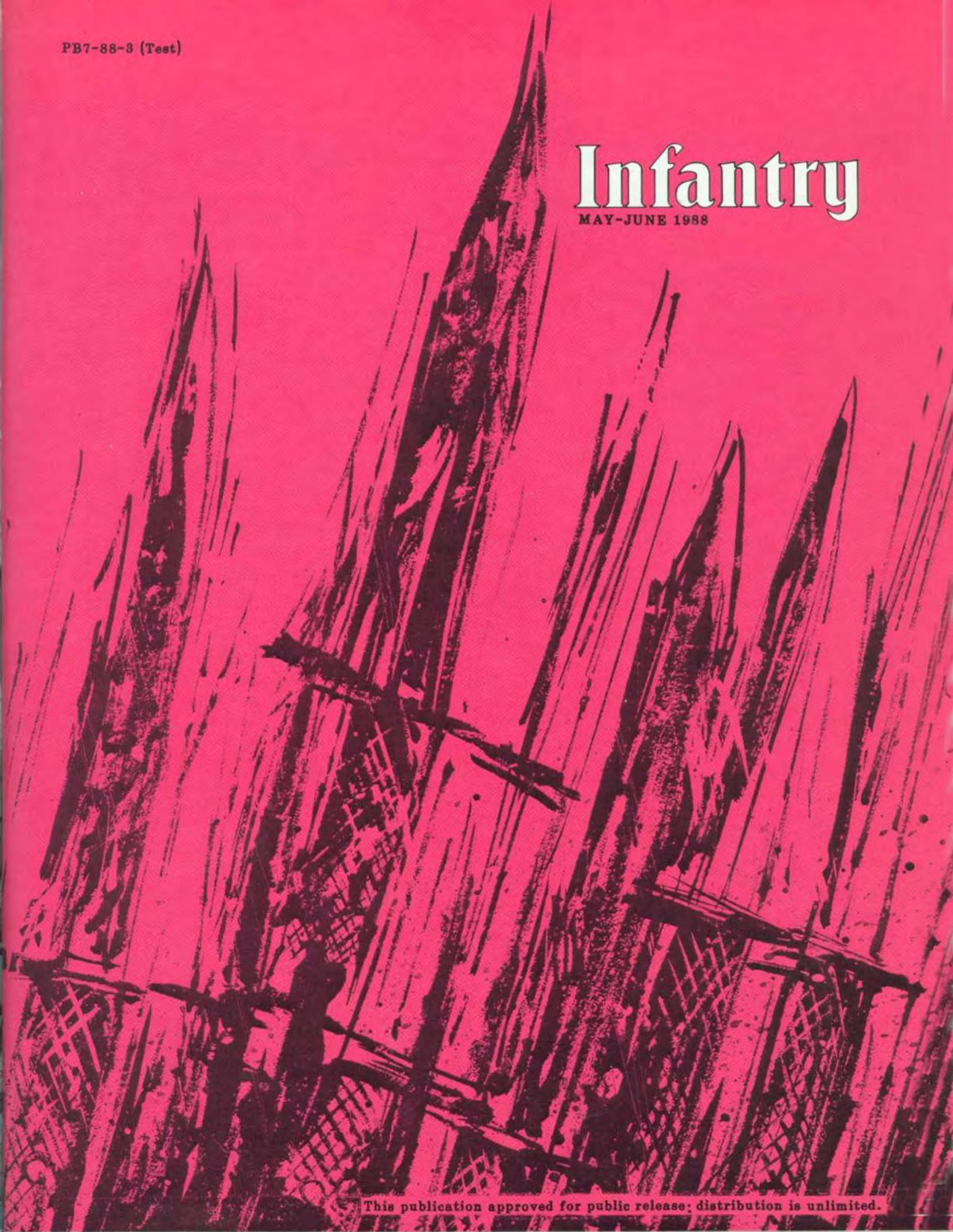


PB7-88-3 (Test)

Infantry

MAY-JUNE 1988



Infantry

May-June 1988

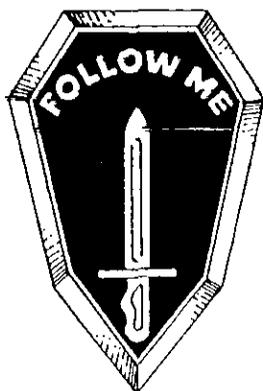
Volume 78, Number 3

PB 7-88-3 (Test)

JOHN O. MARSH, JR.
Secretary of the Army

MG KENNETH C. LEUER
Commandant, The Infantry School

ALBERT N. GARLAND
Editor, INFANTRY



This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:

CARL E. VUONO
General, U.S. Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, U.S. Army
The Adjutant General

DISTRIBUTION: Special

- 3 **A SALUTE TO THE GOLD BAR**
Lieutenant Colonel Thomas J. Barham
- 20 **BRADLEY GUNNERY EVOLUTION**
Captain Thomas T. Smith
- 27 **SOVIET LANDMINE OPERATIONS: Part 1**
- 32 **CLOSE AIR SUPPORT: The Debate from A FAC's Perspective**
Captain Mark A. Barrett, United States Air Force

DEPARTMENTS

- 1 **COMMANDANT'S NOTE**
- 4 **LETTERS**
- 7 **INFANTRY NEWS**
- 11 **PROFESSIONAL FORUM**
 - 11 **THE COMMANDER'S INTENT**
Captain Thomas M. Jordan
 - 13 **THE LIGHT FIGHTER'S LOAD: Let's Reconsider It—Again**
Captain Dale E. Wilson
 - 14 **THE BAYONET: Simple But Dependable**
Robert J. Berens
 - 16 **THE NEW BATTALION CSM**
Command Sergeant Major Othel Terrell, Jr.
 - 18 **THOUGHTS FOR NEW SERGEANTS**
Roy C. Owens
- 35 **PAST TIMES: Defense and Low Visibility**
- 39 **TRAINING NOTES**
 - 39 **MOBILE OBSTACLE DETACHMENT**
Major Roger J. Somerville
 - 40 **PLATOON LIVE FIRE AMBUSH**
Lieutenant Chris G. Pappas
 - 42 **MORTARS IN URBAN COMBAT**
Lieutenant Richard F. Steiner
- 45 **ENLISTED CAREER NOTES**
- 46 **OFFICERS CAREER NOTES**
- 48 **BOOK REVIEWS**

• INFANTRY is an Army professional bulletin prepared for bimonthly publication by the U.S. Army Infantry School at Building 1827, Fort Benning, GA. • Although it contains professional information for the Infantryman, the content does not necessarily reflect the official Army position, and it does not supersede any information presented in other official Army publications. • Unless otherwise stated, the views herein are those of the authors and not necessarily those of the Department of Defense or any element of it. • Official distribution is to infantry and infantry-related units and to appropriate staff agencies and service schools. • Direct communication concerning editorial policies and subscription rates is authorized to Editor, INFANTRY, P.O. Box 2005, Fort Benning, GA 31905-0605. • Telephone: (404) 544-4951; AUTOVON 784-4951. • Second-class postage paid at Columbus, GA, and additional mailing offices. • POSTMASTER: Send address changes to INFANTRY, P.O. Box 2005, Fort Benning, GA 31905-0605. • USPS Publication No. 370630. ISSN: 0019-9532.



Commandant's NOTE

MAJOR GENERAL KENNETH C. LEUER Chief of Infantry

THE NCO ACADEMY

Throughout our history, the quality and the training of noncommissioned officers have always been a priority of commanders. In his 1779 Revolutionary War Drill Manual, Baron Frederick Wilhelm von Steuben advised regimental commandants to be careful in selecting their NCOs. He said that "the order and discipline of a regiment depends so much upon *their* behavior" that the only ones chosen for "this trust" should be "those who by their merit and good conduct are entitled to it."

He went on to say, "Honesty, sobriety, and a remarkable attention to every point of duty, with a neatness in their dress, are indispensable requisites; a spirit to command respect and obedience from the men, an expertness in performing every part of the exercise, and an ability to teach it, are absolutely necessary. . . ."

Baron von Steuben knew that in order to train the Continental Army, he would first have to train a small core of NCOs to understand his goals and standards. He would then charge those NCOs, upon their return to their parent units, with the responsibility for teaching those same goals and standards.

These principles are the same as those on which our present NCO academies operate—the NCO education system of today still concentrates on training the trainer.

The NCO Academy at Fort Benning—the Home of the Infantry—conducts a Primary Leadership Development Course (PI.DC) as well as a Basic Noncommissioned Officer Course (BNCOC) and an Advanced Noncommissioned Officer Course (ANCOC) for the entire 11-series military occupational specialty. In addition, the Infantry Center is the proponent for all 11B training throughout the Army. This summer the Drill Sergeant School will also become a part of the Fort Benning NCO Academy.

Fort Benning's NCO Academy is a live-in school for all students from PI.DC to ANCOC. The dramatic increase in academic averages clearly validates the decision to make it so. Through these courses, the academy ensures that U.S. Army Infantry NCOs are among the best-trained soldiers in the world.

We believe that technical competence and the ability to train others are the two most important things we teach at the NCO Academy. As but one example, our BNCOC recently added a five-day "tactical leadership course" that takes the students through day and night squad live fire training, a demanding test of both leadership and technical competence.

A sergeant's responsibility to "Be, Know, Do" cannot be taken lightly. He must be the resident expert for Army regulations and field manuals and he must always remember that he is the primary role model for young soldiers. In his professional bearing, his physical condition, his personal conduct, and his military knowledge, he must set high standards and lead by example. If he accepts anything less from his soldiers than the high standards he has set for himself, he automatically establishes those as new and lower standards, an indication of failure on his part.

An NCO has the traditional duty of instructing soldiers in drill and ceremonies and the proper wear of the uniform. Toward that end, I have directed our NCO Academy to reinstate this training into its courses, because it builds discipline, confidence, pride, and esprit de corps. As part of this training the academy has now returned to marching soldiers to their classes and training areas, and the soldiers are evaluated on their attention to detail.

In recent months, the academy has introduced an intensified physical conditioning program based on the Master Fitness Concept, and the results speak for themselves: In a recent ANCOC class, 103 soldiers

out of 178 scored 250 or above on their Army Physical Fitness Tests.

Each class runs a five-mile "challenge" run to a standard of 8:30 per mile—plus or minus 15 seconds per mile. For roughly 35 percent of the soldiers in a recent PLDC class, this was their first attempt ever at running five miles, and they were especially proud when they had completed the run.

In all the courses at the academy, one underlying theme dominates: task, conditions, and standards. These are the watchwords that govern each student's life and, hopefully, they will become ingrained into his way of thinking.

The standards for all the classes are high, but they are fair. We apply them equally across the board. For us, the concept of "Total Army" applies—the Active Army, the Army National Guard, and the Army Reserve. Equally important to us is the one-infantry concept. No matter what an NCO's background may be—airborne, mechanized, or light—our standards remain constant and he must meet them. There is no "quota" on the number of graduates; the soldiers who graduate meet the standards.

The performance-oriented approach to training used at the academy has revealed a weakness in our students' military backgrounds—a lack of training to standard in common task skills. A number of the soldiers who attend the academy are not qualified or prepared in many basic skills. The NCO education system is not designed to take over training that should be done in the units.

We recently reviewed all of our NCO programs of instruction not only to look at this problem but also to ensure that our NCO training is integrated horizontally and vertically. If training is horizontally integrated, for instance, the NCOES will not have to spend training time teaching lower skill level tasks the students should already know. Diagnostic testing of lower skill level tasks identifies the students who have

not mastered them. A system of retraining and retesting by their peers and cadre after duty hours and on weekends helps to bring those soldiers who need additional training to the expected level of proficiency.

When training is vertically integrated—that is, when the NCO education system is made compatible with the officer education system—an infantry platoon leader and an infantry platoon sergeant can link up in a platoon anywhere in the world and will talk the same language.

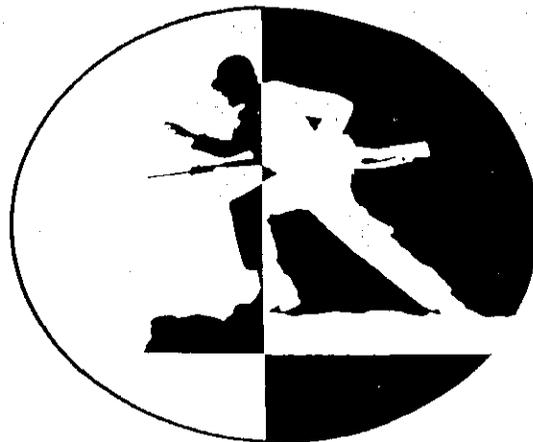
Another strength of the academy is that the programs of instruction for all classes are dynamic documents, constantly being reviewed and changed to reflect the latest in doctrine and technology. Most recently, for example, Field Manual 25-100, Training the Force, was added to all training management instruction, and it gives the young leaders of our Army the latest in training philosophy and techniques.

Instruction will be further improved in the near future when a former schoolhouse on post has been renovated to provide small-group classrooms. The facility is scheduled to open this summer.

The decision by the Training and Doctrine Command to place the NCO academies directly under the highest ranking NCO on each post has also proved to be a wise one. Here at Fort Benning, the Infantry Center command sergeant major plays a key role in shaping the Army's leadership for years to come.

Without a doubt, the NCO corps today is strong. Sergeants are performing their traditional duties and are the role models that our young soldiers need and deserve. There are, of course, a number of reasons for the strong NCO corps we enjoy. I believe our NCO academies make a major contribution.

The motto of the Fort Benning NCO Academy exemplifies my feelings as to what every NCO must do to keep professionalism within the corps and the Army—"Maintain the Standards."



INFANTRY LETTERS



LEADERSHIP AND CARE OF THE FEET

Upon reading Sergeant W. P. Conboy's excellent letter in *INFANTRY*'s September-October 1987 issue (page 3), I formed the impression that his procedures for care of the feet were self-taught with little direction or supervision from above. It was not always so.

I joined my first unit, Company A, 29th Infantry Regiment, at Fort Benning in September 1933 just in time to participate in the regiment's annual 100-mile practice march. At the conclusion of the first day's jaunt, I was handed a bottle of gentian violet, a needle, and some cotton swabs, and told to check the feet of each man in my platoon and administer whatever aid was necessary. When the task was completed, having incurred several blisters of my own christening my new field boots, I asked if anyone would like to take care of me. The platoon responded to a man. Apparently, they were eager to give me a liberal dose of my own medicine: namely, the "purple fire," as they called it.

I do not know whether that practice is still in vogue. I suspect that it is not. In reflecting on my own later service as a regimental, assistant division and division commander, I cannot recall ever observing such a ritual or inquiring specifically into procedures being used to ensure proper foot hygiene, other than for frostbite. Why I did not, I am embarrassed that I cannot now explain.

Much is being written these days about leadership, and rightly so, but most of these dissertations seem to concentrate on broad principles and age-old platitudes while being woefully short on up-to-date specifics. It is as if some magic formula is being sought that, if fully understood, could make one an instant leader.

Until such a formula is devised, I suggest that a new platoon leader following his first extended march with his unit—tired, hungry, thirsty, and sweaty though he may be—kneel down in the dirt before each one of his soldiers, inspect their feet, and give to each who needs it an appropriate dose of "purple fire." I believe he will find, as I did, that caring and demonstrating that care in a positive way will be one step toward developing that personal bond that must exist between the leader and the led.

DAVID W. GRAY
MG, Retired
Golden Beach, Florida

SPECIAL INFANTRY WEAPON

The article "Infantryman's Combat Weapon," by Captain Max Oliver (*INFANTRY*, November-December 1987, page 9) was quite interesting and addressed some key issues that are crucial to the Infantry.

The first issue concerns the M16 rifle. Is the current weapon the best we could have? Will future generations of the M16 be any better? Probably not.

I contend that a weapon similar (at least in principle) to the one described by Captain Oliver is what the infantry needs. It needn't be as complex as the one in the article, or even as user-friendly. (Never underestimate the ability of a "grunt" to get the job done.) A semi-automatic grenade launcher of the 20mm to 25mm variety with an effective range of 500 or 600 meters shows a great deal of promise.

Another issue that should be addressed has to do with policy. Why must an infantryman be saddled with a generic weapon that is designed for the entire Army? I would submit that the infantry needs greater killing power

than a standard rifle can provide.

Why not field a specialized "infantry weapon system"? There are folks at Aberdeen who feel the recoil would be too severe. Unless it is significantly more than the recoil of a 12-gauge shotgun, however, I think infantrymen could handle it. Some of the support troops in infantry units might have trouble, but they would be given M16s instead.

I believe there are two reasons for resistance to an infantry weapon system of this type: First, there is the usual reluctance of many people to change their institutions, in this case one of the oldest—war. Peacetime innovations are hard to sell. Second, we have a great deal invested in the M16, both financially and personally (research and development continues on the M16A3).

I applaud the efforts of Captain Oliver and the Directorate of Combat Developments at the Infantry School. They deserve the support of infantrymen everywhere.

LIS BAITY
H.T, Infantry
2d Battalion, 4th Infantry
Germany

CORRECTION

Thank you for the complimentary copies of the January-February 1988 issue of *INFANTRY*, which contains my article "Aiming Circle Accuracy" (pages 9-11).

I do have one bone of contention. In the last sentence of the article, an important word was left out. That sentence should have read that the mortars are "the battalion commander's only *organic* indirect fire support," not his "only indirect fire support."

I fear that there will be a lynch mob of artillerymen out looking for me, not

to mention a deluge of letters to your office protesting that we overlooked a branch or two of fellow soldiers.

J. KEVIN MULLMAN
Irmo, South Carolina

OBSERVATIONS AND COMMENTS

It was with pleasure that I read your January-February 1988 issue. Many of the articles will be valuable additions to my clipping library, and I would like to comment on two items.

Reference your Infantry News item concerning the through-the-mask feeding system (page 5), while I am sure this effort is noble, I tend to believe that searching for a varied menu is a waste. If a soldier should have to spend two-and-one-half days in MOPP 4, he would undoubtedly have greater worries than the flavor of the food he is attempting to squeeze through his mask.

Reference Captain Robert R. Leonhard's article "Counter-Reconnaissance Company" (pages 23-26), I offer the following observations and comments:

Historically, the battle has belonged to the army that could dominate the area between the opposing forces. Even a cursory reading of after-action reports from the National Training Center reveals the same flaws over and over. By lack of aggressiveness, we give the enemy the information he needs to destroy us. While we cannot control the tactical situation and the force ratios involved, we can control the amount of intelligence the enemy can gather. In the article, it is debatable whether Captain Leonhard's battalion did anything more than establish a covering force, and whether the task organization was the best.

The principle and intent cannot be challenged, but I do not believe Captain Leonhard carried his thesis far enough. First, counter-reconnaissance is not unique to mechanized forces; second, counter-reconnaissance is not a primarily defensive action. It is a tactic as basic as mutually supporting positions and

noise and light discipline.

In the offense, a battalion must patrol aggressively enough that it can drive enemy observation posts in so close to his FEBA that they cease to be useful. Enemy patrols must be afraid to venture beyond the direct fire support of their units. This, as Captain Leonhard points out, allows us to "own the battlefield" so the enemy's first encounter is an ad-libbed affair that stresses *his* command and control, not ours.

My only criticism is with the excessively centralized control of the counter-reconnaissance force. I suspect that giving each company a zone or sector to dominate would be more practical than trying to manage phase lines. Captain Leonhard's fear, "a total loss of command and control," can be realized only when management is artificially imposed on an unmanageable situation.

Confusion is a two-edged sword. If those counter-recon units are cut off by the enemy attack, I believe it will be arguable who is more confused—the company that is out of contact with a squad or the enemy column that is attacked from an unexpected direction at an unexpected time.

WILLIAM B. CREWS
CPT
Deerfield, Illinois

FIRING PORT WEAPONS

The firing port weapon on the M-2 Bradley IFV is indeed a problem. This weapon is an extra one for the rifleman to clean, and it cannot be aimed but must be "walked" onto the target, wasting half of the ammunition it fires.

In the letter from Lieutenant Stewart W. Bentley, Jr., in *INFANTRY*'s November-December 1987 issue (pages 3-4), however, the proposal to discard these weapons and fire modified M16s through the ports is impractical on several counts.

First is the cost. In a time of shrinking defense budgets, even refitting the existing rifles would cost several million dollars that would be better spent on

more antitank ammunition. The rifle system we have doesn't work very well, but it does work. Ask your riflemen whether they would rather have one weapon to clean instead of two or an adequate supply of tank-killing missiles. If we could change the production of new M16A2s to what Lieutenant Bentley calls M16A3s tomorrow, we could issue them to units that are just converting to the Bradley, but a new rifle would mean years of development, by which time the production of Bradleys would be completed.

Second is the tactical implications. Lieutenant Bentley proposes screwing the rifles into an adaptor. This means that once the Bradley has reached the objective, the troops will have to take valuable seconds to unscrew their M16A3s from the firing ports. And upon dismounting, they will have to carry weapons that have just fired several hundred rounds and that are still red hot. Not a very practical prospect.

Lieutenant Bentley's proposal for shoulder holsters for crewmen is logical. Tank commanders have had them for years now. An alternative would be to have a rifle rack for an M16 or a carbine on the outside of the turret, but that would be complicated and (due to damage from shell fragments) less effective.

STEPHEN V. COLE
Tiger Publications
Amarillo, Texas

BOOK ON SNIPERS

I am an Army Reserve major and a former Marine and am writing a book on snipers, a subject about which little has been written.

Having served as a sniper in Vietnam in 1966 during a test program, I am well versed in the accurate depiction of events that occurred there at that time. The book will start, however, with the earliest history of the use of sharpshooters and progress through the wars to the latest experiences.

So that I can give credit where credit is due, and keeping in mind that any

work in journalism often becomes history, I am attempting to locate any individuals who served as snipers during combat.

Each man who has a good story will have a chapter in the book portraying his experience, and he will be given proper credit in the book. The context of the work will also include the weapons and equipment used and any unique tactics.

I would like to either interview or correspond with as many combat snipers as I can find, whether they served in Vietnam, World War II, Korea, the Dominican Republic, or Lebanon. My address is 2812 S. Hudson Place, Tulsa, Oklahoma 74114.

WILLIAM C. ROBERTS

PROVERBS AND RULES

In "14 Proverbs Gleaned From A Damp Foxhole" (INFANTRY, January-February 1988, pages 42-46), the late Charles Black offered reinforcement for many things infantrymen should know but often forget, if they ever knew them in the first place.

While I would not think of expanding those Proverbs, I do have some Rules to offer. (Remember that these are Rules, not Laws. An example of a Law is: "Your radio will always fail when you need it most.")

Anyway, Rules Learned Through More Than A Few Years of Experience:

1. Never volunteer. (All soldiers know this rule exists, but few practice it.)

2. Never ask for volunteers. (If every soldier practices Rule 1, then asking will do no good. Besides, things get done a lot faster if you select soldiers for a job instead of waiting for them to debate among, or with, themselves on whether they want to volunteer.)

3. Cash the check. (If the Army wants its money back, someone will tell you. Months later, of course. I sent a check back. Once. I sent a cover letter, too, explaining the overpayment. Sixteen months later, there is still paperwork to be done.)

4. It is easier to get forgiveness than permission. (Usually, but only if what you did was right.)

5. Make a range card. (No explanation needed.)

6. Always recon. (The key word is *always*—every time, in any situation. Even when you think recon isn't necessary, do it anyway. After a while, recon becomes addictive.)

7. Never miss a legitimate chance to eat or sleep. (You never know when you will get another opportunity. Remember, though, the key word—*legitimate*.)

8. Know the difference between incoming and outgoing. (If you need an explanation for this Rule, you will never get a chance to learn the difference.)

9. Camouflage everything. (That's *everything*—trees, shrubs, bushes, dirt, whatever might give your position away.)

10. Always know how many rounds are in your magazines. (Few things are as frustrating as popping away, then having your bolt suddenly lock back because you *thought* the magazine was full.)

11. NCOs are right 99.9 percent of the time, if not more. (If you can't remember any of the other Rules, remember this one. Good NCOs will remind you of the others.)

ROBERT C. MERRIMAN
PSG, Texas Army National Guard
Sulphur Springs, Texas

ATTENTION DINFOS ALUMNI

The Defense Information School (DINFOS) is compiling an alumni list for its 25th Anniversary observance in June 1989.

If you are a DINFOS graduate from Fort Benjamin Harrison, Indiana, or any of its predecessor schools—the Armed Forces Information School at Fort Slocum, New York; the Air Force Information School at Craig Air Force Base, Alabama; or the Navy Journalist School at Great Lakes, Illinois—please send your name, armed service, course and school attended, graduation date,

present occupation, and address.

Mail this information to Public Affairs Office, Defense Information School, Building 400, Fort Benjamin Harrison, IN 46216-6200.

EDWARD M. McDONALD
COL, U.S.A.
Commandant

TET OFFENSIVE 1968

I am presently collecting detailed, first-hand accounts of military actions associated with the 1968 Tet Offensive for a book on the subject.

Anyone who was in Vietnam between 29 January and 1 April 1968 and who is interested in providing his or her account should write to me at 1149 Grand Teton Drive, Pacifica, CA 94044.

ERIC M. HAMMEL

SHAEF/ETOUSA REUNIONS

The SHAEF Veterans Association (European Theater, World War II) will hold its Fourth Annual Reunion in San Francisco, 8-9 October 1988.

At the same time, in conjunction with the SHAEF reunion, the ETOUSA Headquarters Command (ETO, World War II) will hold its First National Reunion.

For further information, anyone who is interested may call me at (201) 842-4206, or write to me at the address given below.

ALLEN PETERSEN
P.O. Box 42
Fair Haven, NJ 07704



INFANTRY NEWS



THE U.S. ARMY REGIMENTAL System, under AR 600-82, requires that Infantry personnel make regimental affiliation selections, but many are not doing this. Eligible individuals are encouraged to affiliate with the regiment of their choice as early as possible. There is no ceiling on the number of soldiers who can affiliate with a particular regiment.

While no assignment guarantees will be made, regimental affiliation will be a primary assignment consideration. Regimental affiliation may be changed at any time.

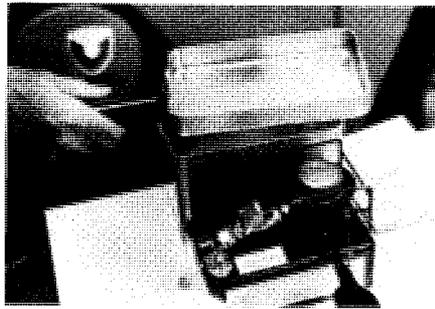
FIELD MANUAL 5-34, Engineer Field Data, was recently published and distributed to the field, and infantrymen should make a point of looking at it.

In particular, the chapters on combat operations, mine warfare, obstacle breaching, reconnaissance, demolitions, and survivability are excellent for the amount of useful data they contain.

