enough to fit over the inner layer without causing undue compression of the insulation or discomfort to the wearer. (Experience has shown that the

PTFE outer layers should be about one size larger than the standard items the user normally wears.) The soldier should also check to see that the tape along all the seams on the inside of the PTFE items covers the seams completely. The item is unserviceable if the tape is loose or does not cover all the stitches.

WASHING

When washing the ECWCS the soldier must be careful to follow the instructions. The PP underwear, for example, should never be washed in hot water or placed in a heated dryer. If it is, it will shrink. The best method is to machine or hand wash it in cold water and hang it up to dry.

The average PP item will dry in less than one hour in a heated shelter. Soldiers have found that it will also dry quickly if it gets wet while being worn.

Maintaining ECWCS components, with the exception of the PTFE items, is the same as maintaining standard clothing. The PTFE components do require special care when repairs are attempted. Field repairs can be made with fabric tape (NSN 7510-00-074-5157). The wearer should

simply turn the item inside out and cover the tear with the tape. Permanent repairs to any holes in the PTFE must be sealed with sealing tape and a seam sealer.

Name tags should not be sewn on the PTFE parka, and rank insignia should be pinned only to the rank tab provided on the front of the PTFE parka.

Special care should be taken with this clothing system around heat sources, because the components will melt at much lower temperatures than standard materials. Continued research into improving the fire retardancy of the components is being conducted by Natick Laboratories.

The introduction of the ECWCS gives the U.S. fighting man a state-of-the-art cold weather uniform that is as good as any in the world. Commanders must properly train their soldiers to take full advantage of the improved performance of a clothing system that significantly improves their ability to live and fight in a cold environment.

Captain William N. Henson was a test officer in the U.S. Army Cold Regions Test Center during testing of the ECWCS. He has also served as a test officer for the U.S. Army Infantry Board and is now a brigade S-3 in the 2d Infantry Division in Korea.

The Feet

Mission-Essential Equipment

LIEUTENANT LARRY T. STAATS

On today's battlefield where mobility is one of the decisive factors in the success of a mission, the importance of having a dependable means of transportation cannot be overemphasized. This is precisely why taking care of the feet must be an integral part of preventive maintenance for light infantry units. Just as the combat readiness of a mechanized unit is affected by the condition of its vehicles, so the combat readiness and

effectiveness of a light infantry unit is dependent upon the serviceability of its soldiers' feet.

Most foot complaints can be prevented by proper hygiene. In fact, most conditions that require hospitalization and most disabilities result from minor conditions that have been neglected or maltreated.

Several preventive measures can be taken, and it is the responsibility of

leaders and trainers to make sure they are being taken. (See also "The Traveling Toe," by William N. Gorge, INFANTRY, March-April 1979, pages 9-13.)

Before marches, toenails should be cut short and square — straight across to avoid ingrown toenails. The feet should be kept clean and dry by foot powder and clean, dry well-fitting boots and socks (preferably with wool cushion

soles). Extra socks should be carried and put on when they are needed. Blisters and abrasions are most commonly caused by moisture, improperly maintained or poorly fitted footwear, and heat caused by friction. A nylon or polypropylene sock liner can reduce the friction and act as a second skin.

During halts, feet should be elevated with the boot laces slightly loosened where they cross the arch to provide relief from swelling. If time permits, cool water can be used to relieve hot and irritated feet, powder can be applied, socks changed, and blisters treated when necessary. After a march, the feet can be cleaned and dried more carefully, boots cleaned, and blisters and abrasions treated.

BLISTERS

If there are blisters, the feet should be carefully washed with soap and water. Care should be taken not to break the blisters. A sterile needle should then be used to prick the skin on the lower edge of the blister to empty the fluid. The skin over the blister should not be removed, as it is nature's best Band-aid, but some antibacterial ointment should be applied and the blister covered with a sterile pad or moleskin. (Blisters and abrasions on dirty, sweaty feet can lead to serious infections.)

Other serious foot problems that affect light infantry soldiers are stress fractures and injuries resulting from the

repetitive pounding the feet receive during running, jogging, and marching. Many stress fractures can be prevented if the workload is increased gradually to strengthen the muscles, ligaments, and tendons that support the bones. Running on hard surfaces such as concrete and asphalt must be avoided as much as possible. Running shoes with cushioned soles can help absorb much of the shock.

The most important point for leaders to understand in the treatment of stress fractures is that the bone must be given time to rest and heal properly so it can stand physical stress again. The usual treatment is bone rest until the pain disappears, followed by a gradual return to activity. The following guidelines apply: two to three weeks of rest for a metatarsal (foot) stress fracture, at least six weeks for a tibial (shin) fracture, and eight weeks for a femoral (thigh) fracture. Studies have shown that soldiers who sustain fractures from training continue to be at high risk for recurrent stress fractures in subsequent training. In light of this, a gradual strength-building return to duty cannot be overemphasized.

The muscles and connective tissue also need attention. The best way to guard against injuries to muscles and tissue is to make sure the major muscle groups are stretched and warmed up before strenuous activity and stretched and cooled down after. These measures will increase the flexibility of the muscles and decrease the possibility of muscle strains, connective ligament and tendon

sprains, cramps, or tightness. Stretching is most beneficial if a muscle is extended to its elastic limit and held there for a count. (See also "Physical Fitness Program" by Lieutenant Colonel Robert J. Hoffman, INFANTRY, September-October 1986, pages 16-19.)

Some soldiers will be injured during training no matter how many precautions have been taken, because there are many variables over which the leaders and trainers have no control. These include the soldiers' varying levels of conditioning, dormant physical weaknesses, and accidents. But leaders and trainers can help prevent injuries by giving these matters their careful consideration. Fewer injuries lead, in turn, to higher morale and fewer training management problems. Leaders should recognize, though, that the injured soldiers are not defective in any way and should make every effort to return them to normal duty and to maintain their morale.

Light infantry leaders who approach the care of the feet as they would the maintenance of a mission-essential piece of equipment will succeed in reaching their objective. They must realize that morale, training benefits, and combat readiness in a light infantry unit are all dependent upon the individual soldiers and their feet.

Lieutenant Larry T. Staats is a Medical Service Corps officer assigned to the 2d Battalion, 14th Infantry, 10th Mountain Division at Fort Benning. He is a 1985 ROTC graduate of West Virginia University at Morgantown.

Time Management Model

LIEUTENANT COLONEL JOHN W. WILD

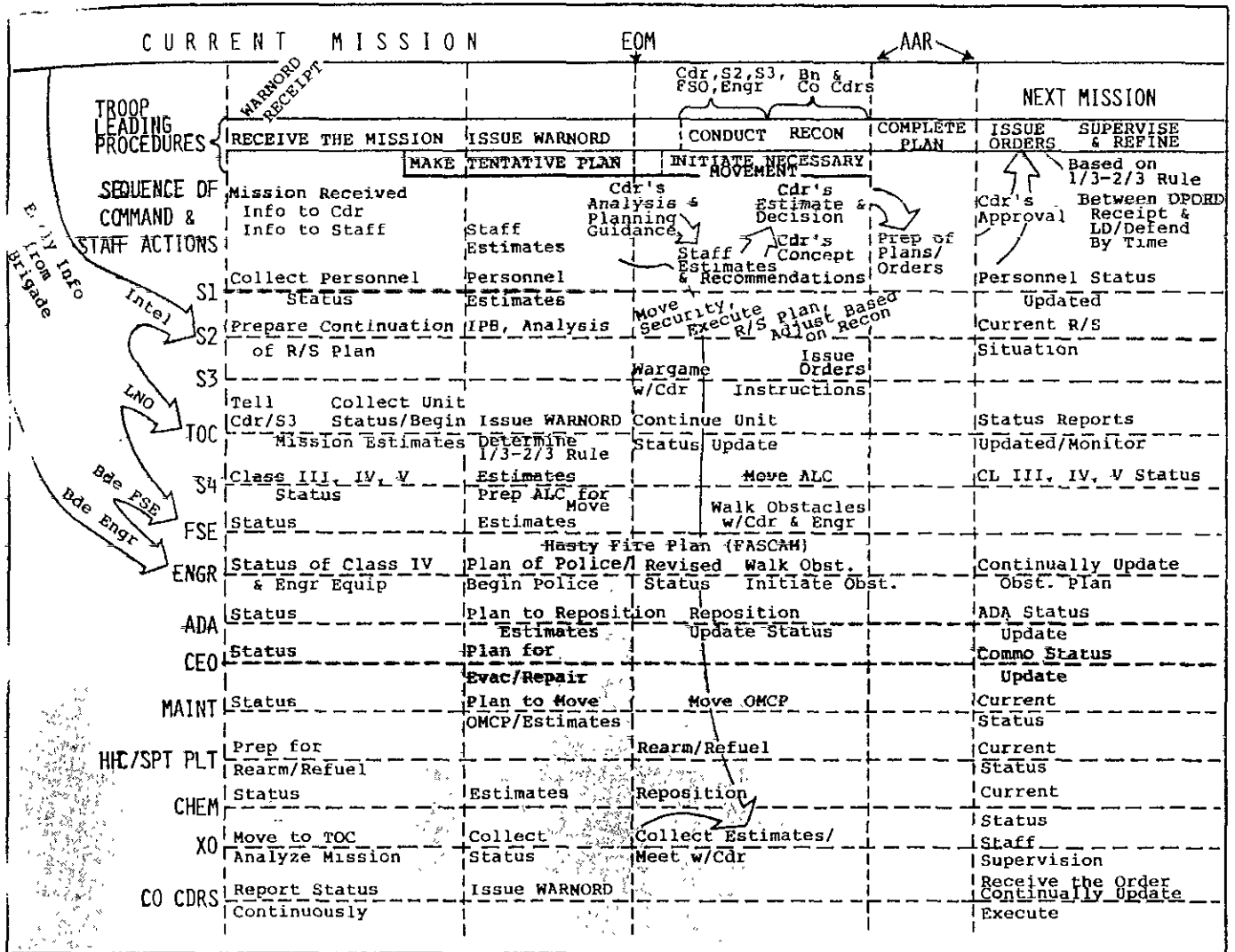
Time. There never seems to be enough of it. One of the problems any infantry leader faces is how to manage his time so that he can seize control of the battle.

More, how does he teach it in his unit? How can a unit institutionalize its own time management?

To do both things, I use a time manage-

ment model (see example). The goals of the model are these:

- To allow subordinates the greatest amount of time for their planning.



- To issue detailed warning orders.
- To develop doctrinally sound tentative plans.
- To initiate timely necessary movements.
- To conduct early reconnaissances to confirm tentative plans.
- To ensure proper staff coordination so that comprehensive and coherent plans are developed.
- To issue effective orders, making certain the commander's concept is well stated and understood.
- To complete preparations for and to execute the mission.

To some, this model may appear to be nothing more than a rewording of our prescribed troop leading procedure. But the key element in the model is consistency. Fatigue, friction, and the fog of war can have a harmful effect on the quality of the commander's efforts and those of his staff. Everything that can be placed in

an SOP and thus institutionalized, therefore, is a plus for the entire unit. The model does just that; it lets each player see his role in accomplishing the unit's mission, how that role can change over time, and where the players interact with each other.

This model will work for most battalion task force (TF) missions anywhere, including the National Training Center (NTC). Using the model effectively requires a thorough knowledge of Chapter 2, Field Manual 71-2. In effect, the model puts Chapter 2 to work for the TF on one piece of paper.

The model reads from left to right, but it has no real start or end—it is designed for continuous operations. In the example, an operation in progress is shown by the time line "Current Mission." Certain bits of available information are shown by the broad arrow on the left. (The key sources of this information are identified,

but there are others, of course.)

Upon receipt of a warning order (WARNORD) the staff planners and executive officer shift to double duty—while continuing to work on current operations, they also begin preparing for the next mission. Transmitting the WARNORD (and key elements of the OPORD to follow) to the battalion commander and S-3 alerts them. At this time, however, the actions taking place are primarily those of the staff planners under the direction of the executive officer (XO). The immediate questions that must be answered are: What has to be done? By whom? When? Where? What is our current capability to do that? (STATUS?) What do we expect our capability to be when the time comes to execute it? (STAFF ESTIMATES?) When does the order have to be given (one-third, two-thirds rule)?

The staff can usually determine, by ex-

perience, when the last rule can or should be broken. For example, an operations order (OPORD) issued in daylight, forward, and overlooking the terrain generally orients subordinates better than one issued only from a map in the TOC. The one-third, two-thirds rule may dictate that an order be given in the dark; a wise staff analyzes this and determines whether a recommendation should be made to adjust that time. The key is to give subordinates the best possible opportunity to understand their missions. With practice, a battalion TF often can issue a coherent OPORD in less than one-third of the allotted time.

The 3x5 cards described in FM 71-2 for staff status reports and estimates are useful tools. Each staff officer must know what he must receive as input from others and what he is expected to give them. Institutionalizing this within staff sections can pay great dividends. For example, the S-4 does not have to remain at the administrative/logistics center (ALC) to receive every last report before moving to the TOC; from the cards, his NCO knows the required critical data elements and can pass them to him enroute as soon as they come in. The S-1 and S-4 personnel in the ALC, by cross-training, can easily cover for each other. The key is not merely talking on the radio; it is quickly transmitting pre-formatted critical information.

The major time lines indicated by the vertical lines in the model are NTC-related, but they do not have to be. The far left time line marks the receipt of the WARNORD, which signifies a change in

the mission or situation. If the WARNORD is clear enough, staff estimates can begin at that point.

In no case should the estimating process be postponed beyond the receipt of the OPORD, represented by the second time line. The staff needs to know the mission, what, where, when, why, how (the highest commander's concept), proposed task organization and scheme of maneuver, and any priorities. Too often, until experience shows otherwise, a staff may decide to wait for the commander to tell them all those matters. But this sort of waiting misuses time. There are many known factors in any situation that a staff can use to begin its estimates.

OUTLINE

Obviously, the TOC can also prepare an outline of the master overlay from which others will be reproduced, including marginal data. When the plan is completed, only the internal boundaries and other material need to be added.

The third time line, EOM, means End of Mission, but at the NTC, as in a real war, there is no formal EOM. Accordingly, this line represents the time at which a commander begins to focus his time and attention on the next mission. The next two lines represent a block of time for an after-action review (AAR), not unique to the NTC, but a regular event there. Its purpose here is to indicate a goal—the completion of the commander's estimate and decision. The formal preparation of the TF OPORD (reproduction, prepara-

tion of site to issue, and the like) is accomplished while the AAR is being conducted, with the goal of issuing the OPORD as quickly after the AAR as possible.

The staff and subordinate commanders now make certain that they understand exactly what is expected, and they wargame what they will do if the battle does not unfold exactly as envisioned. After all, there are no guarantees that the enemy will attack on schedule. The only sure thing is that things rarely go as planned.

Subordinates must understand the overall concept and the TF commander's intentions if the TF is to be successful. It has been proved again and again that small units, if they were well led and understood what was important, have saved much larger units in battle. It is also true that no order is beyond refinement after it is issued.

The aim of the model described in this article is to get the order issued consistently on time, as complete as possible, and as coherent as possible to ensure mission accomplishment. A good order, issued on time, is much better than a perfect order issued late.



Lieutenant Colonel John W. Wild, now attending the U.S. Army War College, previously commanded the 4th Battalion, 6th Infantry at Fort Polk. He served with the 9th Infantry Division in Vietnam and more recently was a brigade S-3 in that division.

Bradley Platoon Organization

MAJOR CHESTER A. KOJRO

As I read the article "Bradley Infantry on the AirLand Battlefield" in the May-June 1986 issue of *INFANTRY* (pages 20-24), I was very disappointed. The many nice buzzwords and the references

to previous articles in *INFANTRY* did not offset the fact that the article offered no new ideas about Bradley infantry organization.

The Bradley Fighting Vehicle (BFV)

does introduce a problem for positioning a unit's combat leaders. But we will never exploit the BFV's true potential until two basic facts are clearly understood:

- The mission of the infantry dismount

element in the BFV is the same one it had in the M113. It rides protected against small arms and indirect fire until the last covered position is reached, where it dismounts and fights on foot.

- The BFV is virtually a light tank that can also transport six infantrymen ready to fight independently of, in support of, or supported by the BFV. Conversely, the BFV can also fight supported by, in support of, or independently of the dismounted infantry element.

We do indeed have a potent combined arms team. But that team today is hampered by a single-arm (Infantry) chain of command that is ad hoc but not functionally organized. BFVs are fully capable of operating as light armor platoons, closing with and destroying the opponent through a combination of mobility, armor protected firepower, and shock action.

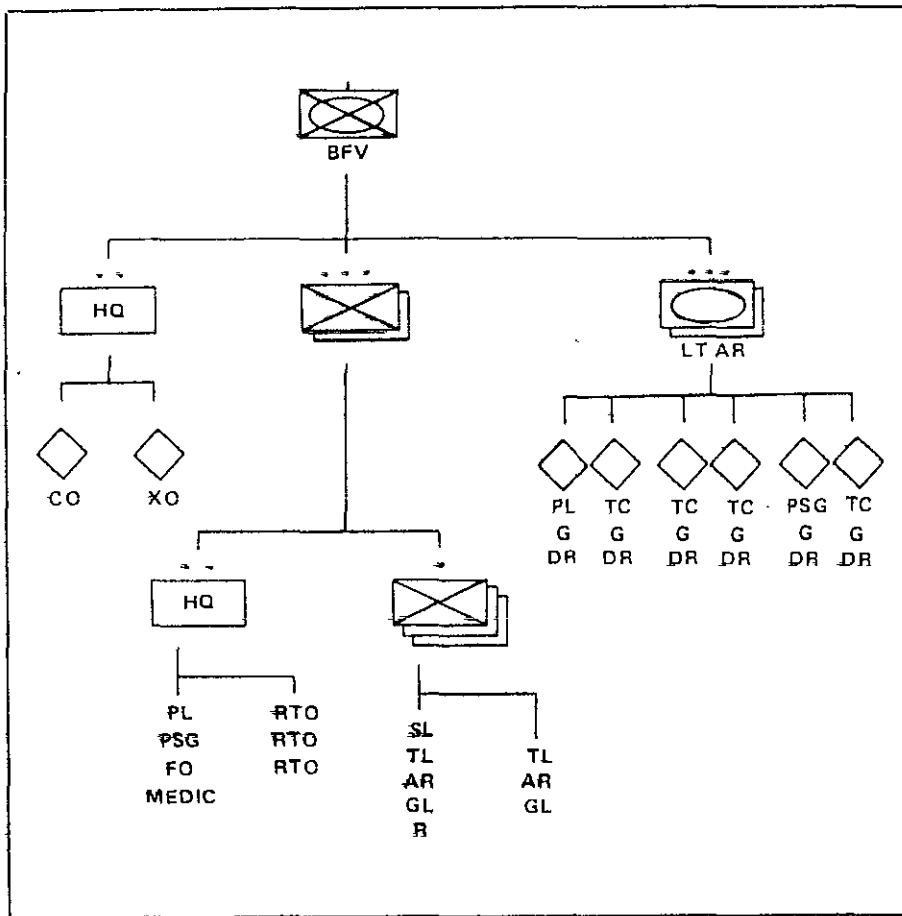
Exploiting this capability, however, requires well trained, full-time, mounted warriors with a solid chain of command that is not fragmented once the passengers dismount.

The solution, therefore, is to split our mechanized infantry units along functional lines. There are various options,

each with pros and cons, but all are superior to the current structure. The cornerstone of my favored plan is to "freeze" the BFV crews. The track commander (TC) would stay with the vehicle, while the leader of the dismount team stayed in back with his team. Here are several ways in which this could be accomplished.

The simplest way would be to organize the platoon into a light armor section (four BFVs), led by the platoon sergeant (PSG), and a dismounted section of three six-man squads and the platoon headquarters, led by the platoon leader (PL). The PL would ride as the TC of his BFV, which would be the only exception to the "freezing" of crews.

The advantage of this option is that the fixed crews would be trained and proficient in mounted combat, while the fixed squads would have a consistent chain of command. The PL would have a true combined arms team under his control. The disadvantage is that the chain of command would still be fragmented with the PL and PSG acting independently instead of backing each other up. At platoon level, this would be acceptable, but the organization



would be poorly suited for consolidation at company level.

Another option would be simply to split each platoon in two—a four-BFV platoon and an infantry platoon of three six-man squads. Each platoon would have its own headquarters element. The advantage here is excellent flexibility with plenty of leadership. The disadvantage is that the infantry platoon would be too small and would lack resilience once it incurred losses. The platoons would also be too rank-heavy. (Could we afford to double the number of PL and PSG slots?)

Both of the preceding options stay within the current structure of four-BFV platoons and six-man squads while also retaining the three-platoon structure. But now let us consider a radical reorganization, befitting the radically different capabilities of the BFV (see chart).