A MULTIFUEL SQUAD STOVE has been developed by the Natick Research, Development, and Engineering Center, Natick, Massachusetts. This small lightweight cooking and heating device is capable of burning a variety of fuels including all grades of gasoline, kerosene, JP 4/5/8, and diesel fuel without the use of special starting fluids or pastes, and will do so even at low temperatures.

The stove is assembled from commercially available components including a vaporizing burner and an atomizing preheater installed on a steel tank. It holds 10 ounces of fuel and enough air to preheat. The stove is rectangular and fits neatly inside a two-quart container that doubles as a cooking pot, can be used for melting snow,

and is shaped for heating four or five MREs (meals, ready to eat). The container lid attaches to a handle and serves as a small skillet.



The stove is currently being tested at the Cold Regions Test Center, the Tropic Test Center, and the Mountain Warfare Training Center. Type classification is planned for the fourth quarter of Fiscal Year 1988.

A NEW INEXPENSIVE PRACTICE round for the Bradley Fighting Vehicle's 25mm gun will soon make gunner training available at some 35 military installations.

The Bradley's standard armor piercing (AP) 25mm round, the M791, has been the only round available for performing AP gunnery practice, including qualification firing, and it requires a downrange distance of 14,000 meters. Although other posts have the required fire and maneuver space, stateside only Fort Hood, Texas, has a range that can accommodate BFV 25mm firing without seriously affecting other training.

This inexpensive practice round, called the M910, has a trajectory that is identical to the AP munition to 2,000 meters and has a maximum range of less than 8,000 meters. This shorter maximum range means that no limits will have to be placed on gun elevations as would be the case with the standard round. It also simulates the standard munition in linking and loading and in the storage of rounds in the vehicle.

The fielding of the M910 will allow most 25mm live fire training exercises to be conducted on existing maneuver and gunnery ranges, opening up some 35 posts in the U.S. and Germany for both M2 and M3 BFV firing.

NEW CAMOUFLAGE PATTERNS using three colors have been designed for all the tactical equipment in the Army's inventory. The three-year program required 413 drawing packages to meet camouflage needs for 834 different items of equipment. All told, 225,000 drawings are being distributed to Army units worldwide.

A drawing package consists of six pages: A drawing for each major view of the item—the four sides and top—and an inspection sheet to ensure that the pattern is applied correctly.

To minimize the number of drawings, engineers at the Belvoir Research, Development, and Engineering Center consolidated similar items. For example, nine drawing packages provided the camouflage patterns for 132 shelter-mounted communications systems.

The three-color pattern, which is more effective than the four-color pattern the Army has been using since the early 1970s, was developed by the Center in cooperation with the Federal Republic of Germany. The Germans have completed their pattern design program and are now repainting their equipment. Other NATO countries are also considering the three-color pattern.

As the U.S. conversion is completed, the designs will be applied using a chemical agent-resistant coating that will allow soldiers to decontaminate equipment in the field.

Patterns for new equipment will be developed as the items are fielded. As the leading agency for camouflage, the Center is also working on patterns for

Navy, Air Force, and Marine Corps ground-support equipment.

THE INFANTRY SCHOOL is making an unprecedented effort to provide the field with training literature that links home station "training to standard" with combat training center "training to standard." This effort involves two types of products—drill books and mission training plans (MTPs).

Both the drill and MTP books represent a departure from past Infantry School products. From an exhaustive analysis, the common elements of all types of infantry have been identified and consolidated into a single source document. Units throughout the Army will therefore have a common standard to apply to all mounted and dismounted operations. This standardization effort should reduce confusion, redundancy, and waste in our training literature programs.

The school's analysis has shown that consolidation into a single publication is prudent for drill books and the infantry squad/platoon MTP. This consolidation reduces the number of references from 13 to 4.

The standards contained in the MTPs are observable, measurable, and quantifiable, and they apply to each task. These standards, in many cases very rigorous, are vital to productive training focused on success in combat.

Detailed opposing force (OPFOR) standards have been added to each operation, which provides for more effective force-on-force training. Complementary standards create an environment that allows greater free-play and a situation in which either force can win.

The status of the various publications is shown in the accompanying chart. The proponent is the Unit Training Branch, Training Division, Directorate of Training and Doctrine, U.S. Army Infantry School.

TRAINING LITERATURE UPDATE

PUBLICATION	POC	STATUS	REMARKS
ARTEP 7-8-Drill, Battle Drills for the Infantry Rifle Platoon and Squad	CPT Snyder AV 835-4848	Final draft approved. Published version expected to field by end of June 88	Supersedes ARTEPs 7-17-10-Drill, 7-247-10-Drill, 7-247-11-Drill; FCs 7-22, 7-15, 7-14. Contains 12 battle drills for all infantry squads and platoons (six common and six mounted).
ARTEP 7-91-Drill, Battle Drills for the Antiarmor Platoon	SFC Fisher AV 835-1317	Final draft approved. Published version expected to field by end of June 88	Supersedes ARTEP 7-16-13-Drill. Battle drills for all antiarmor platoons. Does not include Bradley drills.
ARTEP 7-90-Drill, Battle Drills for the Infantry Mortar Platoon, Section and Squad	CPT Ayala AV 835-4848	Final draft completed, awaiting approval	Supersedes drills in FMs 23-36, 23-90, 23-92, 23-93 and ARTEP 7-16-12-Drill. Single source for battle drills for 60mm, 81mm, 181mm, and 107mm mortars. Differences resulting from equipment peculiarities are highlighted.
ARTEP 7-8-MTP, MTP for the Infantry Rifle Platoon and Squad	CPT McGinnis SSG Taylor AV 835-1317	Final draft completed April 88	Supersedes ARTEPs 7-247-10-MTP, 7-247-11-MTP, 7-17-10-MTP. Applies to all infantry platoons and squads.
ARTEP 7-10-MTP, MTP for the Infantry Rifle Company	Mr. Lemon AV 835-4848	Coordinating draft distributed for field comments December 87	Dismounted infantry only; mounted infantry company MTP is a joint effort with the Armor School (ARTEP 71-1-MTP).
ARTEP 7-16-32-MTP, MTP for the HHC Infantry Battalion Combat Service Support Platoons	CPT Snyder AV 835-4848	Preliminary draft complete by end of May 88	
ARTEP 7-20-MTP, MTP for the Infantry Battalion	MAJ Bennett AV 835-4848	Coordinating draft to be completed by end of May 88	Supersedes ARTEP 7-15 (June 1979).
ARTEP 71-2-MTP, MTP for the Tank and Mechanized Infantry Battalion Task Force	MAJ Bennett AV 835-4848	Coordinating draft distributed for comments January 88	Joint effort with Armor School.
ARTEP 7-30-MTP, MTP for the Infantry Brigade	MAJ Bennett AV 835-4848	Coordinating draft to be completed by end of June 88	Dismounted infantry.
ARTEP 7-90-MTP, MTP for the Infantry Mortar Platoon, Section, and Squad	CPT Ayala AV 835-4848	Coordinating draft completed February 88; to field for comment March 88	
ARTEP 7-91-MTP, MTP for the Mechanized Infantry Antiarmor Company/Platoon ITV equipped	SFC Fisher AV 835-1317	Coordinating draft completed April 88	Supersedes ARTEP 7-115-MTP.

THE U.S. ARMY INFANTRY Board has submitted the following item:

Thermal Weapon Sight. As early as 1978 the Infantry School stated an interest in the application of thermal imaging technology to meet the surveillance and sighting needs of the infantry. Subsequently, the Center for Night Vision and Electro-Optics (CNVEO) conducted technology explorations to determine the best way to fulfill these needs. Night imaging thermal equipment (NITE) was developed, and in 1985 the program name was changed to thermal weapon sight (TWS).

The current TWS is a lightweight, low-power, self-contained, direct fire weapon sight that provides a thermal image to the viewer and can be used day or night. It is designed with a common sensor body and interchangeable telescopes and reticles to allow maximum operational flexibility with a minimal logistical burden. The TWS includes both an individual weapon thermal sight (IWTS) and a crew-served weapon thermal sight (CSWTS) configuration.

From 21 September 1987 through 4 January 1988, the Board conducted an early user test and experimentation of the TWS at Fort Benning to assess the operational effectiveness and military utility of the TWS prototypes compared to that of the systems they are intended to replace (the individual weapon sight, AN/PVS-4, and the crew-served weapon sight, AN/TVS-5).

Fifty firers from the 197th Infantry Brigade were trained by the Infantry School and CNVEO on the use of the TWS. The test soldiers then used the TWS and the standard sight systems during day and night nonfiring detection and recognition exercises and live fire hit probability exercises.

The detection and recognition exercises were conducted using actual soldiers and vehicles as targets positioned at ranges out to 2,500 meters. The test results were used to compare times to detect/recognize and rates of detection/recognition of the IWTS and CSWTS with those of the AN/PVS-4 and AN/TVS-5, respectively, at night

and to compare these measures for each sight with those for the unaided eye during the day. Some exercises were conducted at night under artificial illumination, some with personnel and vehicles in lightly foliated woodlines and some with personnel and vehicles obscured by smoke.

The live fire hit probability exercises were conducted to compare the performance achieved with the IWTS and CSWTS with that achieved with the AN/PVS-4 and AN/TVS-5, respectively, at night and the performance of each of these target weapon systems with that of the weapon's iron sights during the day.

Hit performance exercises were conducted using the M16A2 rifle, the M249 SAW, and the M2 machinegun. Thermal vehicular sights and personnel silhouette targets were located at ranges from 200 to 1,750 meters. Targets appropriate for each type of weapon were engaged within the weapon's maximum effective range.

Portability, human factors, safety, reliability, and maintainability data were also collected. The Infantry School will use the test results to provide an independent evaluation to an in-process review.

THE NATIONAL INFANTRY Museum has a new display in its Gallery of Military Art entitled "Russo-Japanese Block Prints." The original prints, from the U.S. Army Art Collection, depict scenes from the Russo-Japanese War of 1905 and are noted for their vivid colors and realistic detail.



The Museum's outside exhibit areas are nearing the final stages of renovation. After a year of work by the Museum staff, with assistance from many of the organizations on Fort Ben-

ning, new concrete pads and support frames have been constructed for the protection of the artifacts. In addition to the construction, all of the tactical combat vehicles and artillery pieces have been re-painted in the proper color schemes for the time periods in which they were used. These new paint schemes include many of the disruptive color schemes used during World Wars I and II by the U.S. Army and its opponents.

Many of the items in the Museum are on loan from other sources, and recent changes in governing regulations require that the Museum change the way it handles loans in the future. When the Museum was established in 1959, there was no collection as we know it today, and the Museum borrowed many artifacts to fill interpretive gaps in its exhibit areas until it could acquire items on its own through donation or purchase. Because of the new regulations, the Museum staff is now working on returning loaned items to private individuals with a sincere "thank you" for the use of the artifacts over the years to help portray the story of the infantryman.

The National Infantry Museum Society, formed at Fort Benning a number of years ago to assist the Museum with financial and volunteer support, is open to anyone who is interested in joining. The cost is \$2.00 for a one-year membership and \$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; AUTOVON 835-2958 or commercial (404) 545-2958.

THE DIRECTORATE OF COMBAT Developments at the Infantry School submitted the following notes:

Night Vision Goggles. With the increased emphasis on night operations, a soldier must have equipment that will enable him to operate as efficiently at night as during the day.

The AN/PVS-7 night vision goggle (NVG) gives the soldier an improved

means for surveillance, target engagement, driving, patrolling, and other manual tasks at night. This new NVG is designed to augment or replace the current AN/PVS-5 NVG at a lower cost and a higher level of performance.

The AN/PVS-7 NVG is designed to be head mounted, lightweight, and operable using ambient moonlight or starlight. When used with the AN/PAQ-4 infrared aiming light, it gives a soldier an accurate method of firing his weapon at night up to a range of 150 meters. The NVG is also equipped with an infrared light source that provides additional illumination to aid in close-in viewing. The design of the AN/PVS-7 allows for the free use of the hands while wearing the goggles.

The major difference an operator will see is that the AN/PVS-7 uses only one image tube and weighs 1.5 pounds



while the AN/PVS-5 goggle has two image tubes and weighs 1.9 pounds. The use of only one image tube helps reduce cost without any detriment to the performance of the system.

There are two versions of the AN/PVS-7 goggle, each manufactured by a different company. Although there is no difference in the use or performance of the A and B models, the parts are not interchangeable. This requires that goggles be issued by division-sized elements to prevent the need for a unit to maintain two distinctly different lines of repair parts.

The first unit to receive the AN/PVS-7A NVGs was the 7th Infan-

try Division at Fort Ord, in February 1988. The 3d Armored Division in Europe is scheduled to receive the first AN/PVS-7B NVGs in September 1988.

HMMWV. In September 1985 the utility variant of the HMMWV (high mobility multipurpose wheeled vehicle) began replacing the "Ole Faithful" M151 series "Jeep," the M880 tactical "pickup" truck and the M561 "Gamma Goat" in combat and combat service support roles. HMMWV variants have also replaced TOW weapon carriers and armament vehicles. Signal shelter carriers and ambulance systems are scheduled for fielding in late Fiscal Year 1988.

The HMMWV was designed as a tactical vehicle that would provide a higher degree of mobility than any of the vehicles it was to replace. Since all variants are on a common chassis, a tactical unit's overall maintenance effort is reduced and it can maintain a higher degree of readiness.

The vehicle is enjoying a high degree of soldier acceptance because of its 6.2-liter V-8 diesel engine, automatic transmission, power assist steering, and four-wheel independent suspension system. These unique features provide the soldier with the best handling and ride characteristics ever associated with a tactical vehicle.

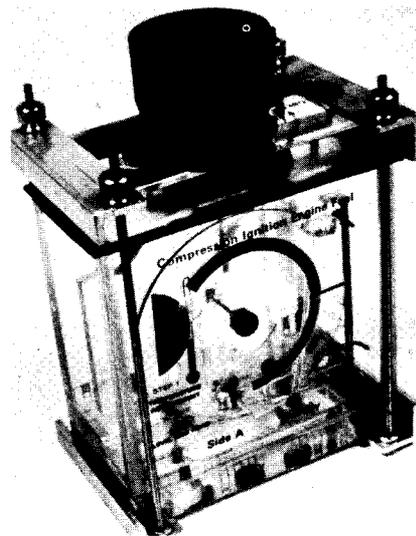
The HMMWV was brought about through improvements in technology and requirements that necessitated a single vehicle to do the job that was being handled by several vehicles in the Army inventory.

On 1 October 1987, proponentcy for the HMMWV family of vehicles was transferred to the U.S. Army Transportation School at Fort Eustis, Virginia.

A PORTABLE FUEL TEST kit has been designed that an unskilled operator can use to determine the density and viscosity of fuels "captured" on the battlefield. A visual check for contamination is also part of the testing criteria.

Fuel density is measured in a funnel-shaped container using a densimeter. A buoyant pointer rotates in the test fluid as fluid density varies.

Viscosity is measured using a falling ball test. Glass tubes are filled with the test fluid and aligned vertically, parallel to identical tubes that are filled with reference fluids representing upper and lower viscosity cut-off limits. When all the tubes are turned upside down simul-



taneously, the sequence in which the balls reach the bottoms of their tubes indicates whether the sample's viscosity is within the desired range.

The carrying case is used to test the visual appearance of the fluid. The inside of the case is painted white, and a series of black lines are painted on the inside bottom of the case. Test fuel is poured into the tester to a certain depth, and the soldier views the lines through a fixed amount of the fuel. If the lines are visible, the fuel passes the visual appearance test.



PROFESSIONAL FORUM



The Commander's Intent

CAPTAIN THOMAS M. JORDAN

The commander's intent is a concept that is not easy to grasp. When I was a tactics instructor at the Infantry School, I had the not so enviable task of explaining it to Infantry Officer Advanced Course (IOAC) students. Debates on the subject were frequent and fierce among the instructors.

Many of us believed that commander's intent was something we understood, but the doctrine was cloudy enough that we often had difficulty substantiating a clear position. All too often, the manuals lacked consistency both in definition and in concept. Field Manual 100-5-1, Operational Terms and Graphics, said one thing; other sources said another.

Now, however, I believe that we can interpret the present doctrine and establish a defensible position. One way to approach this is to define and discuss the concept of intent and to relate it to the estimate process and to those mission-oriented command and control training requirements that are intrinsic to the execution of our current doctrine.

FM 100-5 states:

A commander must know the intention of the commander two levels above him, understand the concept of his immediate commander, and know the responsibilities of the units on his flanks. . . if an unanticipated situation

arises, committed maneuver unit commanders should understand the purpose of the operation well enough to act decisively, confident that they are doing what their superior commander would order done were he present.

Essentially, FM 100-5 relates the principal idea of intent to the purpose, or the "why," of an operation. Previously, many argued that intent and the concept, or the "how" of an operation, were synonymous. It is apparent now that this argument is no longer valid.

CONTROL

Let me explain why this is so important. If we accept the premise that war is chaotic, then we must learn how to cope with chaos and ambiguity. Commanders at all levels must achieve control. One such method that our doctrine suggests is decentralizing decision-making to the lowest possible level. Therefore, if the soldiers we send out to do battle are to make the right decisions, they must understand the effect that we are trying to achieve in relation to the enemy, friendly forces, and terrain and why we want this. More important, they must also be trained to use their own initiative and judgment. How else can any decision be made by the man on the spot when his com-

mander is wounded or otherwise unable to influence the situation?

The 1987 DoD Dictionary of Military and Associated Terms (JCS Pub. 1) defines intention as "an aim or design (as distinct from a capability) to execute a specific course of action." Here again, we can deduce that the commander's intent is clearly related to the purpose behind an operation.

Conceptually, I believe these two sources capture the meaning of intent. It seems obvious that the essence of the commander's intent is the purpose of an operation. In a 1986 article, Major General (then Brigadier General) Wayne A. Downing defined it this way: "Commander's intent is not the mission—the specific immediate task of the unit. . . it is not the concept of the operation. . . Commander's intent is a well thought out, one- or two-sentence statement of what the commander wants to accomplish in the long term—the results he wants." (See "Training to Fight," *Military Review*, May 1986, pages 18-27.)

The commander can communicate this information by assigning the task and clearly explaining why it is necessary. For example, "Seize control of the bridges east of the Cherry River within zone by 0200 in order to destroy enemy forces attempting to conduct a withdrawal. The intent is to destroy

enemy forces that are attempting to flee." By using the phrase "in order to," he focuses on the purpose of the operation, and this will stay with his subordinate even if he is out of communication.

The idea of intent also relates to the estimate process. A higher headquarters achieves control by assigning tasks that are executed within a concept of operations, designating main and supporting efforts and clearly communicating intent. The "how" of the mission is left to the subordinate. The main effort is assigned at each level. The critical thing is that each main effort must support the achievement of the overall goal; every main effort must contribute to success. The supporting effort must relate to and support the achievement of a main effort.

As a commander begins the estimate, he must have a clear understanding of his higher commander's intent. This comes about through mission analysis and, hopefully, after a face-to-face discussion with the higher commander. His own intent, therefore, is a product of his analysis; it must support the higher commander's intent and clearly lead to the intended goal. All of this occurs once he has determined whether the situation has changed fundamentally since the higher commander issued his orders. If it has, he must be capable of making appropriate decisions, particularly if he cannot talk to his boss.

Before courses of action are developed, a commander should announce his intent, because in order to be feasible and worthy of consideration the various courses of action must be capable of accomplishing the stated intention. Current doctrine places the higher intent in paragraph 1.b. and the commander's intent in paragraph 3.a.(1). But if the mission statement addresses the purpose of the operation adequately in paragraph 2, it would appear redundant to state the intent again in paragraph 3.a.(1). Regardless, the commander, not the staff, should write the intent.

Field Marshal Sir William Slim once said that he never wrote the operation orders that went out in his name but

that he always drafted "the intention" himself. He called it "the one overriding expression of will by which everything in the order and every action by every commander and soldier in the Army must be dominated." He said that "it should therefore be worded by the commander himself."

We must not be so myopic in regard to the assigned tasks that we forget about the overall purpose of the operation. A task is assigned to achieve a certain result, but we must realize at times that we are pursuing a previously assigned task that will not fulfill the intended purpose.

We are obligated to do everything in our power to make possible the achievement of the purpose of an oper-



ation. Those who would do only what is specified despite the circumstances cannot execute our present doctrine. Such behavior will certainly lead to disaster in the next war.

It is important to note that according to the primary German field manual of World War II, *Truppenfuhrung*, a subordinate commander could change or abandon his task within the framework of the higher commander's overall intent. This is not to say that soldiers should arbitrarily ignore orders; we are obligated, though, to do what is necessary to accomplish the commander's intent. If we must pursue another direction to do so, we must notify the commander of our actions as soon as possible.

I found that many IOAC students would fail to exploit opportunities, particularly when it meant going beyond their specified orders. Although this is an indication of personality, it is also a result of their training and experience in garrison operations. If we expect soldiers to make decisions and improvise within a chaotic environment, their

training must reinforce the desired behavior. This is particularly so for junior leaders, because it is on them that the brunt of the fighting will fall. To achieve this end, therefore, we must let young officers make decisions.

We must train our junior leaders to function two levels above their own. If a squad leader lacks the capacity to lead a platoon or company, how can we expect him to function in the absence of instructions? What good does it do to be aware of the intent and mission two levels above if leaders are able to function only at their own respective levels?

FM 100-5 says that "to be useful, doctrine must be uniformly known and understood." All too often, though, our junior leaders have demonstrated a complete lack of familiarity with our current doctrinal literature. How, then, can we expect that junior officers will understand the meaning of certain doctrinal terms? How can we assign a mission and describe the purpose of a given operation if our subordinates do not fully comprehend the meaning and spirit of the language? Obviously, it is imperative that we demand from our subordinates total familiarity with our doctrinal concepts and strict adherence to and use of precise tactical language.

To be sure, junior leaders must be trained to make decisions and to improvise in the face of adversity and chaos. All too often, unfortunately, too many senior leaders micro-manage their subordinates, either because they think things will get messed up if they don't, or because they have little faith in their subordinates' ability to get the job done. The danger of this practice is that these subordinates will inevitably wait for instructions, despite the demands of the situation or the opportunities presented, and that is not the behavior we need in order to win!

Captain Thomas M. Jordan is assigned to the 3d Infantry Division in Germany. He previously served as S-3 and a company commander in the 1st Battalion, 61st Infantry, 5th Infantry Division, and as a tactics instructor at the Infantry School. He is a 1978 graduate of Upper Iowa University and holds a master's degree from Troy (Alabama) State University.

The Light Fighter's Load

Let's Reconsider It—Again

CAPTAIN DALE E. WILSON

Recent interest in low intensity conflict has fired the imagination of the Infantry community and returned the light infantryman to the limelight—a position he was forced out of by the community's focus on mechanized warfare in the wake of the Vietnam War.

I'm concerned, however, by some of the trends I've noticed in articles in *INFANTRY* and other service publications. The ongoing debate over the combat load for light infantrymen and some of the proposed solutions, for instance, have led me to wonder whether any light fighters with combat experience were consulted or otherwise involved in the decision-making process that led to those proposals.

While I applaud any effort to reduce the light infantryman's load, I question the decision to cut the basic load of ammunition to the levels I have seen discussed. For example, Captain Derek Soriano in his article "Ammunition: Dummy, Inert, and Simulated" (*INFANTRY*, November-December 1987, pages 11-13) writes that the basic load of M16 ammunition for Infantry Officer Basic Course (IOBC) students is seven magazines. In addition, each man carries two grenades, and the squads are allocated 1,100 rounds of M60 machinegun ammunition, 44 rounds of 40mm ammunition, four LAWs, and four claymores.

Those of us who served in light infantry units in Vietnam can readily attest that these figures are ridiculously

low. This should also be readily apparent to the light infantrymen undergoing training at the new Joint Readiness Training Center (JRTC) at Fort Chaffee, Arkansas, if their combat loads are similar to those employed in IOBC.

Ammunition expenditure rates in combat are distressingly high. Aimed fire is difficult at best because the targets are so fleeting. This point is dramatically made by Captain Max Oliver in his article "Infantryman's Combat Weapon" (*INFANTRY*, November-December 1987, pages 9-11), which appropriately precedes Captain Soriano's in that issue. There is a marked tendency for riflemen to employ their weapons on full automatic, and the expenditure of ammunition for area-fire weapons such as the M60 and the M203 is correspondingly high.

IN VIETNAM

Because of this tendency, and because of the difficulty in obtaining responsive ammunition resupply, units in Vietnam established much higher levels for their basic loads of ammunition. In my unit (Company C, 3d Battalion, 1st Infantry, 11th Light Infantry Brigade), we carried (to the best of my recollection) the following:

Riflemen: Seven magazines plus two bandoliers of 5.56mm, four grenades, two smoke grenades, and one claymore.

Machinegunners: Eight hundred (800) rounds of 7.62mm, four grenades, and a claymore.

Assistant machinegunners: Same as the riflemen, plus 400 rounds of 7.62mm.

Grenadiers: One hundred ten (110) rounds of 40mm, four grenades, two smoke grenades, and a claymore.

Automatic riflemen: Seven magazines plus four bandoliers of 5.56mm, four grenades, two smoke grenades, and a claymore.

In addition to these amounts, the men who were stronger often carried extra ammunition. As a grenadier armed with an M79 grenade launcher, I usually packed an extra two bandoliers of 5.56mm and 200 rounds of 7.62mm, which were redistributed to other members of my platoon as needed. In addition, on operations in which the commander anticipated unusually high expenditures of 81mm mortar ammunition, each man in the company was required to carry an 81mm high-explosive round strapped to the bottom of his rucksack. Selected personnel were also designated to carry the detonator cord and one-and-a-half-volt batteries needed to set up a daisy chain of three to five claymores for a platoon "mechanical ambush." (Only the VC and NVA employed "boobytraps.")

Grenadiers used the 24-round vests when they were available. They carried additional rounds in claymore bags (which held about 18 rounds each)

slung at the left side (for right-handed shooters) and strapped to each hip. The remaining rounds went in their rucksacks.

While these figures may sound high, experience showed us that the amount of ammunition we carried was usually just enough to get us through a heavy fire-fight and leave a reserve to tide us over until the next resupply mission.

Given the intensity of combat that our light fighters can anticipate in any future conflict, it stands to reason that similar loads will be needed to sustain

them. Resupply will also be as difficult for them as it was for us, if not moreso, considering the proliferation of light air defense weapons and the limited aviation assets that will be available.

Naturally, some trade-offs will have to be made. For example, if the anticipated enemy has an armor capability, an adjustment will have to be made to incorporate Dragons and LAWs into the loads. But I'm convinced that the ammunition load schemes I've seen discussed up to this point can only lead to disaster in combat. It's time for light

fighters with combat experience to sound off and for the Infantry community to rethink the infantryman's basic load-- again.