Let's consider a company of two six-BFV platoons and two 34-man rifle platoons; each of the rifle platoons would have three nine-man squads and a seven-man headquarters. Each BFV platoon would lift an infantry platoon by taking the six fire teams (four or six men each)

and then distributing the platoon headquarters across the remaining spaces in the vehicles.

When mounted, the company, in effect, would be a two-platoon light armor company. The BFV PLs would control the operation until the dismount was ordered, at which time the infantry platoons would emerge organizationally intact and able to fight supported by, in support of, or independently of the BFVs as ordered by the company commander, who would now have a balanced team with tremendous flexibility. He could pair his infantry and BFV platoons into combined teams, or he could create a potent light armor company and still have a two-platoon infantry company, either half of which could be commanded by either the company commander or the executive officer.

The advantages of this organization are tremendous. Although formed into four platoons, the company would not increase in size or manpower, except for new PL and PSG slots. The six-BFV platoon would be indistinguishable from a battalion scout platoon, a divisional cavalry platoon, or a BFV regimental cavalry platoon.

toon. The BFV platoons would be capable of operating as either light armor platoons or as companies. The larger infantry platoons would be identical to conventional infantry platoons and just as powerful when dismounted.

POSSIBILITIES

The possibilities would be great. Conventional infantry units could then be quickly integrated into mechanized operations without reorganizing, an impossible feat with the present four-BFV platoon.

Once the infantry elements had dismounted, the BFVs could withdraw and pick up an additional platoon, shuttling it under armor too. Thus, not only would we have the tremendous potential of the fighting vehicle, but we would finally

have an excellent "battlefield taxi," which we know is essential on the modern battlefield.

Disadvantages? I'm sure there are a few, but I can't think of any major ones. Triangular organizations are habitually nice, but I would hardly consider this balanced team to be a disadvantage. Control of the expanded BFV platoons would actually be simplified since the PL would be a mounted warrior all the time, instead of the "jack of all trades" he is now—sometimes a TC, other times a ground pounder, always changing his role and position. The infantry platoon would be stronger and more strongly led. The soldiers would no longer need to wonder where the PL or PSG might be. They would know. The PL and PSG would be with their platoons on the ground where they belong, leading.

The one issue begging, of course, is pronency. Would the BFV platoon be an Infantry organization or an Armor formation? Frankly, that's an issue for some high ranking people to decide. I don't care which they choose so long as they do choose and let us get on with the business of fielding an effective fighting force.



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Divide and Conquer

ROBERT E. ROGGE

Mass, firepower, and maneuver—these have been the basic tenets of war since the first cavemen threw rocks. These principles, manipulated by a knowledgeable and personally forceful commander using the right tactics, can win a battle—even against a superbly trained, disciplined, and equipped force commanded by an officer of demonstrated battlefield ruthlessness.

One such battle was fought on American soil some 200 years ago—the Battle of The Cowpens during the Revolutionary War. As a classic study in command and tactics, this battle deserves the attention of today's small unit commanders. It was fought on a purposefully selected site that offered no real avenue of escape. On one side was a mixture of infantry and cavalry composed of regulars and militiamen, all of whom were ill-fed, ill-clotied, and randomly armed. On the

other was an intensely disciplined infantry and cavalry force, supported by field artillery—a force, moreover, that had come to believe in its own invincibility when facing such an inferior enemy.

Yet the rag-tag force defeated the better disciplined one. Why? Because its commander knew his own troops, knew what to expect of certain formations when the fighting came to close quarters, and knew the enemy's training and discipline and what they were founded upon. He also understood how to use maneuver to achieve a decisive victory. Using all this knowledge, he sited his troops to take advantage of their strengths and their weaknesses.

It is these facets of command—the use of firepower, maneuver, and mass—that are worthy of our consideration. Although the battle took only about an hour, it was a decisive victory for the American

colonists, and so altered the enemy's strategic planning that his surrender at Yorktown came in less than a year.

The American Revolutionary War was primarily a land war, and battles were mostly fought in the European fashion by massed ranks of infantry volley-firing their muzzle-loading, smoothbore muskets at ranges of less than 200 yards. Since those muskets were notoriously inaccurate, a bayonet charge determined the battle. This charge, the classic example of mass as opposed to firepower and maneuver, was always the British Army's final tactic.

Highly trained and eminently skilled in such mass tactics, the British soldiers rarely lost a battle when they could come to grips with their enemy. But the American war was a new kind of war fought mostly in wooded terrain with few clear spaces large enough for forming up dense

ranks of infantry. The British were, therefore, tactically limited in their maneuverability.

There was yet another factor that the British had not come to grips with—aimed rifle fire that decimated the ranks of the officers and sergeants, the battle leaders. The American rifle, a product of a backwoods environment that demanded highly accurate shooting in defense of hearth and home, could not be fitted with a bayonet. The colonial militia, accordingly, was prone to break and run when British bayonets came close. But when used in its sharpshooting role and then combined with the volley fire of massed muskets, the rifle was a deadly weapon. (British officers called it “the widow maker.”)

Few British commanders could adapt to the *turnabout* in their European-style tactics imposed by the combination of American wilderness and the hit-and-run tactics used by the militia forces of their foe. They were more comfortable fighting the American Continentals, the regulars, who had been trained in European drill and formal battlefield evolutions. A few British commanders did adapt to the new conditions, one of whom was Lieutenant Colonel Banastre Tarleton, who commanded a ruthless, mobile strike force in the Carolinas known as Tarleton's Legion. It was composed of dragoons and mounted infantry augmented by British regulars and by Tories, colonial Americans who remained loyal to the British Crown.

SAVAGE

In the sixth year of the Revolution, the war in the South, from Georgia to Virginia, had become a savage civil war. There were few American Continentals in the theater, because most of them had been captured when Charleston, South Carolina, fell on 12 May 1780.

Defeat followed crushing defeat for the Colonists, and even their singular victory at King's Mountain, South Carolina, on 7 October 1780 did little to improve their fortunes. The battles that were fought—Camden, Guilford Court House, Hobkirk's Hill, Eutaw Springs—were particularly bloody. Tarleton firmly believed

that the only way to defeat an enemy was to destroy him in the field, and when his dragoons and mounted infantry struck, they sabered their enemies unmercifully, earning for him the infamous title “Bloody Tarleton.”

Major General Nathanael Greene had replaced Major General Horatio Gates in command of the Colonial forces in the South after Gates' defeat at Camden in August 1780. Greene's principal subordinate was Brigadier General Daniel Morgan, who commanded a force of some 900 men. Although it was militia-heavy, it was leavened by Continental and militia cavalrymen under the command of Colonel William Washington, a distant cousin of George Washington.

Slogging through the forests and swamps with Morgan were also some Maryland Continental infantry troops under Colonel Otho Williams and two companies of veteran Virginia militiamen. This motley force was later joined by Georgia and South Carolina militiamen, some of whom were mounted, under Colonel Andrew Pickens. In all, Morgan commanded about 1,100 men, a force slightly smaller than that of “Bloody Tarleton,” who was in hot pursuit.

In December 1780, Colonel Washington's cavalry made a quick strike at a Tory force at a place called Ninety-Six, provoking Cornwallis into ordering Tarleton to move against Morgan. Tarleton moved out on New Year's Day 1781 with his Legion, which then numbered some 200 dragoons and 200 mounted infantry. He also had a 300-man battalion of the 7th Regiment of Foot, another battalion of the 71st Highlanders, a 100-man force from the 17th Light Dragoons, and a detachment of the Royal Artillery with two three-pounder guns. In all, Tarleton commanded about 1,200 men.

When a commander deliberately divides his force in the face of an equally strong enemy, he must have absolute confidence in his knowledge of his own troops' actions under fire, and he must also be well-versed in the psychology of the enemy forces. Such unorthodox tactics can win—if every man in the divided force is told what is being done, how the battle is being planned, and what he will be expected to do in that battle. Ad-

ditionally, he must have total confidence in his own powers of command. Morgan had that confidence.

By 16 January Morgan, knowing that Tarleton was close on his heels, decided to make a stand at The Cowpens, a place that offered good forage for his horses and was swamp-free and open. The Thicketty Creek lay to his front (south), the Broad River was some five miles to his rear, and there was a knoll upon which he could place his main battle line of Continentals and his trained Virginia militia.

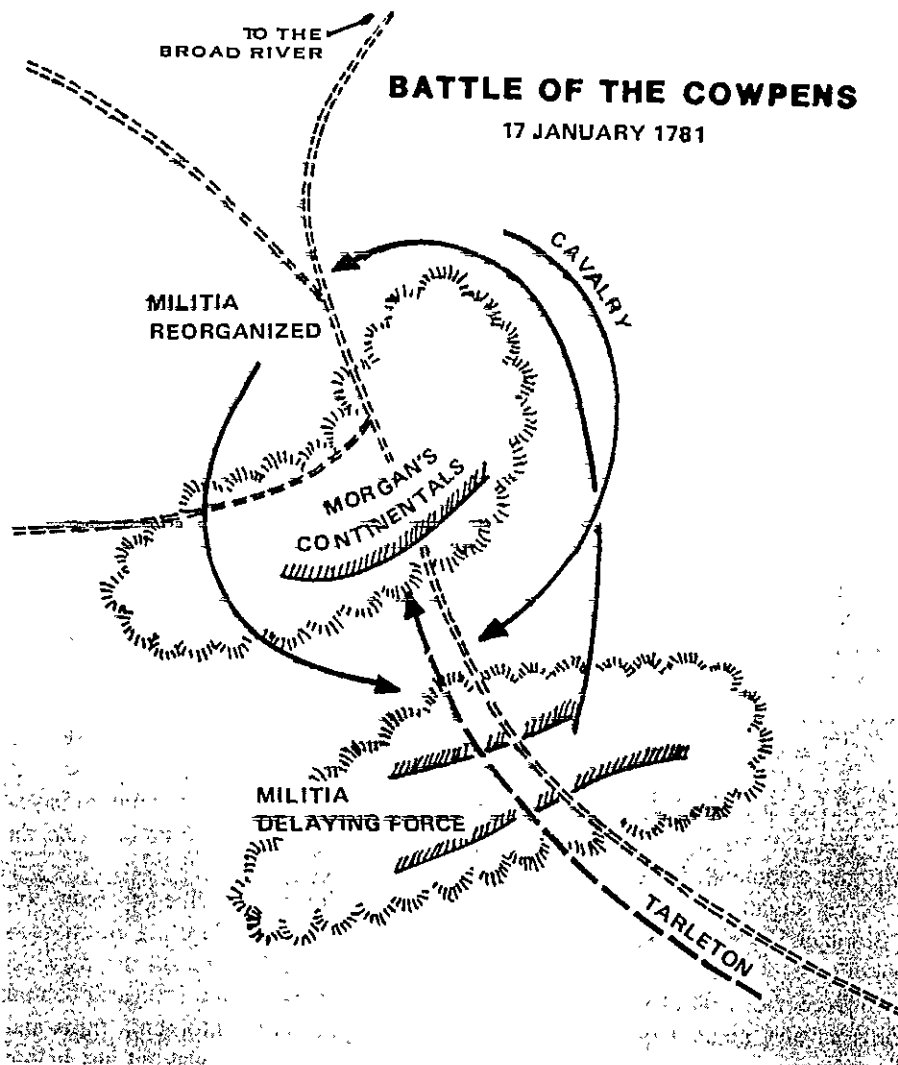
BAYONETS

Now Morgan drew upon his knowledge of how American militia reacted when British bayonets came close. He placed a line of about 150 Georgia and North Carolina militiamen as sharpshooters at the foot of the knoll, facing Thicketty Creek. He expected these men to run when the British got within bayonet range since they had no bayonets on their rifles.

He set his second line of about 300 North and South Carolina militiamen under Colonel Pickens on the forward slope of the knoll some 150 yards behind the sharpshooters. Morgan's third and final line of infantry was set just below the crest of the knoll with the Maryland and Delaware Continentals under the command of Lieutenant Colonel John E. Howard, Morgan's second-in-command, as the center lock of the battle line. On the right flank were nearly 200 Virginia militiamen, and on the left flank were the best of the Georgia militia.

Colonel Washington's cavalry force of about 140 horsemen, almost half of whom were militia, took position behind a second, smaller knoll some distance behind the main battle line. This area was also to be the rallying point for the militia.

After he had set out his battle lines, Morgan spent most of the night going from campfire to campfire telling his troops how he planned to fight in the morning and how he expected them to perform. To the front-ranked militiamen he repeated, “Two volleys at killing range,” and told them that they could



then retire into the second line and fight there until the time came to retire to the spot where Colonel Washington's cavalry was waiting. There they were to re-form and await further orders. This was a retrograde movement, to be sure, but one with a specific purpose—to re-form and fight again.

When he spoke to Pickens' men, Morgan exhorted them, "Look for the epaulets! Pick off the epaulets and the sergeants!" Morgan knew that the soldiers of the British Army relied heavily on the leadership of their officers and sergeants.

Tarleton attacked at dawn on 17 January 1781. On his right flank were his Legion dragoons and next to them his light infantry. A three-pounder gun went into battery next in line. The Legion infantry was next, then the second gun swung into position, while the 300-man battalion of the 7th Regiment of Foot anchored his left flank. The 71st Highlanders and

some 200 cavalrymen were held in reserve.

The two artillery pieces opened fire on the Americans but with little effect. Fifty of Tarleton's green-jacketed Legion cavalry spurred toward the American lines, and the backwoodsmen's rifles began cracking. Twelve horsemen went down, then fifteen. The survivors wheeled and galloped back.

Now the British infantry began to advance in the steady, seemingly irresistible, regimented pace in which they had been drilled. It was an awe-inspiring sight to the rough-and-ready militiamen who watched the bright regimental flags flying and heard the drummers beating the cadence. Morgan, riding along Pickens' line, which was already receiving some of the forward sharpshooters into its ranks, exhorted his men: "Hold your fire until they're a hundred paces away. Give them two volleys. Then you can move

off to the left and get around behind the hill and straighten yourselves out!" Knowing his militia, he was giving them an honorable way out.

The British infantry advanced until they came into Morgan's killing zone. The first volley from Pickens' line shredded the attackers. At a range of 100 paces, even the muzzle-loading smooth-bore musket of the Revolutionary War was a dangerous weapon.

The militia delivered a second smashing volley and began to retire as Morgan had ordered. British cavalrymen, as they went around the left flank of the Continentals on the knoll's military crest, broke into pursuit but were met head-on by Washington's mounted force and were routed. It was a complete surprise to the British and was a well-executed protective maneuver that enabled the militia to retire to the forming-up rendezvous. After a brief flurry in which they gave better than they received, Washington's cavalry trotted back to their assembly point.

Morgan's battle plan was working. He had used his militia to blunt the ponderous British infantry advance and, as his militiamen retired and re-formed, his disciplined Continentals on the crest began volley fire by company into the British ranks.

Tarleton ordered the 71st Highlanders forward to turn the American's right flank, and Colonel Howard turned his Virginians on that flank to meet the threat. Morgan's main battle line was shrouded in musket smoke as volley fire erupted from the Continental line, company by company, into the British. The decisive point of the battle had arrived, and Morgan ordered every unit to advance against the British.

The Virginians delivered a point-blank volley at 30 paces that swept away the front ranks of the kilted Highlanders and charged home with the bayonet. As the Virginians struck, Washington's cavalry went into action once again and smashed the British right flank. The Continentals poured in a final destructive volley and charged, and the re-formed militia swung around to the American right flank and struck the failing Highlanders, pinning them against the Virginians.

Morgan had achieved the classic dou-

ble envelopment, and the battle was won. Tarleton, after an ineffectual exchange of saber blows with Washington, escaped with the remnants of his force. His losses amounted to 230 dead and 600 prisoners, many of whom were wounded. Morgan counted 12 dead and 61 wounded.

Aside from the fact that the Battle of The Cowpens was a signal victory for the Americans, one that led directly to Yorktown ten months later, it stands as a classic example of a commander who knew precisely how the various formations of his force would react in battle and how to maneuver them so as to take the fullest advantage over the enemy.

Knowing his militia would run, Mor-

gan made the correct provision for that event: He *told* them that he expected them to retire after delivering the two volleys at "killing range." And he told them *where* to retire and what they were to do next. Because he knew that his Continentals could stand up to the British infantry, he used them as his anchor force.

Morgan also knew that no army in the world, not even the British Army, could withstand simultaneous assaults on its front and both flanks. His orders to his riflemen to pick off the British officers and sergeants ensured the quick collapse of the British ranks when the final combined American assaults struck home.

Morgan's knowledge of troop psychol-

ogy and his consummate skill in dividing and maneuvering his forces are attributes that today's small unit commanders should study, because tomorrow's battles may be fought against an enemy who outnumbers them in personnel and equipment.



Robert E. Rogge is assistant editor of *Armor Magazine*. He served as an infantryman in the Canadian Army in World War II and later served with the U.S. Air Force, from which he retired in 1968. He holds a master's degree from California State University at San Bernardino.

SWAP SHOP



In open areas, such as at the National Training Center, accurately determining your location is often difficult. By using an artillery technique called graphic resection, you can find your location on a map to within 200 meters of your true location.

First, you need these items to perform a graphic resection:

- A Bradley fighting vehicle (BFV).
- A protractor with a mil scale on it.
- A piece of acetate or onionskin paper.
- A pen or pencil.
- A map of the area.
- Three features you can locate on the map (hills, towers, and the like).

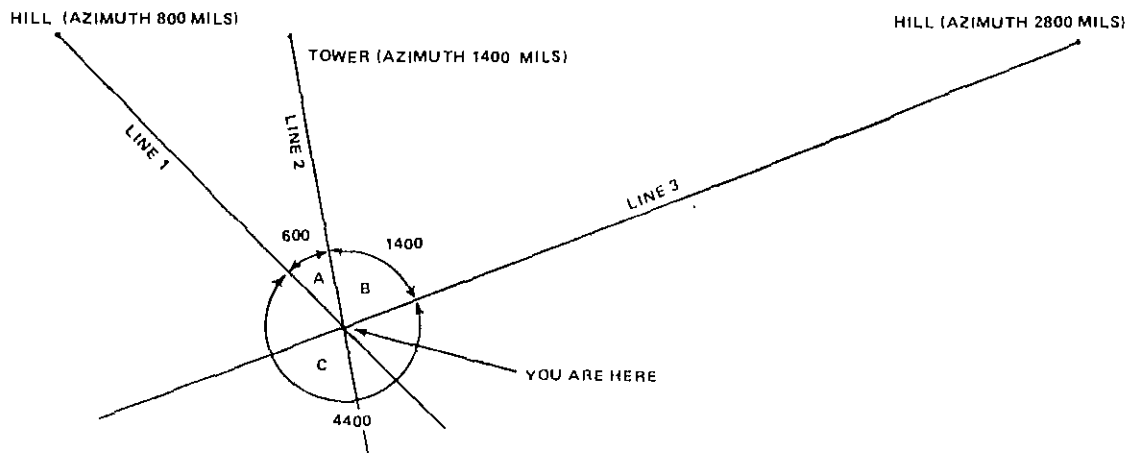
To start, point the gun tube/sight at the first feature, and record the azimuth from the ring beside the commander's leg. Call this Line 1. Traverse the turret clockwise to

the second feature, and record the azimuth to it. This is Line 2. Subtract Line 1 from Line 2. (If your answer is negative, add 6400 mils to Line 2 and try the subtraction again.) The angle from Line 1 to Line 2 is Angle A.

Do the same thing from Line 2 to Line 3, and determine Angle B. Go from Line 3 to Line 1, moving clockwise; this is Angle C. The sum of your three angles is 6400 mils, a complete circle.

Get your acetate, protractor, and pen. In the middle of the acetate, draw Angle A, and label Lines 1 and 2. Using Line 2 as a reference, measure off Angle B, and draw and label Line 3. Check to see that the measurement between Lines 3 and 1 equals Angle C.

Place the acetate on your map. Move the acetate around until the correct lines are over the features you sighted in on. The point where the three lines meet is your location.



(Submitted by Captain John M. Shaw, 150, 2d Squadron, 7th Cavalry, Fort Hood, Texas)



HISTORICAL TEWT

CAPTAIN DEREK A. MILLER

There are many theories concerning combat effectiveness and the various factors that lead to it. One of the simplest and most universally accepted equations proposes that combat effectiveness equals capability plus will. Certainly a unit that has the capability to accomplish its mission and also the will to fight stands a good chance of being effective.

Unit training focuses on activities that make units fit to fight. We train to teach tactical and technical skills and to build cohesion, trust, and esprit de corps, thus developing capability and will. One technique that can be used to tie the training of capability and will together is a historical TEWT, a tactical exercise without troops conducted on the ground where an actual historic battle was fought.

A TEWT makes the greatest possible use of resources by allowing unit leaders to practice their planning and fine-tune their command functions without having their troops waste time standing around waiting. Thus, by the time they conduct actual full-scale training exercises, the leaders have had an opportunity to become accustomed to their responsibilities, and they can then shift the focus of training to their units and soldiers.

A historical TEWT gives the participants an opportunity to study success and failure in actual battle as well as to develop and wargame their own plans.

The 1st Battalion, 16th Infantry, part of the 1st Infantry Division Forward in West Germany, where I served as a lieutenant, recognized that a TEWT was a valuable tool for professional development to help leaders learn tactics and the art of war.

In April 1984 the battalion's officers conducted a historic TEWT at the site of the World War II battle of Schmidt. For three days the participants studied the battle, walked the ground, and developed modern tactical solutions to the challenges leaders of the 28th Infantry Division faced there four decades earlier.

Two months later, in June 1984, the battalion served as the honor guard at Omaha Beach for the 40th Anniversary ceremony of the D-Day landings. This gave members of the battalion a chance to walk the same landing sites the 16th Infantry Regiment had used exactly 40 years earlier. With this opportunity came an idea: While still in Normandy the new battalion commander and the battalion executive officer, who had



organized the Schmidt exercise, discussed the idea that a historical TEWT could be even more productive and interesting if it were used to study battlefields where our own unit, the 16th Infantry, had fought. They felt that studying campaigns in which the regiment had participated would help build esprit de corps and a sense of pride through identification with the unit's history.

The 16th Infantry fought in Europe in both world wars: During World War I, it was the first U.S. unit to fight in France, while during World War II it conducted amphibious landings and fought in North Africa and Sicily and from Normandy through France, Belgium, and Germany to the end of the war. Since the 1st Battalion of the regiment was near the northern European battlefields, a historic TEWT was a realistic goal.

The first week of June 1985 was chosen as the time for the historical TEWT. The stated purpose would be to give the battalion's officers an opportunity to study several battles in which the regiment had participated, to examine the tactics and terrain on the actual battlefields, and to apply the lessons learned to modern-day tactics in Europe and our own wartime mission. We focused on three battles of World War II: Mons, Aachen, and Hamich.

The first, fought between 2 and 5 September 1944, was a classic pursuit battle that caught five German divisions in a pocket just south of Mons, Belgium. German losses in personnel killed and equipment destroyed were crippling, and 25,000 prisoners were captured including three general officers.

Aachen, October 1944, was the first battle of the war fought on German soil. The 1st Infantry Division was engaged in several weeks of bitter house-to-house fighting in the streets of the city.

The third battle, which was fought between 16 and 19 November 1944, took place in the woods south of the village of Hamich, on the northern edge of the Hurtgen Forest just east

of Aachen. There, the regiment fought one of its most costly battles, attacking German positions that were fortified with bunkers and an internal trench system. After taking the village, the regiment held against repeated counterattacks for three days without resupply or reinforcement, eventually resorting to hand-to-hand combat to repulse the final German counterattack. For their actions at Hamich, all three battalions were awarded Presidential Unit Citations, the 7th, 8th, and 9th awarded to regimental units during the war.

All the battlefields were within two hours of one another and within a day's drive from our kaserne. And because Mons is close to Waterloo, we decided to include that historic battlefield as well, studying the terrain and the principles of war that had determined the fate of Europe more than 170 years ago.

PLANNING

Once we knew what we were going to do and where, the next step was to begin the planning phase. An interested lieutenant was chosen to be the trip's officer in charge (OIC) and told to pick a team of lieutenants to help with the project. The major tasks that required the team's immediate attention were arranging billeting, transportation, and messing facilities for the group of about 40 and requesting funds to support these requirements. We planned six days, including travel time, to visit the battlefields and to conduct ceremonies honoring the soldiers of the regiment who had been killed during the three World War II battles.

The OIC's tasks also involved coordinating through the proper military and civilian channels to ensure that all requirements for conducting a military exercise in a foreign country were satisfied. This included the protocol arrangements for the memorial ceremonies at Henri-Chapelle Cemetery in Belgium and at 1st Division monuments at Mons and on the German-

Belgian border. Protocol was coordinated with the U.S. Protocol Office, Supreme Headquarters Allied Powers, Europe (SHAPE) and with the U.S. Embassy in Brussels. In addition, active and reserve Belgian military units in the area were asked to participate in the ceremonies, which they agreed to do.

Once the initial planning had been completed, the OIC contacted the 16th Infantry's Honorary Colonel of the Regiment (HCOR), Major General (Retired) Albert H. Smith, Jr., to ask him to assist in our historical research and to attend the TEWT. General Smith had joined the 16th before World War II and took part in every one of its campaigns during the war. During the Mons, Aachen, and Hamich battles, he served initially as a battalion executive officer and then as the regimental S-3. He was in a position to help immeasurably with the TEWT.

We approached the learning process in the following manner: After the selection of the battles to be studied, the OIC divided the requirements among the units in the battalion, making each of the companies responsible for researching and preparing a presentation on a particular battle. Each company commander appointed a lieutenant as the project officer, who became responsible for collecting lesson materials, developing a lesson plan, and delegating specific portions of the presentation to other officers in the company. The project officers had about five weeks to prepare their presentations. During this period, the assistant OIC held weekly supervisory meetings to help the project officers with any difficulties and to ensure quality control.

Reconnaissance before the exercise was essential. Each of the individual battle project officers visited the site of the battle he was to analyze. Because we could spend only one day at a battlefield, the project officer had to determine what parts of the battle would be most interesting and provide the best learning experience.

This initial reconnaissance effort familiarized us with the areas and gave us insights into how to conduct the TEWT at each location. At Hamich, for example, we found that the original German trench line was still intact, including some of the individual fighting positions along it. The forest where the battle of Hamich was fought was still littered with the implements of war. Both during our reconnaissance and later during the actual TEWT, we found evidence of the fierce fighting that took place there. Some of the battle positions still had machinegun ammunition, expended and non-expended, some still linked together, lying around them. We found artillery shell casings, and even a mortar projectile embedded in a tree.

With this information, the battle project officers were able to plan the itinerary for their presentations and to organize the way the battles would be studied. Each project officer conducted historical research and, if actual regimental operations orders were not available, prepared orders and operations overlays from historical accounts and the regimental history. (The project officers used these orders in their presentations later during the TEWT.)

VOLUNTEERS

While we were in the process of conducting the reconnaissance, the HCOR contacted the battalion with information con-

TAKING THE MYSTERY OUT OF HISTORY

One of the reasons behind the implementation of the regimental system is to instill in soldiers a sense of pride through an identification with their unit and its history.

When the 16th Infantry Regiment's Honorary Colonel, Major General Albert H. Smith, Jr., visits the units of the regiment, he conducts professional development sessions for officers and NCOs. His discussions include the history of the 16th Infantry, its contributions and sacrifices, the origin of its traditions, and the story behind its awards and decorations. He also likes to talk to the soldiers about the regiment's history and that of the 1st Infantry Division in general. He calls his approach "taking the mystery out of history" and finds the privates his best audience.

Other regiments might want to adopt a similar program to acquaint young soldiers with what the regiment has done in the past.

For his program, General Smith developed a single-page historical condensation of the 16th Infantry Regiment's service from 1917 through the Vietnam War—seven campaigns in World War I, eight in World War II, and 11 in Vietnam. From this condensation, he then made up 21 questions with which to challenge soldiers at professional development sessions and during enlisted promotion boards. Basic facts are stressed, not details or hard-to-remember names.

The regiment's Vietnam service, for example, is summed up as follows:

The 2d Battalion, 16th Infantry, assigned to the 1st Infantry Division's 2d Brigade, sailed from San Francisco for South Vietnam on 25 June 1965. By fall, 1st Battalion, 16th and other Division forces had joined in the fighting. Three brigades commanded nine battalions of infantry: 1-2, 2-2, 1-16, 2-16, 1-18, 2-18, 1-26, 1-28, and 2-28. They fought eleven hard campaigns from 1965 to 1970. Finally, on 3 April 1970, Division colors were furled at Di An, South Vietnam for airlift home. Unfurling those colors at Fort Riley in mid-April signaled the return of the Big Red One and its reorganization as a mechanized infantry division.

The quiz on the Vietnam era includes eight questions, such as: Which of the two battalions of the 16th Infantry arrived in Vietnam first, and how did it get there? When did the other battalion join in the fighting?

In his discussions, of course, General Smith fills in the gaps with a description of key battles and fighting heroes.

He says that a simple program such as this one impresses the soldiers with why they wear certain things on their uniforms—Presidential Unit Citations, for example—and why they can be proud of their unit. This enables a soldier to go home to his relatives, some of whom may be veterans of these wars, and talk intelligently about what his unit did.

General Smith believes strongly that because they know that other young soldiers before them rose to the occasion and succeeded in battle, today's soldiers can be confident that they, too, will do well. *EDITOR*

cerning a group of Belgian nationals who had served in the regiment during the war in one capacity or another. The information, received through the Society of the First Division, included the address of one of the Belgian volunteers, and this contact



Aachen, 1944

brought a whole new dimension to the exercise.

Within days of his receiving our letter, several Belgians who had served with either the 16th Infantry Regiment or the 1st Infantry Division during the period we intended to study contacted the battalion. Some had lived in the various areas during the battles and had helped treat casualties and clear away destroyed equipment. Many had billeted U.S. soldiers in their homes. Still others had been members of the resistance who aided the U.S. Army in numerous ways. Some had volunteered for service in the U.S. Army and had served as front line soldiers or members of intelligence units.

This group of Belgians helped us greatly with our coordination and logistics. During the reconnaissance of Mons, they also provided us with the original 1st Infantry Division operations orders and overlays of the battle from their archives, as well as period maps that allowed us to see how the battlefield had changed since September 1944. Additionally, since several of them had fought in the battles to be studied, and since they had lived on the terrain all their lives, they were familiar with the course of the battles. They accompanied us on the TEWT to act as guides and to provide historical insights that otherwise would not have been available.

With the help of these Belgians, SHAPE, and several other outside sources, the OIC had completed virtually all coordination and arrangements the week before the TEWT, including billeting, transportation, and meals. The battle project officers had collected lesson materials and completed their reconnaissance. Each project officer distributed historical packets to be read and studied by the TEWT participants either before or during the trip; the packets contained both background material and a description of the conduct of the battles.

When General Smith arrived three days before the TEWT, he and the advance party—consisting of the battalion commander, the OIC, and the individual battle project officers—proceeded directly to the exercise area. There, they completed their arrangements and practiced the presentations, with the HCOR conducting the critiques.

When the main body arrived, everything was ready. The battle project officers, under the supervision of the OIC, took control of the group and began their presentations. Every evening after dinner, the battle project officer for the next day's terrain walk, along with other officers from his company, presented a formal briefing. This briefing included the events leading up to the conflict, the enemy intelligence estimate, friendly and

enemy dispositions, and the operations order (OPORD) that was given to the 16th Infantry leaders in 1944 before the attack. Additionally, the project officers distributed overlays and 1:50,000 maps of the area for the units to use in developing their plans and in writing orders, just as they would do in a regular field exercise.

The learning process for the TEWT was designed to work in a logical sequence, teaching basic principles and training leaders to the next echelon of command. Company commanders served as the battalion commanders within the 16th Infantry, and their lieutenants served as the company commanders. The company commanders received the regimental OPORD and wrote the battalion OPORDs. Their platoon leaders received these orders and developed company OPORDs.

Each command group was permitted to reconnoiter forward to the same point their counterparts would have been able to do in 1944. Company commanders supervised the preparation of orders in their groups. Each leader had to be prepared to brief, as a minimum, a complete scheme of maneuver as well as a fire support plan, an obstacle plan, and graphic control measures. Company groups discussed plans among themselves and prepared to brief them the next day.

On the following day, all TEWT participants met to discuss and critique the solutions with regard to their tactical soundness—on the basis of both the historical perspective and the modern tactical considerations.

The next step of the learning process was for the group to execute the plan by walking the ground, with the project officer explaining the actual conduct of the battle and the actual enemy situation encountered in 1944. At the site of each action, the battalion commander selected members of the group to explain how, within the tactical framework of their order, they would have dealt with the situation, performed actions on contact, and continued the mission.

For additional historical perspective, at certain specific spots where noteworthy actions took place, the HCOR related his recollections of the actual battle. These historical recollections took several forms. Some were his own, while others came from the regimental history, perhaps in the form of a Medal of Honor citation or a distinguished unit citation. Additionally, the HCOR had contacted several battle participants before the TEWT began and asked each of them to submit a brief statement discussing the situation as it actually developed.

One of these men was Technical Sergeant (Retired) Jake Lindsey, the only living Medal of Honor recipient of the 16th Infantry, who related his memories of the Hamich period by telephone to the HCOR.

General Smith read these various historical recollections at the appropriate spot on the ground to help the TEWT participants understand the real situation and the conditions under which these men had fought.

The group of Belgians that travelled with us provided some unique perspectives as well. They had in their possession photographic displays of the Battle of Mons taken in September 1944. During the terrain walk portion of the exercise, this group pointed out specific actions that took place in certain areas and showed us pictures of what it looked like during the battle or shortly thereafter. Sometimes a local resident who saw our

group would come out to talk and tell us about the battle as it took place on his farm or in the streets in front of his house.

One Belgian we met, who had been in his teens at the time of the battle of Mons, told us how he had gone into his basement at the beginning of the battle. Twenty-seven hours later, when the explosions and noise stopped, he had come out to find masses of equipment and vehicles on the road in front of his house, all utterly destroyed. His farm and the surrounding area are still littered with some of the debris.

As our group followed the footsteps of the 1st Infantry Division and the 16th Infantry Regiment across these European battlefields, we also stopped to pay tribute to those who fought, suffered, and died in the service of their country. Throughout Europe there are military monuments to the memory of Americans who sacrificed their lives for the greater good. At our two monuments we paused briefly to pay our respects, along with distinguished local nationals and Belgian military detachments.

We also visited the Henri-Chapelle Cemetery. Walking through it was in itself a lesson in history. The dates on the headstones bore witness to the terrible toll of each battle. Recurring dates, such as 16 November 1944 (Hamich), were evidence of the fierce fighting that took place in each location and the price paid for victory.

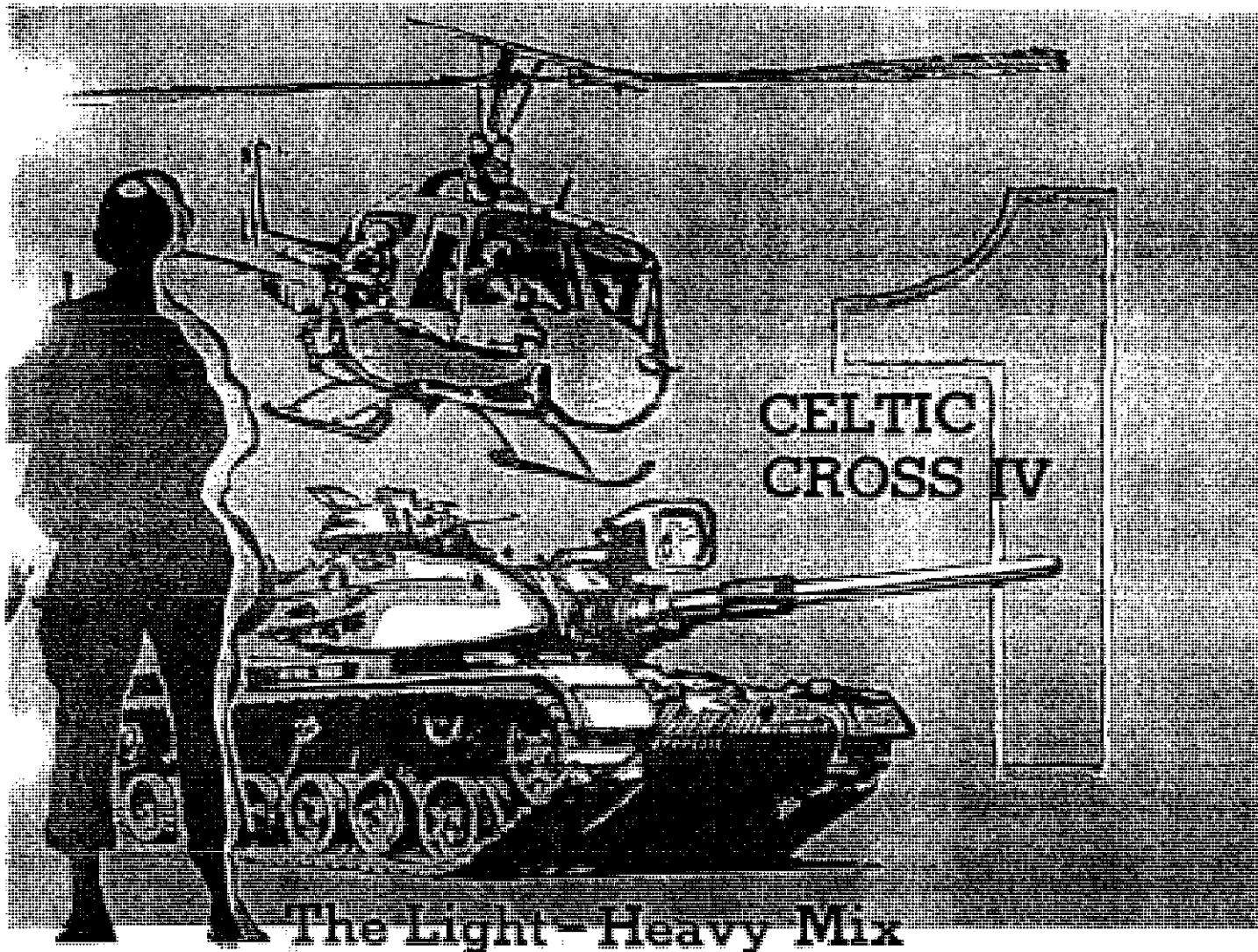
In the study of military history, there is an inseparable relationship between understanding the tactical action and appreciating the cost of the outcome. Studying the battles by walking the ground on which they were fought and remembering the men who fought them added a perspective to the learning process that could not have been gained in any other way. This, too, is the story of the regiment, a part that we felt should never be forgotten.

The goal of the entire exercise was learning and professional development. Although cities expand, roads improve, the density of units on the battlefield change, and the range and power of weapon systems increase, many of the lessons of the past remain constant. Just as individuals become better leaders by learning from their own experience, so too can we become better leaders by learning from the experience of others.

Most military educational institutions attach great importance to the study of past conflicts, but the additional benefit of being able to see the ground on which a battle was fought is also important to leaders who are responsible for maneuvering their units, using terrain effectively, and leading soldiers.

Although not every U.S. unit will be able to conduct a TEWT on a battlefield its own regiment or division fought on, most can still conduct historical TEWTs of battles other units fought, just as we did at Schmidt. The TEWT itself is still a valuable exercise for training tactical and technical skills; individuals conducting these exercises together become a more competent, confident, and cohesive group within the unit, tying together capability and will and making a more effective unit.

Captain Derek A. Miller served with the 1st Battalion, 16th Infantry Regiment as a rifle platoon leader, scout platoon leader, and support platoon leader. Since then, he has completed the Infantry Officer Advanced Course and is now assistant S-4, 2d Brigade, 24th Infantry Division, at Fort Stewart. He is a 1982 graduate of the United States Military Academy



The integration of light and heavy infantry forces in training over the past couple of years has been much discussed. But the only examples that seem to be publicized are those from the National Training Center (NTC) in which light infantry battalions were given to heavy brigades.

In the summer of 1986, during the major exercise Celtic Cross IV, just the opposite took place: heavy units were given to a light brigade. The resulting composite task force (see box) served as the opposing force (OPFOR) against the 7th Infantry Division (Light Infantry). The exercise was specifically designed to certify the ability of the 7th Infantry Division's command and control and logistical systems to support the division and its corps augmentation package.

The versatility of the task force organization, combined with an opportunity to execute a full range of offensive and defensive missions, guaranteed that a large number of lessons would be learned about light infantry units and the light unit-heavy unit mix.

While many of the lessons learned were, in fact, lessons relearned, collectively they provide some checklists and training requirements for task organizing to fight light with heavy units and for fighting light units against such a task force. Recent lessons learned at the NTC and doctrinal discussions on the employment of the light-heavy mix on mid- and high-

intensity battlefields suggest a need to document and share such information.

This article and another to follow are essentially an adaptation of the after-action report prepared by the 2d Brigade, 10th Mountain Division on Celtic Cross IV. This first article covers maneuver, command and control, and intelligence. The second, scheduled for the next issue, will cover the various aspects of brigade support.