Captain Dale E. Wilson served as a grenadier, a rifleman, and a combat correspondent with the Americal Division in Vietnam, and as an aerorifle platoon squad leader in the 2d Armored Division at Fort Hood. A 1979 graduate of Officer Candidate School, he was commissioned as an Armor officer and is now completing his master's degree at Temple University in preparation for an assignment to teach history at the United States Military Academy.

The Bayonet

Simple But Dependable

ROBERT J. BERENS

Last year the United States Army began issuing a new version of the bayonet, the M9, to its infantrymen. In an era of complex, expensive, and exotic weapons, a new bayonet may seem anachronistic, if not downright unnecessary. Surely combat techniques have progressed beyond the need for so simple a weapon, even for use by infantrymen.

Furthermore, studies conducted since the end of World War II consistently reveal among soldiers a somewhat ambivalent attitude toward the bayonet. Only a small percentage of officers and enlisted men in recent times have actually used a bayonet to kill or maim an enemy. And even some of these experienced soldiers question the bayonet's use as either a weapon, a psychological ploy, or a "combat motivator"-- the reasons usually given for having a bayonet. Some believe that bayonet training is also a physical conditioner, but they concede that other

activities are as good or better. Likewise, some say that time spent on bayonet training as a combat skill would be better used for rifle marksmanship training.

In spite of such lukewarm support, however, the bayonet is not fading away--not just yet anyway. The truth is that the bayonet's roots go back a long, long way, and in its lifetime the weapon has proved to be amazingly resilient and useful.

The bayonet as we know it was invented in the 1640s by the French at Bayonne. The need at the time was for a back-up weapon that would enable a soldier to protect himself while he reloaded his cumbersome single-shot musket. It seems only natural that affixing a knife-like instrument to the end of the musket would come to mind, since knives, swords, and spears were among the first weapons fabricated by primitive man, and they had been around ever since.

Curiously, even with the advent of the rifle-- which had a longer range, was more accurate, and could be reloaded faster than the musket--the bayonet continued to have a place in the infantryman's arsenal of weapons. Although it may have been kept around partly out of nostalgia, changing tactics played a larger part in the bayonet's new lease on life.

One such change occurred in the Russo-Japanese War of 1904-1905. During this war, the night attack was perfected as a new wrinkle, one that would take advantage of surprise and shock action. Night attacks, using stealth and concealment, enabled the combatants once again to close to a "kill-or-get-killed distance." In the hands of well trained troops, the bayonet was silent and dependable.

Once it was recognized that bayonet attacks gave armies an added dimension, the weapon itself drew closer attention from both inside and outside

the U.S. military services. President Theodore Roosevelt, for example, concerned himself with a replacement for the brittle "rod bayonet" then in vogue. With this encouragement, members of the Army's General Staff formed a committee and studied the lessons of the Russo-Japanese War and the Philippine Insurrection.

The committee eventually selected a 16-inch knife-patterned bayonet. It was a good choice, for this basic model endured through the Korean Conflict period, although it was modified several times. With the advent of the M16 rifle, however, the pattern was changed to a "double-edged knife," the M7 bayonet. (The new M9, successor to the M7, has the more traditional single-edged look.)

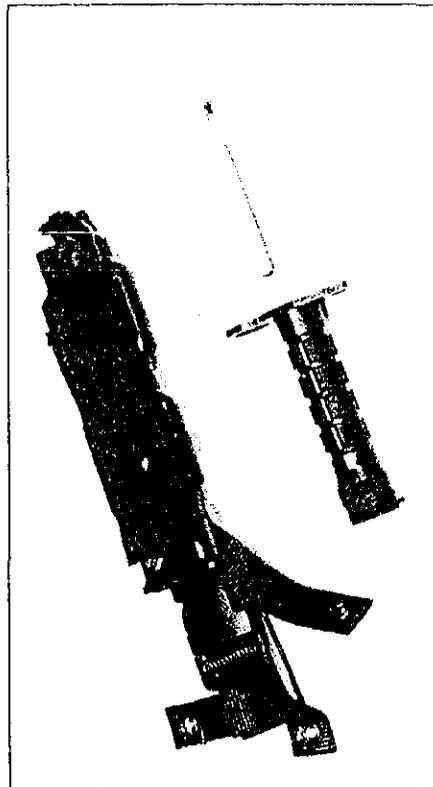
The bayonet had its heyday during World War I when the dense concentrations of men and the close proximity of positions made it a dreaded and deadly weapon. Advances in warfare also served to enhance its usefulness. Previously a brutal and direct weapon, the bayonet was now sometimes used in a more subtle fashion. In gas attacks, for instance, the bayonet could be used to puncture or remove an enemy's protective mask, or to rip clothing to expose his body to deadly chemical liquids and vapors. Sappers, too, sometimes used the bayonet to probe for land mines when more suitable tools were not available.

Although the bayonet's importance diminished in the high-mobility, spread-formation tactics of World War II, it was still used at critical times with telling results. In the final drive for Tunis in April 1943, Lieutenant Ted Antonelli of New Haven, Connecticut, led Company K, 16th Infantry Regiment, 1st Infantry Division, in a night attack against well established German defenders.

The Americans managed to close within assaulting distance without being discovered, whereupon they fixed bayonets and charged into the midst of the surprised enemy. Screaming, yelling, and stabbing, Lieutenant Antonelli's troops put the startled Germans to flight and captured several. Afterward, the Americans managed to

hold the bastion by more conventional means in the face of furious German counterattacks. But the timely seizure of the hill proved to be a major step in the ultimate defeat of the Axis forces in North Africa a month later.

Not unexpectedly, the Korean Conflict, which was fought along the same lines as World War II, also provided opportunities to use the bayonet, usually in desperate circumstances. One such instance occurred in early August 1951 when Captain Lew Millet



New M9 bayonet with scabbard.

personally led his company in a wild man-to-man fight for a crucial hill. Millet and his troops, throwing hand grenades and clubbing and slashing, forced their opponents to flee in wild disorder. For his display of courage and leadership, Captain Millet was awarded the Medal of Honor.

In a far different kind of battle, the 187th Regimental Combat Team (Airborne) found the bayonet useful against rebelling Chinese prisoners of war on Kojé Do Island in the summer of 1952. When other weapons could be used only sparingly within the confined, disorganized, makeshift compounds, the paratroopers reduced the key compound by advancing in tight

formation behind fixed bayonets. When the defiant prisoners sought to escape the clouds of tear gas, the Americans separated them into manageable groups with a timely bayonet prod here and there.

During the Vietnam War, although engagements in the jungles were often fought close-in, which is normally ideal for bayonet fighting, other factors tended to reduce reliance on the weapon. In the often brief and furious encounters with a fleeting enemy, the small caliber, short, light, and fast-firing M16 rifle was well designed to handle the close-in fighting.

Ironically, throughout this period the bayonet probably was used elsewhere more frequently—during civil disturbances on the home front. When huge, volatile mobs gathered in major U.S. cities following the assassination of Dr. Martin Luther King and during the anti-war demonstrations of the late 1960s, servicemen on riot control often resorted to fixed bayonets. Seldom did they find it necessary to use the weapon, however, since its intimidating appearance usually served to sober and scatter the crowds. Studies reveal that there is no substitute for this "psychological weapon," if it can be called that, in civil disturbances.

The bayonet's psychological effect works two ways, according to some observers. Obviously, the user's main goal is to intimidate or eliminate the "target," but the bayonet also seems to have a positive effect upon the man behind it. This is especially true on the battlefield, where the bayonet wielder may be bolstered in his resolve and confidence by his single-minded purpose. A corollary effect of this phenomenon seems to be that most bayonet attacks actually never make contact: the defenders, recognizing that their defensive plan has failed, withdraw in haste. Although this is a tenuous point, there is little question that the bayonet has an undefinable yet real mystique about it.

It is true, of course, that the bayonet has often been used for purposes other than killing, maiming, and intimidating. At times these other purposes have been strongly discouraged if not prohibited, but this attitude obviously has

changed. The selection of the M9 "bayonet system" validates several of the more popular and necessary uses: The new bayonet is also a combat and field knife, a wire and metal cutter, and a saw. It would be unflattering and undeserving, though, to relegate the bayonet to its inglorious role as a "util-

ity tool." It deserves a far better fate.

Over the centuries, the bayonet in its various forms has accrued a special charm. Even now, in spite of all the impressive technological advances, it remains the ultimate man-to-man weapon, an intriguing quality indeed. Because of this aura, and its all-round

usefulness, the bayonet is likely to be with soldiers as long as they go forth to battle. How could it be otherwise?

Robert J. Berens is a retired Army colonel. He was a platoon sergeant in Tunisia in World War II, a platoon leader with the 187th RCT on Koje Do Island in Korea, and later a rifle company commander in the 3d Infantry Division. He also served as a corps public affairs officer in Vietnam.

The New Battalion CSM

COMMAND SERGEANT MAJOR OTHEL TERRELL, JR.

When you walk into your first unit as a battalion command sergeant major, you won't find a road map that shows the way to success. There will be no system that lays everything out for you; nor will everything fall into place automatically. How do you start integrating yourself into the mainstream of your organization?

In most cases, your brigade command sergeant major (CSM) will give you an inbriefing, perhaps taking several sittings to complete it. Normally, your senior CSM will ask you to tell him about yourself and your military background. This is his way of getting to know you.

Your commander will also give you an initial briefing. Approach this sitting with caution, because the outcome can set the pace that will lead to a successful tour of duty, or it can start you on a downhill slide that will be almost impossible for you to recover from.

During this briefing, it is important that you take notes and ask questions. If the commander does not mention some of the subject areas you are concerned about, clarify these things at that time, and make notes on the issues you feel can wait for another day.

When these initial briefings are over, ask yourself some questions. What did I get from them? What are my priori-

ties, and how will they affect my lack of knowledge in some of the areas mentioned? You must make your decisions on the basis of your experience as a first sergeant and a platoon sergeant, in addition to your formal military education. Your real help will come from your staff NCOs. If you are reluctant (or too shy) to seek their help, you are going to have some rough days ahead.

USE STAFF NCOs

First, take the list of priorities you made while talking with your commander and start sorting these items into areas, such as individual training, support, maintenance, and administration. Then, to find out about each of these areas, ask the NCO who is responsible for it to brief you.

Once you have been briefed by the various staff section NCOs, you will then have the facts you need to conduct your first staff meeting, and you should schedule it for a time when all of the appropriate personnel can be present.

Concurrently, once the individual unit first sergeants have completed their briefings to you on their day-to-day operations, and you have had an opportunity to visit them and look at their units, you should have some con-

cept of what you need to talk to them about in your first meeting with them. It may be a good idea to discuss some short term goals and concentrate on some ideas that require immediate responses.

These are some areas you should focus on from the very beginning:

- Soldiers' appearance.
- Quality of life (billets).
- Individual training.
- Taking care of soldiers.
- Command policies and procedures.

The quality of life for soldiers living in the billets should be high on your list of priorities, and if you find yourself in the midst of a cohesive group of first sergeants, consider yourself lucky, take advantage of it, and capitalize on their knowledge and expertise.

As a CSM in your first battalion-size unit, your focus should be divided into a number of areas, but you must corral them and make them work as one. Your commander's programs and projects, for instance, will usually vary, and his leadership style may also vary as changes occur. No matter what project or program you are asked to provide feedback on, however, you should never be afraid to go back to the commander to verify details. If you are verifying policies or working on a brief-

ing, don't forget that you are not the only one with policies; you may want to research the current SOPs or discuss the contents of the old ones with your first sergeants or senior staff NCOs. When you discover that there are several variables, you may elect to brainstorm the issues and get some possible solutions.

(In most cases you will find SOPs that need to be updated. A CSM should require that the unit's NCOs be familiar with standing operating procedures that affect the unit's mission and the welfare of its soldiers and their family members. A unit should review its SOPs semiannually and upgrade the standards).

When you advise your commander on a problem you foresee, you should also present a number of alternatives as possible solutions. Most commanders want their subordinates to be objective and to present solutions that are tangible and obtainable. That is why you are there. Most commanders welcome innovative ideas that correct, alter, upgrade, and increase the unit's proficiency. Your commander expects you to look out for the welfare of the enlisted soldiers and to help him ensure that subordinate units have initiated sound plans.

It is important that you establish a solid working relationship with your commander, because such a relationship contributes to the morale, discipline, and esprit de corps throughout the command. There are some DOs and DON'Ts that you should concentrate on:

- Be honest, professional, and courteous.
- Don't put your commander on the spot.
- Keep him informed.
- Don't try to wear his rank.
- Show respect to subordinates and their family members.
- Be tactful in your dealings with everyone.
- Support your commander within the limits of the law.

When commanders allow for non-commissioned officer input, a unit can generate some good training plans, and a command sergeant major can play an

important role in this at battalion level. This input must be evaluated on the basis of the unit's mission. Before you offer advice, however, you should ask yourself the following questions concerning the plan you are proposing:

- Will this training change, correct, alter, or upgrade unit proficiency?
- What will be the value of this training?
- Will it improve the quality of life in the community or troop living area?
- Will it improve the training conditions?



- Will it help the unit by using resources efficiently?
- Do these tasks relate to the unit's current mission essential task list?

Whatever system you use, try to give your commander some justification for your decision. Weigh all the factors, negative and positive, before presenting your professional advice.

You must work into the battalion's training plan some training that will increase the proficiency of your staff NCOs, because when a subordinate unit needs help, the staff sections should be proficient enough to render that support. If your staff NCOs are

weak, your subordinate units are going to be handicapped, and your unit evaluation program will not be effective. You can create a strong leader training program by improving the proficiency of the staff NCOs so that they can train their own soldiers. In other words, train the trainer.

Look at your plans and figure out how to formulate a system by using the appropriate manuals. Creativity and innovative ideas are precious commodities. There are many ways to do a task, but training becomes digestible only when soldiers have a good understanding of the basics.

No two leaders will approach the training process using the same techniques, and training the trainer is not a problem in most units. Having the time to train your soldiers, however, often is a problem. The challenge is to be able to put together a training package that will enable you to train them on the individual skills that will reinforce the unit's collective training. After that, your primary role will be to help implement the training that is on the schedule.

A battalion command sergeant major and the company first sergeants should train one level down and inspect the training at all levels. When subordinates see that their leaders are enthusiastic about training and training objectives, an atmosphere will be created in which they will learn better.

When you develop an inbriefing program for new NCOs, you must have both long and short range goals. An example of a short range goal would be to establish an initial briefing format that is easy to follow and that will be effective for newly assigned soldiers.

Too often, when an NCO reports to a unit, nobody in the immediate chain of command takes the time to brief him until he makes a mistake. If you allow this to occur, you are setting the NCO up for the kill, and he will have a hard time recovering. So start somewhere. Get his attention and give him some guidance. You can judge a unit's inprocessing program in most cases by the way *you* were processed into that same unit.

You must be careful, however, not to

be critical of your new unit. Just assume your leadership role and start working toward improving your sponsorship program. The inbriefing is a beginning. It is the basis for most of the actions that can be formulated and carried out using an established standing operating procedure.

The first thing you will need to do during an inbriefing is to clear the air on expectations. Most soldiers want to hear what you expect of them and what they can expect of you.

Enlisted evaluation procedures and rating schemes should always be a part of the initial briefing for NCOs, because the NCOs in charge of soldiers have to be proficient in administering these reports. The Noncommissioned Officer Professional Development Program starts when you assume your duties and never ends.

There are many factors that will affect the NCOs' perception of how well you will support them. You should be straightforward with all of them. But never promise them something you don't have the authority to deliver.

Noncommissioned officers must understand, too, that if they get into trouble in certain areas, they should not expect any help from you, except to seek sound legal advice. Some of these areas are drug and alcohol abuse, vio-

lation of integrity, misappropriation of government property and equipment, using rank for self gain, child neglect or abuse, failure to correct or report unsafe conditions, and committing an unsafe act that endangers the lives of soldiers, family members, or innocent civilians. It is important to set the record straight on this in the beginning.

Remember, too, that your NCOs will require enlisted evaluation reports. Once again, the counseling process must take place at the same time the responsibility for a report is fixed. You should look at the rating scheme and verify the appropriate rater and endorser for each NCO. If this is not done, too often their evaluation reports will not be submitted when they should be.

If you are highly motivated, you will have no problems when you walk into that first assignment as a battalion command sergeant major. Even if there are signs that the NCO leadership is poor, most NCOs react well to new leadership. In many cases, they are just waiting for an opportunity to respond to leadership that is geared to the betterment of the unit and to taking care of soldiers.

Too often, though, we as leaders do not have the moral courage to stand up and be responsive to our soldiers'

needs; nor do we set aside the time to let them explain their problems. You will find that the higher up you are in the chain, the less you know about the internal problems in your units. So if a soldier has the courage to walk up to your headquarters and ask to speak with you, he should be given permission to do so in complete privacy. If your subordinates know that they can present a problem to you and you will listen to them, you are on the road to success as a leader.

But after you listen, you should also follow up on those problems, acting as an arbitrator where it is necessary, correcting a misunderstanding or misinterpretation of Army policy, or seeing that anything necessary is done to help solve a family problem that may be involved.

Young motivated soldiers want to be challenged to do their best. This desire to excel can be reinforced with positive leadership and mentorship.

These things, and more, are just part of the job of a battalion command sergeant major.

Command Sergeant Major Othel Terrell, Jr., is command sergeant major of the 4th Brigade, 3d Infantry Division, in Germany. He served in Vietnam with the 3d Battalion, 187th Infantry, 101st Airborne Division. He holds a master's degree from Central Michigan University.

Thoughts for New Sergeants

ROY C. OWENS

The Army's noncommissioned officer corps traces its bloodline back to the Continental Army of 1775. The qualities sergeants had to have then were the same ones sergeants have to have today—honesty, sobriety, attention to every point of duty, neatness in dress,

the ability to command respect and obedience from soldiers, expertise in their jobs, and an ability to train their subordinates.

If you have just become a sergeant, you march in the footsteps of all the noncommissioned officers who have

gone before you, and the Army offers you a full life if you are a true professional. The more you strive for professional expertise, the more you contribute to the Army, your soldiers, and your own satisfaction.

Being a sergeant doesn't mean that

life will be any easier for you than it was when you were an enlisted soldier. It doesn't mean you no longer have to take orders. It doesn't mean you will have more free time.

It does mean that you will now have the responsibility for maintaining unit standards and taking care of other soldiers. This increased responsibility means that you will work even harder, accomplish more, and reap more personal satisfaction.

It also means you will have to attend meetings held by other NCOs or officers to receive guidance or missions. Then you will have to tell your soldiers about a mission and each task they must do to accomplish that mission. You will have to check their work and see that it is finished, then report the results to the NCO or officer who gave you the job.

You will still have to take orders, and you will be held responsible for the way your unit does its job. You will be responsible for offering suggestions as to how a job might be done faster or easier. And in cases where no guidance is given, you will have to figure out how to do the job on your own. When you see a job that needs to be done, you will do it. This is called initiative.

"Doing the job" involves all sorts of things. It means correcting soldiers who do not perform properly, are out of uniform, fail to salute, or are making a nuisance of themselves. It means leading your troops in combat or on a training exercise. It means leading your soldiers as they do unpleasant tasks such as cleaning latrines or conducting police call. It may also mean requiring clerk-typists to work long, hard hours so that other soldiers can receive their pay, take their leave, have the supplies they need, and have their personnel actions completed.

All of your jobs are important, because you are the key link in the entire chain of command.

Because you have additional responsibility, you are also given additional authority. That authority is of two basic types. The first is general military authority, the same authority all officers, warrant officers, and non-commissioned officers hold. Its source



is the law, the Uniform Code of Military Justice, Army regulations, and tradition. The second type is delegated authority, that specifically delegated to you by the chain of command to do a specific task or job.

Your authority will rarely be challenged once you have earned the respect and confidence of the soldiers in your unit, because any soldier who challenges your authority also challenges the authority of the entire chain of command. And so long as you act responsibly and give orders that are clear, legal, and realistic, you can be confident that the chain of command will give you the support you need and back you up.

As a noncommissioned officer, you must study the regulations that affect you personally—uniform and barracks regulations, for example, general orders, training regulations, alert instructions, weapons control regulations, and others. If you do not know these things, you will not be able to explain them to your soldiers. Likewise, to be an effective NCO you must know not only your own job but also your soldiers' jobs so that you can train them and make sure they are doing those jobs right.

One of the first attempts to define an NCO's responsibilities came in the American Revolutionary War. Baron Frederick Wilhelm von Steuben, who

wrote *Regulations for Order and Discipline of the Troops of the United States*, published in 1779, said that an NCO should be "completely expert in the exercise of arms and maneuvers, and possess an ability to teach." He further stated that each sergeant is "responsible for the men committed to his care; that is, for seeing that officers' orders are carried out, for teaching his men the rudiments of soldiering, seeing that they are properly dressed and responsive to discipline, and for reforming his squad in the confusion of battle." The similarity between this document and today's Army policy is very striking.

Von Steuben also said that once the American soldier understood the reason for something, he did what he was supposed to do very well. I believe that the same is true today. When one of your soldiers does not perform well, don't just assume that it's because he is not a good soldier. First, ask yourself if *you* are doing something wrong.

There are no bad units with good leadership, and there are no good units with bad leadership—at least not for long.

What will your unit be like?

Roy C. Owens, now retired, was command sergeant major of the U.S. Army Infantry Center at Fort Benning. He previously served in other command sergeant major positions including the 1st Battalion, 87th Infantry, 8th Infantry Division.



A SALUTE TO THE GOLD BAR

At about this time each year a group of young men from a variety of training backgrounds pin gold bars on the collars of new uniforms and take up the profession of Infantry leadership. If you are in this group, the weeks immediately ahead, which will be dedicated toward preparing you for your first command, are too short—always too short to allow much time for pep talks, emotional preparation, or a real orientation on the challenge you have accepted. The men who must train you to lead may not have an opportunity to really identify your profession for you. Well, editors of bimonthly professional publications have a little more time to think about such things. Pardon me now if I get a little parochial.

Whether you come from a service academy, ROTC, OCS, or direct from Fort Boondock, and whether you read this enroute to Fort Benning or Quantico, you are about to take on the toughest leadership assignment of a military career. Toughest because your challenges will be the greatest at a time when your experience is the least.

You are destined to lead men—hard, critical men who will respond to you only because you demonstrate to them that you are as good as or better than they are in every professional respect. The battalion commander can get away with not knowing all the skills in his command so well as the men who practice them daily. The platoon leader cannot.

In the best of circumstances, you will cause your men to do things that challenge them, tire them, and sometimes bore them, and you will make them do these things with enthusiasm and determination. You must, and will, use your chain of command, but at your level that chain is a short one. Never again will you deal face to face with so many individuals on a regular basis.

You have accepted the proposition that if you go to combat you will be among the men the enemy wants most to kill first.

You will be the professional director and personal counselor to men much older and more experienced than you are. They will think that if you are fit to hold the rank at a young age then you should be fit to give sound direction and valuable counsel, and they will resent your failure in either area.

Along with this professional and intellectual commitment, you are obligated to maintain your physical condition in a state only slightly below that required of a full-time athlete. Through a combination of stamina and will, you may often send your exhausted troops to rest but turn yourself immediately to another task.

You will share your triumphs with four squads of men and will bear your failures, and theirs, in what will feel like total isolation. A platoon may be better than its leader, but it is never worse.

You will watch some of your brightest ideas shatter against the anvil of reality, without even the opportunity to sulk about it for a while.

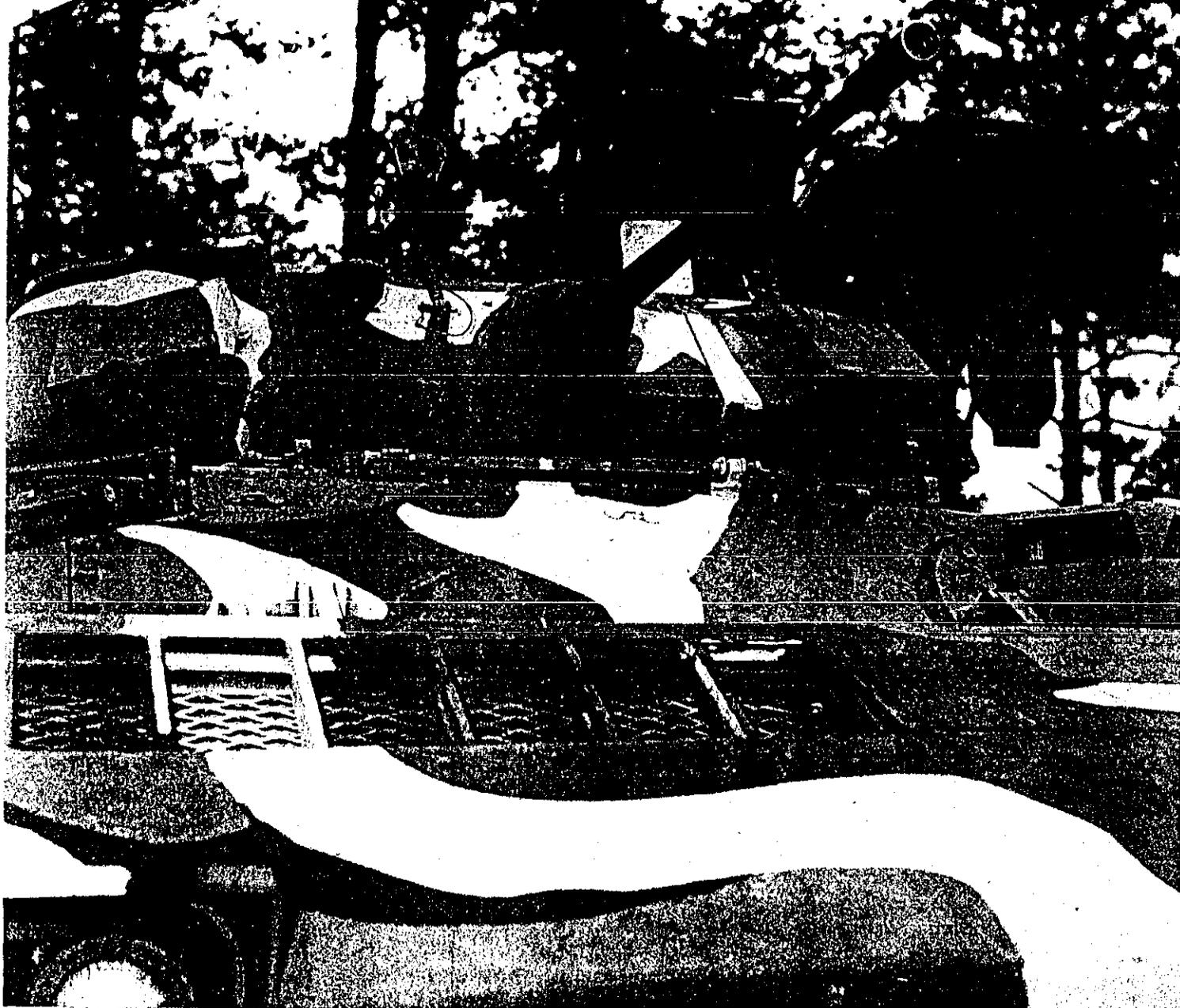
You'll sometimes wonder if people take you seriously. They do.

You'll question whether the rank you hold is an adequate crutch against poor leadership. It isn't.

On an hour-by-hour basis you will find yourself in circumstances that test your will, your skill, your strength and your judgment.

You'll love it. INFANTRY salutes you.

(Written by Lieutenant Colonel Thomas J. Barham, in his Editor's Note, INFANTRY, July-August 1975, inside back cover.)



Bradley Gunnery Evolution

Captain Thomas T. Smith

Bradley gunnery, as experienced by one mechanized infantry battalion over a six-year period, seems to have undergone an interesting evolution.

The battalion, the 1st of the 41st Infantry, was the first to receive the M-2 Bradley Infantry Fighting Vehicle (BIFV). It did so in March 1983 and a few of its present officers and noncommissioned officers have served continuously in the unit since those early days. Additionally, the battalion was the first Bradley unit to rotate to the National Training Center; it was the first COHORT battalion; and it was the first Bradley battalion to rotate to Germany from the continental United States. All of these "firsts" have had

an effect on the way the battalion has conducted gunnery, and they represent a continuing process of searching for solutions, of innovation and adaptation. The failures have been, at times, equal to the triumphs.

This examination of the six-year period focuses on gunnery. It is not intended to be a detailed critique of methods or a debate on doctrine, tactics, or standards. It is simply a historical record of what occurred year by year as a group of infantrymen learned to qualify with a new weapon in various environments from the hot, arid ranges of Fort Hood to the frozen snow of Grafenwoehr in Germany.

This record deals with the evolving concepts, techniques,

or standards in the following areas: gunnery philosophy, pre-gunnery train-up, pre-qualification tables, qualification, targets (types and ranges), ammunition, fire commands, burst techniques, sensing and adjusting rounds, controlling firing vehicles, methods of grading crew cuts, scoring target kills and times, after action reviews, and additional gunnery tables.

1983

The battalion's gunnery philosophy in 1983 was in its embryonic stage. There was great concern about making sure Bradley gunnery did not fragment the infantry squad into two distinct elements-- the vehicle crew and the dismounted rifle team. Another concern was the integration of realistic tactics-- from movement techniques to spot reporting-- into the gunnery exercises. Although engagement time for steel on target was considered important, it was not paramount. The great debate was about who should dismount with the rifle team-- the squad leader or the assistant squad leader.

The pre-gunnery train-up involved the Bradley Gunnery Skills Test (BGST) and Bradley Commander Proficiency Course (BCPC) drills. The BGST consists of a series of technical tests on the vehicle's weapons. The BCPC drills teach crew skills by rolling the vehicle on a mock-up gunnery course without live ammunition.

Pre-qualification Tables VI and VII were conducted in 1983. Table VI, day and night, consisted of a stationary Bradley firing at stationary and moving targets with sub-caliber (7.62mm) and full caliber (25mm) ammunition. Table VII, day and night, consisted of a moving (offensive) and stationary (defensive) Bradley firing at moving or stationary targets with subcaliber and full caliber ammunition.

Table VIII, the squad qualification table, consisted of ten day and eight night vehicle targets with a mixture of single, dual, and triple engagements. The conditions included gunner's hand station, commander's hand station, NBC protective mask, day sight, thermal night sight, and auxiliary sight. Although no TOW antitank missiles were fired, the crew had to simulate firing them.

The infantry rifle team, led by the squad leader/Bradley commander, was required to dismount and establish a hasty defense, engaging E-type targets with rifles while the assistant squad leader fired at a vehicle target with the Bradley's 25mm cannon. The squad was also required to engage targets with the M231 firing port weapons from inside the vehicle. (The dismount portion was not conducted in the night phase.) A dry run without ammunition was conducted on this table before the qualification run.

Three types of targets were used on the range-- infantry E-types, hard targets of old vehicle hulls, and large square plywood panels raised and lowered by lifting devices or placed on moving trolleys. Night firing was done at hard targets that had retained the daytime heat and continued to give a good thermal signature all night if charcoal fires were built inside the hulls. Target ranges were out to 2,200 meters.

Ammunition for the 25mm gun included armor-piercing discarding sabot with tracer (APDS-T, or AP) with flight ballistics of 1,000 meters in 0.8 seconds; high explosive incendiary with tracer (HEI-T, or HE) with flight ballistics of 1,000 meters in 1.2 seconds; 7.62mm linked for the coaxial machinegun; 5.56mm tracer for the firing port weapons; and standard small arms ammunition for the dismounted squad.

The battlesight fire command was the preferred command. Battlesight was usually AP ammunition with 1,200-meter range pre-selected. The elements of the fire command were alert, battlesight, target description, and command of execution.

When engaging distant targets, or if time was available, the precision fire command was used. It had the same basic elements, but the ammunition and range were substituted for the word "battlesight."

The use of the proper fire command was not critical at this time, however, and in the average engagement, the command was quite informal.

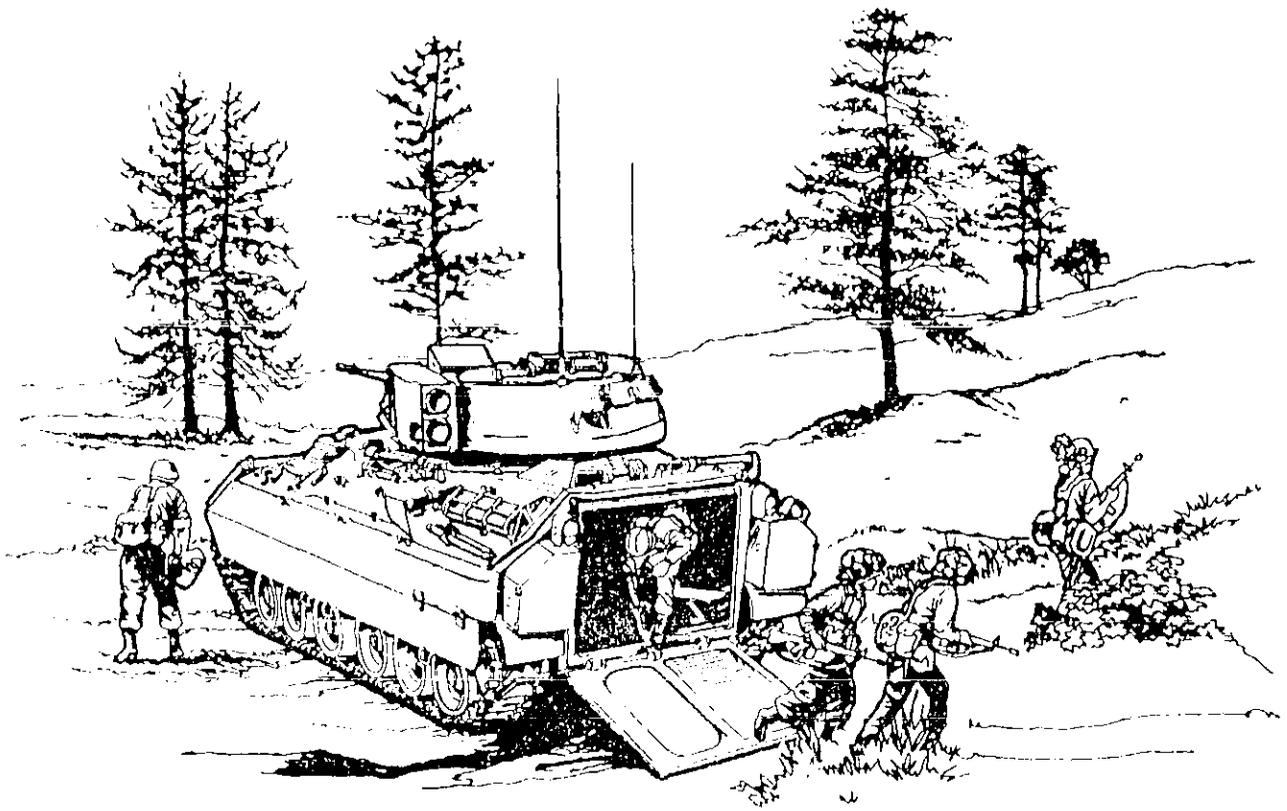
The burst technique used to fire the main gun was a single sensing round fired on the single shot setting followed by a switch to high rate and three-to-five-round bursts adjusted according to the hit location of the single sensing round. (This is known as burst on target, or BOT.) Most gunners learned to fire a single round by careful trigger control, even when using the high rate of fire.

There was no established sensing technique: The BC's sensing of the strike of a round was relayed to the gunner in terms such as "too high," "a little left," or "way right."

The firing vehicle was controlled by a chase track, usually an M113 armored personnel carrier. This chase vehicle, called "Control" or "Tower," gave radio instructions to the firing vehicle and controlled its movement through the course by issuing a series of tactical commands-- for example, "C12, this is Control; move from battle position three to battle position four; a BMP is reported as being in the vicinity of target reference point one." The firing Bradley would move out, the target would come up, and the engagement would begin.

Crew actions were graded by a Bradley crew evaluator (BCE) sitting on top of the firing Bradley's commander's hatch. The BCE wore a CVC helmet plugged into the crew intercom. There were few point cuts for improper crew actions or commands, but the BCE would later give a critique of the way the crew went about its business and would offer suggestions for improvement. He had a clipboard and a stopwatch for determining the length of time the crew took to kill a target. He also determined if a target had been hit with three rounds to credit a kill. (At night a second BCE, called a "spotter," used the thermal sights of a chase Bradley to determine kills.) Thirty seconds to kill a target was considered the limit. The BCE team for evaluating the qualification table was made up of the battalion's skilled senior sergeants and lieutenants.

The after action review (AAR) was conducted in a tent containing a sketch of the range. Each engagement was discussed in general, and a gentle critique was offered with suggestions for improvement.



There were no formal tables for higher unit levels, but a platoon battle exercise was conducted that emphasized movement to contact, actions in the overwatch, and hasty defense.

The major problem in 1983 was the crews' unfamiliarity with the new weapons, particularly the 25mm cannon. Misfires were common, almost all due to crew error. This problem was initially solved, however, by the return to the battalion in July of the sergeants who had been sent to the Master Gunner Course at Fort Benning. Then the battalion began to develop a pool of true technical experts at company level.

1984

The battalion's gunnery philosophy in 1984 emphasized tactical realism and the dirty battlefield. Two gunneries were conducted—one in March, another in August. The first was a part of the battalion's preparations for its rotation to the National Training Center (NTC); the second was heavily influenced by the lessons learned there and centered on an experiment in section gunnery.

Ranges were obscured by smoke from canisters and burning tires to condition the crews to operating and engaging targets on a dirty battlefield. Tactical realism was paramount. The guiding concept—gunnery as a preparation for combat—translated into tough dismounted infantry missions, with firing vehicles free of administrative measures such as red flags or chase tracks.

FM 23-1 (Test), Bradley Fighting Vehicle Gunnery (8

December 1983) reached the battalion early in 1984. The common view of this document was that it represented an excellent reference and a good training guide, and many of the techniques it offered were immediately adopted. Some of the ideas in it had, in fact, originated in the battalion. It was also viewed, however, as a good point of departure, particularly in the structure of gunnery tables, crew cuts, and time standards. And, as it was clearly labeled "Test," there was no particular requirement to adhere to its standards.

To the previous pre-gunnery train-up using BGST and BCPC drill was added the mini-tank range, an engagement exercise involving single-shot subcaliber (5.56mm) ammunition and miniature targets at ranges of less than 100 meters. Range estimation exercises became important for the Bradley commander.

Pre-qualification during the March gunnery consisted of firing Tables V, VI, and VII, both day and night. Table V consisted of a stationary (defensive) Bradley firing full caliber and subcaliber ammunition at moving and stationary targets. During Table VI, the Bradley was both defensive and offensive (moving). Table VII, used for refining crew duties and engagement techniques, involved only subcaliber (7.62mm) defensive and offensive engagements. For the August gunnery, Tables V and VI remained the same while Table VII became a qualification table.

The qualification tables changed radically between the two gunneries. Table VIII A&B (A—day, B—night) for the March gunnery was the same used in 1983 with the following changes: 13 vehicle targets, an offensive rather defensive dismounted team maneuver, and a firing over the back

deck engagement. No dry run was allowed for Table VIII with the exception of a walk-through of the dismounted maneuver operation for safety purposes.

Qualification during the August gunnery consisted of Tables VII A&B and VIII A&B. Table VII became the Bradley crew qualification without a dismounted infantry mission. Eleven vehicle targets were engaged. The firing vehicle negotiated the course with the section's other Bradley, his wingman, helping spot rounds.

Table VIII, Section Qualification, required firing at 15 vehicle targets and engaging one tank target with TOW MILFS. Either vehicle could shoot at the targets. A multiple-vehicle engagement task (with three vehicles) was also in the table, but no dismounted mission was included for the rifle team. (This lack of a dismounted role was rather strongly contested, and it was restored in subsequent battalion-controlled gunneries.)

In the interest of doing everything possible to increase tactical realism, a good bit of energy was expended cutting the square plywood targets into proper threat vehicle silhouettes. (A BMP target should look like a BMP.)

The most important target development during 1984 was the addition of thermal targets for Bradley night firing. Thermal blankets were stapled to the plywood silhouettes and connected to a generator. Initially, there was difficulty getting the targets to heat up as expected, and preparing them required a considerable amount of labor on the part of range operations. Firing time was lost if careful planning and a large detail were not employed in the frequent repair of targets and servicing of generators. Targets were emplaced out to 2,200 meters.

SUBSTITUTION

Because it was known to produce dangerous duds, the explosive ammunition HEI-T was deleted from gunnery ammunition and replaced by target practice with tracer (TP-T) ammunition, which has the same ballistic characteristics. Armor piercing (AP) 25mm and 7.62mm for the coaxial machinegun were also used. Seven rounds were allowed for each vehicle target if firing TP-T, five rounds if using AP. (AP was used on far targets, more than 1,800 meters, and TP-T for near ones.) FM 23-1 (Test) suggested ten rounds per target.

The fire commands remained the same, but there was an increased emphasis on using the correct ones. The burst technique was stabilized into a pattern of 1-3-3.

The use of section gunnery and the need for the wingman to help spot rounds and call their effects over the radio helped encourage the use of a formal system of sensing and adjusting rounds but did not require it. Sensing calls of *lost, short, over, line, doubtful left* and *right* were adopted from the Armor community, and adjustments were made in terms of the target size, such as "one-half target from right."

The earlier chase vehicles and the Bradley crew evaluator perched on the firing turret were eliminated in the interest of tactical realism. Firing vehicles were controlled

by radio using tactical scenarios and commands. For safety, however, the firing vehicle was observed at all times from the tower or some other suitable location.

A BCE rode in the back of the Bradley to monitor crew actions and fire commands. Target exposure and target kill were timed and observed from the tower. At night or through smoke, a dismounted TOW thermal sight was used, and a time of 20 seconds was allowed for a satisfactory target kill.

Three 25mm rounds in the target were required for a kill during the March gunnery, but only a single round during the August gunnery. This change was based on the fact that the target dropped automatically when struck by the first round. Later, the three-strike sensor was employed. (The test FM 23-1 suggested 15 seconds and three rounds.) The coaxial machinegun engagements were graded by a four-fifths pattern for an area target.

For the August gunnery, in addition to points earned for target kills, a crew was scored on total time on the course. For example, completing Table VII in 30 to 35 minutes yielded 50 points, in 76 to 80 minutes only five points. No points were deducted for crew cuts such as improper fire commands.

To qualify, a crew had to achieve 560 total points and hit 75 percent of the targets. Crews were rated Distinguished (720-800), Superior (640-719), or Qualified (560-639).

ALIBIS

Alibis—that is, re-firing engagements—were refused in cases where the malfunction of weapons or vehicles could have been prevented by proper crew checks or maintenance.

Dramatic changes in the after action review came in 1984. Influenced by the ruthless AARs the battalion had experienced at the NTC, the event evolved from a discussion and suggestion session to a review with a strict format. It started with an extensive self-analysis by a crew, followed by the BCE's dissection of the crew's actions. The final portion involved a coaching session for future improvement.

During the March gunnery, a company team combined arms live fire exercise (CALFEX) was fired in preparation for the task force live fire at the NTC. Under "hot" conditions, the company teams (two mechanized, one tank platoon) did a movement to contact, a hasty attack, a breach of obstacles, and a night defense. During the August gunnery, the battalion conducted Table IX, the platoon live fire exercise.

Rigorous gunnery selection criteria were instituted by the battalion in 1984. Soldiers selected to be gunners had to pass a gunner's physical (including an eye test), score at least 32 out of 40 on the rifle qualification, successfully complete a series of turret-manipulation exercises, have an above average GT or SQT score, and have 12 months of retainability in the unit.

One of the year's major challenges was crew stability. No sooner would a crew gain experience and become qualified than the gunner or BC would move on, for various reasons.

The COHORT program helped to ease this problem, however.

Another issue was the number of gunneries a battalion should fire in a year. FM 23-1 (Test) called for three--two qualification and one ARTEP. Because of the intensive requirements for training in other infantry skills, however, as well as in a considerable number of maneuver skills, the consensus seemed to settle on two gunneries per year. More than two would overcrowd the calendar and erode the quality of the train-up periods. The battalion would also have to rush from one training event to another leaving little time for adequate preparation or for collective dismounted training.

1985

The battalion's gunnery philosophy in 1985 continued to emphasize tactical realism and gunnery as a preparation for combat. The integration of the vehicle crew and the dismounted rifle team was reinforced. A successful dismounted mission again became a requirement for qualification on Table VIII. Platoons still maneuvered as two sections but the requirement for a section qualification was discarded. The enforcement of proper fire commands and other crew actions assumed a new importance.

Additions to the pre-gunnery train-up package included BCPC drills using MILES equipment, which provided very effective training. During 1985, the unit also gained access to the unit conduct of fire trainer (U-COFT). This device, a full mock-up of a Bradley turret, allowed crews to practice crew drills and fire engagements on a routine basis. Similar to a realistic computer video game, the U-COFT had an immediate positive effect on crew proficiency.

The number of Fort Hood units transitioning to the Bradley at that time created ammunition constraints and affected the design of the battalion's pre-qualification tables. Pre-qualification gunnery consisted of the pre-qualification exercise, Phases I-III, and Table VI A&B. Phase I was fired by a single Bradley in eight offensive and defensive engagements using only subcaliber ammunition. Phases II and III were platoon exercises using subcaliber ammunition in 16 engagements.

Table VI was fired by a single Bradley, moving as a section, firing full caliber (TP-T) ammunition in 10 offensive and defensive engagements. Additionally, a firing port weapon training exercise was conducted.

The qualification tables were run in sections, with one vehicle firing and one wingman acting as a spotter. Table VII A&B was the qualification table for command vehicles such as the platoon leader's or the company commander's. Twelve engagements were fired. As there were no squads aboard, a dismount mission was not required.

Table VIII A&B, Squad Qualification, consisted of eight engagements, including an assistant squad leader's engagement while the dismount team was on the ground with the squad leader. Sixty-seven percent of the score was based on vehicle firing and 33 percent on the dismount mission. This

meant that if the riflemen did not do their jobs, the squad could not qualify in gunnery.

Targets, ammunition, fire commands, burst techniques, sensing and adjusting rounds, controlling the firing vehicle, and the AAR continued with the same standards adopted in late 1984.

A major change took place, however, in the scoring process. Crews had points deducted from their score for improper fire commands, engaging the least dangerous target first, incorrect driving techniques, or failure to take protective measures such as moving from hull down to turret down position after a defensive engagement.

Killing a target required a three-round hit, and an actual physical count was made of the holes in a target. The targets were exposed for 20 seconds after the vehicle had moved into a position to fire; this was called "unmasking the gun."

The final score placed each squad in one of three brackets: Distinguished (90 percent or above), Superior (80 percent), or Qualified (70 percent). The crews were rated Distinguished or Superior only on the basis of first run scores without refires.

A platoon battle exercise was conducted as an additional table. This exercise, scored and conducted strictly by the ARTEP checklist, began in an assembly area and continued into a movement to contact onto the range where the live fire exercise was conducted.

BRADLEY FIRING	DISMOUNT MISSION	FIRE DISTRIBUTION	OBSTACLE REDUCTION	TACTICAL REPORTING
40%	30%	10%	10%	10%
400 points	300	100	100	100

Table 1. Example of modular gunnery table.

The 2d Armored Division Infantry Gunnery Circular (Draft) was written in 1985. This document formalized the acceptance of standards of qualification in accordance with FM 23-1 (Test) with a few provisions: namely, the requirement for two instead of three gunneries per year, and the positive requirement for a rifle team dismounted mission as part of squad qualification.

An interesting idea called "the modular concept" of gunnery table design appeared in this draft circular and was used during the September 1985 gunnery. The modular concept allowed commanders to tailor their training on the basis of unit mission requirements. The two basic modules were a Bradley firing for the crew and a squad dismount mission. Other training modules with their relative effect on the score could be added for a flexible training event. An example of a modular table is shown in Table 1.

1986

When the battalion rotated to Europe in the summer of 1986, it entered a new era of Bradley gunnery.

Two Level II gunneries -sustainment of skills- were fired at the NATO training area of Bergen in 1986. (Level I, Qualification Gunnery, is conducted only at Grafenwoehr. No Level I qualifications were conducted in 1986.)

The move to Europe had two immediate effects on sustainment gunnery. The Bradley crews' favorite ammunition, AP, could not be fired on European ranges because of its speed and its flat trajectory out to long ranges. All Bradley gunnery in Germany was fired with TP-T, a slow, high-trajectory round that gives a wide dispersion. The negative aspects of TP-T were somewhat reduced by the much shorter range to target. The targets were initially brought in to the 1,800-meter range, and the following year were no greater than 1,600 meters.

The second effect on gunnery was caused by climate and weather. The battalion's squads were not used to firing gunnery tables in fog, snow, and sub-freezing temperatures.

In addition, once the final FM 23-1, Bradley Fighting Vehicle Gunnery (March 1986, with Change 1 in November 1986) had been published, the FM could no longer be viewed as a reference or a convenient point of departure. It was, in fact, the standard. Since the battalion did not fire a qualification in Germany during 1986, however, evaluation of the effect of the new FM 23-1 had to wait until 1987.

1987

The gunnery philosophy for 1987 was quite simple: Since FM 23-1 was the standard, the crews had to qualify under those standards at Grafenwoehr where the qualifications were conducted. The battalion's exciting era of experimentation was at an end.

The negative aspect was the requirement to fire gunnery tables and meet standards that had been created by someone else. The positive side was the expectation that Bradley gunnery had finally reached a point of stabilization, an end to the constantly changing requirements and standards. By 1987, the battalion had fired nine gunneries, no two of them alike in task, conditions, and standards.

Using the systematic approach as outlined in the FM, the pre-gunnery training reached a new level in resources and events during home station training. The resources included the U-COPT, mock-up gunnery tables using MILES, the BGST, the .22 caliber training device used on the mini-tank range, and the M55 laser device.

The following are the home station tables that could be conducted with miniature targets at ranges of less than 100 meters:

- Table I, Zero/Manipulation/Range Card, using the M55 laser or the .22 caliber adapter to the M16 rifle.
- Table II, Gun Lay and Tracking, using subcaliber or M55 laser.
- Table III, Adjustment of Fire (BOT) using subcaliber device.
- Table IV, Acquisition and Engagement Techniques, using subcaliber ammunition.

All of these tables had company BCEs to evaluate and score the crews.

Tables V, VI, and VII, which required local full caliber ranges, were conducted at Bergen. Table V, Vehicle Team Subcaliber Exercise, called for a moving Bradley firing the coaxial machinegun, but limited time and range resources prevented the battalion from firing this table.

Table VI A&B, Vehicle Team Baseline Gunnery, was a stationary Bradley firing full caliber ammunition (TP-T only). The B, or night, portion was fired only by a few companies because ranges were not available. Table VII A&B, full caliber with a moving Bradley, was conducted so as to closely approximate the task, conditions, and standards of Table VIII, Qualification.

The new FM 23-1 divided Table VIII into four parts-- A, B, C, and D. Table VIII A&B, Vehicle Crew Qualification, consisted of 12 tasks for a total of 12 vehicle engagements. Four of these tasks, called "swing" tasks, could be moved either to the day or the night portion. No dismounted rifle team tasks were integrated into this part of the table, and no dry runs were allowed for it.

A separate table, VIII C, was called the Rifle Team Qualification (day and night), in which no Bradley was involved.

Finally, Table VIII D, Squad Qualification, integrated the dismount team and vehicle firing. Tables C and D were conducted somewhat later at a local range.

The targets at Grafenwoehr were silhouette type panels at ranges not greater than 1,600 meters. Targets were arrayed for single or dual engagements; there were no triple targets. The thermal target system was excellent. Targets were linked to a computer that recorded exposure time, number of hits, kill time, and other information. The targetry system relieved the battalion of the labor-intensive target details of the past. The ammunition for the 25mm gun was TP-T only, and for the coaxial machinegun it was standard 7.62mm link.

Fire commands were graded, with three types allowed-- Battlesight, Precision, and a new one called the Initial fire command. The word "sabot" was substituted for the old term "AP." In the Precision fire command, the gunner ranged the target with the sight instead of having the BC estimate the distance. There was no crew cut for the type of fire command used so long as it was given correctly.

A new burst technique of 1-3-4, which had been developed and tested by a southern USAREUR (U.S. Army, Europe) unit, was adopted by the battalion. This technique made efficient use of the eight rounds allotted for each engagement. An improper burst technique (that is, no sensing round or too long a burst) was a crew cut on points.

Other crew cuts included such items as failure to raise the TOW in a defensive engagement, failure to return to a turret-down position, improper ammunition for the target, engaging the least dangerous targets first, and improper driving techniques.

The Bradley crew evaluators who graded the crews for qualification did not belong to the battalion or even to the division; they were soldiers trained at the BCE course con-

ducted by the 7th Army Training Command. The firing vehicles continued to be controlled by tactical scenarios given over the radio. Fire commands and crew actions were monitored from the tower by means of a "jump" radio. The intercom system of the Bradley was linked by radio, and the commands were broadcast on FM and tape recorded.

Performance time for target kills was based on an assessment of the threat target's ability to kill the Bradley. The matrix for kill times was correlated with the distances to the targets. An example for a defensive engagement at a single target is shown in Table 2.

KILL TIME (3 rounds)	DISTANCE (meters)	POINTS
10 sec.	0-1000	100
15 sec.	0-1,000	70
15 sec.	1,000-1,600	100
20 sec.	1,000-1,600	70

Table 2. Sample target kill matrix.

Kills on area targets (troops) with the coaxial machine-gun were based on the use of a Z-pattern, and point targets such as an RPG team required one target hit with 7.62mm.