TASK ORGANIZATION

Headquarters and Headquarters Company, 2d Brigade,
10th Mountain Division (Light Infantry)
2d Battalion, 14th Infantry
1st Battalion, 327th Infantry
2d Battalion, 77th Armor
5th Battalion, 15th Field Artillery
Company A, 1st Battalion, 67th Air Defense Artillery
63d Combat Aviation Battalion
Company B, 14th Engineer Battalion
1st Platoon, Company C, 109th Military Intelligence
Battalion
4th Platoon, Company B, 9th Signal Battalion
363d Squadron (Medium Helicopters), U.S. Marine Corps
2d Forward Support Battalion

Maneuver

First, we in the brigade learned that the force must be tailored for the mission. When fighting pure, a unit should select those missions that capitalize on its unique capabilities. At the same time, opportunities to task organize at the battalion task force and company team levels must be exploited.

There were specific missions in which the light unit worked well with the heavy units and vice versa: economy of force, seizure of key terrain to facilitate offensive and defensive operations, linkup and passage of lines, infiltration attack in conjunction with heavy attack, defense of the heavy force against light infantry, defense of rear area, and coordinated attack where one of the axes of advance was in restricted terrain.

The greatest force multiplier occurred when the light and heavy forces were task organized at the battalion level. The firepower and mobility of the armor and mechanized infantry, when combined with the clearing, reconnaissance, and counterreconnaissance capability of the light infantry, significantly reduced the OPFOR's vulnerability to the 7th Division's tactics.

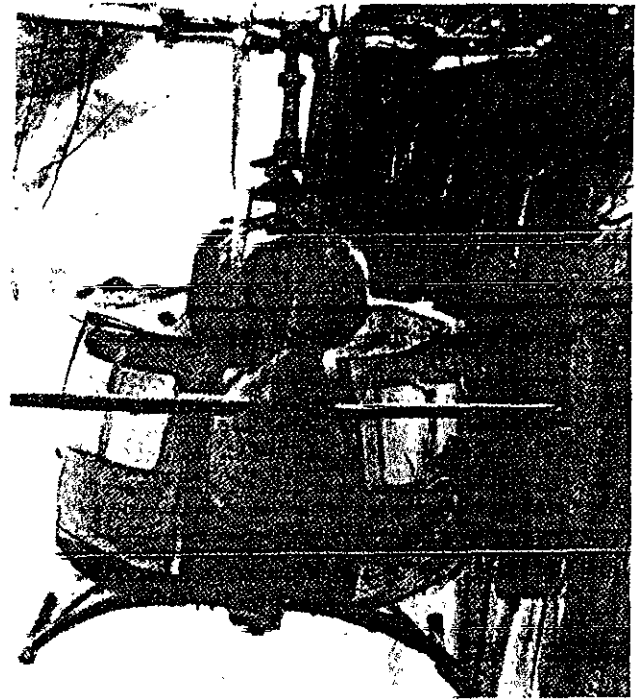
There were, of course, mobility differences between the light and heavy forces in the defense. The division's defensive scheme had one brigade committed to counter guerrilla and infiltration in the west, one brigade defending the DSA (division support area) and command and control facilities in the south, and one brigade in an antiarmor role facing the OPFOR.

The latter brigade's antiarmor defense was tied to an elaborate barrier plan that could not be fully executed because the brigade simply did not have the manpower and the transport needed to move the obstacle material forward and to emplace it. As a result, that brigade commander had to defend in depth over a large area and the OPFOR was able to mass its attacks against small elements that could only be reinforced by other footmobile units that had to travel over rough terrain or be moved by air-mobile assets that were usually fully committed to other tasks. As a result, the OPFOR retained an overwhelming combat ratio for its attacks and easily penetrated the defense.

We learned from this that a defense should not be set until there is adequate intelligence and logistical support, and that the success of the defense should not be totally dependent upon a barrier plan. A light infantry unit's antiarmor defense can be defeated in detail if its positions are not mutually supporting. A battalion commander must retain a local reserve with sufficient mobility to influence the battle, and a brigade commander must have a similar force on a short string. A division commander must accept the risk and give his brigade commander who is facing an armor threat the bulk of the division's antiarmor assets.

The dependence of both forces on helicopter lift for maneuver and logistical support highlighted the need to reconsider the one-for-one substitution of UH-1 for UH-60 helicopters, which is presently planned as an interim solution for light infantry divisions.

The primary helicopter lift for the OPFOR in the exercise was 12 UH-1s from the combat aviation battalion. Because of low air density from the high temperatures at Fort Hunter Liggett, the UH-1 was limited to five passengers or 1,500 to 2,000 pounds of cargo. The lift capability of the UH-60, which the



7th Division used, was 8,000 pounds, or 13 passengers with seats or up to 25 passengers without seats.

The OPFOR conducted several successful convoy ambushes, and these highlighted the light infantry's lack of convoy counterambush battle drills and planning for air cover, coordinated fire support, and a relief force. These few successful ambushes severely degraded the division's logistical support capability. Convoy counterambush planning and drills must therefore become a major training objective and an ARTEP task.

Both forces conducted an aggressive reconnaissance and counterreconnaissance effort. The 7th Division's light infantry units are well suited for doing this at night and in periods of low visibility or in difficult terrain, but they lack the mobility and firepower to survive once they are detected (usually by thermal sights) and pursued by mechanized or armored forces. And once a light infantry force loses its reconnaissance capability, a heavy force can operate inside its decision cycle because of the mobility differential.

The general reconnaissance and counterreconnaissance scheme used by the 2d Brigade in the defense featured three operational belts. The first belt, out to one kilometer (depending upon the terrain) from the units' defensive positions, was for local security patrols and LP/OPs. These security patrols could be combat or reconnaissance patrols, but a patrol leader had to be prepared to attack or ambush an enemy force in this belt and to detach a reconnaissance and security element to maintain observation of the enemy.

The second belt, from one to five kilometers, was for counterreconnaissance patrols. Inside this belt, combat patrols could operate 24 hours a day to ambush the opponent, deny him reconnaissance, and raid him in his assembly areas.

The third belt, beyond five kilometers, was for long-range reconnaissance patrols, primarily performed by the scout platoon at named areas of interest and enemy decision points to provide timely intelligence on enemy activities.

A fringe benefit to an aggressive reconnaissance and counter-

reconnaissance effort was the disruption of the division's rest and planning cycles. The OPFOR retained the advantage, because its light infantry continued to operate at night and its heavy infantry pursued in the day.

The lesson learned was that the reconnaissance/counterreconnaissance battle must be allocated the resources it needs to succeed. Although the light-heavy force has an advantage if it is used properly, ways to counter an enemy's thermal sights need to be examined.

Although light infantry is designed to move and fight on the most difficult terrain, severe slopes, narrow ridges, and thick vegetation do restrict the fire and movement of small units. A light infantry leader who is not trained to consider METT-T and modify the way his unit executes the drills in FC 7-15 will have command and control problems.

On the selection of linkup points, several of the 7th Division's units selected prominent terrain. But this terrain was also key terrain to the OPFOR and thus was already occupied. Since the division was using small units for infiltration, the OPFOR was able to defeat them in detail.

Therefore, commanders must try to determine their opponent's key terrain sites and avoid these in their route-planning and linkup operations. Prominent terrain should certainly be used as reference points, but linkup points should be offset to covered and concealed locations. Alternate linkup points should be selected in case the first location is occupied or compromised.

We learned that a light infantry squad is dependent upon certain items of equipment. Without the squad automatic weapon (SAW), squad radio, and night vision goggles, it is just a highly trained H-series infantry squad. The OPFOR light infantry did not have any of these and operated primarily as platoons and companies, except for patrols, ambushes, and infiltrations. The division's units had squad radios and night vision goggles and operated a lot at the squad level. But without the SAW, these squads could not generate the necessary firepower to defeat the OPFOR platoons.

While the squad radio and the night vision goggles are com-

bat multipliers, it is the SAW that gives a light infantry squad its significantly improved capability. The SAW will change the way we fight, and for the first time since the demise of the Browning automatic rifle, a squad will be able to generate the firepower it needs to operate successfully.

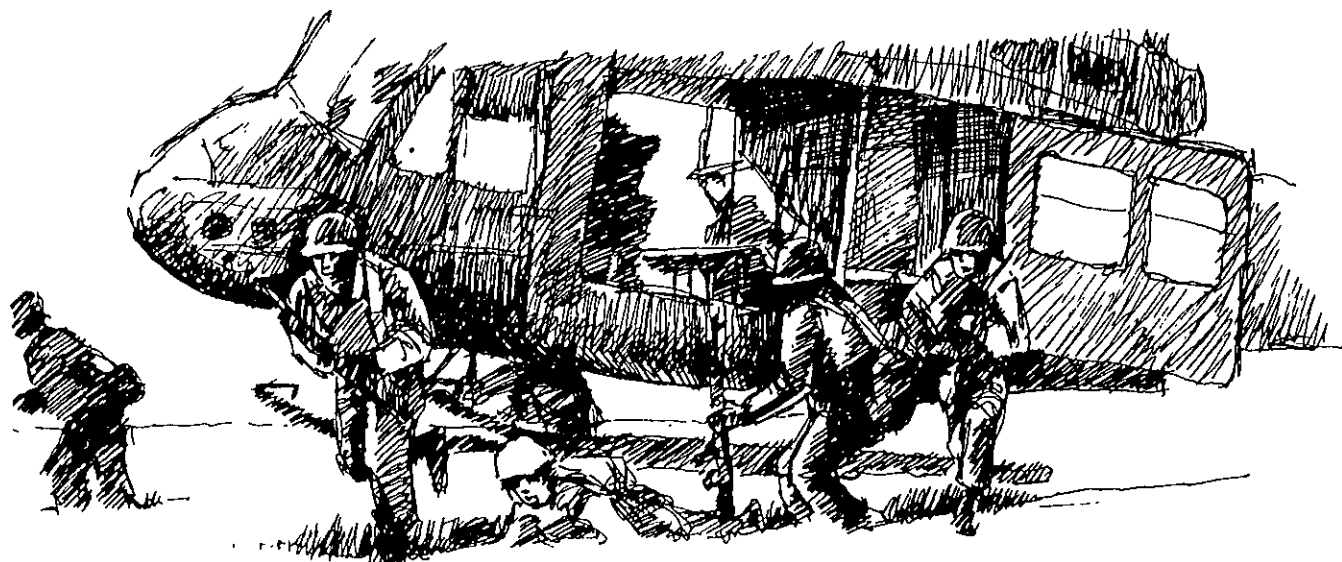
Speed is essential for successful offensive armored operations, especially against light forces. When attacking forces halted on an objective or before an obstacle, its losses would mount. But on those occasions when the armor continued to move against light forces, one team usually broke through and met no resistance other than from aircraft. Faced with an authentic Soviet-style OPFOR, the division would have had much more than a company in its rear area. Such an OPFOR would have reinforced that success with everything available, leaving the light forces to starve behind it.

The positioning of TOW and Dragon teams showed that the crews did not fully understand the technical employment considerations of their weapon systems or all of the problems associated with ammunition resupply.

On numerous occasions, TOWs and Dragons were in positions that were characterized by various faults: Some were located on steep slopes, on ridges, and very high up. The ridges were consistently surrounded by rough wooded river beds and sharp draws. Although these positions provided excellent overwatch of the armor avenues of approach, they were ineffective.

Halfway up a wooded slope, for instance, wire-guided munitions are useless. And some of the positions were high enough to be supported or destroyed by artillery preparation of the high ground in advance of an attack. Often, TOW positions were located at the top of wooded ridges, leaving tanks free rein at the base of the ridges. In addition, it was unlikely that those positions could be resupplied with missiles, given the vertical relief of the positions and their distance from any site where a vehicle with substantial amounts of ammunition could be spotted to support them. Besides, after one shot, many of the positions were revealed, and the crews were incapable of displacing.

In addition, backblast areas were often obstructed by either



terrain or troops, or both; and some weapons were positioned so that they would have to engage tanks at less than the weapons' minimum arming range.

Command and Control

There are several communications problems when operating with a light-heavy mix—vocabulary, for one. Heavy units have a different vocabulary from that of light units, and light units are developing a vocabulary that is different from that of traditional infantry units (*seamless web, expanding torrent, baited attack*, for example).

Graphics present a similar problem. Although heavy and light units use many of the same graphics, each also uses some that the other is not familiar with.

Concepts often differ as well. When light units think of such concepts as tank-proof terrain, linkup points, distance to be cleared past an obstacle, EEI (essential elements of information), or *time distance for movement*, their ideas are not always the same as those of armor or mechanized units.

The solution to this problem is for leaders to ask questions, have back-briefs, and refuse to assume that what they have heard is what was meant. (Infantrymen need to speak *one* language.)

Communication is especially important when it comes to the commander's intent. The flexibility and initiative necessary to a light infantry unit's success is possible only through the use of mission type orders. And the essence of successful mission orders is a clear communication of the commander's intent to the subordinate units.

A commander must have his immediate subordinates back-brief him on their concept of the operation for a mission. In this way, he can be certain that his intent has been interpreted properly. This system should be used at each subordinate level down to the squad, section, and crew.

It is important that trigger points be incorporated into the operations order and disseminated to the lowest level. Because the light infantry does not have the mobility and the firepower of mechanized infantry forces, all available resources may have to be concentrated in one area. Given trigger points with which to coordinate fires at a specific location, the light infantry can destroy enemy forces before the units become engaged in hand-to-hand combat.

Adjacent units should also have the locations, type, and method of engagement of any trigger points that will be used in an operation.

Light infantry doctrine needs to be sorted out so that any special operation activities conducted within the corps or division areas of interest or influence are synchronized with the commander's battle plans. At the least, a special operations force liaison officer should be at the corps or division headquarters to coordinate intelligence.

During Celtic Cross IV, the Special Forces, guerrilla, and Ranger units that operated as part of the OPFOR were not under the control of the maneuver commander, and their activities were rarely synchronized with the brigade task force's operations. A Special Forces liaison officer with a high-frequency radio was provided, which gave the OPFOR some great intelligence. And while a coordinated effort to attack the divi-

sion's command and control and logistical support facilities in conjunction with a major attack worked well, it was off line since there are no provisions today for coordinating such efforts in a timely manner. The real-world coordination channels are ill-defined and nonresponsive. Although they may be synchronized at army or theater level, much is left to be desired



Special Forces, guerrilla, and Ranger unit operations must be synchronized with the task force's operations.

at the corps and division levels.

An adjacent unit liaison officer, to accomplish his mission, should know all there is to know about his own unit. This includes his unit's combat capabilities, equipment, personnel, location of units, and command posts. Additionally, he should carry with him his unit's current operations plan with overlays to use in discussing his commander's intent, concept of operation, fire support plan (including target lists and trigger points), barrier plans, deception plan, and graphics. He also needs to have a good grasp of how his unit fights doctrinally so that he can intelligently discuss current and future operations.

Given the fluidity of the modern battlefield and the opponent's ability to destroy command and control systems, subordinate commanders should be taught that it is all right to skip echelons when out of communication with higher headquarters. This is particularly important to the light infantry because of the austerity of the FM communication authorizations and the FM-hostile terrain in which they will normally operate.

Lateral communications between sister units is a good idea. In the exercise, the exchange of information between company commanders over their battalion's command net facilitated rapid movement and mutual support between companies. The companies kept each other apprised of the enemy situation in each section of responsibility, informed the entire command of their status, and requested information from flank units by direct lateral communications that did not involve the battalion's tactical operations center (TOC). Thus, the TOC personnel and command group monitored the situation and had to issue commands, guidance, and requested information on an exception basis only.

In an attempt to test the full command and control capability of the brigade, we simultaneously operated the TOC, the TAC (tactical command post), and a brigade-controlled task force on a deep raid for 12 hours. Because of the austerity of personnel and FM radios, however, we could not have sustained the effort much beyond 24 hours.

A light infantry brigade has only an organic retransmission FM radio capability for the commander. This means the operations and intelligence (O&I) and the administration and logistics (A&L) nets are limited. In the anticipated FM-hostile environment of light infantry, this is a major shortcoming.

An additional three AN/PRC-77s are needed—two for brigade command nets and one for the S-2 O&I net, so that they can communicate while footmobile. Two additional AN/VRC-49s and four more personnel spaces are also needed so that all nets will have a retransmission capability 24 hours a day.

FM radio does not work for long-range communications. Deep infiltration attacks and airmobile assaults are light infantry missions, and when a brigade does not have long-range surveillance units attached, battalion reconnaissance units must be used in that role.

The brigade needs a high-frequency capability. The FORSCOM distribution plan for HF radios authorizes each light brigade headquarters and each light infantry battalion AN/PRC-104A and AN/GRC-213 radios. None are authorized for a brigade. Each battalion scout squad should also have an AN/PRC-104.

We also need to ensure that VINSON devices are provided for communications security for FM airborne retransmissions.

More wire is needed than is presently authorized—at least 22 miles for brigade and 10 miles for each battalion. (The brigade's authorization is 12 miles, the battalion's is four.)

During the many combined arms operations, communication between tankers and infantrymen was important. Dismounted infantrymen were most effective when they talked to the crews of the M-60 tanks, pointing out targets (antiarmor weapons, machineguns, and the like). It is therefore important to make sure the M-60's telephones are working before each operation, and a telephone should be put on the M-1 tank.

For a command and control helicopter, we need to retain some UH-1s with command consoles until the UH-60s are available. The OH-58 proved inadequate for the task during the exercise. It lacks an IFR (instrument flight rule) capability; it cannot keep up with the AH-1; it does not have enough radios; and it can carry only three passengers.

A light infantry division also needs the motorcycles it has, but they must stick to cross-country movement. Several of the 7th Division's motorcycles were captured because they were used too far forward on established roads or trails.

Signaling mirrors were used effectively, even on moonlit nights, to identify the forward line of troops for the engagement of direct fire weapons and close air support and to identify locations for aerial supply and medical evacuation. Light infantry units should be equipped with mirrors for signaling and marking, and should also be trained in the techniques of using them. Supporting units should also be briefed on these techniques.

The organization of the TOC is also important to command and control. TOCs need to be organized by functional responsibility. Before hostilities began in the exercise, the OPFOR brigade headquarters analyzed the 7th Division's capabilities, its likely courses of action, and its vulnerabilities. With this analysis, the OPFOR determined which targets to attack, focused the intelligence effort to detect those targets, and allocated the resources to destroy them.

The TOC was organized to facilitate this process. The operations section, which would determine the high-payoff targets and decide whether (or how) they would be attacked when detected, was placed at the end of the TOC. The S-2 section focused the effort to detect the targets, aided by the fire support officer. When a target was detected, the FSE made recommendations as to how it should be destroyed. These two elements were located close together to ease the flow of information and discussion as to the best course of action.

TOC shifts must be changed frequently and TOC personnel must have a sleep plan or they will burn out in about three days. We tried several different ways to include a mini "relief in place" every 12 hours, but even that did not provide for the continuity of operations and the information flow required for the 24-hour-a-day battle.

The system that worked best was to have the S-3 (or the XO when the TAC was out) replace people individually as the tempo of the operation slowed or as it became apparent that a person was getting tired. He soon could tell who was able to work 20 hours and who could work only eight. The eight-hour workers became part of the CP security force or were given special projects so that everyone averaged about six hours of down time.

Intelligence

A light infantry division, once dug in and set, has little flexibility for responding with combat power on other avenues of approach. Heavy forces, because of their tactical mobility, can cause a light infantry division to commit its forces against a diversionary effort and then strike quickly elsewhere. Heavier forces have a shorter decision cycle than light infantry forces. Thus heavier forces, once operating within a light force's decision cycle, should be able to retain the initiative.

When division intelligence is not available, a brigade can task its battalions to provide reconnaissance patrols, but the brigade must provide the coordination mechanism to make it work. Dur-

ing this exercise, most of the patrols were directed by the brigade TOC. Initially, this resulted in much confusion over routes, primary intelligence requirements (PIRs), intelligence requirements (IRs), and patrol debriefing reports.

The solution was to provide the S-2 with an overlay that defined the area or areas the commander wanted patrolled. This left the selection of the specific route up to the patrol leader. The overlay also distributed the PIR and IR and other necessary information. If it was not possible to provide an overlay, a listing of the grid coordinates that defined the named area of interest and the PIR/IR could be sent over the brigade intelligence net with equal results.

The brigade needs a high-frequency capability (an AN/PRC-104) so it can equip its own ad hoc scout platoon. This platoon would come from subordinate battalion assets, either one squad from each battalion or the whole platoon from the reserve battalion, if one exists. This would give the brigade the reconnaissance capability it needs and still leave adequate resources at the battalion level.