To qualify, all crews had to score at least 700 points (day and night combined), achieving a score of at least 70 on seven of ten tasks. The crews that scored 800-899 points were rated Superior; those with 900 or more, Distinguished. No crews achieved a perfect score of 1,000 points.

Additional tables included Table XI, the Infantry Platoon Mounted Exercise, and Table XII, the Infantry Platoon Mounted Qualification. These tables contained no tasks for riflemen. The battalion also fired a CALIFEX for the company team although range constraints at Grafenwoehr did not allow for free maneuver during this exercise.

1988

Although FM 23-1 has changed once again, the basic gunnery philosophy for the battalion in 1988 still adheres to the manual's standards. The Grafenwoehr experience has forced the battalion to pay attention to the fine details of gunnery and to ruthlessly enforce the standards, beginning with the pre-gunnery train-up. Gunnery, the battalion has discovered, is the most serious business in Europe. It has become something of a spectator sport, and battalion scores at Grafenwoehr are followed as closely as football scores.

Under the new FM 23-1 (September 1987), pre-gunnery train-up remains essentially unchanged. The new FM does bring with it a fundamental change, however, in Table VIII, Qualification. There is no longer a requirement for the dismounted infantry to participate in any of the qualification process. The vehicle crews perform 12 tasks, firing at 12 targets (day and night), and swing tasks are still included.

The firing vehicle is controlled by the task, conditions, and standards rather than by a tactical scenario. All the

defensive engagements require the use of a Precision fire command while all offensive engagements require the use of the Battlesight fire command. There is one exception, however. A misprint in FM 23-1 (February 1987) requires the Battlesight fire command in the task 11 defensive engagement. Although it is a known misprint, rigid adherence to the FM standards at Grafenwoehr in February 1988 required all crews to use the Battlesight fire command in this engagement until a change message was received from the Infantry School.

The Initial fire command has been deleted, and there is now the "Reduced" fire command, used when a gunner spots the target first.

The new burst technique used in 1988 is 1-1-3-3, which allows for a second sensing round if the first is not close enough for a minor adjustment. The use of an improper burst technique is no longer a crew cut.

Crew cuts remain extensive, however, and this year include a five-point deduction for using the wrong type of fire command as specified in the task, conditions, and standards. A kill remains three rounds, but the scoring matrix has been simplified to include the range to target.

For area coaxial engagements, two of the targets must be hit with 7.62mm fire rather than the former Z-pattern requirement. For point targets, one hit is required.

Advanced tables have been redesigned as follows: Table XI A&B, Platoon Mounted Exercise; Table XII A&B, Platoon Mounted Qualification; Table XII C, Platoon Dismounted Qualification (no Bradleys involved); and Table XII D, Infantry Platoon Qualification (Bradleys and dismounted riflemen).

In this, the battalion's sixth year of Bradley gunnery, no two gunneries have been the same.

The six years of Bradley gunnery, from the point of view of a single battalion, is perhaps a microcosm of the Bradley gunnery experience. The road traveled has been, ironically, something of a full circle, because the important issues expressed in 1983 have again surfaced.

The assistant squad leader, who according to doctrine is expected to take command of the turret at times, has no role or requirement in the squad qualification process. Tactical realism, or gunnery as preparation for combat, the guiding principle of the early years, is no longer an objective of gunnery that is conducted essentially as a marksmanship exercise. And, finally, the concern that Bradley squads will fragment into a vehicle team and a dismount team if the riflemen do not participate in the actual vehicle qualification process is once again an issue.

It appears, then, that Bradley gunnery will continue to be an important subject for debate in mechanized infantry units for some time to come.

Captain Thomas T. Smith, now a company commander in the 1st Battalion, 41st Infantry, has served in the battalion for the entire six years covered in the article. He is a graduate of Southwest Texas State University.

SOVIET Landmine Operations

Part 1

EDITOR'S NOTE: This is the first in a two-part series of articles compiled from various unclassified sources and prepared by the Threat Directorate, U.S. Army Infantry School, Fort Benning, Georgia.

This first article deals with types of mines and minelaying organizations. The second, to appear in INFANTRY's July-August 1988 issue, will cover minelaying doctrine, types of minefields, and methods of emplacement.

Soviet minelaying capabilities in support of both offensive and defensive operations are impressive, and current Soviet minelaying practices reflect the fluid nature of modern warfare with its emphasis on maintaining fast-paced, continuous offensive operations and high rates of advance.

Although engineer minelaying units are found at all echelons down to and including the regiment, the Soviets will not waste their time and resources laying minefields beyond what they consider necessary. On the modern battlefield, therefore, the Soviets will rarely employ the kind of extensively prepared minefields that were common to many of the great World War II defensive battles.

Accordingly, engineer minelaying sub-units operating in mobile obstacle detachments use mechanical minelaying equipment to emplace minefields rapidly to support a unit's maneuver operations or to protect its flanks. More often than not, these minefields are composed primarily of anti-tank (AT) mines laid on the surface so that they can be quickly emplaced and easily recovered.

The following are the antipersonnel (AP) and antitank mines most commonly used in the Soviet Army:

Antipersonnel Mines

POMZ-2 and POMZ-2M AP Fragmentation Mines. The POMZ-2 stake mine resembles a fragmentation hand grenade mounted on a stake. The mine contains six rows of metal fragments (the body) propelled by a 750-gram explo-

sive charge. The mine is not internally threaded to accept a fuze.

The newer version, the POMZ-2M, a post-World War II design, uses a modified fuze well that is threaded to accept externally threaded fuzes, and the rows of metal fragments on the POMZ-2M are reduced to five.

The lethal radius of both mines is about 25 meters. The POMZ-2 is normally employed in groups of at least four mines equipped with trip wires, but it can also be employed individually.

PMN AP Blast Mine. The PMN antipersonnel mine is one of the most common Soviet AP mines and has been employed in Vietnam, in Afghanistan, and on the East German border. The casing is made of duroplastic and has openings for inserting the firing mechanism and priming charge. The top half of the mine case is a rubber mantle secured by a metal clasp, and the case houses a spring-driven striker assembly. This mine is equipped with a delay-arming mechanism located on the side of the mine in the firing assembly. The main charge is 0.237 kilograms of cast TNT, and the PMN has a lethal radius of 10 to 15 meters.

This mine actuates when pressure on the top forces a retaining wall down until an opening in the wall aligns with the striker, allowing the striker to be driven by the spring against the percussion cap, which starts the firing chain.

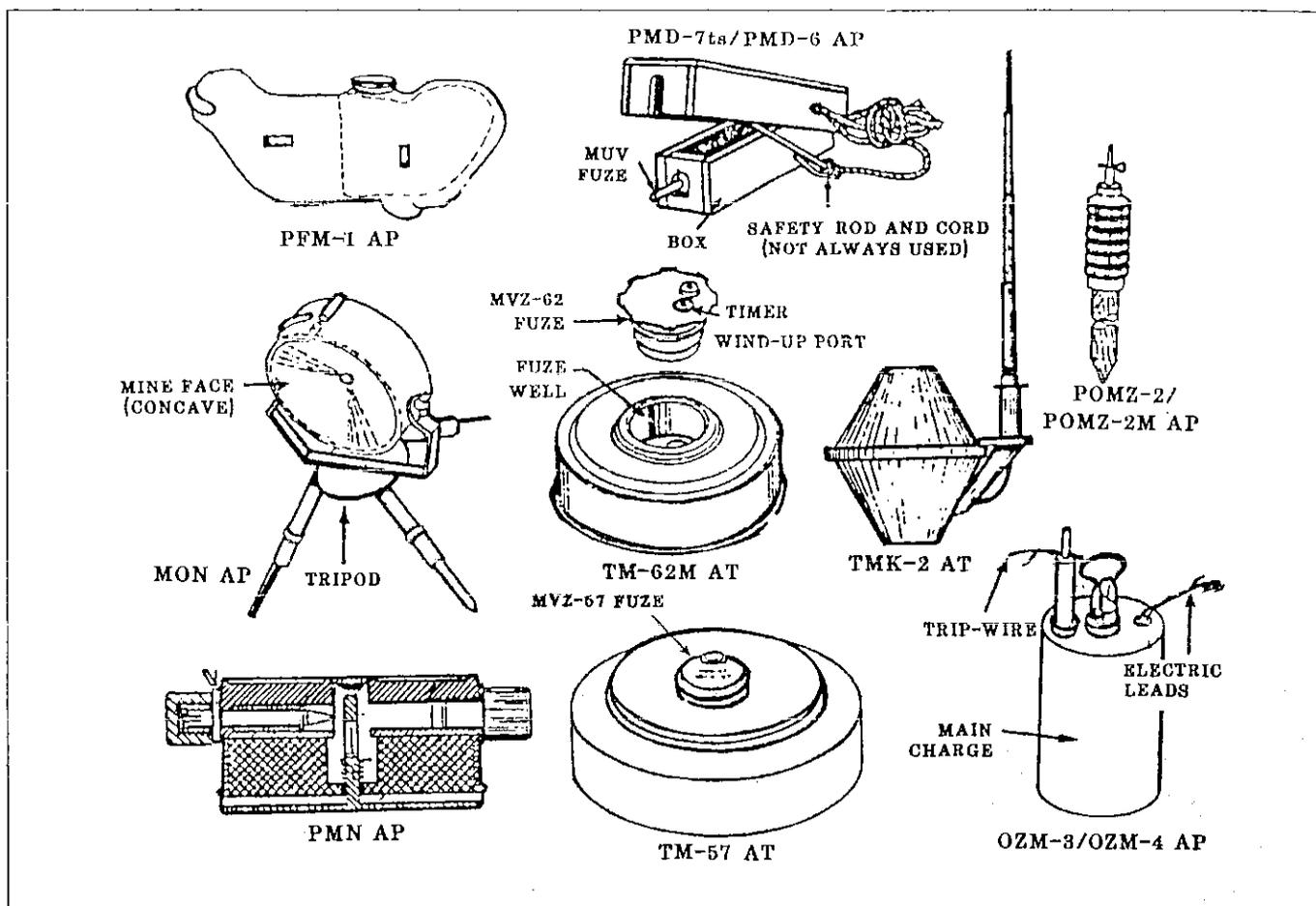
The delay-arming mechanism uses the same concept as the MUV-2 mine fuze. The delay-arming device allows troops to lay and camouflage the mine and reach a safe distance before the mine becomes fully armed 15 to 20 minutes later. Once it has been armed, only highly trained engineer specialists are capable of deactivating it.

PMD-7ts and PMD-6 Wooden AP Mines. The PMD-7ts is a rectangular wooden box mine. The standard main charge is a 200-gram block of TNT. The mine uses the MUV pull fuze with the modified winged retaining pin as the standard fuze.

The lid is hinge-mounted with a sleeve cut on the opposite end of the hinge to facilitate extraction of the MUV winged retaining pin upon application of pressure to the box lid. The PMD-6 is similar in construction and also uses the MUV pull fuze, but it is smaller in size.

The PMD-7ts is pressure-actuated when the hinged lid is forced downward, allowing the sleeved opening to remove the winged retaining pin. The MUV fires the detonator inserted into the block explosive charge in the mine. The mine is very effective against dismounted troops and is difficult to detect because of its wooden construction.

The PMD-7ts is manufactured and issued as a standard



An array of Soviet antipersonnel and antitank mines.

mine, but it can be easily field fabricated as well. Plastic versions have been adapted by both Soviet and Free World armies.

OZM-3 and OZM-4 Bounding Fragmentation AP Mines. The OZM-3 has a cylindrical metal case. It has two electrical lead wires protruding from the top, a wing-shaped fin, and a fuze well to accept a threaded fuze. The mine contains 0.075 kilograms of TNT as the main charge in addition to a separate propelling charge at the base of the mine. The mine's lethal radius is 25 meters.

The OZM-4 uses an improved bursting charge and does not have electronic leads for command detonation.

The electrical leads on the OZM-3 allows it to be command detonated for use in ambushes, but it can also be employed in conventional minefields. Mechanical fuzing is accomplished through the use of the MUV-2 pull fuze inserted into the fuze well.

The OZM-3 mine does not have an inner and outer mine case like the U.S. M-16A2 (Bouncing Betty) mine. The hole in which the mine is emplaced acts as the outer projectile tube. When activated, the propelling charge propels the mine to a height of about one meter, as determined by the tether wire, where it detonates. Although this is primarily an antipersonnel mine, it is also capable of disabling thin-skinned vehicles.

MON-Series Directional Fragmentation AP Mines. The mines in the MON AP series (MON-50/100/200) are all

directional fragmentation mines. The MON-100 is cylindrical with a concave face mounted on a swivel tripod. Its plastic casing houses about 450 steel fragments embedded in five kilograms of plastic explosives. The MON-200 is similar in appearance and function but it is longer. The MON-50 is similar in appearance to the U.S. M-18A1 claymore mine.

The MON mines are command detonated. An electrically fired detonator fires the plastic explosive charge that shatters the face of the mine and allows the steel fragments to be propelled into a concentrated area.

MON mines are used for protective type mining and ambushes in much the same way as the U.S. claymore is employed. The lethal range of each of these mines is indicated by the number that follows the MON acronym; the MON-50, for example, has a lethal range of 50 meters.

PFM-1 Scatterable Blast AP Mine. The PFM-1 has a plastic body that contains one ounce of a binary liquid explosive and a hydraulic pressure-actuated spring-loaded fuze. After it is armed it is extremely sensitive and produces an incapacitating injury.

The PFM-1 is emplaced in large numbers from airplanes or helicopters. It automatically arms when it hits the ground and is believed to become inert after four to six weeks due to the decomposition of the liquid explosive.

Pressure on the mine is transmitted hydraulically to a diaphragm that moves upward against the firing pin housing, forcing it forward. The retaining ball in the firing pin

housing clears the shoulders of the guide sleeve, escapes, and enables the spring to drive the striker against the percussion cap, which starts the firing chain.

This mine has been used extensively in Afghanistan.

Antitank Mines

TM-57 Metallic AT Mine. The TM-57 metal-cased mine is similar in appearance to the now obsolete TM-46, but it incorporates a larger charge (seven kilograms of TNT) and uses improved fuzing. There is no antihandling fuze well at the underside of the mine because it is designed to be laid by mechanical minelayers.

The TM-57 uses the MVZ-57 delay armed pressure fuze, although it can be used with the MVSh-57 tilt-rod fuze when it is emplaced by hand. Upon activation, the HE can break the track of an armored vehicle.

TM-62M Metallic AT Mine. The TM-62M is the current standard Soviet AT mine. It has a cylindrical metal casing that houses an HE main charge. It uses a time-delay fuze and may also use a seismic fuze. There are no secondary or antihandling fuze wells on it. The arming mechanism is housed in a cylindrical fuze and contains an arming button on top.

This mine uses the MVZ-62 time-delay pressure fuze. Upon actuation, the HE can break the track of an armored vehicle.

TMK-2 AT Tilt-Rod Mine. The TMK-2 has a conical metal body with a tilt-rod well protruding from its lower side. It is equipped with an adjustable length tilt rod to allow maximum camouflage upon emplacement. The mine uses a directed-charge warhead of about 5.7 kilograms of TNT.

This mine is normally buried with the tilt rod exposed to detonate against the belly of an armored vehicle. When it is actuated the main charge propels a steel plate with such velocity that the plate becomes a molten slug and penetrates the belly of the vehicle. Shrapnel is sprayed internally, and the crew is killed or wounded and the vehicle disabled or destroyed.

The TMK-2 is the only anti-hull mine in the current Soviet inventory. It has a wider area of coverage than a blast mine since it does not have to be struck by a vehicle track in order to explode. TMK-2 mines are therefore normally emplaced 9 to 12 meters apart, as compared with the 4 to 6 meters used for the blast AT mines.

The primary disadvantage of this mine is that it must be manually emplaced. It is best emplaced in tall grass or in areas where the tilt rod is naturally camouflaged.

Mine Warfare Organizations

Trained engineers normally perform, or at least supervise, minelaying in the Soviet Army. Each motorized rifle or tank regiment has an organic mine warfare platoon as part of its engineer company. This mine warfare platoon consists of one officer and 24 enlisted personnel and is

equipped with three trucks that tow either the PMR-3 or PMZ-4 minelaying trailers.

The PMR-3 and PMZ-4 are unarmored mechanical minelayers that can be towed by a variety of vehicles such as the Soviet ZIL-131, Kam-AZ-4310, Ural-4320, Ural-375, and BTR-152 (different variations of a five-ton truck). Special movable racks installed in the towing vehicles allow more mines to be transported more efficiently. Load capacities for these vehicles vary. It is estimated that the Ural-375, for example, can carry 350 mines. Since the PMR-3 and PMZ-4 and the vehicles that tow them are not armored, these systems would be highly vulnerable if used within range of enemy direct or indirect fire weapons.

When employed together, and given average soil conditions, the three PMR-3 minelayers of a regiment's engineer company can lay a three-row mine belt of 900 AT mines 1.2 kilometers long in only 12 minutes.

The PMR-3 is capable of arming and placing mines at a predetermined spacing of 4 or 5.5 meters. Antitank mines are buried 6 to 12 centimeters beneath the soil.

At the motorized rifle and tank division level, there is an engineer battalion that includes a minelayer platoon equipped with three GMZ self-propelled, tracked, mechanical minelayers.

The GMZ tracked minelayer is an armored vehicle that affords its crew better protection than the PMR/PMZ, because its armor can stop shell fragments and small arms fire. It can be expected that the GMZ would be used even closer to the enemy than the PMR/PMZ.

The GMZ can lay mines somewhat faster than the PMR/PMZ, but it must be manually reloaded. The PMR/PMZ can be reloaded as quickly as a new towing vehicle loaded with mines can be hitched to the minelaying trailer. The GMZ would therefore take considerably longer to lay an extended minefield.

When laying a single row of mines, Soviet mechanical minelayers are not capable of alternating between antitank and antipersonnel mines. In other words, rows planted by the PMR/PMZ or GMZ will be either all AP or all AT. The Soviets consider a minefield to be mixed, however, if both AP and AT mine rows are represented.

The Soviets have at their disposal minelaying chutes that can be attached to trucks, armored personnel carriers, and helicopters to lay a surface minefield quickly.

The Mobile Obstacle Detachment

Engineer mine warfare platoons normally operate in what the Soviets call the mobile obstacle detachment (POZ, using the Russian acronym). The POZ is a temporary *ad hoc* task organization composed primarily of combat engineers and usually has a mission of denying key terrain to the enemy, particularly those avenues of approach that are most suitable for tanks. The POZ is specifically designed to give the greatest possible minefield and explosive obstacle support to the maneuver forces during combat operations.

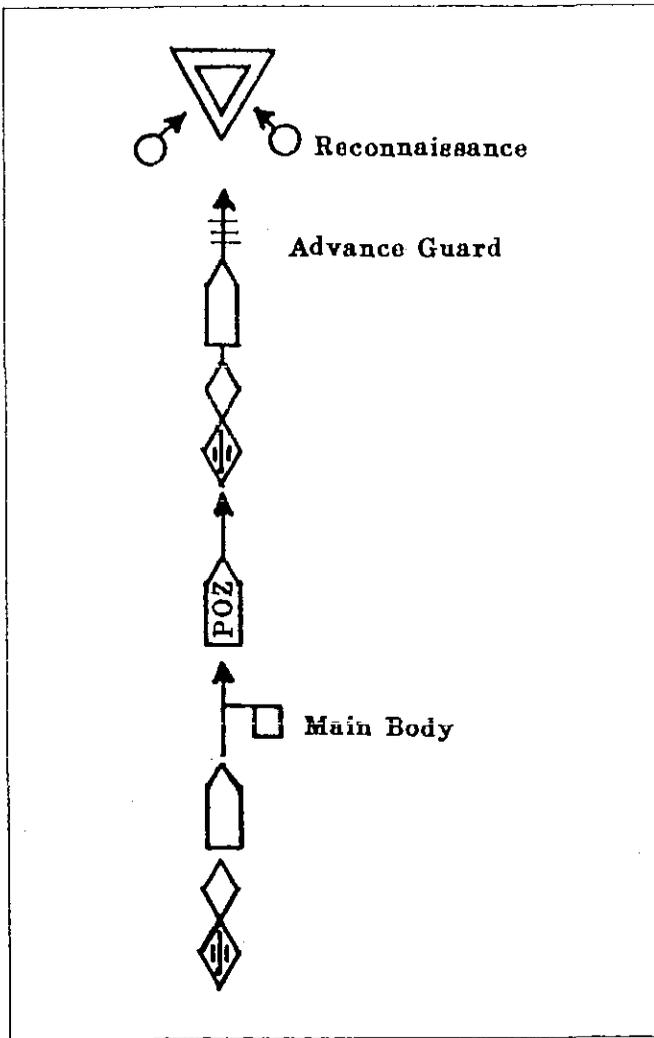


Figure 1. Soviet reconnaissance detects and reports enemy.

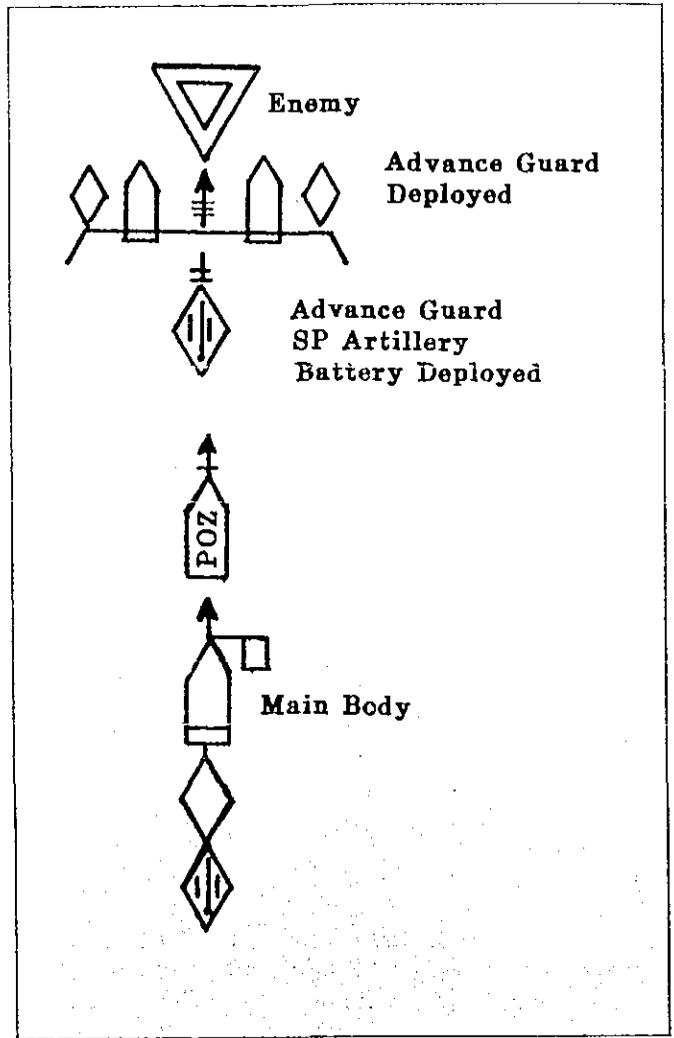


Figure 2. The advance guard engages the enemy while the main body begins a sweep into the enemy's flank.

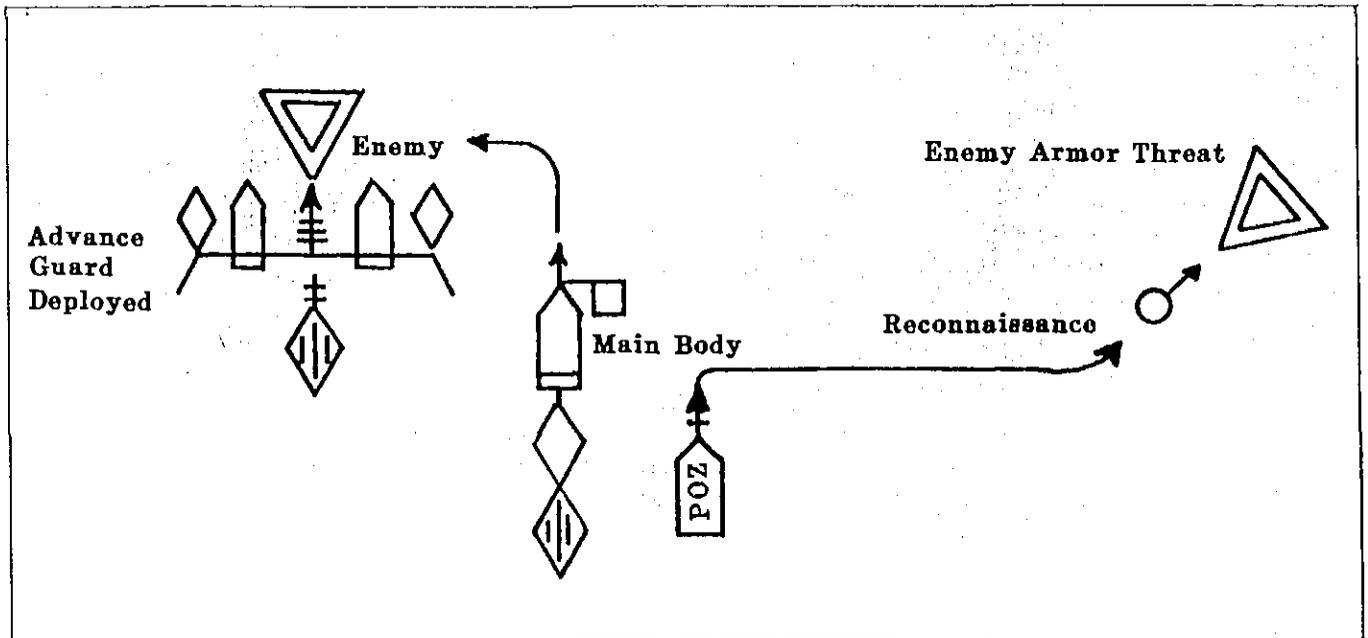


Figure 3. As the main body drives toward the enemy's flank, reconnaissance detects an enemy armor threat to the main body's flank.

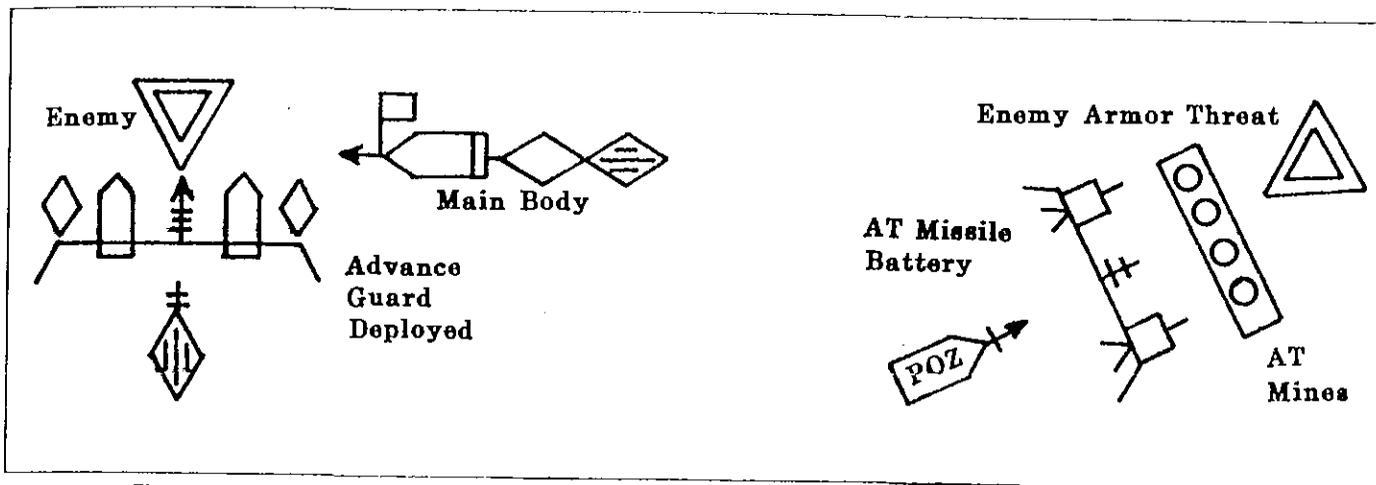


Figure 4. The main body deploys its POZ to emplace mines and antitank weapons to stop the enemy armor threat. Once secure from the armor threat, the main body can continue its drive into the enemy's flank.

The size of a POZ can vary depending on the tactical situation and the maneuver commander's needs. POZs can be found at the regimental, divisional, and army levels, and Soviet literature sometimes describes levels that operate with two mechanical minelaying platoons. A regimental POZ normally consists of a mine warfare platoon sometimes supplemented by an attached motorized rifle platoon.

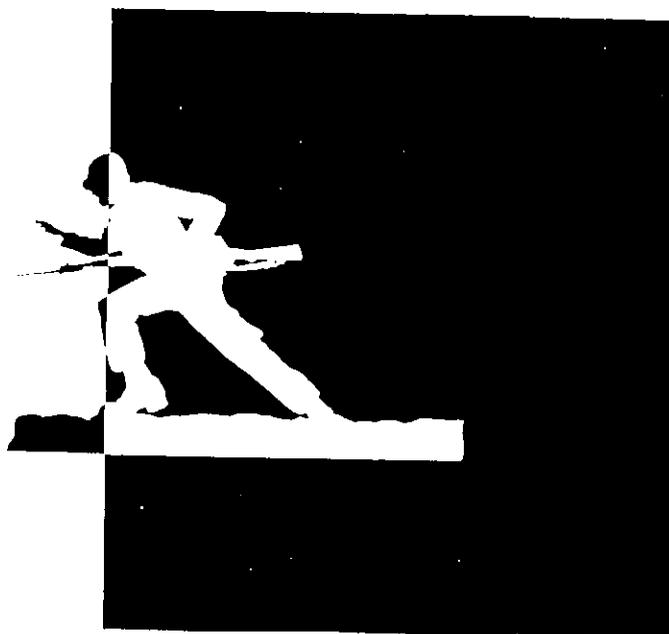
Although a POZ can operate independently, it normally operates with antitank reserves to provide flank protection and repel enemy counterattacks; it is usually positioned behind the first echelon. The division's antitank battalion and the regiment's antitank missile battery usually act as their unit's respective AT reserves. These AT reserves provide long-range covering fire over minefields once they have been emplaced by the POZ. The Soviets recognize that a minefield can be effective and reliable only if it is adequately covered by fire.

During the march, a POZ normally travels just behind the advance guard and in front of the regiment's main body. In a meeting engagement, it operates primarily on the axis

of the holding attack and supports the deployment of the main body for the attack (see Figures 1 through 4). This method of employment is the same for a POZ operating at the divisional level. In the defense, a POZ is used to lay minefields across the axes of enemy advance and in those sectors facing the greatest potential enemy threat.

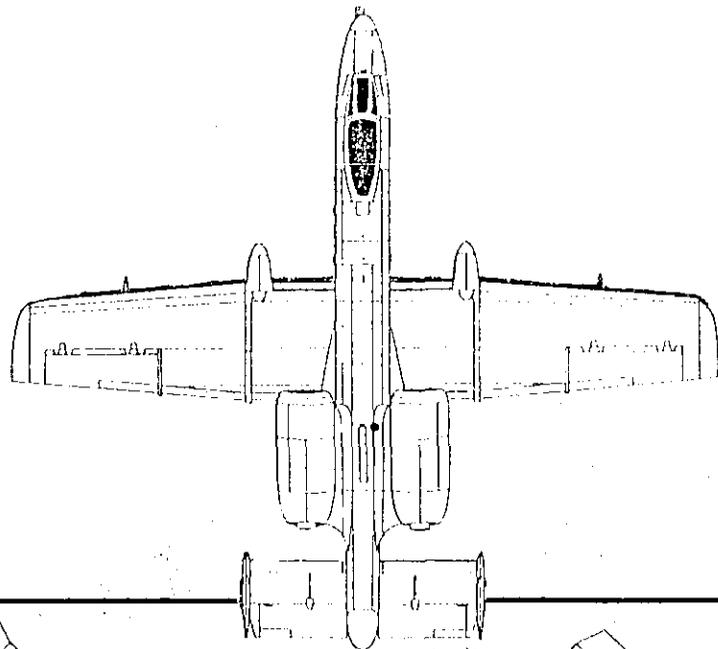
The Soviets use their POZs aggressively. A POZ maintains close contact with the enemy and attempts to mine the areas to which he has already committed himself. In the defense, for example, the POZ and antitank forces held in reserve can be employed quickly during an enemy attack to mine potentially vulnerable gaps. This tactic demonstrates another advantage of using antitank reserves to provide covering fire for the lightly armed POZ as it actually lays a minefield.

The various mines and minelaying organizations discussed here are used in various defensive and offensive operations and with various methods of emplacement. All of these matters will be covered in Part 2 of this series in the July-August 1988 issue of *INFANTRY*.

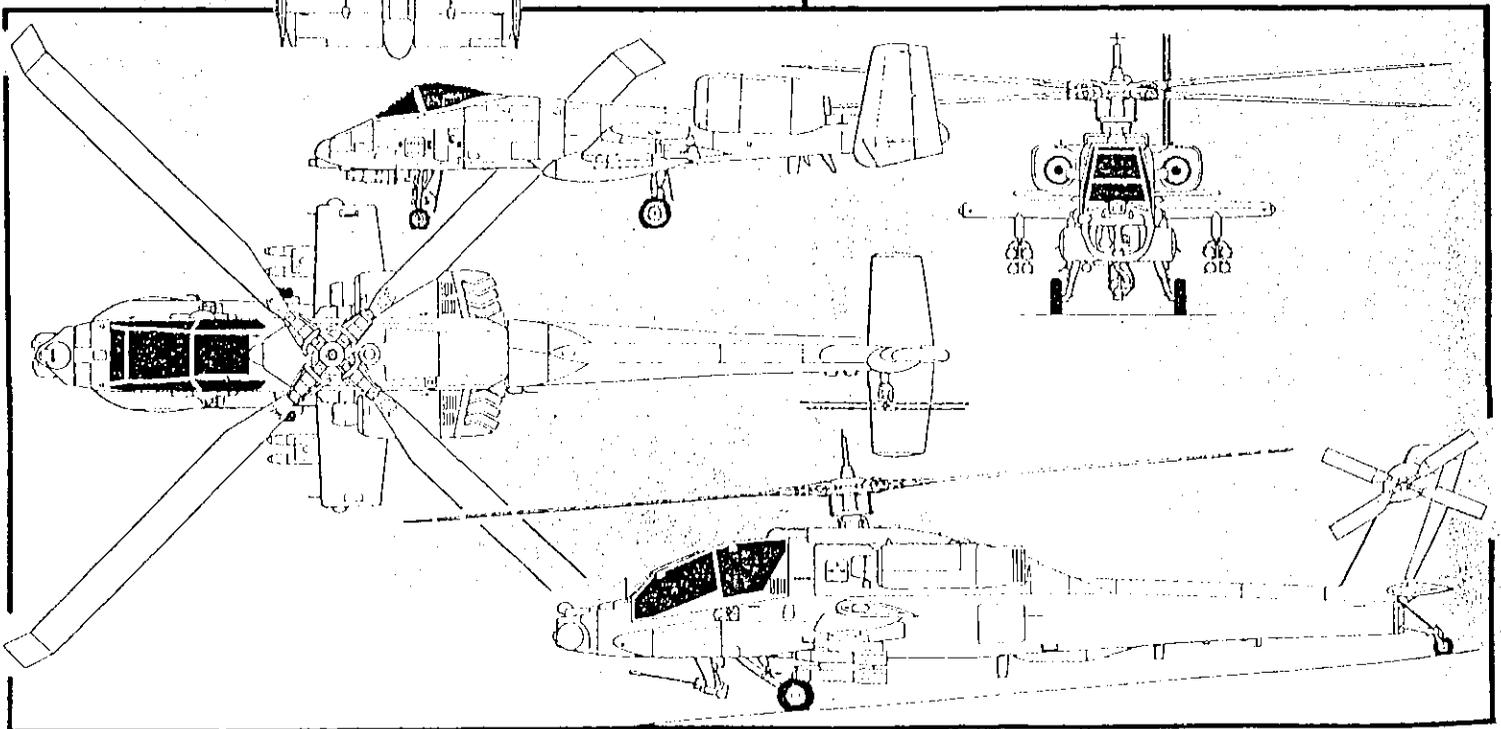


CLOSE

Air Support



The Debate
from
A FAC'S Perspective
Captain Mark A. Barrett
United States Air Force



The continuing debate between the Army and the Air Force over the future of close air support (CAS) raises a number of questions: Can the Army provide its own CAS? If it cannot, how can the Air Force increase the quality of CAS for the person who needs it most, the U.S. infantryman? With the Air Force's A-10 aging and the Army's Apache helicopter coming on line, what is the future of CAS?

Close air support evolved into its present form through the development and fielding of the A-10 in the 1970s. With a dedicated Air Force plane for use against tanks, a marriage of sorts was made between it and Army helicopters to form Joint Air Attack Teams (JAATs). Attack helicopters and A-10s, combining their attacks to improve their individual survivability, increased the effective firepower available to the field commander. This partnership resulted in today's CAS concept--close coordination with ground troops, survivability, and tank-killing power. But today's high tech battlefield is extremely hostile to slow-moving aircraft. Add to that the need for all-weather, day-or-night capabilities and a replacement for the A-10, and the crux of the problem for future close air support is laid out.

The present limitations on close air support focus on the A-10 and the Army's ability to fund and field enough attack helicopters. The A-10, built for survivability and sheer tank-killing power (with its 30mm gun), would be spread across a large front in any war in central Europe. With only six squadrons of A-10s in the theatre, the amount of CAS we could expect to have available from the Air Force is of primary concern. Joint Air Attack Team tactics work well, but JAAT is presently a unilateral U.S. concept; our NATO allies do not provide for it or practice it. When that fact is coupled with the scarcity of airborne forward air controllers (FACs), the ability to closely control aircraft and hit specific targets is quite limited.

When a FAC has to use indirect control because he cannot get into the air to observe enemy positions, CAS aircraft have to stay in the target area longer to locate, identify, and then attack a target. This increased exposure severely cuts into the survivability of the aircraft. Using a JAAT orchestrated by an aviation commander helps solve this problem, but the helicopters and the coordination needed to employ this team are not always there.

This leads to the second problem with our current CAS--the funding and fielding of enough Army attack helicopters. The budget cuts for Fiscal Year 1988 allow for only 77 of the 120 Apache helicopters requested. The money for the development of the next line of Army attack helicopters (the LHX, or light helicopter, experimental) was also cut considerably and the full-scale engineering development for the LHX was delayed until 1989. This means the LHX cannot be fielded in the mid-1990s as scheduled. This span of time before the next Army attack helicopter arrives, along with the limited acquisition of Apaches, does not sup-

port the arguments of those who want the Army to provide its own close air support.

Several suggestions for meeting the interim needs are now being discussed by both the Army and the Air Force. The Air Force is considering several programs that include procuring F-16 aircraft to fill the CAS role or upgrading and producing new A-7s. The F-16s can provide all-weather weapon delivery, and they are available now for the CAS role. In addition, a contract was recently awarded for the upgrade of two A-7Ds for the Air Force to use in conducting feasibility flight testing. The Air Force could conceivably upgrade as many as 335 A-7Ds for the CAS role.

Other suggestions for the CAS mission include the Navy's V-22 Osprey tilt-rotor aircraft (armed with a 20mm gun, Maverick air-to-surface missiles, and Sidewinder air-to-air missiles), and also the F-18, the Harrier, and the Tornado. In the interim, however, the Army needs more money and quicker LHX development; to fill the gap until the LHX comes on line, it needs more Apaches.

FAC AIRCRAFT

The problem of the forward air controller's mobility is also being discussed, with the proposal that the A-10 be transitioned to the FAC mission. The Air Force wants to change the A-10 into the OA-10 and provide airborne FACs to support the CAS mission. Used in a FAC role, the OA-10 could still kill armor with its 30mm and Maverick missiles, and it could be used in a mid-threat environment. The A-10's loiter time and survivability in a lower threat environment make it an excellent choice for this role and allow for a better observation position for the FAC in calling in fast-moving aircraft--such as F-16s--on a target.

The use of fast-moving aircraft for CAS brings up the point of battlefield air interdiction (BAI) assets and the attack on the enemy's rear echelons. A brigade commander is expected to defend successfully against an attacking enemy regiment. In a prepared defense with artillery support, he can do this, but his main concern is the follow-on forces--the enemy's second and third echelons. The BAI mission is to disrupt and delay those follow-on forces to give the ground commander time between waves to rearm, resupply, and reinforce his units. An effective and timely BAI campaign on these follow-on forces can greatly reduce the need for CAS missions.

But the BAI mission is costly. It involves getting strike aircraft behind the FEBA with strike protection (F-15s), jamming support (EF-111, EC-130), and surface-to-air missile neutralization (F-4G Wild Weasels). These assets are limited, however, and the ground commander may well find himself stacked up against several regiments at a time or in rapid succession. To survive he will need the concentrated firepower that close air support can give him.

CAS firepower also faces technological limitations. The advent and fielding of Soviet reactive armor is a concern for all tank-killing systems. Can tomorrow's aircraft (either fixed-wing or rotor) still be effective against a T-80 tank that has reactive armor?

EDITOR'S NOTE: This article is an edited version of one that appeared in Air Land Bulletin No. 87-4, published by the TAC/TRADOC Air Land Forces Application (ALFA) Agency, 31 December 1987, pages 5-8.



The Army's AH-64 Apache

Self defense is another question in regard to future CAS aircraft. Soviet HIND helicopters armed with air-to-air missiles will be numerous at the front, and tomorrow's CAS aircraft must be able to kill them.

Although budget constraints limit the systems that might provide solutions to these problems, help is on the way. Improved TOW antiarmor weapons are being fielded. The LANTIRN (low-altitude navigation and targeting infra-red for night) system and infrared Maverick missiles provide the all-weather night capability that enables CAS aircraft to take advantage of the relative safety of darkness and bad weather. The addition of air-to-air missiles to Cobras, Apaches, and A-10s for self-protection is also being discussed.

From a forward air controller's point of view, several of these issues and questions are of prime interest. First, the limited FAC resources require survivability and maneuverability; second, everyone should understand that the FAC wants to support his Army commander with as much close air support as possible; and third, he wants to put bombs on target with the least possible risk to the aircraft.

The OA-10 proposal is an excellent one that would give a FAC both survivability and maneuverability. He would then have the aircraft's 30mm gun and Maverick missiles to help out when needed, and he would be able to coordinate the JAAT and advise the maneuver units. He would therefore be far more valuable to his Army commander. If he does not have the OA-10, the FAC needs to be airborne using Army helicopter support. Too, the addition of an enlisted FAC to the tactical air control party (TACP) would greatly increase the FAC's ability to coordinate CAS with

the commander on the ground and also to control airstrikes from either an OA-10 or a helicopter.

The new CAS aircraft should be the F-16. With its speed, maneuverability, self-defense capability, and LANTIRN system, it is an excellent CAS aircraft. F-16 units in place in Europe should involve themselves in the CAS mission now and evaluate the effectiveness of the JAAT. To provide a basis of information for future decisions, the JAAT should also be evaluated with such aircraft as the F-18, the Harrier, and the Tornado.

BAI assets also need to be increased with emphasis being placed on using air-scatterable mines. This ability to delay and disrupt the follow-on forces could only help the CAS battle. Army helicopter assets must also increase to improve the quality of CAS for the ground commander.

The final conclusion is that there is still a need for close air support from both fixed-wing and rotary aircraft, each complementing the other. But better training, better coordination, and better equipment is what we need to make close air support work. Increasing the FAC's ability to manipulate and coordinate the air battle in conjunction with the Army commander's objectives can only increase the quality of the air support. Upgraded equipment (VHF/UHF radios), F-16s, and more Apaches integrated by the forward air controller could provide the quality of support the U.S. infantryman would need if he had to face an attack in mass.

Captain Mark A. Barrett, U.S. Air Force, is the Air Liaison Officer/Forward Air Controller for the 2d Armored Cavalry Regiment in Europe.



DEFENSE AND LOW VISIBILITY

The Third Battle of Ypres lasted approximately three and a half months, and each square mile of mud gained cost the British army 8,222 casualties. (Article on Tactics, Encyclopedia Britannica.)

*The large-scale daylight attack by infantry is as dead as the men who tried to repeat this traditional process in 1914-1918. (Captain B. H. Liddell Hart in *The Training of a Modern Army*.)*

If the second of the foregoing quotations is justified by the first, there remain nevertheless two forms of attack that seem to offer a chance of success in land warfare.* The first of these is the advance against modern fire defenses with the aid of speed and armor—tanks. And failing such protected high-mobility combat vehicles, infantry has only the alternative of attacking under the cover of some form of obscurity—night, fog, smoke, or woods. Obscurity so greatly hampers the defense that it nearly equalizes the odds against the attacker and permits the foot soldier to make advances that would be quite impossible in plain daylight.

In any future war, then, large-scale attacks against defensive positions during periods of limited vision, especially at night, will probably occur more often than during the World War. Ways and means to meet such attacks—including changes in defensive dispositions to counter the effects of limited vision or obscurity—should therefore receive careful consideration before a future war becomes a present one.

During daylight, we organize our defenses so as to break up and stop the attack in front of the battle position by the combined fires of all weapons. These fires begin as soon as the attack comes within observation and range. If the attack succeeds in reaching the battle position, the defense endeavors to repulse it by close combat. If the attacker succeeds in entering the position at one or more points, the defense first attempts to eject him by fire, and, failing this, tries to eject him by counterattack. And during all of these several phases of defensive combat, the defender depends to a great extent on observation for tactical information on the enemy and the effectiveness of his fire.

When observation is denied to the defense, the tactical

situation becomes obscure, and aimed fires are more or less eliminated from the coordinated defensive fires. The extent of this elimination of aimed fires depends on how greatly vision is limited, and on the efficiency of the artificial means of illumination. During periods of total blindness, the defense must depend solely on the pre-arranged fires of fixed weapons. On the other hand, partial visibility, and at night the use of artificial illumination, generally permits aimed fire at close ranges. But in either case the effectiveness of the defensive organization is materially reduced. What changes, then, can the defense make in the disposition of its units and weapons, and what additional security measures should it take during periods of limited vision that will tend to lessen the disadvantages of denied observation? Are these changes and measures the same when observation is denied the defense by any one of the causes of limited vision—night, fog, or smoke?

NIGHT

Just as the darkness of night imposes limitations on the defense, so does it handicap the attacker. One who attacks at night must overcome the difficulties of maintenance of direction, of control and lack of observation, by thorough and detailed preparations and faultless execution. This preparation for the night attack is generally marked by unusual activities within the attacker's line such as increased reconnaissance, troop movements, movements of artillery into position, and artillery registration fires. The attacker nevertheless makes every effort to insure the secrecy of these preparations so as not to warn the defense of impending attack. Hence, the defense should counteract the "secrecy" precautions of the enemy by alert and vigilant observation, aerial reconnaissance, and thorough intelligence measures. By such means the defense may detect an imminent night attack, and to be forewarned is to be forearmed.

The obscurity of night requires the defense to reach out well to the front of its main position, continuously feeling into the darkness for approaching hostile forces.

Generally, however, the outpost forces of the defender

*This is an edited version of an article that appeared in the MAILING LIST, Volume X, June 1935, pages 69-83.

are driven in during daylight hours prior to the night attack so that the defensive positions may be definitely determined. Nevertheless, the defense must keep some security groups to the front during hours of darkness. During daylight, when visibility is good, a few groups on commanding ground provide security. At night the defense may well find it necessary to increase the density along the line of security and change the positions of the daylight groups. A reverse slope with a good view of the skyline is often a better position at night than the crest of a hill that is ideal in daytime.

The density along the line of security is determined for each particular situation, depending on the degree of visibility, the terrain, and the availability of troops. A line of security with sufficient density is almost bound to disclose a hostile advance that patrols may have failed to detect. Moreover, delaying action by the security groups along this line tends to disrupt the advance and give time for troops on the position to prepare to meet the assault. On the other hand, the number of troops on the line of security should not be increased at night to the extent of materially weakening the main defensive position.

DETAILED PREPARATIONS

It appears thus far that the defense against this first phase of a night attack—preparation and approach to the defensive position—does not differ from the defense against day attacks, except to call for greater alertness, more active patrolling, and increased density on the line of security. No material changes in the disposition of units on the position itself are indicated. However, many detailed preparations are necessary for defense at night—such as pre-arranged fires by machineguns and howitzers, preparations for illuminating the foreground to increase the effectiveness of defensive fires, and special night signals. The location of some weapons should be changed at dark to cover probable routes of approach more effectively. For example, a covered route of approach leading up to the defensive position might be denied to the enemy during daylight by keeping machinegun fire placed on its entrance. But after it becomes too dark for observation, such an approach might be covered only by blocking the exit at the defender's end with fire, and this would require a relocation of weapons. Sometimes, also, machineguns should be moved farther forward to provide additional firepower in front of the position.

If the attack succeeds in reaching the battle position, a second phase—the period of close combat—begins. During this phase, the attack may succeed in entering the position at some points although repulsed at others. By day or night, of course, attacking units will find it difficult to take by assault strong combat groups that are capable of all-around defense. On the other hand, the intervals or gaps between such groups ordinarily offer easier access into the defensive position, particularly at night, when limited visi-

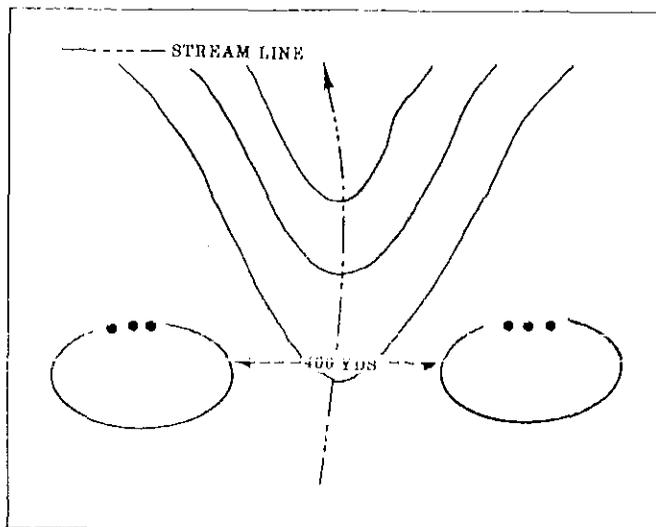


Figure 1

bility reduces the effectiveness of the defenders' fire. In the daytime, for example, an interval between two frontline combat groups might be closed to the enemy by fire from a combat group on the support line or battalion reserve line, whereas at night, because of limited vision and covered routes of approach, the same interval might become an excellent and easy route of access to the defensive sector.

The question now arises whether additional combat groups or small detached posts should be placed in these intervals at night to block entrance more effectively. If this is done, the troops must be taken either from frontline combat groups or from combat groups on the reserve line, thus reducing the defensive strength of these groups. When an interval between frontline combat groups is a wide, open ravine ineffectively covered by defensive fire and permitting easy access at night by large numbers of the enemy, it may be advisable to take troops from other parts of the position to form an additional group for the interval (see Figure 1).

If, however, the interval is covered by defensive fires from one or more combat groups—preferably from those on the support or battalion reserve line—and is narrow enough to limit a possible penetration to small hostile groups only, it may be better not to reduce other combat groups to provide protection for the interval, but rather to risk a minor penetration by the enemy (see Figure 2). For if the combat groups on either side and in rear of such a penetration hold their positions, the hostile units are likely to find, when visibility improves, that the ground they have taken during darkness is untenable because of the effectiveness of infantry fire by day. And if this fire fails to drive them from the position, the defense still has the advantage of counterattack.

Careful consideration must always be given to the strength and composition of night combat groups or detached posts and the source of the troops that are to compose them. The nature of the terrain will influence strength and composition. In wooded terrain with poor fields of fire,

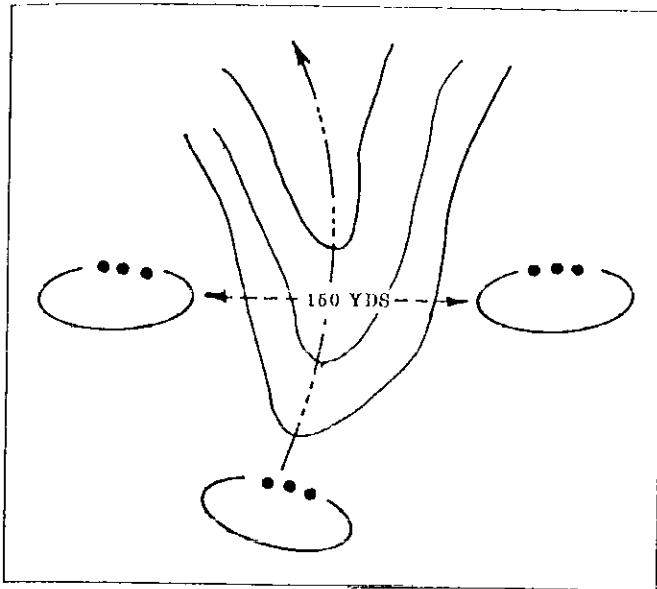


Figure 2

more and smaller combat groups are needed than in open terrain. Thus, Figure 3 shows a fairly wide, wooded ravine between two frontline combat groups, with a support group some distance to the rear covering the interval. Such dispositions may be wholly satisfactory during daylight, particularly with machineguns covering the forward edge of the woods by observed fire as indicated. But at night hostile troops may be able to reach the shelter of the woods unobserved.