A brigade's reliance upon subordinate battalion scout platoons or attached resources creates a problem when the entire division is not deployed. Maneuver battalions are doctrinally responsible for the area extending five kilometers forward of the FLOT (forward line of own troops); brigades are held responsible for the area extending 10 to 20 kilometers forward of the FLOT; and division is responsible for anything beyond 20 kilometers. With the brigade's communications capability limited to AN/PRC-77s, the scout platoon can talk only 12 kilometers away, and this does not give the brigade the capability to "see" the 20 kilometers it needs to see.

Intelligence reporting guidelines must be established. Otherwise, the subordinate units will report everything and rapidly overload the system.

This exercise was the first mid-intensity conflict (MIC) scenario in which this brigade participated. Since the tactics that are used to fight an unconventional force are distinct from those used to fight a conventional force, the intelligence requirements are also different. The reporting criteria must reflect the different pace of the battle.

This fact was not clearly understood by all the OPFOR units in the exercise. At the beginning, battalions were reporting sightings of two or three vehicles or personnel moving around the battlefield. In a low-intensity conflict (LIC) this information would have been important at brigade level, but in MIC a brigade is concerned with *company* locations. From these, the brigade then tries to determine battalion locations to report to division.

Intelligence must be disseminated through short intelligence reports and updates sent over the command net. Intelligence information was received by battalion S-2s from higher or adjacent battalions on the O&I net, but that information was not passed to subordinate units, since companies do not have an

O&I net. Similarly, other intelligence information came from a company within the battalion but was not passed to the other companies.

Provisions also must be made for the evacuation of intelligence materials. Because of the dispersion of units on the battlefield and the compartmentalization of the terrain, such materials as maps, documents, and equipment were not evacuated in a timely manner. The establishment of intelligence collection points helped solve this problem.

For radio direction-finding (RDF) intelligence, a TCAE (technical control and analysis element) slice should be task-organized with a separately deployed forward support company to improve collection data and intelligence dissemination to the supported brigade. The TCAE habitually provides radio traffic and electronic order of battle analysis at battalion level to assist and further direct priority of collection to forward support companies in support of an infantry brigade. The OPFOR headquarter's RDF intelligence support was reduced because the TCAE was not part of the OPFOR task force.

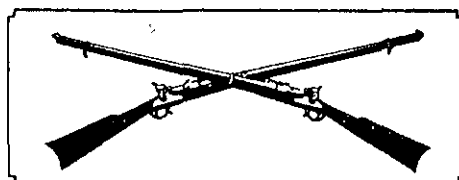
The S-2 generally does a good job of templating the enemy's order of battle. To get a better understanding of the 7th Division's intentions in the exercise, Engineer, Military Intelligence, Air Defense Artillery, Field Artillery, and S-4 staffs were asked to template how and where they would distribute their forces to support the division. Overlaying these templates on the S-2's template produced an 80 percent solution that was later improved upon by reconnaissance. It gave us an excellent picture of the enemy, which proved useful in targeting and also provided a better indicator of the enemy's intentions.

A lot of the intelligence the light infantry brigades get from subordinate units is from a narrow and shallow perspective of the battlefield. A foot soldier, after all, does not travel very fast or far, nor does he travel very deep when compared to an armored force. Consequently, the intelligence light infantrymen provide is of value to a tanker only for the first five to ten minutes of contact.

On the other hand, an armored force, by executing mounted reconnaissance, can collect all the information a foot soldier can detect and much more. From an intelligence-gathering perspective, when tankers are attached to a light infantry unit, they should be expected to provide more intelligence than they receive.

In short, light infantry should provide good intelligence of what is immediately forward, both in real time and in proximity; armored units should provide good intelligence of what is on the ground, in depth; while aviation units should provide good intelligence on the big picture.

The second article in this two-part series will cover the lessons the brigade learned in the areas of support—fire support, Air Defense Artillery, Engineer, logistics, NBC (nuclear, biological, and chemical)—and safety.





SUSTAINING THE LIGHT INFANTRY BRIGADE COMMAND POST

CAPTAIN STEVEN D. CAGE

In a brigade command post (CP), the headquarters commandant has both tactical and sustainment responsibilities. His tactical responsibilities consist primarily of CP security and the reconnaissance and selection of, movement to, and occupation of new CP sites. The sustainment portion consists of practically everything else, and this is the part to be addressed here. Most of these procedures and ideas were developed and tested when the 2d Brigade, 10th Mountain Division (Light Infantry), assisted in the certification of the light infantry division concept at Fort Hunter Liggett, California, during Celtic Cross IV in August 1986.

To facilitate command, control, and support in the field, the brigade headquarters is split primarily into two sections: the CP and the brigade support area (BSA). The CP, which consists of the operations portion of the brigade, includes the tactical operations center (TOC), with the S-2 section, the S-3 section, the fire support element, and the liaison officers. The brigade commander, the executive officer, the command sergeant major, the communications section, and the headquarters and headquarters company (HHC) section round out the CP, which also includes the various vehicles shown in the table. The BSA supports the brigade and consists of the S-1 section (including the chaplain and the judge advocate general) and the S-4, maintenance, dining facility, and transportation sections.

To meet its sustainment responsibilities, the company headquarters element of the brigade headquarters company consists of two sections. The support section, which includes the supply sergeant and his assistant, sets up in the BSA with its five-ton truck and company supplies. The command section—consisting of the HHC commander, the company executive officer, the First Sergeant, the training NCO/driver, and the armorer/assistant driver—sets up in the CP. A camouflage net-covered arctic tent may be set up as the HHC CP (HCP), and that, with the vehicle camouflage net, provides the base for CP sustainment operations.

Food is a major part of the sustainment operations. When it is supported by the brigade mess section serving traypacks, the HCP element picks up meals and brings them to the CP. Tactical feeding is conducted from a designated dining area. Mealtimes are established on the basis of input from the S-3 sergeant major as to projected operations or displacements. If MREs (meals, ready-to-eat) are to be used for one or more meals, they are distributed at the last hot meal served. (If traypacks are not being served, the issue of meals will duplicate the issue of supplies, to be discussed later.) Handwashing facilities are always provided as an integral part of field hygiene, and the area is policed during and following each meal.

Water is also a big concern. Each company vehicle is issued two 5-gallon water cans and one insulated plastic jug, and these containers are filled by the owning section before deployment. Once in the field, empty water cans are dropped off at a designated location in the HCP. When the next supply run is made, the empty cans are filled and returned to the designated location at the HCP for pickup by the appropriate section.

Four other services are provided to the BSA—the pickup and delivery of supplies (including ammunition), laundry and mail, and the collection of garbage. Because of its responsibility for

BRIGADE VEHICLES IN THE CP

S-2:	2 HMMWVs
S-3:	2 HMMWVs 1 CUCV (Pickup)
FSE:	1 HMMWV
COMMUNICATIONS:	1 HMMWV 2 CUCVs (1 Blazer, 1 Pickup)
BDE CDR/CSM:	1 HMMWV
BDE XO:	1 HMMWV
HHC CDR:	1 HMMWV

CP security, the HCP initiates all requests for ammunition resupply to make sure the basic load is maintained. Other supply requests can be received by any member of the HCP and consolidated with other section requests. Routine requests are handled with the next scheduled run while emergency requests are taken care of immediately. All supply requests are taken to the HHC section in the BSA, where they are filled or the supplies requisitioned. Supplies brought back to the CP are given to the requesting section.

Laundry forms are available at the HCP, and bagged laundry is dropped there at a specific location. Laundry is taken on a routine run to the supply section in the BSA for further processing. Clean laundry is returned to the CP on another routine run and placed in its designated location. Section sergeants are then notified so that the laundry can be picked up. A good tracking system must be used to ensure that all laundry bags and clothes are properly accounted for.

Keeping track of mail is important. Outgoing mail is dropped off at the HCP for delivery to the S-1 at the BSA. Incoming mail and messages sent through distribution are then picked up and brought back to the CP where they are delivered to the appropriate sections.

Garbage pickup is also handled on routine runs: It is dropped off at a specified HCP location and then hauled back to the BSA for disposal.

The HCP serves as a link between the CP and the other support assets. If medical support is required for a routine sick call, the HHC CP element, because it has no organic medical support, coordinates with the supporting medical element. More serious and emergency cases are evacuated to the supporting hospital in the field by the HCP as any wartime casualties would be. Any dead would be evacuated, again by the HCP element, to the BSA for further processing.

The HCP element also coordinates support for maintenance and petroleum, oils, and lubricants. All problems with vehicle engines and with generators are routed through the HCP. In this case, the HCP coordinates directly with the company's maintenance section for a contact team or other support. The BSA's POL support is arranged through the S-4, who coordinates it with the forward support battalion. Once coordinated, fueling times and locations are passed to the CP's section sergeants so they can take care of their vehicles. (In the future, the brigade will have its own fueling capability.)

In addition to these routine administrative support tasks, there are other checks and inspections that the HHC commander, the

Company XO, and the First Sergeant must make, although the responsibility for seeing that most of these items are taken care of falls to the section sergeants. The standards for these items should be established before a unit goes to the field, ideally with input from the sections. If the standards have become a part of the standing operating procedures (SOPs), that is even better. Daily meetings with the section sergeants (either one-on-one or in a group) will help identify problems, changes, or new solutions.

One primary area that needs a standard is field sanitation. Good habits and standardized procedures in field sanitation will go a long way toward keeping all soldiers fit for sustained field duty. Failing to establish them may result in the gradual attrition of the unit. The HCP element will know how many soldiers are deployed with the CP and from that can arrive at the number of latrines required, as well as specific latrine locations. The digging should be tasked out to the sections (ideally in an SOP) so that section-sergeants can program it as an occupation activity. For fluid situations, however, individual catholes may be the answer. In any case, the leaders must see that the latrines are then used and maintained properly.

Other sanitation measures include daily shaving and washing. Because of a light brigade's mobility, portable or jury-rigged showers can be carried on vehicles and, when the water supply permits, can be used as appropriate. A lack of showers, however, does not excuse soldiers from keeping clean.

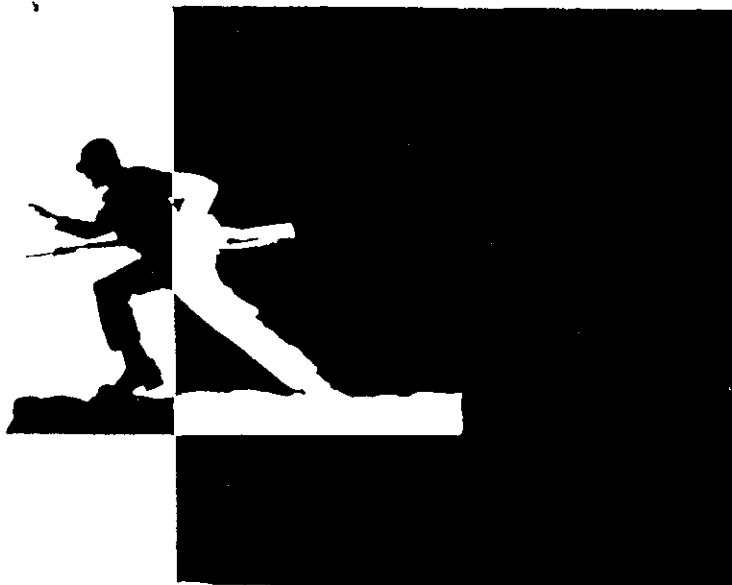
Physical conditioning is also a part of staying fit in the field. Physical conditioning in the form of pushups, situps, and manual or partner resistance exercises should be continued in the field to maintain the achieved fitness level.

The soldiers' equipment must be cared for. These checks can be accomplished easily if the operators' manuals for the equipment are used. Although all equipment is important, particular emphasis should be placed on vehicles, weapons, and communications equipment. If these are not functional, all other efforts will be wasted.

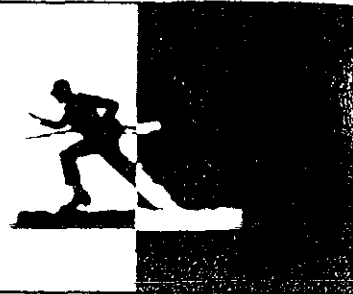
As activity increases, the tendency to neglect these routine sustainment matters also increases. All leaders must therefore be vigilant and tough in enforcing the standards and the SOPs, and this becomes even harder to do when the tactical tasks are incorporated. That is why the HCP is staffed as it is. The company leaders are able to spell each other and have someone available 24 hours a day. Whenever a sustainment problem develops, a member of the HCP element must be readily available to help solve it. Both the HCP and the rest of the CP must know this, or resources will not be used efficiently and this may adversely affect the brigade's mission.

While the ideas presented here do not provide all the solutions, they do cover some often-ignored areas of CP operation. Other people who have had experiences in sustaining a brigade CP in a low- to mid-intensity environment should bring out their ideas as well. Sustaining our forces is a key issue, and the next war will be too late to establish such standing operating procedures.

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TRAINING NOTES



Land Navigation

MAJOR ROBERT G. BOYKO

When was the last time you were lost? How many of your soldiers would have been lost in a similar situation? My guess is most of them, because the level of proficiency in land navigation in our Army is far below what it should be. This is directly attributable to the way we train.

The training problem starts in basic or one-station unit training (OSUT) with the eight-hour block of land navigation/map reading instruction. Although this is too little time to learn the subject, it is also time wasted, because land navigation has to be taught on the ground. In OSUT, map reading is taught in a classroom, then the soldiers go in large groups on a terrain walk. It is a situation in which the fast learners and the well-motivated answer all the questions while the others hang back and just go along for the walk.

There is, of course, no way BCT or OSUT will make a soldier competent in land navigation; that's a unit responsibility. Unfortunately, there are usually serious problems with unit land navigation training as well.

The first is that in most units land navigation training is rarely done. The few unit leaders who can navigate carry those who cannot. This lack of training becomes obvious during EIB testing or when small units or maintenance contact teams are sent out.

If a unit does conduct land navigation training, it is usually in a local training

area where everyone already knows every trail and rock, so little real navigation is done. Also, in the interest of safety, courses are run in groups of two or three soldiers, and the strongest navigator does all the work and is the only one who benefits from the training. Another common problem, unfortunately, is cheating. On most courses I have seen, there was far too much unauthorized assistance.

These problems can be overcome through training. With proper training, the vast majority of our soldiers can develop effective land navigation skills. Implementing such training, however, takes work, just as any other training does.

LAYING OUT COURSES

If you become responsible for this kind of training, get out before the first training period and lay out both day and night courses, preferably on unfamiliar terrain. Choose an undeveloped area with few roads; determine your boundaries; then on a map choose sites for individual points based on such prominent features as hills, streams, ruins, and the like. Then and only then, go out and walk the ground.

You can make point markers from a number of materials. The orange and white orienteering bags, for example, are excellent if your unit can afford them. If not, paint the tops of cans a bright color

and use these as markers. For night courses, use fluorescent paint or small lights.

All signs should be at eye level and not obscured by foliage, and each should have a color and number. If you want the course to be self-correcting (that is, to allow a soldier who misses one point to follow instructions on subsequent signs and earn partial credit), write down instructions for each group below each sign. (Another method would be to have a cadre member at each point to give further instructions, but this is, of course, more labor-intensive.) The points should be placed so that a soldier cannot reach each one by navigating solely on roads. Rarely is terrain so rugged that it cannot be crossed on foot.

Once you have laid out the various courses, prepare your safety briefing and present it to the leaders who will be assisting you. This briefing should include a large diagram of the area, the outer boundaries, a visual signal (such as a flare or strobe light) and an auditory signal (such as a whistle) for use in an emergency, a return-not-later-than time, and clear instructions on how the course is to be conducted. When you have completed all of the necessary briefings, your unit should be brought to the field.

My plan calls for a five-day bivouac at the site, with all of the training conducted in the field. (Other tactical skills can be incorporated during that time, but the

focus should be on land navigation.) On Day 1, the squad leaders start the training by teaching basic map reading to their soldiers; if your squad leaders are not proficient, use your officers. These classes should cover marginal information, reading grid coordinates, use of a protractor, scale and contour interval, and terrain analysis. Of course, every soldier should have a map of his own, and a compass and watch for the training conducted later.

The map reading phase should be followed by a terrain walk so that the soldiers can see what the map information actually looks like on the ground. To make sure everyone participates, each soldier should be required to plot each point, find each location, and plan each route. This instruction and terrain walk should take a full day.

Day 2 should begin with a short review of the instruction given on the previous day. Following that review, instruction should begin on how to use a compass, to include how to orient a map with a compass, change coordinates from magnetic north to grid north and grid north to magnetic north, the use of steering marks, the offset method of navigation, and the use of a compass to cross or bypass obstacles. (A station should be set up to test each compass.)

Each soldier should then walk a pace course—actually, three pace courses, each about 600 meters long, one over flat terrain, one over hilly terrain, and one over steep terrain. On each, the soldier should determine his pace based on both the number of steps he made and the time it took him to complete the course. He should record this data. A short class should then be given to explain the importance of pace counts in land navigation.

Armed with his newly acquired compass skills and pace count, each soldier should be required to use these skills on a short compass course of four or five points, each 800 to 1,200 meters apart. Following this course, remedial instruction should be given to those who had difficulty in running it correctly.

That same night, a night compass course should be run. Each lane should have four points, 1,500 to 2,000 meters apart. Each soldier should run this course alone. He can be allowed to use a military flashlight to reduce the risk of injury. The



Problems with land navigation can be overcome through training.

markers at each point, of course, should be fluorescent or have a small light attached, and they should be on prominent terrain features. The course must be a cross-country one that requires the soldiers to rely on their compasses. Boundaries should be as prominent as possible. The most important aspect of the course is that each soldier must run it *alone*. A soldier gains tremendous confidence when he discovers he can navigate at night.

Day 3 should consist of a long cadred land navigation problem, in which each soldier plots each point and determines a route to each. A soldier should be picked out of the group to lead, and this position should be rotated frequently. The cadre member with each group should be there only to answer questions and to emphasize such teaching points as route selection, pace, and contour intervals. With practice, most soldiers can identify ground by the nature of the contour intervals. The lanes should be long, three to five kilometers to each point, and similar in all respects to what the soldier can expect to navigate on his own.

Day 4 is the day that the soldier goes it alone on an actual land navigation course. The soldiers should be started at different points, at different times, and in different color groups. In short, you must do everything you can to ensure that a soldier succeeds or fails on the basis of his own performance, not unauthorized assistance. As was the case with the night

course, there must be clear boundaries, a return not-later-than time, and a safety briefing.

Five or six points, three to five kilometers apart, will make up a full day's effort. After the course, you should conduct a critique and provide remedial training to the soldiers who failed.

Day 5 should consist of a land navigation problem similar to the one conducted on Day 4 but with each soldier assigned a different lane and with each running the course for time. The top finishers should be recognized.

At the end of this five-day period of training, your soldiers should be quite proficient in land navigation. A nice thing for them to know is that once a person knows how to navigate he seldom forgets it. Running a course every six months, or even once a year, should be enough for them to maintain their proficiency.

A commander may not be able to measure the effect of good land navigation training on his unit, as he can with improved marksmanship scores or better PT test scores, but he can see and feel the confidence his soldiers have when they know where they are and how to get where they are going next.

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Know Your Angles

GEORGANN LUCARIELLO

On topographic maps, three different "norths" are shown in the marginal information: True North is the geographic North Pole; Grid North is the orientation of the map to the North Pole; and Magnetic North is the direction in which the north-seeking arrow on a compass points—that is, where the magnetic lines of force converge.

There is a difference in orientation between Grid North and True North, called grid convergence, because the cartographer has to display a spherical image on a flat map sheet. This is usually a small difference and not of any concern to soldiers or land navigators.

When using a map and compass to navigate, the two norths that are of primary concern are Grid North and Magnetic North. The reason this is important is that, while navigating, a soldier must compensate for the difference between the north designated on the map (Grid North) and the compass bearing (Magnetic North).

The difference between these two norths is the grid-to-magnetic angle (G-M angle), or declination.

In North America, the magnetic declination varies from 30 degrees east in Alaska to 30 degrees west in Labrador, with a zero declination running roughly from Lake Michigan to the Atlantic Coast in upper Georgia (Figure 1). Magnetic North changes yearly because of the constantly changing magnetic fields on earth—atmosphere, continental shifts, and the like. Thus, the G-M angle also changes.

Virtually all land navigation classes include instruction on how to convert the G-M angle. As a helpful reminder, the conversion instructions are printed near the declination diagram on most Defense Mapping Agency maps. For a westerly declination, to convert magnetic to grid, a soldier subtracts the G-M angle; to convert from grid to magnetic, he adds the G-M angle. For an easterly declination, on the other hand, a soldier adds the G-M

angle to convert from magnetic to grid and subtracts to convert from grid to magnetic.