Therefore, at night, it may be advisable to place a small group in the ravine in the woods between the two frontline groups. In very wide intervals, especially when supporting fire from adjacent combat groups is limited, more strength may be needed than in a comparatively narrow interval that has good supporting fire from adjacent units. It is particularly important that any change made in the defense at night does not disarrange the system of defensive fires to the front and flanks of the position to such extent as to weaken the defense of the position as a whole. Machineguns should not be moved unless it is clearly evident that the defensive fire of these guns is thus improved.

In determining the source of units for night combat groups or detached posts, care should be taken not to weaken the combat groups covering the most probable routes of enemy approach by night. It is also important to maintain depth in the defense and to have a reserve unit—especially the battalion reserve—on hand to occupy their prepared combat positions as soon as information of the enemy attack is received. The withdrawal of any part of the battalion reserve for use in frontline combat groups during periods of limited visibility may not only weaken the defensive fires of the position materially, but may find the defender at a disadvantage when visibility improves because of his failure to maintain depth in the defense. Accordingly, changes made in the defense to meet a possible night attack

should not reduce the effectiveness of the defense at dawn.

FOG

Although night is usually certain as to its time and duration, fog is very uncertain. It may cover a wide or small area depending on the terrain, and it may be heavy or light, or of short or long duration. Periods of fog have, in some degree, the same advantages and limitations as night, both for the defense and the attack. Illumination by artificial means is not as effective in dense fog as it is at night, which is an added limitation in the defense.

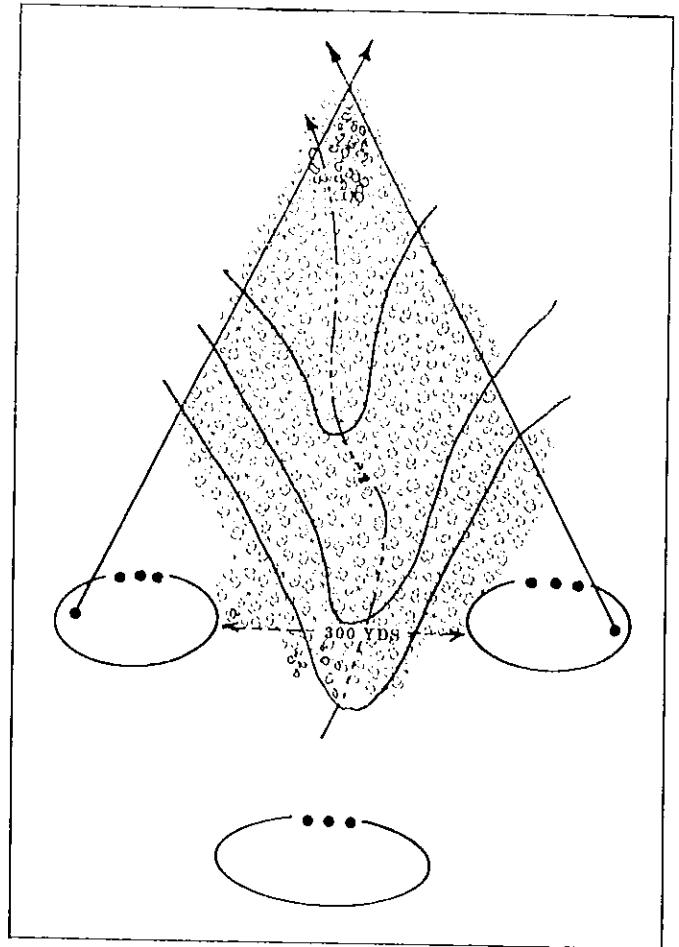


Figure 3

Any changes made in defense dispositions because of fog are similar to those for night. The defense must determine in each case when and to what extent night dispositions should be taken. The usual duration of fog in the locality, its time of occurrence during the day, enemy activities and probable intentions, and the degree of density of the fog are factors that influence this decision.

SMOKE

Smoke screens can be controlled as to time and duration

and, in a large degree, as to extent. An attacker can therefore impose the disadvantages of darkness upon the defense by the use of smoke while largely retaining for himself the advantages of good vision.

Tests made at the Chemical Warfare School show that when smoke is placed on or immediately in front of a position, the effectiveness of rifle and automatic rifle fire from that position is about eight percent of that obtained without smoke. Although smoke does not affect machinegun fire when these guns are laid and clamped on predetermined lines, it has about the same effect on observed machinegun fire as it has on the rifle and the automatic rifle. Fire from the infantry mortar is not affected when predetermined firing data is used, except for the corrections obtained by observation. But smoke often denies information as to when this pre-arranged fire should be executed.

Smoke, therefore, insofar as aimed fire is concerned, imposes upon the defense much the same limitations as night. The attacker, by screening observation posts with smoke, may also deny to the defense important information on the tactical situation. Consequently, the particular advantages that the attacker can hope to gain by smoke are the denial of observed fire to the defense (thus permitting a more rapid advance with fewer casualties) and doubt on the part of the defense as to the direction of attack.

The correct use of smoke, however, is not simple. Its use calls for well-trained units. If not correctly used it may help the defense more than the attack. For example, a change in wind direction may shift the cloud upon the attack, seriously interfering with the control and movement of the attacking units. A smoke screen also attracts the attention of the defense and places it on the alert.

Generally the attacker does not have enough weapons or ammunition to cover the entire defensive position with smoke. He therefore places it where he thinks it is of greatest benefit to him, as for example, in front of a battalion or company area, the fire from which he desires to neutralize or from which he desires to conceal his direction of attack. The enemy situation in this particular sector then becomes obscure, and aimed fire from the position is denied.

Now, since conditions similar to night exist, should the defense take up night disposition? Here, the defender is uncertain whether an attack is being directed against him

and, if so, how long the attack will maintain the smoke screen. Will it be maintained until attacking units reach the defensive position; or will it be cleared before the hostile assault? In the latter event, the defense can meet the assault with restored vision and without a change in disposition.

We find, therefore, that an effective smoke screen laid in front of a defensive position gives the attacker the advantage of a night attack without its limitations, because the attacker controls the duration of the screen. On the other hand, we find the limitations imposed upon the defense are similar to those imposed by night, with the added limitation that smoke cannot be illuminated by artificial means. As with fog, therefore, the defense must decide from an estimate of the situation to what extent night dispositions should be taken up to meet the threat of the attack. This decision is influenced by the extent and effectiveness of the smoke screen, its probable duration in view of atmospheric conditions, and the probable intentions of the enemy.

CONCLUSION

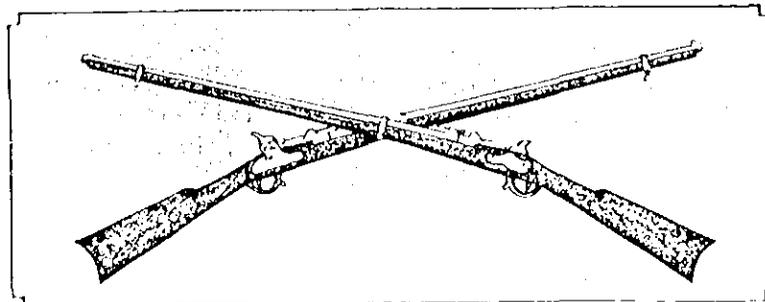
As few changes as practicable should be made in defensive dispositions to meet the altered conditions imposed by reduced visibility. It must be recognized, however, that some changes are usually necessary, especially at night.

Night demands increased patrolling and a rearrangement of, and even an increased density along, the line of security. A means of illuminating the area in front of the defensive position should be provided.

The establishment of additional and temporary combat groups or detached posts may be essential to prevent the penetration of an area which, although effectively covered by fire during daylight, cannot be so covered at night. The tendency, however, to increase the number of such combat groups unduly must be guarded against. The personnel for such combat groups usually come from nearby combat groups. The reserves of higher units should not be used for this purpose.

Occasionally it is desirable to relocate some of the fixed infantry weapons at night.

The depth of the position should not be reduced by whatever changes are made at night.



TRAINING NOTES



Mobile Obstacle Detachment

MAJOR ROGER J. SOMERVILLE

The Soviets' doctrine on the employment of their antitank and engineer mobile obstacle detachment (MOD) brings to mind some ways in which a similar detachment could be employed in the United States Army.

The Soviet MOD (POZ in Russian) is composed mostly of combat engineers who have the primary mission of protecting a unit's flanks and repelling enemy counterattacks. They pay particular attention to avenues of approach that are most suitable for tanks. (See the article on Soviet landmine operations in this issue for a more complete discussion of MODs.)

I have observed combat engineers on the engagement simulation exercise battlefields at both the National Training Center (NTC) at Fort Irwin and the Hohenfels Training Area in Germany. These engineers always work hard on the day and night before a big defensive mission. Then, by early morning daylight, they are usually pulled off the front lines in anticipation of the enemy's attack and placed in the rear of the task force to rest or to guard the task force's tactical operations center. Around the battlefield, I have found abandoned engineer ammunition supply points containing mines that had not been placed because of a lack of coordination or time. Thus, a valuable

combat multiplier had been underutilized and the materials lost or forgotten.

These engineers could be used to form an obstacle placement team or a mobile obstacle detachment that could be loaded with antitank mines, and ready and waiting for a mission to place a minefield obstacle in a key location.

PLATOON

This MOD could consist of a combat engineer platoon mounted in M113 armored personnel carriers. This would allow excellent command and control, and the vehicles would protect the soldiers from artillery and small arms fires in the battlefield area. The M113s would be loaded with uncrated mines that could be emplaced out the backs of the vehicles. The platoon would be placed in a position on the battlefield from which it could move quickly to a predetermined critical choke point. This would give a task force commander an additional combat force he could employ once he had determined where the enemy would conduct his main assault.

If positioned correctly, the MOD could be at an obstacle site within minutes and in a 20-minute period

place a surface-laid antitank minefield. Such a minefield obstacle can be emplaced with three rows of mines extending over 500 meters with a 50 percent density.

The 16th Engineer Battalion, 1st Armored Division, has developed and perfected a drill that involves laying antitank mines out the back of a squad M113 while it is moving along a designated route. (This drill is described in detail in "The One-Hour Minefield," by Captain Philip L. Reed, *ENGINEER Magazine*, Number 1, 1987, pages 22-24. A similar drill used by the 1st Engineer Battalion is described in "Revising the Standard Pattern Minefield," by Captain Wayne Whaley, *ENGINEER*, Volume 17, PB 5-87-2. There are other similar drills that will work, depending upon the equipment and imagination of a unit's leaders.)

With this engineer MOD available in the defense, a task force commander could quickly close wide avenues in the main or reserve battle areas without having to divert his artillery to fire a FASCAM minefield. To be effective, of course, the obstacle would have to be covered with direct antitank fires. In fact, the OPFOR successes at the NTC in the defense can almost always be credited to the unit's excellent job of

covering its obstacles with direct fires.

This MOD minefield would help give the commander obstacles in depth in his sector and could allow him the time to reposition other tank-killing forces to close a penetration and destroy the enemy forces. It would be advantageous for him to use his antitank reserves in close coordination with the MOD while it is placing the minefields. These antitank reserves would then be in a good position to place effective fires on enemy armored vehicles as they

were slowed by the obstacles. The anti-tank weapon systems could come from the repositioned systems in the screening force and combat outpost units.

Engineers, as part of the maneuver team, have a unique combat power that other combat arms do not have available to them in large quantities—mines that can kill Soviet tanks. Both Engineer and maneuver commanders must plan for and use Engineers as a combat multiplier. The MOD is one example of a way to do this, and others

can be developed by these commanders if they work as an integrated team and coordinate their efforts. With well trained forces, this will guarantee success.

Major Roger J. Somerville, an Engineer officer, is assigned as the brigade engineer, 177th Armored Brigade (OPFOR), at the National Training Center. He has served as a company commander and as a battalion executive officer in the 16th Engineer Battalion, and as the assistant division engineer in the 1st Armored Division. He is a 1979 graduate of Montana State University.

Platoon Live Fire Ambush

LIEUTENANT CHRIS G. PAPPAS

During its division's FTX Golden Eagle 87 at Fort Campbell, Kentucky, Company C, 3d Battalion, 187th Infantry, 101st Airborne Division (Air Assault) was tasked with developing a platoon live fire ambush range. Although numerous field manuals and circulars adequately describe ambush techniques, the results we found down-range on our live fire ambush targets not only taught us some valuable lessons, they also brought to light some interesting trends.

The ambush target we used consisted of two ranks of E-type plastic silhouettes located along the military crest of a ridge. We placed seven silhouettes in the front rank and six in the rear, and kept a four-foot space between the silhouettes in each rank. We placed the two ranks of targets 15 meters apart and staggered them both in width and in depth to simulate a squad moving in a modified wedge formation. We also attached a four-inch red balloon to the center of mass of each silhouette to provide a distinct aiming point, to create

shooter interest, and to allow the evaluation of each platoon's marksmanship performance.

We located our ambush position 85 meters from the ambush target on a parallel ridge. The ambush target was connected by cables that led to a road outside the safety fan. There, a soldier pulled on the cables to create a moving ambush target, and walked backward to move the target in a slow, hesitating manner. We intended from the beginning to create a realistic range bounded only by prudent safety constraints.

POSITION

In addition to the marksmanship involved, we evaluated each platoon on its reconnaissance and occupation of the ambush position. To avoid a "range mentality" as much as we could, we began a platoon's evaluation when it entered the objective rally point (ORP) and ended it with the cease fire. The evaluators fully camouflaged

themselves and acted at all times in a quiet, tactical manner.

Leaving the company assembly area, a rifle platoon crossed the line of departure at a specified time and linked up with the safety officer, who acted as a scout at the ORP. There the scout updated the platoon's key leaders on the enemy situation and conducted a thorough safety briefing.

While the scout guided the leaders' reconnaissance element forward to the ambush position, the platoon sergeant issued ammunition to the members of the patrol—10 rounds of 5.56mm ball to each rifleman, 50 rounds of 5.56mm NATO linked to each automatic rifleman, and 50 rounds of 7.62mm to each M60 gunner. He also issued two M18A1 claymores with which to initiate the ambush.

The scout stopped the leaders' reconnaissance party 50 to 75 meters short of the ambush position and pointed out the range limits to the platoon leader. Each platoon then emplaced its flank security and established communica-

tions according to the platoon's procedures. The platoon leader was then free to conduct his reconnaissance using his own technique.

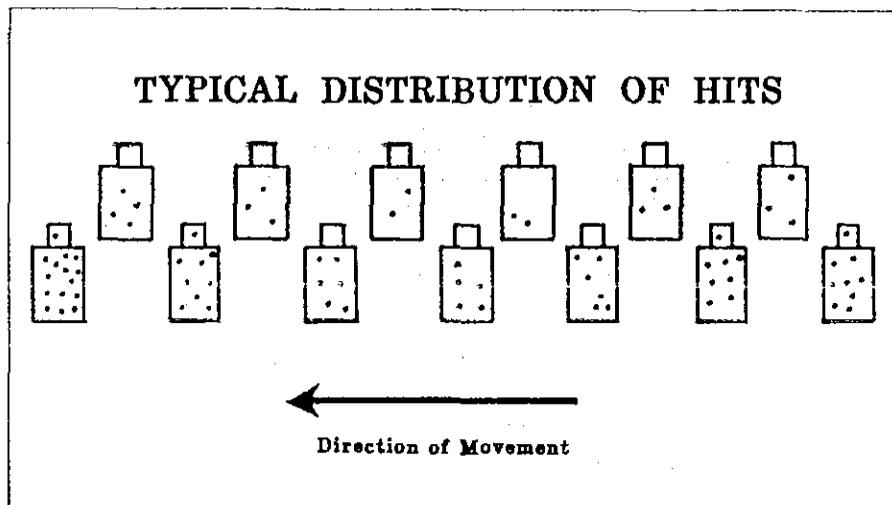
After occupying their positions, a platoon leader and his squad leaders tactically designated the sectors of fire. The evaluators checked each sector to ensure complete safety, the platoon's leaders checked their final positions, and the designated platoon members emplaced the claymore mines.

To closely simulate the terrain and vegetation that might be encountered in a battle zone, we chose for our range a heavily wooded location with hardwood trees and underbrush. The potential for ricochets, therefore, posed a special problem and required that we check carefully both the firing positions and the sectors of fire.

For the actual exercise, we deviated in three ways from what we considered a realistic tactical situation. First, the flank and rear security teams did not receive ammunition, because if they fired from their positions they would create an extreme angle of fire, thereby causing their bullets to hit outside the range safety fan. Second, the claymore sites were selected, dug, and ringed with sandbags before a platoon occupied them. We concealed the claymore pits on the military crest, because the rather short (33-meter) firing wire limited their location. Finally, the soldiers were not allowed to load their weapons until the claymores had been emplaced and all the sectors of fire had been checked by the evaluators.

Our evaluation standard allowed a platoon 15 seconds after it initiated its ambush to engage and destroy the moving targets. This time limit was intended to encourage the violent massing of fires necessary to kill the enemy quickly. The evaluation criteria required a platoon to hit 10 or more of the 13 targets at least three times each. During the 15-second ambush, this translated into 30 hits from the total of about 500 rounds and two claymores (with 1,400 pellets total) that we had issued to the platoon.

The standard was not difficult to achieve, but the platoons' results proved surprisingly similar. For exam-



ple, the targets in the front ranks were hit two to three times more frequently than those in the rear rank. The "point man" was hit twice as many times as any other target in the front rank. (The accompanying sketch shows a typical array of hits by a platoon's weapons.)

We also found a noticeable difference in the hits by various weapons. The claymore proved to be the most effective, with its steel pellets penetrating every target in the kill zone. The M16 rifles and squad automatic weapons (SAWs) accounted for about one-third of the total hits. We were surprised that the M60 machinegun provided the fewest hits. Most platoons achieved only one to three hits with their machineguns, and the platoons using the tripod and pintle did not achieve any more hits than those using only the bipod.

OBSERVATION

Our ammunition NCO made another interesting observation: The platoons that turned in the most unfired ammunition had scored the most hits. In other words, the platoons that fired the most ammunition hit the fewest balloons.

The results led us to a number of conclusions:

- First, well-defined sectors of fire were mandatory, but, just as important, they had to overlap. This was demonstrated time and again as the center and rear targets received the fewest hits.

- Second, weapon effectiveness was directly proportional to a soldier's level of training, and the various weapon systems proved complementary in their capabilities. The claymore was devastating, with a tendency to shoot low. The M16 was the most effective when it was carefully aimed and fired in the semi-automatic mode. On fully automatic, the M16 hit high with frequent bullet strikes 20 feet up in the trees. The M249 SAW was exceedingly reliable and offered a high probability of hit when fired in two- or three-round bursts; it also proved to be an outstanding addition to the squad's firepower. The M60's poor showing may have resulted in part from its awkwardness in a fast-moving, close-range environment. More important, our M60 gunners usually trained on live fire qualification ranges that emphasized long-range targets.

- Finally, marksmanship and fire discipline again proved to be vital components of effective and efficient target engagement. Five hits from five rounds fired in 15 seconds was preferable to 10 quick misses.

From these conclusions, we recommended several areas of emphasis for training for the platoon ambush:

- We must have continuous, overlapping fires to defeat the enemy; otherwise, he will use these gaps to his advantage. We must also bear in mind that sectors of fire have both height and depth.

- The ambush must be rehearsed. MILITARY is an outstanding training tool that allows the concurrent training of

battle drills for reacting to near and far ambushes.

- We must develop and refine standard unit procedures to address these tactical considerations.

- We must improve the quality of our marksmanship training, because weapon proficiency forms the very foundation of an infantryman's strength. Toward that end, we must place more emphasis on firing our weapons in various settings. Although qualification ranges are important,

they should make up only a part of a marksmanship program. Known distance firing does develop shooting fundamentals, provide downrange feedback, and instill in us confidence in our weapons. But we must also use special ranges that have been tailored to unique missions such as this platoon live fire ambush.

Tomorrow's battlefield will have indistinct boundaries, and battle in depth will be the norm. An ambush offers one of the most efficient

methods of fighting outnumbered and winning. Imagination and a little work can provide realistic training for this method of fighting. Incorporating these lessons and recommendations will increase our combat readiness.

Lieutenant Chris G. Pappas, now the battalion's mortar platoon leader, formerly served as a rifle platoon leader in the 3d Battalion, 187th Infantry. Commissioned from the Officer Candidate School at Fort Benning in 1985, he is a graduate of the University of California at Riverside.

Mortars in Urban Combat

LIEUTENANT RICHARD F. STEINER

Commanders operating in conventional environments are accustomed to quick, responsive, and effective indirect fire from their mortar platoons. Faced with operating in an urban environment, however, these same commanders are likely to see a significant reduction in the effectiveness of their mortar platoons.

As leader of a mechanized infantry 81mm mortar platoon in the Berlin Brigade for the past year, I have noted several problems unique to an urban environment that substantially reduce my mortars' ability to provide effective fire support. Most of these problems do not apply when attacking a built-up area from open terrain, but all of them arise to some degree when fighting within a built-up area.

These problems include interference with radio communications, reduction of weapon range, reduction of ammunition effectiveness, increased difficulty in acquiring and hitting targets, increased ammunition expenditures with the attendant strain on supply and transportation systems, unrealistic tar-

get planning, and difficulties the mortar platoons themselves have in operating in a new and difficult environment. (See also "Mortars: Able to Leap Tall Buildings," by Captains Stewart E. Goesch and Robert A. Lambert, *INFANTRY*, July-August 1985, pages 38-40; "Mortars in MOU," by Major Thomas H. Whitley and Captain Carl W. Riester, *INFANTRY*, September-October 1983, pages 37-38; and "Mortars in Cities," by Captain William B. Crews, *INFANTRY*, March-April 1983, pages 13-15.)

These limiting factors do not totally negate the effectiveness of mortars though. In fact, the very high angle of fire of a mortar round can make it extremely useful in urban terrain. But urban terrain varies in density and construction materials, which can cause variations in the effectiveness of mortar fire, and operational requirements can affect the employment and capability of mortars.

Communications. The canyon-like nature of heavily urbanized inner city terrain can severely limit the range of

FM radios. A commander or FIST element calling a fire mission often needs an RC-292 antenna or a powerful vehicle-mounted radio. All the FDC vehicles in my battalion, for example, are equipped with VRC-47s because GRC-160s are not powerful enough.

In the defense, wire communication should be used whenever possible because of its increased reliability and security. Civilian telephones can also provide reliable communications, but they are not secure.

Range of Weapons Systems. Tall, well-constructed buildings offer excellent protection against counter-battery fire and enemy air attack. Because of this, unit mortar SOPs in Berlin call for locating firing sections close to tall concrete and stone buildings, with FDCs operating from nearby basements. Unfortunately, to fire over these buildings, a platoon has to use high minimum elevations.

For an 81mm mortar, our standard minimum elevation (based on being within 40 meters of a building at least three stories tall) is 1331 mils. This

reduces the gun's maximum range from 4,595 meters to less than 3,000 meters on charge nine. By comparison, 4.2-inch mortars must fire on their maximum elevation of 1065 mils, which reduces their maximum range to 5,860 meters using M329A2 ammunition.

Commanders, fire support planners, and mortar platoon leaders must be aware of, and plan for, this reduction in capability.

Ammunition Effectiveness. The presence of buildings in an impact area reduces the effectiveness of both high explosive and illumination rounds. In some cases it will also affect the performance of white phosphorous rounds. (Anyone interested in a detailed study of the effects of indirect fire on targets in urban areas should read the Department of Defense reports based on actual tests conducted at White Sands, New Mexico.) Generally, built-up areas absorb much of the blast of artillery

and mortar rounds.

Because of the cover urban terrain provides, 4.2-inch mortars will be the most effective. Although my experience with 60mm mortars is limited, my impression is that they are generally not powerful or accurate enough for use in urban areas where there is a lot of concrete and stone construction. If most of the buildings are wood or fiberboard, though, the 60mm will have some utility.

Even with 81mm and 4.2-inch mortars, urban combat will require pinpoint accuracy to inflict heavy casualties on the enemy. If a target is in or around buildings that are more than four stories tall, rounds will have a tendency to hit the roof of a building between the gun and the target, or the wall of a building beyond the target. Any lateral error in the strike of a round will often result in the blast being absorbed by a building between it and the target.

Detailed, large-scale maps of the area of operations will help the FDCs achieve the necessary accuracy. The Berlin Brigade keeps 1:1,500 scale maps on hand for use in its FDCs. If the situation permits, careful registration and the use of registration corrections and meteorological data will make a unit's mortars much more accurate.

Finally, it may be possible to adjust pre-planned targets before actual combat begins. In this ideal circumstance, the commander's mortars would be more effective.

Because of the numerous shadows the buildings will cast, illumination rounds also require precise adjustment. Again, adjustment before battle may be possible, especially in the defense.

White phosphorous ammunition has two primary uses; as an incendiary and as an obscurant. It can be highly effective as an incendiary when used against wood or fiberboard structures, but tactical and political considerations may



A mortar unit's normal procedures will have to be modified when it is operating in an urban environment.

limit its usefulness in this capacity. Specifically, commanders must be sure that any fires that are started can be confined to the enemy's areas of the battlefield. They must also consider the effect fires will have on civilians in the area. Burning local residents out of their homes in many instances can have adverse effects on future military operations in the area.

White phosphorous used as an obscurant will be effective in most cases, but rapidly changing air currents around buildings may blow the smoke in the wrong direction. Also, phosphorous rounds can displace or consume enough oxygen to asphyxiate personnel in nearby buildings. This is obviously something to consider when firing rounds near friendly troops.

It is ironic that while mortar fire will have to be highly accurate to be effective, it will also be more difficult to spot and adjust. Because of the visibility restrictions an urban environment usually imposes, getting rounds on target requires particularly well-trained forward observers. At times, however, an observer may have to rely on just plain guesswork to adjust fires.

Target Planning. When conducting

a defensive operation or deliberate attack, commanders and fire support planners often try to put far too many targets on the overlays for their area of operations. The three-dimensional urban battlefield will have many locations for the enemy to use, and commanders naturally want to plan for all contingencies. But targeting every possible enemy location is ineffective and counter-productive. It is much better to pre-plan a few of the more dangerous key targets, adjust the guns before the battle, if possible, and rely on well-trained observers, gunners, and FDCs to do the rest.

The personnel in a mortar platoon will have to learn to cope with the numerous challenges an urban area presents. Their normal procedures will often have to be modified to unique situations—baseplates must be sand-bagged if firing ground-mounted on a hard surface; improvised aiming points often have to substitute for aiming stakes; and sections often have to be deployed in nonstandard formations requiring sheaf adjustment. Terrain mortar positioning corrections (TMPC) as described in FM 7-90 can be used to compensate for nonstandard

formations.