The problem is that the maps used during land navigation instruction do not always carry the most current declination information. Although the map printing

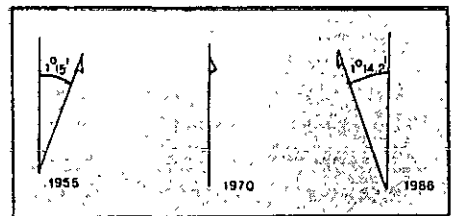


Figure 2

date may be current, the declination can be (and often is) outdated by 5 to 20 years.

For example, the Tenino map, which is used at Fort Benning for instructional purposes, displays a declination diagram for 1975 when the G-M angle was 21 degrees east. In 1986 the declination was 19 degrees, 56.9 minutes east. For Fort Bliss, the 1980 G-M angle was 11 degrees, 30 minutes east, but the 1986 declination was 10 degrees, 27 minutes east.

A more dramatic change is illustrated if the Fort Benning/Columbus (Georgia) map sheets are compared. In 1955 the declination was 1 degree, 15 minutes east, yet by 1970 there was no difference between the grid and magnetic angles; that is, the Magnetic North had shifted 1 degree, 15 minutes east. Although there is a 1 degree, 15 minute difference between these two declinations, both are now being used for instructional purposes. This constitutes a problem because in 1986 there was actually a 1 degree, 14.2 minute westerly declination (see Figure 2). It is even more of a problem when instructors tell students to ignore the G-M angle when navigating because the change is so small.

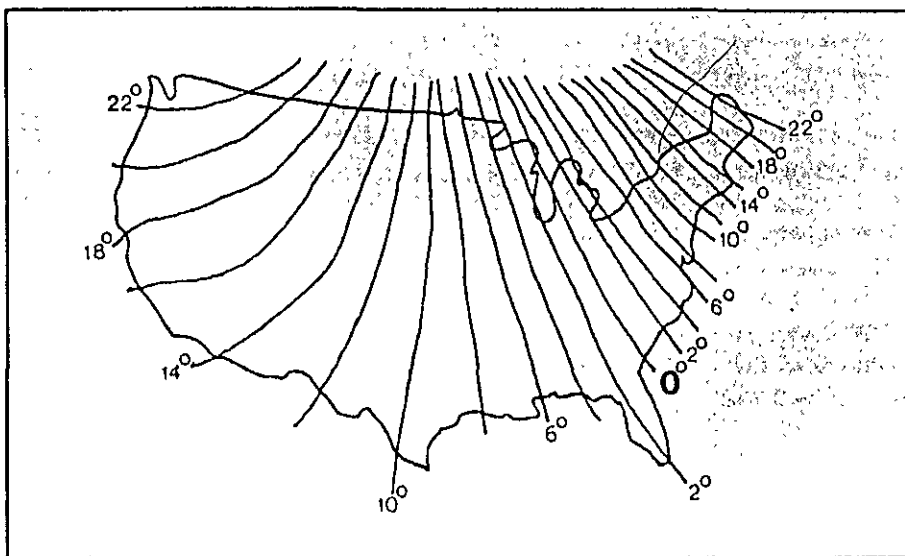


Figure 1

By itself, failing to account for a declination of 1 degree, 14.2 minutes does not seem a serious problem. For a 1,000-meter (one kilometer) distance, however, being one degree off target will cause a soldier to deviate 17 meters to the left or right of his intended goal. Over a distance of five kilometers, he would be 85 meters off target—and probably lost.

Now add to this discrepancy the Army's built-in error tolerance. The Soldier's Manual of Common Tasks, Skill Level 1 (October 1985), Task 071-329-1003 (Determine a Magnetic Azimuth Using a Compass), allows a three-degree error for the compass-to-cheek method and a ten-degree error for the centerhold method. When a soldier starts to move, and assuming the error is in the same direction as the declination, the soldier who was 85 meters off target traveling 5 kilometers

may now be as much as 340 meters away from the target (compass-to-cheek) or, even more catastrophic, 935 meters away from the target (centerhold). This error is magnified even more if the compass manufacturing tolerance of plus or minus two degrees is added (Stocker and Yale specifications). Thus, even staying within accepted Army standards, the soldier might be as far as 510 meters and 1,105 meters off target, respectively.

Task 071-329-1009 (Navigate From One Point on the Ground to Another Point, Dismounted) would result in similar errors. Luckily for the soldier, the error is not as consistent as the example portrays.

In short, soldiers are taught how to convert Grid North to Magnetic North and vice versa, and then they are told to ignore this when navigating in areas where

the declination is perceived to be minimal (as it is at Fort Benning). Instructors need to be aware of the date on the maps they are using and, even more important, of the declination date. They also need to remember that declination does change and must be updated. They need to teach this to their students, and then the soldiers need to be allowed to practice converting and using the G-M angle.



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Mortar Fire Control

WARRANT OFFICER-2 P.C. HALL, BRITISH ARMY

Modern technology has come to the U.S. Army's mortar men in the form of the MBC — the M23 Mortar Ballistic Computer. (See "Mortar Ballistic Computer," by Sergeant First Class John E. Foley, INFANTRY, September-October 1986, pages 40-42.) I wonder, though, whether the M16 plotting board is still needed as a back-up plotting system. After all, recent field tests by the U.S. Army Infantry Board with 12 MBCs resulted in the MBCs' obtaining a 98.5% availability rate with a maximum achieved availability rate of 99.5%.

Most FDC sections are authorized two MBCs (cavalry units have one per tube). Therefore, with four reliable MBCs in each platoon, there seems little need to have any back-up system at all; nevertheless, it is probably wise to have one to meet unexpected emergencies.

A simple back-up system is readily

available. It consists of a map, a protractor, and a firing table — the same system we have been using for years as a back-up to our plotting board.

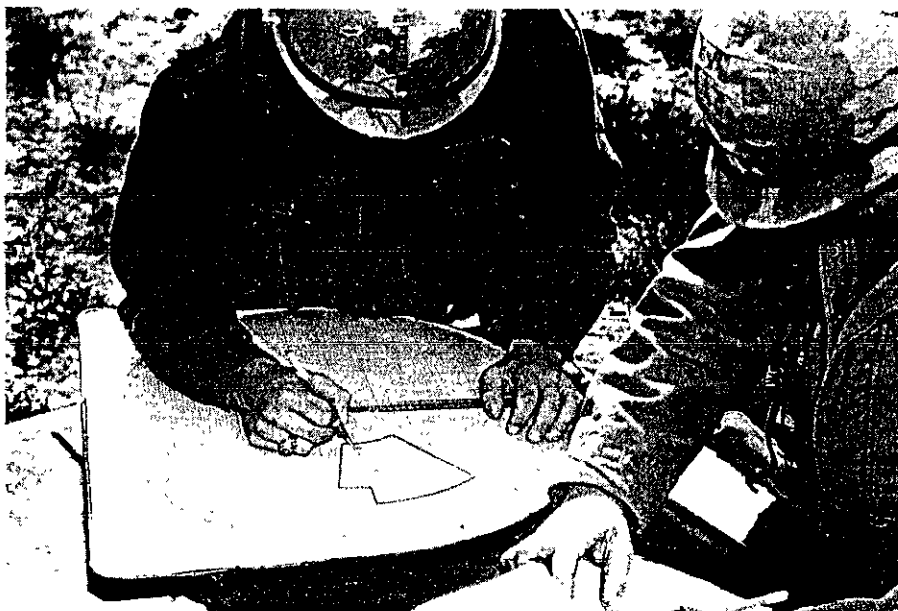
The map, protractor, and firing table method of acquiring firing data is easy to teach and learn. Although some special missions are difficult to accomplish using this method, with practice, there is no reason why these cannot be mastered as quickly as any other missions.

METHOD

Obtaining the data for a fire mission using this method is very basic: For example, the mortar location and the target are plotted; the distance between the plots is determined using the protractor; the corresponding charge and elevation are found from the firing ta-

ble. Again, the protractor is used to determine the azimuth from the mortar to the target. The mortar is laid on the azimuth by use of the aiming circle or the M2 compass. Then, as is normal, the aiming posts are placed out on a referred deflection. Corrections from the forward observer (FO) are quickly and easily incorporated by drawing a straight line from the observer's location to the target. The roamer on the protractor is used to measure the correction in relation to the observer-target (OT) line and a new plot is made. Once the firing data to engage the target has been gathered, it is a simple task to convert the azimuth gained from the map to its corresponding deflection by using the LARS (left add, right subtract) rule.

It seems to me that it would be a waste of time to train the students in mortar



Given the availability rate of the mortar ballistic computer, the old M16 plotting board, shown in use here, may no longer be needed as a backup system.

courses to use both the MBC and the M16 plotting board it was designed to replace. In addition, the M16 plotting board is easily damaged through misuse or accident. Exposure to direct sunlight, for example, can warp the disc. The present cost of an M16 plotting board is \$123. Doing away with this system would save us thousands of dollars, money that could be better spent on

other military equipment. And, after all, the designated back-up system would be used only rarely.

For more than two years the British Army has had a computer system similar to the MBC in all of its Infantry battalions. It is called the Morzen Mortar Fire Data Computer (MFDC). When this system was introduced, similar questions arose concerning a back-up

for it, but eventually the British Infantry School decided upon the map, protractor, and firing table.

The British plotter, L1A1, was, and still is, a very good one, and many old and tested infantrymen were reluctant to change to the new computers. The idea of accepting them and doing away with the plotter altogether and not even having it as a back-up was hard for these veterans to accept. But accept the computers they did, and today the L1A1 is a system of the past, fondly remembered only by those who had mastered it. The British system of mortaring has been a complete success.

Once the U.S. Army has fielded all of its authorized MBCs, I suggest it do away with the M16 plotting board and move forward with the available technology. Technology will then move forward even faster instead of waiting for some mortarmen to catch up.



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Directed Energy Warfare

CAPTAIN S.T. MISHKOFSKI

The United States infantryman faces a new threat to his well-being on today's battlefield — directed energy warfare (DEW) — a threat that he should begin getting acquainted with.

The Army defines DEW as "the use of electromagnetic waves or a stream of sub-atomic particles to perform military combat tasks." That definition is not as new and strange as it may sound;

an infantry battalion today trains with lasers every time its soldiers use MILES (multiple integrated laser engagement system) equipment. In addition, Dragon and TOW gunners "shoot" their simulators at a directed energy source, while attached artillery fire support teams use laser designators to "paint" targets and guide smart munitions. Both the M60A3 and M1 tanks have laser rangefinders to

determine range to target and to assist in fire control.

The DEW equipment the Army has today and expects to have tomorrow is designed for such tasks as detection, identification, illumination, ranging, jamming, disruption of communications, and destruction of hostile soldiers and their materiel resources. Our DEW equipment includes lasers, microwave

and millimeter-wave technology, devices to create electromagnetic pulses, devices that use light energy, and weapons that emit very low frequency radio signals.

Right now, though, the laser systems are the ones that are of the most concern to infantrymen, because one day, instead of shooting bullets we may shoot tiny pieces of light at our opponents — and they at us. (It is interesting to note that the Soviet Union has the same kind of tactical lasers we have. A recent issue of a leading military publication shows a T-62 tank, complete with laser rangefinder, pulling out of Afghanistan.)

Today, the Infantry School is working on a number of devices that use lasers, among which are both handheld devices and weapons to be mounted on combat vehicles. One of these systems is the electro-optic countermeasures set, called Stingray, which is designed for use with the Bradley fighting vehicle. Other service schools are working on filters for optical sights that will filter out those parts of laser light that can damage a soldier's eyes.

Even without getting into a complex discussion on the power of lasers, it's not hard to guess that if one hits a soldier in the eye he could end up losing his vision. And even without talking about

nanometers and spectral radiance, it's not hard to guess that if a laser hits an optical sight while a soldier is looking through it he is likely to be hurt.

Thus, when we use lasers in training we must be careful to use them at a range at which our soldiers won't be injured. Those people who are down-range when a laser is in use, for instance, should have some kind of shielding for their eyes.

CONFIDENCE

The Army wants to keep its soldiers from being blinded, their maneuver from being detected, and their equipment from being jammed. And the Army wants to build confidence in its countermeasures. In the final analysis, then, this new technology brings with it a need for training — the kind of training that can help solve the problems presented on the battlefield today.

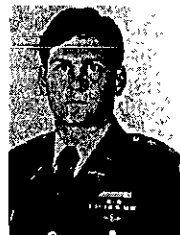
In response to this need, the Army has already developed a draft regulation on tactical directed energy warfare policy, and Army schools are now perfecting lesson plans for DEW training. This training is scheduled to begin soon in TRADOC schools.

The Combined Arms Center at Fort

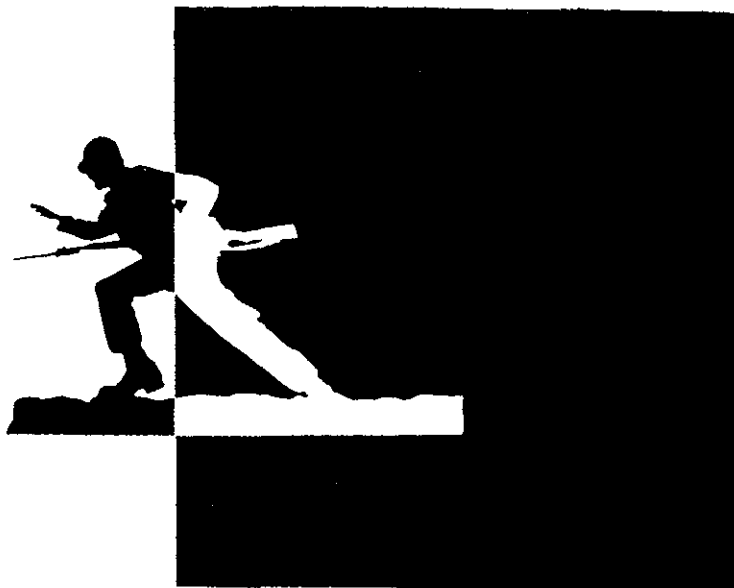
Leavenworth has come up with 10 tasks, along with conditions and standards, to get our soldiers ready:

- Identify DEW threat.
- Recognize the effects of DEW on equipment
- Recognize the medical effects of DEW on personnel.
- React to a laser weapon attack.
- React to a microwave weapon attack.
- React to a particle beam attack.
- Employ active and passive countermeasures for DEW.
- Wear and maintain protective equipment, such as suits, goggles, glasses, and lens filters.
- Sound a DEW warning.
- Communicate in a DEW environment.

For the Infantryman, DEW is just one more hill to climb, one more river to cross.



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ENLISTED CAREER NOTES



VOLUNTEERS NEEDED FOR SERVICE SCHOOLS

Soldiers need education to get ahead in the Army—education can affect promotions and assignments. But many soldiers do not know how selections are made for Army schools or that they may apply for most schools without waiting to reenlist or to be selected by the Department of the Army.

The official source of information on formal courses offered at Army schools and training centers is DA Pamphlet 351-4, the Formal Army Schools Catalog. In addition to describing each Army course, the pamphlet also describes interservice and Department of Defense courses.

Eligibility and submission procedures are explained in AR 614-200, Selection of Soldiers for Training and Assignment, and DA Pamphlet 600-8, Management and Administrative Procedures. Soldiers should visit their battalion operations sections, personnel administration centers (PACs), or post libraries to look at these references.

A soldier's request for a service school must be submitted on DA Form 4187, Request for Personnel Action. If the regulations show that he needs documentation to support his eligibility for a course, it must be forwarded with his DA Form 4187.

An application for a service school course should be initiated at the PAC. The PAC supervisor should then get the commander's recommendation and forward the request to MILPERCEN.

If the application meets the prerequisites and a quota is available, the application is forwarded to the soldier's career branch. The branch reviews it to be sure the Army needs for the soldier to have that training and makes sure he is qualified for it on the basis of his assignments and experience.

Soldiers may apply for schooling

whether assigned in the United States or overseas. Overseas requests for a service school are accepted not more than 12 months nor less than five months before the date a soldier is eligible to return from overseas.

If qualified soldiers with the required MOSs, additional skill identifiers (SSIs), or skill qualification identifiers (SQIs) are not available through normal overseas replacement, however, soldiers may be selected for training on a temporary duty basis and then returned to their overseas commands.

Temporary duty for training can work two ways. If a soldier has assignment instructions, his request will be considered for attendance on temporary duty enroute to his new assignment. If the request is approved, his report date to his new assignment may have to be adjusted to fit with the class graduation date.

For a soldier not on assignment instructions, his request will be considered for TDY and return to his parent unit. It is possible, however, that a soldier who is not on assignment instructions when he submits his request will be by the time MILPERCEN receives it.

The cost of TDY-and-return training is usually paid for by the soldier's installation. The Department of the Army provides funds for all TDY-enroute training and for all NCO professional development courses, whether TDY-and-return or TDY-enroute.

If a soldier is to attend a school enroute to a new assignment, the Personnel Service Center ensures that school instructions are included on permanent-change-of-station orders. If he is going to school in a TDY-and-return status, the installation G-3 office issues the orders.

It must be emphasized that once a soldier has been approved to attend a school, he is committed. If something happens that will prevent his attending the school, he should notify his PAC supervisor as soon as possible. Then the quota can be

filled with another soldier, and the Army's training money will not be wasted.

NCOPD ASSIGNMENT PROCEDURES

Changes have been made in the procedures for NCO assignments. Enlisted career advisors at MILPERCEN are now putting two professional development assignment recommendations for each NCO in the Centralized Assignment Procedure (CAP III) special instructions.

The new procedures, being tested Army-wide under a pilot program, will be limited at first to the assignment of sergeants first class and master sergeants.

The CAP III special instructions will show the career development needs of each NCO. The two recommendations for each will conform to standard duty titles for the NCO's MOS. The special instructions will also include whether the NCO should be considered for duty in a TOE unit or a TDA unit and will recommend a level of responsibility, such as major command, division, or battalion.

Putting professional development recommendations in CAP III should give the strength management officers in gaining commands more management tools to help them pre-assign soldiers. In the past, there was no way for the gaining command to know a soldier's career development needs in advance. As a result, decisions were often limited to matching the MOS and rank of an NCO with a known or projected vacancy. With these new procedures, strength managers will be aware of an NCO's career development needs and can consider them during the pre-assignment process.

Since the final assignment is often determined at battalion level, professional development recommendations should be sent through each management level that makes assignment decisions.

Commanders or their command sergeants major need to have this information.

An NCO should be assigned to one of the duty positions shown in the CAP III special instructions. Because of unit readiness requirements, however, an NCO may have to be assigned to another duty position. The unit commander will continue to have the final say on assignments.

The goal is to use the assignment system to recommend to commanders the types of assignments that will expose NCOs to the full range of duty responsibilities in their MOSs. This will improve MOS competency and job proficiency.

In support of this initiative, NCOs should make sure their personnel qualification records are accurate. They should also have current enlisted preference statements that reflect their assignment wishes on file at MILPERCEN.

SERE TRAINING

MILPERCEN is seeking applications from active Army enlisted soldiers for survival, evasion, resistance, and escape (SERE) training, which teaches soldiers about the Code of Conduct and techniques to support it. The Code provides behavior guidelines for members of the Armed Forces in combat or captivity.

The SERE High-Risk Training Course (3A-F38/012-F27), trains soldiers who require Level C SERE training. Level C training in peacetime is for soldiers who, because of their assignments or missions, have a high risk of being taken hostage by terrorists or of being detained by hostile governments. This includes soldiers assigned to Special Forces A teams, Ranger battalions, and long-range surveillance unit reconnaissance patrols. It also includes aviators and crew members in operational flying assignments in support of special operation forces, and Intelligence and Security Command soldiers with top secret or higher clearances who are susceptible to capture or exploitation.

The course, conducted at the U.S. Army John F. Kennedy Special Warfare Center at Fort Bragg, is three weeks and three days long and is given about once a month.

Soldiers should apply for SERE training on DA Form 4187, Request for Personnel Action. Applications must be completed in accordance with DA Pamphlet 600-8, procedure 3-10, and must be accompanied by DA Forms 2A and 2-1. Forms should be forwarded through the chain of command to MILPERCEN, ATTN: DAPC-EPT-F, 2461 Eisenhower Avenue, Alexandria, VA 22331-0400.

ENLISTMENT ELIGIBILITY ACTIVITY

The Enlistment Eligibility Activity (EEA) is a MILPERCEN field operating agency under the control of the Director of Enlisted Personnel. Its mission is to process waiver requests from people who must have them to enlist or reenlist in the Regular Army.

Reenlistment waiver and personnel actions processed by the EEA under provisions of AR 601-280 include:

⇒ AWOL or time lost in excess of 30 days.

- Court martial convictions.
- Field bars to reenlistment (18-20 years of service).
- Erroneous enlistment determinations.
- Officer grade determinations.
- Withdrawal or declination of continued service statements.
- Cancellation of extensions.
- Second grade waivers.

Recruiting actions processed under AR 601-210 include:

- Hardship discharges.
- Time lost over 15 days.
- Adult felonies.
- Grade determinations (sergeant first class through sergeant major).
- Grade and service waivers.
- Medical disqualifications or discharges.
- Other administrative waivers.

Requests for waivers and other personnel actions regarding enlistment eligibility are *personal* personnel actions. Each request is considered individually under the "whole person" concept. This includes the information submitted with the current action and a review of the individual's overall military service record (active Official Military Personnel File or

prior service records, as appropriate).

Final action by a DA agency ensures that only the most meritorious applicants or soldiers are granted waivers of disqualification and given a chance to serve or continue serving in the United States Army.

MAINTAINING MOS PROFICIENCY

Skill qualification tests have confirmed that many second term and career soldiers have trouble maintaining proficiency in all aspects of their MOSs. This is especially true for those in the adjutant general and the finance career fields.

There is a tendency to use these soldiers in positions in which they have had previous experience. This denies them a chance to work and train in the complete spectrum of their MOSs. Then, in future assignments, they will not have the expertise to perform other tasks that are within the scope of their MOSs.

Personnel service centers and replacement companies can help bridge this training gap by rotating newly arrived soldiers between TOE and TDA duty assignments, consistent with local needs.

Commanders and division chiefs can do their parts, too. Rotating or cross-training soldiers among the duty positions of their MOSs is one way to help solve the problem. Providing dedicated sustainment training time can also help soldiers remain proficient in all areas of their MOSs. (Sustainment training recommendations appear in the MOS training section of the Soldier's Manual.)

Some methods, such as supervised on-the-job training and informal, supervisor or expert-led classes, require more time or coordination than the use of self-paced Training Extension Course materials. These materials are normally available through education centers or battalion training education libraries.

Finally, commanders and supervisors must ensure that all training is performed to Soldier's Manual standards. Any local deviations based on approved local practices or standing operating procedures should be clearly defined as such.

LANGUAGE SKILLS

As authorizations for linguists continue to grow in the Army enlisted force, it becomes even more important to track the language skills of soldiers. Because of recent changes in regulations, however, many soldiers are confused as to who must test and how often.

Soldiers must take the Defense Language Proficiency Test (DLPT):

- If they have received language training at government expense. This includes those who were trained at the Defense Language Institute, Foreign Service Institute, J.F.K. Center, and various service schools and academies.

- If they are serving in a language-dependent MOS (97E or 98G).

- If they hold a Special Qualifications Identifier of "L."

These soldiers must be tested annually, but may not take the test within six

months of their previous DLPT in the same language.

Soldiers with language abilities who are not included in the above categories are also asked to take the test, but are not required to do so.

MILPERCEN provides each local personnel service center (PSC) with a semi-annual roster of linguists who are overdue for testing. The PSC must either submit current test results on each soldier, or have the soldier scheduled for testing through the local test control officer.

Recent increases in linguist authorizations have also caused critical shortages in MOS 98G (Early Warning Special Intelligence Voice Interception) in Russian, Korean, Spanish, and Arabic. Several incentives are offered for those who reclassify into this MOS:

- They are given an opportunity to receive language training at an accredited institute.

- MOS 98G has historically had high Selective Reenlistment Bonus rates, and continues to have them.

- MOS 98G may be attained under the Bonus, Extension, and Reenlistment (BEAR) Program for the Russian, Korean, Arabic, and German languages. This program allows qualified soldiers (private-sergeant, non-promotable) to postpone their reenlistments until they have acquired MOS 98G, and then to reenlist and receive the bonus as it was when they entered the BEAR program.

Soldiers who already speak one of these four languages, and are not currently serving in an MOS for which there are authorizations in them, are the Army's greatest linguistic potential.

Interested soldiers should consider 98G as an option, either through normal reclassification or through the BEAR program.



OFFICERS CAREER NOTES



CGSC NONRESIDENT STUDENT SERVICES

Each officer enrolled in the U.S. Army Command and General Staff College's nonresident programs is now served by single team member who will be responsible for him as long as he is enrolled.

The Extension Training Management (ETM) Directorate of the Command and General Staff College (CGSC) manages the nonresident programs of the Command and General Staff Officer Course (CGSOC), Phase I of the Combined Arms and Services Staff School (CAS³), the Functional Area 54 Qualification Course, and the CGSOC Refresher Course.

The team-member concept, part of a reorganization in the Student Services Division of the ETM Directorate, has changed the way the directorate does business. No longer will a student be referred to different sections to learn the results of his examinations, the status of his writing requirements, and the status of his examinations. Now his assigned team member will be responsible for helping him in all the nonresident programs in which he is enrolled. The person who answers his telephone call will also handle his records, grade his papers, process his exams, and correspond with him. This relationship is intended to make the team member more sensitive to the student's needs, resulting in increasing student service and in reducing turnaround time for student submissions.

The Student Services staff has been reorganized into four 7-person teams. At the same time, telephone lines have been increased from two to 12, with 23 people instead of two available to answer them.

This reorganization was necessary because of unmanageable backlogs in the past and should prevent such backlogs in the future.

Each of the more than 28,000 students currently enrolled in ETM's nonresident programs have been assigned a team member to handle his records. Assignments are alphabetical by last name, as follows:

	LAST NAME	AUTOVON 552- COM (913) 684-
1st Group	A - C	5584
2nd Group	D - J	5615
3rd Group	K - P	5618
4th Group	Q - Z	5407

Additionally, instructors and others involved with administering the U.S. Army Reserve Force School option of the nonresident CGSOC may call these same numbers as follows:

1st Group	First Army schools
2nd Group	Second Army schools
3rd Group	Fourth and Fifth Army schools
4th Group	Sixth Army schools and overseas

Regardless of which telephone number a student calls, however, he will be transferred to the proper team.

TRAINING WITH INDUSTRY

The Training With Industry (TWI) program provides training to Army officers in industrial procedures that is not available through the military service school or civilian university systems.

The program has several objectives:

- To provide a nucleus of officers trained in managerial techniques and the relationship of specific industries to various Army functions.
 - To improve the capability of officers to perform the Army's special program activities.
 - To serve as a source of information concerning innovations in industrial management practices and techniques.
 - To teach officers how major defense contractors and other firms do business, and to have them use the information to the Army's advantage upon their return.
- Officers who participate in TWI are

assigned to civilian industries for one year of training. Then they serve a three-year utilization tour in a position that requires interaction with civilian industry.

Army officers annually enter TWI in the following functional areas:

15T	Aviation Logistics
25	Communications-Electronics
31	Physical Security
44	Finance
46	Public Affairs
49	Operations Research/Systems Analysis
51	Research and Development: Test and Evaluation
53	Systems Automation
91	Ordnance
92	Quartermaster
95	Transportation
97	Procurement

To qualify, an officer must have an academic record, educational tests, and other indicators that reflect an aptitude for further schooling. An applicant must also have a military performance record that demonstrates a potential for a highly successful career.

No tuition costs are associated with the program. Officers receive full pay and allowances and are authorized permanent-change-of-station moves. Participants do not receive academic degrees as a result of their training.

Interested officers may submit applications, with their personal resumes, at any time using DA Form 1618-R, Application for Detail as Officer Student at a Civilian Education Institution or at Training with Industry. (See AR 621-1, paragraph 3-4, for information on preparation and submission.)

SINGLE TRACKING

The revised Officer Personnel Management System (OPMS) provides two career patterns for officer development: single tracking and dual tracking. Many questions are still in the minds of officers in regard to single tracking in branch or functional areas.

A single-tracked officer has only one career field—either a branch or a functional area, while a dual-tracked officer has two career fields—both a branch and a functional area.

Single-tracking is permitted in all branches and functional areas, except functional areas 18 (Special Operations), 48 (Foreign Area Officer), 50 (Force Development), and 54 (Operations, Plans and Training). The proponents for these functional areas have determined that branch experience, through dual tracking, is vital to professional development and, therefore, single tracking in these areas is not permitted.

Combat arms officers may single track in their branches, but this is generally discouraged because of assignment limitations, authorizations, and inventory requirements.

Some officers are concerned that single tracking will limit them in future assignments, and it will, in that an officer will receive assignments only in the career field for which he single tracks and in immaterial positions.

An officer who single tracks in a functional area is eligible for assignments to that functional area and to branch immaterial positions.

DA Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, provides help in deciding upon the best course of action. A videotape on OPMS is also available through local Training Aid Support Center film libraries under reference number TVT 12-9.

All officers in year groups 1966-1979 who want to single track in a branch or functional area should read the pamphlet to see whether they meet the stated criteria. If so, they may submit their re-

quests to MILPERCEN, ATTN: DAPC-OPD, 200 Stovall Street, Alexandria, VA 22332-0400. A single-track board meets every six months to review applications.

Officers in later year groups (1980-1986), may apply at their seventh year of service before their formal functional area designation process begins. Officers in year groups earlier than 1966 will be handled on an individual basis.

VOLUNTARY BRANCH DETAIL

The Voluntary Branch Detail (VBD) program is a plan to end the involuntary change of an officer's branch. Such changes have occurred in the past because of the requirement to realign the Army's company grade force structure at the captain promotion point.

VBD will be offered to officers as they come into the Army, and Year Group 1987 officers will be the first to be affected. ROTC cadets were briefed on the program at their advanced camps last summer.

The program applies to cadets who want combat support or service support basic branches, but who also want to serve in combat arms branch details until they are selected for promotion to captain.

A volunteer for VBD indicates his desired basic branch and detail branch on his cadet active duty preference statement.

The ROTC Selection Board will receive both branch choices of each cadet in November each year. If approved for both, a cadet will be assigned to a detail branch upon graduation and to a guaranteed basic branch after about four years of active military service.

Qualified ROTC cadets selected for the detail program can be appointed in the Regular Army. The opportunity to participate in VBD will be extended to U.S. Military Academy cadets as well.

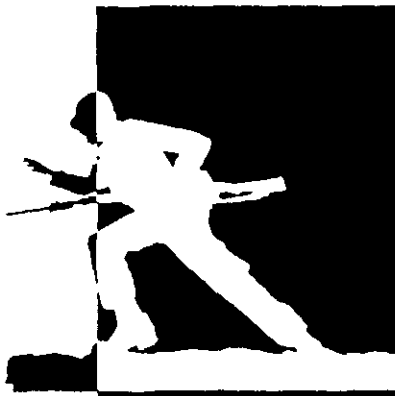
The officers selected will be distributed against Table of Organization and Equipment (TOE) positions. They will remain in their detail branches until they attend their basic branch advanced courses or are promoted to captain.

The VBD program will broaden the background and experience and increase the flexibility of officers selected for active duty. It will also help meet the needs of the Army through voluntary action and will eliminate the need for mandatory rebranching.

USAR SENIOR OFFICER MANAGEMENT

Selected senior Army Reserve Officer management functions now come under the Office of the Chief, Army Reserve (OCAR) with the support of the Army Reserve Personnel Center (ARPERCEN). The Senior Officer Management Office (SOMO), working directly for the OCAR, will combine the functions of the General Officer Management Office, ARPERCEN; the Active Guard/Reserve Colonels Management Branch, ARPERCEN; and the GOMO, OCAR.

SOMO's new location is at the Pentagon in Room BE774. The new telephone number is AUTOVON 227-0922; commercial (202) 697-0922. An administrative element remains at ARPERCEN in the former GOMO location using AUTOVON 693-7550; commercial (314) 263-7677.



BOOK REVIEWS



We have received a number of excellent reference books we want you to know about:

- **THE ENCYCLOPEDIA OF MILITARY HISTORY: FROM 3500 B.C. TO THE PRESENT.** Second Revised Edition. By R. Ernest Dupuy and Trevor N. Dupuy (Harper and Row, 1986. 1,524 Pages. \$39.95). In this book, the authors have expanded their 1977 revised edition by some 60 pages to cover the Iran-Iraq war, the Soviet invasion of Afghanistan, and the wars in Lebanon and the Falkland Islands. The book itself remains an indispensable tool for anyone interested in the profession of arms or in military history.

- **WORLD MILITARY HELICOPTERS.** By Efan ap Rees (Jane's Publishing, 1986. 192 Pages. \$22.00). This is a comprehensive guide to military helicopters that are either in service today or under development. Each of 70 basic types of aircraft is covered by a technical specification; a development, production, and service history; and black-and-white photographs.

- **HANDBOOKS TO THE MODERN WORLD: WESTERN EUROPE**, edited by Richard Mayne (699 Pages), and **THE SOVIET UNION AND EASTERN EUROPE**, edited by George Schopflin (637 Pages). Facts on File, 1986. \$40.00 each volume. These are the first two titles in what will be a series of eight; they are completely revised and updated editions of the handbooks first published in 1967 and 1970 respectively. They are an excellent source of facts about the politics, geography, and societies of most of the countries in the world.

- **MILITARY HISTORY OF THE UNITED STATES: AN ANNOTATED BIBLIOGRAPHY.** Edited by Susan K. Kinnell (ABC-CLIO, 1986. 330 Pages. \$85.00). This is one in the publisher's series of bibliographies and covers the journal literature relating to U.S. military affairs published between 1976 and mid-

1985. The 3,300 entries appear in abstract form and are organized into chapters based on the major military periods or events in U.S. history from the earliest colonial militia and Indian wars to the cut-off date. Peacetime as well as wartime events are covered. Numerous bibliographical aids for the researcher, including a list of the periodicals covered (more than 450 titles), are most helpful.

- **MEDALS, MILITARY AND CIVILIAN OF THE UNITED STATES.** By David Borthick and Jack Britton (M.C.N. Press, 1984. 290 Pages. \$14.95, Softbound). Intended as a guide for both collectors and historians, this volume contains line drawings and general award criteria for 314 different U.S. decorations and medals; they date from the Andre Medal, the first decoration (1780) created by Congress, to the Coast Guard Reserve Unit Commendation. A word of warning: the list of illustrations found between pages 5 and 11 does not necessarily follow the correct order of precedence; appropriate service regulations must be consulted on that subject.

- **U.S. MILITARY SHOULDER PATCHES OF THE UNITED STATES ARMED FORCES.** Fourth Edition. Compiled and edited by Jack Britton and George Washington, Jr. (M.C.N. Press, 1985. 84 Pages. \$16.95, Softbound). This is an updated version of the third edition, which was first published in 1981. Pages 65-72 are the new additions. All of the patches and tabs shown in this edition are in full color except those for ROTC units and for space flights.

- **THE MILITARY BALANCE.** 1986-1987. (The International Institute for Strategic Studies, 1986. 238 Pages. \$24.95). With its timely and quantitative

assessment of the military forces and defense expenditures of more than 140 countries (current as of 1 July 1986), this latest version of a world-renowned publication contains several new features: a loose insert map that shows the missile coverage for selected U.S. and Soviet ICBM and IRBM launching sites and possible SSBN (ballistic missile nuclear submarine) deployment areas; maps of U.S. land force deployments and Soviet and Chinese military districts, regions, and theaters; charts showing trends in government expenditures for a number of NATO countries as well as Sweden (a Western, socialist economy) and South Korea (an industrializing country); and an assessment of the U.S.-Soviet strategic balance using arms control counting rules.

The Institute believes that "U.S. and Soviet strategic forces are in rough balance, and that the data do not support the contention that the U.S. forces are, taken as a whole, inferior to those of the U.S.S.R." It also continues to believe that in Europe "the conventional military balance is still such as to make general military aggression a highly risky undertaking for either side... The consequences for an attacker would still be quite unpredictable, and the risks, particularly of nuclear escalation, remain incalculable."

- **HISTORICAL TIMES ILLUSTRATED ENCYCLOPEDIA OF THE CIVIL WAR.** Edited by Patricia L. Faust (Harper and Row, 1986. \$39.95). Students of the U.S. Civil War should applaud the appearance of this 2,000-entry reference work; reference librarians should do the same, for its system of cross-referencing within entries is particularly useful for quickly locating needed information. The entries, arranged alphabetically, cover every important aspect of the war — individuals (military and civilian), campaigns, battles, units, and the political, economic, and social developments

NOTE TO READERS: All of the books mentioned in this review section may be purchased directly from the publisher or from your nearest book dealer. We do not sell books. We will furnish a publisher's address on request.

brought about by the war. Sixty-two historians and Civil War experts wrote the articles, which range from a few lines to several pages in length.

- **BRASSEY'S BATTLES.** By John Laffin (Pergamon Brassey, 1986. 484 Pages). The bare-bone details of more than 7,000 battles, campaigns, and wars on land, sea, and in the air from the battle of Megiddo (1469 B.C.) to the Falklands are presented in this book; many of the entries are supplemented with maps. In general, the author has followed the principle that the more recent the event the longer the entry. He has also corrected, where he could, certain errors that have appeared in previous encyclopedias of this kind. The several lists near the front of the book are quite useful in leading one to the particular events that are covered later.

- **THE MIDDLE EAST BALANCE,** 1985. Edited by Mark A. Heller. The Jaffee Center for Strategic Studies (Westview Press, 1986. 392 Pages. \$38.50). This is an excellent overview of the military situation in the Middle East, the eastern Mediterranean, and the northern Red Sea region as it was in late 1985. In addition to individual essays on various aspects of that military situation — the Iran-Iraq war, for example, and the conflict in Lebanon — the book has detailed discussions of the various regional military forces, a set of comparative tables, a glossary of weapon systems, a list of abbreviations, and ten maps.

- **A WORLD ATLAS OF MILITARY HISTORY, 1945-1984.** By Tom Hartman and John Mitchell (Hippocrene Books, 1985. 108 Pages. \$24.95). This is the third volume in the publisher's series of world atlases of military history. The first two volumes were published in 1973 and 1978. Although this particular volume contains 93 maps, it relies more heavily on textual explanations because the wars of this period — largely guerrilla in nature — did not lend themselves to the usual map treatment found in the other volumes in the series.

Here are four books we consider to be must reading for the military professional:

- **MAKERS OF MODERN STRATEGY: FROM MACHIAVELLI TO THE NUCLEAR AGE.** Edited by Peter Paret

(Princeton University Press, 1986. 941 Pages. \$12.95, Softbound). Although it carries the same title as its distinguished 1943 predecessor, this is not a simple reprint of that classic study of war. Only three of the original essays have been reprinted in this book. Four other essays from the original version have been extensively revised, while the remaining 22 essays in this new edition are new. As with the original, however, the essays — old and new — analyze war, its strategic characteristics, and its political and social functions over the past 500 years. No professional's library should be without a copy.

- **THE SUPERSTRATEGISTS: GREAT CAPTAINS, THEORISTS AND FIGHTING MEN WHO HAVE SHAPED THE HISTORY OF WARFARE.** John R. Elting (Scribner's, 1985. 368 Pages. \$22.95). Written in a far lighter vein than the book mentioned just above, this one serves as an able complement to the more scholarly essays in the Paret book. The author misses few of the important personages who have trod on the world's military stage. His narrative is easy to read and digest, and in his last chapter he advances a number of interesting thoughts on the nature of future warfare and those qualities the superstrategist of tomorrow will have to have.

- **COMMAND IN WAR.** By Martin van Creveld (Harvard University Press, 1985. 339 Pages. \$20.00). This book is not about commanders but about systems of command. Its primary thrust is with organization and procedures and with the influence of technology on the conduct of war. In the beginning — "the stone age of command," the author calls it — command was from the front and a commander had to position himself at the decisive point. In time, when staff organizations were developed to assist them, commanders ceased exercising personal command from the front. Napoleon Bonaparte, whom the author considers

"the most competent human being who ever lived," brought about a revolution in strategy that set the stage for the development of the modern general staff and the increasing use of technology. But even today, the author suggests, command systems remain imperfect, technology is subject to limitations, and there can be no certainty in war. He feels any command system that becomes a slave to technology, as the U.S. system did in Vietnam, loses sight of what command is all about.

- **THE ORIGINS OF WAR: FROM THE STONE AGE TO ALEXANDER THE GREAT.** By Arther Ferrill (W.W. Norton, 1985. 240 Pages. \$19.95). In this interesting and readable work, the author analyzes the purely military aspects of warfare as he believes it occurred nearly 10,000 years ago. He then traces those military developments — major new weapons, massive fortifications, and the beginnings of strategy and tactics — through the rise of the great military machines of ancient Egypt, Assyria, and Persia to the time of Alexander the Great. To him, "as a general Alexander is perhaps unique" and "no other ancient general made as many basic contributions to warfare."

The following are a number of our longer reviews:

- **GREEN BERETS AT WAR: U.S. ARMY SPECIAL FORCES IN SOUTHEAST ASIA, 1956-1975.** By Shelby L. Stanton (Presidio Press, 1986. 360 Pages. \$18.95). Reviewed by Captain F.R. Hayse, United States Army.

When tracing the development of warfare, it seems that advances in strategy have always aroused acute disquiet, with the ultimate being reached during World War II with the use of nuclear weapons. But it is also interesting to note that this great leap in military technology has prevented neither wars nor the deaths of many millions of the earth's people since 1945. And if, as postulated by Sir John Hackett, there must be an ability to deploy a graduated military response appropriate to a situation to prevent a nuclear war, then it may be necessary for a country to embark on timely warfare to lessen the risk of a general war and thus a nuclear holocaust.

INFANTRY HOTLINE

To get answers to Infantry-related questions or to pass on information of an immediate nature, call AUTOVON 835-7693, commercial 404/545-7893.

For lengthy questions or comments, send in writing to Commandant, U.S. Army Infantry School, ATTN: ATSH-ES, Fort Benning, GA 31905.

In this book, the author tells the story of the U.S. Army Special Forces in responding to such a graduated U.S. commitment to Southeast Asia in a role that was loosely based on the idea that "it takes a guerilla to catch a guerilla."

Organized in 1952 to conduct unconventional warfare, Special Forces units were used extensively throughout Southeast Asia, primarily in Vietnam, from 1956 to 1975. This book gives as detailed a historical account of their diverse missions and experiences as can be told today without violating the strict classification restrictions still placed on many of their operations and reports.

This book is a much needed source of information. It serves as an excellent preventive to losing some of the true lessons of Vietnam in the fog of myths and legends that so often follow the exploits of such shadowy units. It includes numerous maps, a bibliography, an index, and lists of the Special Forces soldiers still missing in action and of the Special Forces Medal of Honor recipients.

THE COMMANDOS, 1940-1946. By Charles Messenger (William Kimber, 1985. 447 Pages). Reviewed by Leroy Thompson, Manchester, Missouri.

Although dozens of books have been written about the British Commandos, this is the first truly comprehensive history of this most famous of elite military units. The author has taken the complete history of the Army and Royal Marine Commandos during World War II as his subject. As a result, many formations such as the short-lived Middle East Commandos of 1940-1941 and Number 30 Commando, the specialist intelligence-gathering unit, are covered in good detail.

The narrative begins with the early Independent Companies and their service in Norway, and progresses from that point. Most previous books about the Commandos have been slanted towards operations in western Europe and the Mediterranean, but this one gives excellent coverage to the Commando operations in the Far East as well. The many off-shoots from the Commandos, including the SAS, COPPs, Royal Marine

Boom Detachment, and other raiding units are discussed and placed in their proper context.

This is by far the best general work on the British Commandos in World War II, and it is highly recommended to the general military historian as well as the specialist in World War II or special operations.

CONVENTIONAL FORCES AND AMERICAN DEFENSE POLICY: AN INTERNATIONAL SECURITY READER. Edited by Steven E. Miller (Princeton University Press, 1986. 341 Pages). Reviewed by Colonel James B. Motley, United States Army Retired.

Nuclear weapons dominate the U.S. defense debate, while issues relating to conventional forces and strategy attract far less attention and are usually limited to a small number of experts. This book,



with its 12 previously published essays, by no means exhausts the menu of non-nuclear issues in U.S. defense policy. But it does provide a succinct analysis of the kinds of issues, problems, and debate that currently confront U.S. defense planners and will for the foreseeable future.

The editor argues that there are at least four reasons why conventional forces deserve more public scrutiny than they receive: conventional forces are more costly than nuclear forces; they are more likely to be used; they are commonly used

for diplomatic purposes; and the conventional balance can influence the likelihood of nuclear war.

The dilemmas, disputes, and controversies associated with the issues presented in this book will be around for some time, and the way they are resolved will significantly affect U.S. security. Accordingly, this book of readings should be studied by the professional military man, the policy specialist, and the serious student of national security. It is informative and well-written and captures the major issues of contemporary U.S. defense policy.

WHY THE SOUTH LOST THE CIVIL WAR. By Richard E. Beringer, Herman Hattaway, Archer Jones, and William N. Still, Jr. (University of Georgia Press, 1986. 582 Pages. \$29.95). Reviewed by Major Don Rightmyer, United States Air Force.

Why *did* the South lose the Civil War? The answer seems obvious — defeat on the battlefield. Well, not necessarily. Other reasons that might be and have been given include the U.S. naval blockade of the South's coastline, the South's economic collapse, critical shortages in the South of essential military supplies and munitions, and inadequate Southern leadership or poor strategy and tactics.

Although some or all of these reasons have been claimed by both participants and historians as *the* cause of the Confederate defeat, the authors of this book maintain that none of them were really the cause. Their thesis is that the war was lost because the South did not have the will to win. They pack a tremendous amount of detailed information and insight into their 457 pages of text. The result is a thoughtful discussion about the South's role in the Civil War, which seems to have relevance for the prosecution of any conflict, even in today's world.

The authors insist that the South lacked the sense of nationalism that was necessary to gain a victory in such a war. They believe that Jefferson Davis and other national Confederate leaders did not know how to draw the nation together in a common war effort, especially during the time when the South began to suffer a se-

ries of military defeats. As a result, the time came in April 1865 when the nation was unwilling to continue the war and surrender became its only real option.

This is a weighty volume, but it is well worth the examination of military professionals as well as students in all of our war colleges. The authors provide a great deal of material worth our consideration and discussion about the psychological aspects of conducting war.

CHRISTMAS TRUCE: THE WESTERN FRONT, DECEMBER 1914. By Malcolm Brown and Shirley Seaton (Hippocrene Books, 1984. 228 Pages). Reviewed by Lieutenant Colonel David A. Rolston, United States Army.

In December 1914, during the first Christmas of the Great War, there took place a unique and spontaneous truce along large portions of the Western Front. It was really an uncoordinated collection of small truces by various individuals and units, often without the concurrence of their higher headquarters or superior officers.

Many officers at company and battalion level took part in or at least made no effort to stop the fraternization. Battle was rejoined after the holiday period but only after each side had given courteous warnings to the other.

How did this seemingly miraculous event come about? Was it unique to that time and place or could something similar take place on tomorrow's battlefield? If it could happen again, then the phenomenon is worthy of further study; while the truce of 1914 passed without incident, the risks of such uncontrolled fraternization is great.

Unfortunately, the authors fail to give us the answers to those questions. Rather, they concentrate on giving detailed accounts of the actual fraternization including individual names and unit listings, but make little effort to explain how it happened. They do give enough information, however, for a reader to begin to formulate his own theories.

Ruling out divine intervention as a cause for the truce, one must assume that it could happen again under the right conditions. Since this is not a generally desired situation for any military leader,

and in fact it is a situation fraught with danger, it is worthy of much more thoughtful attention than is given in this book.

AN INTERNATIONAL HISTORY OF THE VIETNAM WAR, VOLUME II: THE KENNEDY STRATEGY. By R.B. Smith (St. Martin's Press, 1986. 429 Pages. \$25.00). Reviewed by Doctor Joe P. Dunn, Converse College.

Even though it is one of the most crucial periods of the Vietnam War, the Kennedy era has received less attention than others. With William Rust's *Ken-*



nedly in Vietnam and this volume, however, we now have two excellent studies that focus on this vital period. Rust's book, which was reviewed in the September-October 1986 issue of this magazine, speaks to the more general audience; R.B. Smith, a British scholar, offers a significant treatise for the more serious student.

This is the second component of a planned four-volume history of the Vietnam War set within the international arena. Smith portrays the war as part of the global Kennedy approach, and thus the conflict cannot be understood except in a worldwide context. He treats both

the United States and communist sides simultaneously, and he places the war in the context of Asian and global events. Topics beyond the war include China's Asian strategy, Hanoi's relationship with her allies, the Cuban missile crisis, the Laotian conflict, regional perspectives of the Southeast Asian nations, the internal Washington debates, and hints of conflict within Hanoi.

Well researched and documented, the book is neither groundbreaking nor particularly exciting. But it is a competently written, thorough, balanced, solid contribution. As the earlier volume demonstrated, Smith is judicious, indefatigable, sophisticated. When completed, this series will be a standard to judge other works against.

THE EASTER OFFENSIVE, VIETNAM, 1972. By G. H. Turley (Presidio, 1985. 344 Pages. \$18.95). Reviewed by Doctor Mike Fisher, University of Kansas.

At 1200, 30 March 1972, North Vietnamese regulars launched their greatest offensive of the Vietnam War, attacking south across the demilitarized zone into the ARVN I Corps area. Three divisions struck the 3d ARVN Division, combining supporting fires with attacking infantry and armor to roll the South Vietnamese back. Only scattered pockets of resistance remained.

Fate chose to thrust U.S. Marine Lieutenant Colonel G. H. Turley into that battle. He had arrived the previous day in Quang Tri province as an observer before assuming duties as the deputy commander of U.S. advisors attached to the ARVN Marine Corps. Caught in the eye of the storm, Turley found himself unexpectedly elevated from observer to chief advisor of the 3d ARVN Division. During the next four days, the veteran Marine officer directed and coordinated the supporting fires that first slowed and later blunted the North Vietnamese drive.

The retelling of the story of the 1972 Easter Offensive and the author's special role in that battle unfold with precision and clarity in this book. Turley, working from official records, personal interviews, and his own experiences, recreates those events from eye-level. He dis-

sects the tactical, logistical, and administrative problems that diminished the performances of many of the ARVN units, and he addresses the twin problems of ARVN training and leadership.

Turley writes with the care of a historian and the insight of a soldier. Infantry leaders at all levels will profit from a careful reading of his book.

TERRORISM AS STATE-SPONSORED COVERT WARFARE. By Ray S. Cline and Yonah Alexander. HERO Books, 1986. 118 Pages. \$14.95. Reviewed by Colonel James B. Motley, United States Army Retired.

This concise book, set in seven chapters, is based on a study of state-sponsored terrorism prepared for the Department of the Army in 1985. Its objective "is to provide guidelines that will be useful in broad planning of U.S. strategy and policy concerning present-day manifestations of terrorist activities with a genuine transnational strategic dimension."

Cline and Alexander, senior staff members of the Center for Strategic and International Studies at Georgetown University, acknowledge two problems that confronted them in dealing with their subject. The primary problem was the formulation of a precise definition of terrorist activity by certain sovereign states

that are acting in ways that threaten to undermine the values and stability of the U.S. body politic and to jeopardize vital U.S. security interests around the world. A secondary problem was to identify the ways in which the U.S. Government and military forces can legitimately respond, at home and abroad, in defense of the U.S. sociopolitical system against this type of threat.

One of the conclusions drawn by Cline and Alexander is that state-sponsored terrorism is such a fundamental challenge to the security and the strategic interests of the United States that a major effort must be launched to adopt clear definitions and doctrine to establish an active counterterrorism policy and a deterrent strategy that imposes a high cost on terrorists. What that policy and strategy should be and how it should be established, however, is not developed by the authors. Thus, once again the U.S. policymaker is reminded of what is required but with no specific recommendation.

This is a broad-based treatment of a complex subject. It serves as a primer for the general reader but offers little for the specialist.

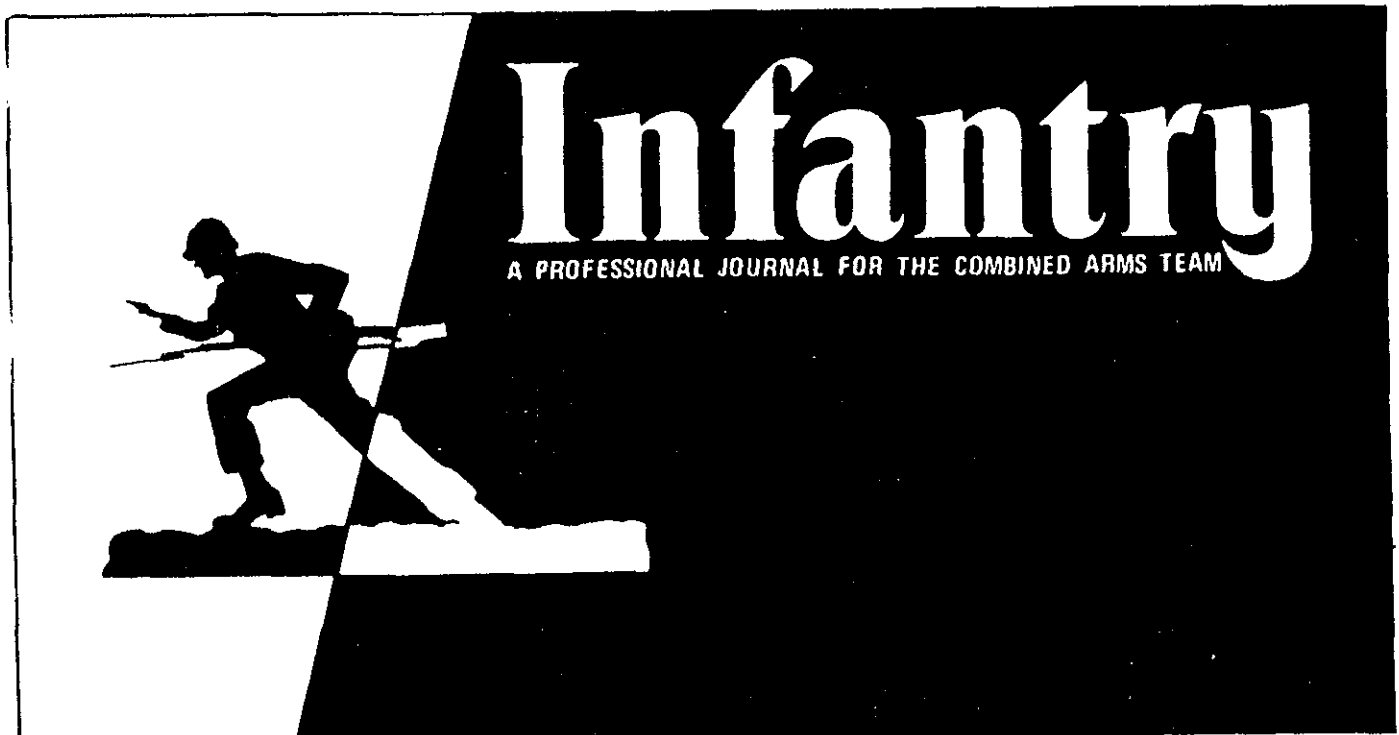
NO PICNIC. By Julian Thompson (Hippocrene Books, 1985. 201 Pages. \$24.95). Reviewed by Leroy Thompson, Manchester, Missouri.

This is by far the most interesting and informative book yet published on the Falklands war. Most of the other works in print spend much time discussing the political situation that led to the war and then analyzing the diplomatic maneuvering that went on during the war.

This book, on the other hand, deals almost exclusively with the amphibious landing and subsequent advance on Port Stanley by 3 Commando Brigade. As commander of that brigade, Thompson had access to the information needed to write the definitive work on the infantry war in the Falklands, and he has done just that.

In his first four chapters, Thompson tells of alerting his brigade for action after the Argentine invasion; of assembling the troops, supplies, and equipment; and of the planning that took place as the brigade steamed south. Thompson's coverage of the time spent at Ascension Island is especially interesting as he captures the crowding and intensive training that turned Ascension into a beehive of activity during the brigade's stop-over. One point that he makes again and again is the fact that many of the officers assigned to the brigade had worked with each other before and thus meshed easily into a team.

In the later chapters, Thompson tells of the landings at San Carlos, the battle at Goose Green, the "yomp" across the



island, the battle for the heights around Port Stanley, and finally the advance into Stanley itself. Throughout, he keeps track of the tactical details of the operation and covers the small as well as the large units. He also gives good coverage to the various special operations carried out by the SAS and SBS, and he does not forget the invaluable service performed by the Royal Marine Mountain and Arctic Warfare Cadre.

Thompson's book is highly recommended both as a solid history written by a participant and as a fascinating book that one will find hard to put down

THE ULTRA AMERICANS: THE U.S. ROLE IN BREAKING THE NAZI CODES. By Thomas Parrish (Stein and Day, 1986. 338 Pages. \$19.95). Reviewed by John H. Carroll, Silver Spring, Maryland.

The distance in time and place between the Munitions Building (now demolished) on Constitution Avenue in Washington, D.C., where the U.S. Army Signal Intelligence Service (SIS) set up its quarters before World War II, and the National Security Agency (NSA) in Fort Meade, Maryland, is 56 years and about 30 miles. The author, a U.S. military historian, tells the story of the intervening developments for these U.S. intelligence agencies in this well-researched and in-

teresting work about a little-known aspect of the U.S. intercept effort against Germany during World War II

The main thrust of the book, though, covers the eventual establishment during the war of a liaison effort between the Americans and the British Government Code and Cipher School (GC&CS) at Bletchley Park, northwest of London. From the summer of 1943 until the end of the war, U.S. detachments served with the British and assisted them in a joint Allied cryptographic effort against German military, diplomatic, and security communications.

The author has carried out detailed research in primary and secondary sources, and has interviewed many individuals who were involved in various aspects of the operation. His book is a fitting tribute to a band of little known "back room boys and girls" who made a great contribution to the Allied victory. The book contains many helpful notes, a good bibliography, and a useful index.

RECENT AND RECOMMENDED

BUFFALO SOLDIERS IN ITALY: BLACK AMERICANS IN WORLD WAR II. By Hon-don B. Hargrove. McFarland and Company, 1985. 199 Pages. \$18.95.
SPECIAL OPERATIONS IN U.S. STRATEGY. Edited by Frank R. Barnett, B. Hugh Tovar, and Richard H. Shultz. National Strategy Information Center, 1984. 326 Pages. \$7.95.
PETAINE: HERO OR TRAITOR, THE UN-

TOLD STORY. By Herbert R. Lottman. William Morrow, 1984. \$17.95.
THOSE WHO FALL. By John Muirhead. Ran-dom House, 1987. 258 Pages. \$18.95.
OXFORD BOOK OF MILITARY AN-ECDOTES. Edited by Max Hastings. First Published in 1985. Oxford University Press, 1986. 514 Pages. \$7.95, Softbound.
AN ENCYCLOPEDIA OF BATTLES: AC-COUNTS OF OVER 1,500 BATTLES FROM 1479 TO THE PRESENT. By David Eggenber-ger. Corrected and enlarged republication of the work first published in 1967 as *A Dictionary of Battles*. Dover, 1986. 544 Pages. \$14.95, Soft-bound.
THE DEFENCE OF DUFFER'S DRIFT. By E.D. Swinton. A New Edition. Avery Publishing Group, 1986. 72 Pages. \$6.95, Softbound.
ANCIENT AND MEDIEVAL WARFARE. The West Point Military History Series. Avery Pub-lishing Group, 1986. 124 Pages. \$18.00, Softbound.
THE DAWN OF MODERN WARFARE. The West Point Military History Series. Avery Pub-lishing Group, 1986. 133 Pages. \$18.00, Softbound.
THE AMERICAN CIVIL WAR. The West Point Military History Series. Avery Publishing Group, 1986. 250 Pages. \$18.00, Softbound.
ATLAS FOR THE AMERICAN CIVIL WAR. The West Point Military History Series. Avery Publishing Group, 1986. 58 Pages. \$20.00, Soft-bound.
MEETING THE ESPIONAGE CHALLENGE: A REVIEW OF UNITED STATES COUNTER-INTELLIGENCE AND SECURITY PRO-GRAMS. Select Committee on Intelligence, United States Senate. Superintendent of Docu-ments, 1986. S/N 052-071-00726-1. 160 Pages. \$4.50, Softbound.
COMBAT SUPPORT IN KOREA. By John G. Westover. Superintendent of Documents, 1986. 268 Pages. \$7.50, Softbound.
1987 ANNUAL REFERENCE EDITION, Pacific Defense Reporter. Peter Isaacson Publications, 1986. 256 Pages. A\$15.90, Softbound.

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From The Editor

UNIT DESIGNATIONS

In several cases during the past year, units on our free distribution list either have disappeared from the Army's rolls or have been redesignated. Sometimes it takes us quite a while to discover what happened to them, particularly when their magazines are returned with "Address Unknown" stamped on the envelopes.

We have a pretty good idea which units in the Active Army will go off the rolls or be redesignated under the new regimental system. But we do not always know when Army Reserve or National Guard units will be reorganized or redesignated. In fact, many Reserve Component units make rather drastic organizational changes that we are not aware of until someone happens to mention it to us.

Therefore, if your unit is scheduled for a reorganization in the near future, or if it is planning to move to another installation or armory or be rebranched, please let us know. In that way, your unit will not miss any copies of *INFANTRY*, and we will not waste a lot of the Government's postage money in our attempts to find you.

COMING IN *INFANTRY*

"Lost Art of Patrolling," by Major Thomas J. Kuster, Jr.

"Tactical Applications of Aerial Photographs," by Captain Eugene J. Palka.

"Air Defense," by Captain Anthony J. O'Connor.