Concentrations of steel and wire in urban areas may make it impossible to use the magnetic compass on the M-2 aiming circle. If this occurs, a platoon leader can lay a section using non-magnetic lay techniques. To do this, in simplest terms, he declinates the aiming circle using map deflections, emplaces a north reference stake, and the operator then lays the mortar section. These and other changes to SOPs may slow a platoon's operations.

Urban combat will challenge all the elements of the fire support team and will require commanders to familiarize themselves with the limitations built-up areas can impose on their mortars. Staff sections will also have to plan for the higher ammunition expenditures that may be necessary to accomplish the mission.

Despite these difficulties, given well-trained observers and mortar platoons, unit mortars can still be effective during operations on urban terrain.

Lieutenant Richard F. Steiner is mortar platoon leader, Company C, 6th Battalion, 502d Infantry, Berlin Brigade. He is a 1985 graduate of the United States Military Academy.

SWAP SHOP



NBC training, although extremely crucial, is often boring and redundant. Soldiers strongly dislike wearing MOPP uniforms and reacting to contaminated areas, especially when it is 95 degrees outside and they already know there was never any danger in the first place.

As the NBC officer of my unit, I have been faced with these negative responses along with the lack of motivation that comes with this training. Knowing these problems, I have tested a few safe but effective methods of NBC training that have helped make it more interesting.

One effective method involves two resources--a ten-pound bag of flour and a single-engine airplane. The pilot loads the plane with flour and flies over the troops, releasing the flour as he goes by. Although this may sound foolish, the men don't think so when I tell them it is CS powder as I get into my protective clothing. They react as fast to the flour as they would if it were the real thing.

(Submitted by Lieutenant Shawn R. Mell, scout platoon leader, 3d Battalion, 109th Infantry, Pennsylvania Army National Guard.)

Another method involves a jar of molasses. I dip a stick into the jar and, while in MOPP 4, walk up to some of my soldiers and touch their hands with the molasses. I tell them it is an extract of poison sumac that is very allergenic. The men decontaminate their skin in a matter of seconds.

Ideas such as these can be used over and over again, and the men don't have to be conducting NBC training to do it. These methods work even during missions where there is not a high chance of an NBC attack. This allows a leader to evaluate how well his men will react to an unplanned attack.

NBC training is one of the most difficult tasks for a leader to train effectively. If it is scheduled training, the men usually know what is going to happen next. The secret to successful NBC training is never to tell the men what the real substance is but to make them react to an unexpected situation.

ENLISTED CAREER NOTES



EDUCATION TRANSITION MANAGEMENT PROGRAM

Nearly 12,000 soldiers worldwide have participated in voluntary transition counseling at Army education centers since this service started last year.

Under a program called Education Transition Management, soldiers who are within 240 days of their estimated termination of service dates get information about their entitlements. They can use this information as a basis for making their career decisions.

Counselors help soldiers develop educational plans to meet their career goals, regardless of whether a soldier decides to reenlist or to move from active service into civilian life.

Soldiers also get help with selecting schools, scheduling entrance tests, assembling and submitting admission application packets, and applying for Army Reserve Officer Training Corps enrollment.

In 1987 more than 1,200 soldiers applied for enrollment at colleges, and many others selected less formal education options.

As part of the Army's Transition Management Program, Education Transition Management serves the needs of the increasing number of young people who enter the Army to earn educational benefits.

RETENTION OF SGM/CSMs BEYOND 30 YEARS

Under a policy change, all sergeants major and command sergeants major selected for retention beyond 30 years of active service will be approved for retention to 35 years of active service or age 55, whichever is earlier.

Previous policy provided for retention of selected sergeants major to 33

years and command sergeants major to 35 years of active service.

Application and selection procedures remain unchanged. These actions should be processed through command channels and *not* as reenlistment actions.

Information on application procedures is available at local personnel service centers.

RESERVE COMPONENT NCO-ER PROGRAM

The goals and objectives of the Reserve Component NCO-ER program are the same as for the Active Component (which was detailed in *INFANTRY*, January-February 1988, page 48). The actual implementation and execution of the program for the U.S. Army Reserve and National Guard is different.

The NCO-ER will be implemented for Troop Program Unit (TPU) soldiers in the August through December 1988 rating period. The current rating schedule in AR 623-205, Table 5-1, will be reversed as shown in the accompanying chart.

A one-time exception to the standard 12-month rating period will be required. After implementation, there should be no rating period of more than 12 months, except when an exception is authorized.

Because Active Guard Reserve (AGR) NCOs' transition period falls before TPU implementation, it can serve as an initial training vehicle for TPU commanders.

Performance counseling for TPUs will be done semi-annually instead of quarterly.

EDUCATION OPPORTUNITIES

Major field commanders now have considerable latitude in the way they apply their limited resources to meet in-service education needs.

To ensure some consistency, however, the following guidelines apply:

- Basic skills programs will focus on soldiers who need to meet promotion, reenlistment, or reclassification standards. Soldiers will still have a "free" opportunity to achieve a high school diploma.

- Post-secondary tuition assistance will be either 75 percent or a dollar cap of \$80 and \$165 per semester hour for undergraduate and graduate study, respectively, whichever is less.

- Soldiers who are eligible for Vietnam-era GI Bill educational entitlements may not receive tuition assistance, nor is tuition assistance authorized for lower-level or same-level degrees.

Counseling is still the heart of the in-service education program.

RESERVE COMPONENT
NCO-ER TRANSITION TABLE

RATED NCO RANK	FINAL POSSIBLE EER	INITIAL PERFORMANCE COUNSELING	NCO-ER FROM DATE
CSM/GM/1SG/MSG	31 Aug 88	Sep/Oct	1 Sep 88
SFC/PSG	30 Sep 88	Oct/Nov	1 Oct 88
SSG 31	Oct 88	Nov/Dec	1 Nov 88
SGT 30	Nov 88	Dec/Jan	1 Dec 88
CPL*	N/A	Dec/Jan	N/A

* Corporals will be counseled but will not receive NCO-ERs.

OFFICERS CAREER NOTES



OFFICER ADVANCED COURSE

Officers should expect to attend the Infantry Officer Advanced Course after being selected for promotion to captain and after completing at least 36 months at their present duty locations.

Officers stationed in Alaska and Hawaii must apply for a curtailment of their tours in order to be considered to attend IOAC before completing 48 months on station. Infantry Branch at the Total Army Personnel Agency (TAPA) will automatically project officers to attend the next class after they have completed 36 months on station.

A special preference statement will be mailed to each officer outlining post-IOAC assignments, and this preference sheet should be returned to Infantry Branch as soon as possible. (Historically, about 20 percent of officers fail to return it.)

An officer may defer his attendance at the advanced course to complete 48 months at his duty station by applying for CONUS stabilization using a DA Form 4187. He must submit this application through command channels before receiving a request for orders to attend IOAC.

Attendance at other branch advanced courses is encouraged. Officers who would like to attend the Armor, Field Artillery, Aviation, or Air Defense Officer Advanced Courses in lieu of IOAC should contact Infantry Branch, Captain Mike Oates, AUTOVON 221-0207/0209.

The schedule of classes for IOAC for the remainder of Fiscal Year 1988 and for 1989 is as follows:

CLASS	DATES
5-88	14 Aug 88 - 23 Jan 89
1-89	16 Oct 88 - 24 Mar 89
2-89	22 Jan 89 - 13 Jun 89
3-89	9 Apr 89 - 29 Aug 89
4-89	9 Jul 89 - 1 Dec 89
5-89	3 Sep 89 - 15 Feb 90

BATTALION COMMAND BOARD RESULTS

A backbrief from members of the FY 89 battalion command board has provided some insight into items the board members considered important in their selection of officers to command battalions.

In addition to a highly competitive manner of performance throughout, the board members placed great emphasis on the following:

- Recent troop experience.
- Outstanding performance in recognized "tough infantry jobs."
- Accurate officer record brief (ORB), complete microfiche, and excellent, recent photograph.

Questions on how to prepare for a battalion command board should be directed to Captain Chuck Cornwell or Major Robert Smith, AUTOVON 221-0207/0209.

REQUESTING OMPF MICROFICHE

Any officer who wants a microfiche copy of his official military personnel file (OMPF) should send a written request to: U.S.A. TAPA, ATTN: DAPC-MSR-R, 200 Stovall Street, Alexandria, VA 22332-0414.

The request must include name, grade, social security number, and military or civilian address, and it must be signed.

PROMOTION TO FIRST LIEUTENANT

The time in service criteria for promotion from second lieutenant to first lieutenant have been changed. The change in promotion "pin-on point" is extended from 48 months to 24

months. This change began 1 April 1988 and will be fully implemented by 1 November 1988.

Upon completion of 24 months of active service, second lieutenants will be promoted on the first day of the following month.

DA Forms 78 that have already been processed will not need to be redone to comply with the restriction of forwarding to the approval authority prior to 120 days.

This promotion "slowdown" for second lieutenants is part of a larger officer and enlisted promotion slowdown already in effect, and it brings the Army in line with the other services' promotion policies for lieutenants.

USMA INSTRUCTOR, TACTICAL OFFICER DUTY

The United States Military Academy is looking for qualified officers to teach a wide range of academic subjects and serve as tactical officers for West Point's Corps of Cadets. Approximately 200 faculty vacancies occur each year with openings in all the arts and sciences.

Although there are some positions for field grade officers with advanced degrees, most of the positions are filled by captains who obtain master's degrees enroute to the Academy. Candidates should be outstanding soldiers who display a capacity for intellectual growth as shown by such indicators as strong scores on the Graduate Record Examination (GRE).

Company grade officers who are interested in these positions should plan their careers to make sure they are branch qualified by completing advanced course schooling and company level commands or equivalent assignments. They should have the necessary credentials to pursue master's

degrees at high-quality graduate schools in approximately their fifth year of service, and should plan to serve at USMA for three years.

It is a goal of the Academy to have a faculty mixture of graduates of USMA and of other institutions with appropriate female and minority representation, and to have a distribution of advanced degrees for all subjects taught. Because of these objectives, the Academy offers an excellent opportunity for outstanding officers to achieve master's degrees in a wide range of disciplines and to teach in a most challenging environment.

The officers selected also join a distinguished group of Army leaders who have not only molded the leaders of tomorrow while at the Academy but who have also made significant contributions to the Army and the nation in subsequent assignments. Former instructors regard their interaction with cadets as one of the most rewarding phases of their careers. These officers have consistently exceeded the Army-wide selection rates for promotions and schooling.

Interested officers should request additional information from the Superintendent, United States Military Academy, ATTN: MAAG-PM, West Point, NY 10996-5000.

JUMPSTART PROGRAM

"Jumpstart" is a new program for assigning officers to Army Readiness Groups in the continental United States (CONUS). The program, a team effort between Forces Command (FORSCOM) and the U.S. Total Army Personnel Agency (TAPA), is designed to improve Active Army support to the Reserve Components.

Two of the major reasons for reorganizing MILPERCEN into TAPA last October were to increase the Army's mobilization ability and to align all the components more closely. The Jumpstart program is designed to meet these same objectives.

Under Jumpstart, captains graduating from advanced courses and majors graduating from command and staff

colleges will be assigned to FORSCOM installations for 24 to 30 months of troop duty. These officers will then be available to fill key positions in readiness groups at the same location or nearby for another 24 to 30 months.

The officers who serve in the program will share their knowledge from these courses and their FORSCOM troop experience in the readiness group. At the same time, they will receive professional development through service with both Active and Reserve Component units during the same tour and will gain a Total Army perspective that will better prepare them for future service.

TAPA expects that not more than 120 officers per year will change assignments under Jumpstart. Many of these moves will be between units located on the same installation—from a troop unit on Fort Bragg to Readiness Group Bragg, for example. Other moves will be to nearby readiness groups, such as from Fort Carson to Readiness Group Denver. These moves will be made in such a way as to keep PCS costs down and to provide as much stability as possible for officers and their families.

TAPA is working on ways for officers to volunteer for Jumpstart and receive assignments to CONUS installations of their choice.

The program will ensure that officers

assigned to key readiness group positions have the education, experience, and potential to provide the best possible support to the Reserve Components. It will also permit more of the Army's future leaders to experience Reserve duty, and this will better equip them to fight in the Total Army of the future.

CAS' SCHEDULE

Officers who are scheduled to attend Phase II of the Combined Arms and Services Staff School (CAS') Classes 88-9, 88-10, or 89-1 should be aware that the class dates have been changed. Classes 88-9 and 88-10 will both start on 15 August 88 and end on 13 October 88. Class 89-1 will start on 17 October 88 and end on 16 December 88.

Commanders are reminded to give priority consideration to their officers in Year Group 1979 to attend CAS'. They should send officers to CAS' (Phase II) on a temporary duty and return basis, because Infantry Branch has only a limited allocation of seats for sending officers to CAS' on TDY enroute to their next duty stations.

Questions concerning CAS' should be directed to Captain Tom Schoenbeck, AUTOVON 221-0207/0209.

INFANTRY BRANCH POINTS OF CONTACT

ASSIGNMENT AREAS	NAMES	TELEPHONE (AUTOVON)*
Branch Chief	LTC Hagenbeck	221-7823/0317/0207
LTCs, SSC (Branch XO)	MAJ(P) Axson	221-7823/0318
LTCs, Other Specialties (Except 48/54)	CPT Cornwell	221-7823/0209
LTCs Command, ROTC, PCC	MAJ Smith	221-0317/0318
MAJs	MAJ Anderson	221-0318/7823
MAJs Other Specialty (Except 48)	CPT Phil North	221-0318/7823
CPTs Overseas/Advanced Course	CPT Oates	221-0207/0318
CPTs CONUS/Without Troops	CPT MacArevey	221-7823/0207
CPTs Other Specialties (Except 48)	CPT Barclay	
LTs Overseas, CONUS and Accessions	CPT Schoenbeck	221-0207/0208
Infantry Branch Representative, USAIS, Fort Benning, Georgia	CPT Rush	221-0207/0208/0209
	CPT Bunting	835-3611/3714

*For commercial calls, use area code 202 and the prefix 325 (instead of 221) for TAPA; area code 404 and the prefix 545 for Fort Benning.

BOOK REVIEWS



The Army's Center of Military History has sent us copies of a number of its most recent publications, and we commend them to you as being excellent historical products:

- **ARMIES, CORPS, DIVISIONS, AND SEPARATE BRIGADES.** By John Wilson. Army Lineage Series. Center of Military History, 1987. USGPO S/N 008-029-00150-1. 852 Pages. \$25.00, Softbound. This is an extremely useful reference book, for it includes the lineages and honors for all the armies, corps, divisions, and separate brigades that have been organized under TOEs and have been active in the Regular Army, Army Reserve, and Army of the United States since the beginning of World War II. The lineages are current through 31 December 1984.

Brigade headquarters and headquarters companies organic to the combat divisions since ROAD (Reorganization Objective Army Division) in the early 1960s have been incorporated. The lineages and honors for Army National Guard (ANG) divisions and their organic brigades and for ANG separate combined arms brigades that were active on 31 December 1984 are also included.

Each entry is accompanied by a color illustration of the shoulder sleeve insignia and distinctive insignia, if officially approved; a description of the heraldic items; and a bibliography.

- **MOSCOW TO STALINGRAD: DECISION IN THE EAST.** By Earl F. Ziemke and Magna E. Bauer. Army Historical Series. Center of Military History, 1987. USGPO S/N 008-029-00140-3. 574 Pages. \$24.00. This is the second volume to be completed in a planned three-volume history of the German-Soviet conflict in World War II. The first, which was written by one of the authors of this volume, Earl Ziemke, a former mem-

ber of the Center but a long-time professor of history at the University of Georgia, was titled *STALINGRAD TO BERLIN: THE GERMAN DEFEAT IN THE EAST*. That volume appeared almost 20 years ago.

Begun by Magna Bauer, a long serving member of the Center's staff who did yeoman support work for several of the volumes in the Army's official World War II series, this book was completed by Ziemke, who was called in for that purpose after Bauer's death in 1981.

Before plunging into the narrative, the reader is cautioned to read Ziemke's preface to get a feel for the problems he faced and for his warning concerning his earlier work. The reader can be assured, though, that he has in his hands a most authoritative publication and one not likely to be equaled any time soon.

The narrative, which includes accounts of the German combat operations in the so-called Northern Theater of Operations (Finland), focuses primarily on the period between 5 December 1941 and 19 November 1942, during which the German Army's combat power began to decline even as the Soviet forces slowly acquired the means and capabilities that eventually brought them victory.

- **MILITARY COMMUNICATIONS: A TEST FOR TECHNOLOGY.** By John D. Bergen. United States Army in Vietnam Series. Center of Military History, 1987. USGPO S/N 008-020-01035-9. 515 Pages. \$26.00, Softbound. This is the third volume to appear in the planned multi-volume official Army in Vietnam series. It covers the period from the earliest U.S. involvement in Indochina in 1945 (when a team worked with the Viet Minh's Ho Chi Minh and Vo Nguyen Giap) to the final U.S. withdrawal in 1975. Its emphasis is on the building

and installing of communications facilities rather than on signal operations. The author does tell of the difficulties signal communications units faced supporting such operations as the Ia Drang battle in early 1966, and Operations ATTLEBORO, CEDAR FALLS, JUNCTION CITY, AND PEGASUS. The last four chapters are devoted to discussions of the North Vietnamese and Viet Cong communications systems, the electronic battlefield, and the U.S. signalmen and their equipment.

As a former serving Signal Corps officer, the author has a soft spot in his heart for the small unit radio-telephone operators (RTOs). At the same time, he believes that, based on our Vietnam experience, command and control on the battlefield "do not necessarily improve as communications improve" and that what we will need in our next war is a coherent and comprehensive approach to information processing" that will define "the relationship between computers, communications, and command and control."

- **THE HUKBALAHAP INSURRECTION: A CASE STUDY OF A SUCCESSFUL ANTI-INSURGENCY OPERATION IN THE PHILIPPINES, 1946-1955.** By Lawrence M. Greenberg. Historical Analysis Series. Center of Military History, 1987. USGPO S/N 008-029-00162-4. 159 Pages. \$8.50, Softbound. First printed in 1986, this publication, the seventh in the Center's historical analysis series, has been reprinted in its entirety. The author, a serving Army officer at the time he wrote this study, looks at the background of the Huk movement; discusses the Philippine response and the country's charismatic leader, Ramon Magsaysay, the Secretary of National Defense; and analyzes the actions taken by the U.S. Army to assist Magsaysay. The study was prepared for the Army's Chief of Staff on short notice, which

prevented the author from using much primary material.

Regardless, many of the issues he surfaces are certainly relevant to the Army's current and future concerns and, as the author puts it, "the successful result is one worthy of consideration for contemporary and future application."

- **THE ARMY MEDICAL DEPARTMENT, 1818-1865.** By Mary C. Gillett. Army Historical Series. Center of Military History, 1987. USGPO S/N 008-029-00152-7. 371 Pages. \$17.00, Softbound. This, the second in a projected four-volume series that will cover the history of the Army Medical Department from 1775 to 1941, traces the development of the department from its establishment on a permanent basis in 1818 through the Civil War's final days in 1865. (The author also wrote the first volume in the series: **THE ARMY MEDICAL DEPARTMENT, 1775-1818.**)

The coverage of military operations is limited to that necessary for an understanding of the department's work and organization, and the efforts of the medical officers are evaluated according to the standards of their time. Roughly one-half of the narrative is devoted to the Civil War years, during which, as the author writes, "more than 12,000 medical officers—regulars, volunteers, and contract—examined over 250,000 wounds and treated more than 7 million cases of disease. In the course of their duties, more than 300 Army surgeons died from wounds, disease, or accidents." By the end of the war, "an effective and efficient medical department for the large and active Union Army" had been created.

- **THE INSPECTORS GENERAL OF THE UNITED STATES ARMY, 1777-1903.** By David A. Clary and Joseph W. A. Whitehorne. Center of Military History, 1987. USGPO S/N 008-029-00148-9. 484 Pages. \$18.00. The authors' primary purpose was to explain "how inspection in the Army evolved and why things are done the way they are." They explain the relationship the inspectors of the period under discussion had to the military chain of command as well as to the

Government's civilian representatives, and examine the role of the inspectorate under wartime and peacetime conditions. They also discuss the personalities and careers of the officers who served as inspectors general during the period covered by this book. Their book includes a large amount of valuable information about the daily concerns that influenced the development of the Army as a whole, although its primary emphasis is on the organization and operation of the inspectorate itself.



- **U.S. ARMY MOBILIZATION AND LOGISTICS IN THE KOREAN WAR: A RESEARCH APPROACH.** By Terrence J. Gough. Center of Military History, 1988. USGPO S/N 008-029-00154-3. 136 Pages. \$4.25, Softbound. Through a discussion of the available literature, the author presents an overview of the most pertinent issues that evolved from our Korean War mobilization and logistics experiences. He suggests that further investigation might elaborate on particular issues (chapter 2) and offers topics that warrant further research (chapter 3). (The book's first chapter contains a chronological summary of the major mobilization and logistics events of the war years.)

Everything in this compact publication points to the fact that the Army's

planners of the future must learn as much as they can about how the Army accomplished its most recent wartime mobilization effort, and the concurrent problems it faced in matching that effort to the demands of a limited war.

Here are a number of other publications you should find of interest:

- **LOW INTENSITY WARFARE.** Edited by Michael T. Klare and Peter Korubluh (Pantheon Books, 1988. 250 Pages. \$19.95). Reviewed by Major Douglas A. Martz, United States Army.

This book represents an intellectual exercise in reviewing the current status of what the editors have chosen to call "low intensity warfare"—the same thing most soldiers would recognize as low intensity conflict. It is not a book that reviews either the current doctrine on or current thinking about low intensity conflict. It is, rather, a political assessment made from the particular perspective of informed intellectuals who "believe it essential that the American people become more familiar with official thinking on low intensity warfare, and press for an open national debate on the costs and perils of L.I.C. doctrine. Such a debate must consider two broad issues: the probable military consequences of U.S. intervention abroad, and the political and moral consequences at home."

It fulfills its purpose with rhetoric that, at times, falls shrilly on the reader's ears and sensibilities, for the "open, national debate" as presented by the essayists is certainly one-sided. Objectivity is not overly stressed.

The editors present a series of essays by well-intentioned and occasionally well-known liberal scholars, foundation members, and former government workers who either have or have had at least a passing interest in and some involvement with low intensity conflict—exclusively at the thinking level. For that reason, this book breaks new ground for the serious military reader because it allows those who live with the reality of potential low intensity conflicts some hard core insights into what the opposition thinks, what some of its potential arguments will be, and what positions it carves out for

itself and subsequently inhabits.

Overall, the book is both difficult and maddening to read because of its deliberate, unconcealed bias. It contains nothing new regarding the fundamentals of low intensity conflict, the doctrine behind it, or the equipment and organizations that support it. The value of the book lies in what it reveals about those who neither understand nor appreciate the necessity for the force structure, composition, and doctrine of the U.S. military services or the dedication of the men and women who may be deployed around the world in low intensity conflicts.

The book promises a lot. It delivers much less.

THE ONLY WAR WE HAD: A PLATOON LEADER'S JOURNAL OF VIETNAM. By Michael Lee Lanning (Ballantine Books, 1987. 293 Pages. \$3.50, Softbound). Reviewed by Captain Tim Mishkofski, United States Army.

When a friend handed me a copy of this book to read, I was skeptical of its content. After all, many books have been published in recent years about the Vietnam War, most of which are not very good. I was pleasantly surprised.

What sets this book apart from others about the U.S. infantry in Vietnam is the clarity and precision with which the author (now a serving Army Lieutenant Colonel stationed in Washington, D.C.) describes his time as a platoon leader in the 199th Light Infantry Brigade in Vietnam in 1969. Lanning's work is instructive in that it confirms the fact that small unit dynamics are the same regardless of the date or the battlefield.

But Lanning does more—he tells the story of what Vietnam did to the U.S. Army at its most elemental level. Aside from its tactical value, therefore, the book serves as a teaching primer on soldier psychology. The 199th was not the heralded 82d Airborne or the mechanized 11th Armored Cavalry Regiment. Its soldiers walked most places and were in intimate contact with their tormentors—the Viet Cong or North Vietnamese Army—as well as

the tormented—the Vietnamese people.

The peculiar irony of having half a million troops on the ground in a country but with only a handful actually pursuing the enemy is the main feeling I took away from this book. The distrust and dislike shown by the combat soldiers for the support soldiers and vice versa was cancerous then—as it is now. Too many people in the Army tend to think of the infantrymen as “those animals with low GI scores.”

Lanning's platoon was not made up of college-deferred yuppies-in-training. His soldiers were the poor and the powerless tramping through a country of poor and powerless people.

The officers and men of that era have risen to power in our Army but not in our society. Young leaders of today who do not share the inner sense of abandonment of the Vietnam “grunt” need to read this book and try to understand what it is Lanning is saying.

On the surface, today's Army is well. But grind it down to the force of 1969 and you'll find the same faces, and the same questions. It is leadership under these circumstances that makes this book so valuable for the education of today's soldier.

BOLD DRAGOON: THE LIFE OF J.E.B. STUART. By Emory Thomas (Harper and Row, 1986. 354 Pages. \$22.95). Reviewed by Major Don Rightmyer, United States Air Force.

He became known both in legend and in fact as one of the most dashing, daring cavalry leaders of the Civil War, North or South. One of his foes, a Federal corps commander, described him as “the greatest cavalryman ever foaled in America.”

James Ewell Brown Stuart was only 31 years of age and a major general when he was killed at Yellow Tavern, Virginia, in May 1864, but he had built a distinguished record during his tenure as Robert E. Lee's cavalry commander in the Army of Northern Virginia.

The author, a noted Civil War historian and professor of history at the University of Georgia, takes a

refreshing new look at Stuart's life and career, and provides an even-handed treatment of Stuart, the friend and family man, as well as Stuart, the military commander.

While Stuart thrived on grand cavalry reviews and the adulation he received from Southern women during periods off the battlefield, he demonstrated a masterful appreciation for cavalry's key roles in scouting, screening, and raiding. While spectacular raids earned him great acclaim, his abilities as a military leader were proven on numerous less-publicized occasions and were fully appreciated by Lee.

Unlike other famous cavalry leaders such as Nathan B. Forrest, Wade Hampton, Joseph Wheeler, and Philip Sheridan, Stuart seemed more capable in myriad areas. Thus, he was able to command both large and small numbers of horsemen, to integrate his cavalry with artillery and infantry, or to conduct independent operations.

Stuart's career was not without its dark moments, such as his failure to find and assist Lee during the critical first days of the Gettysburg campaign. His fall finally came when General Sheridan was sent with 10,000 troopers and one mission—to destroy Stuart.

This is a well-written and readable biography of a man who considered himself “a bold dragoon” and who lived the life to prove it. Thomas provides an in-depth look at not only the cavalry operations in the eastern theater during the Civil War but also the councils of war in which Stuart participated and the periodic reorganization of the Army of Northern Virginia to meet the changing demands of the war.

MARCH OR DIE: A NEW HISTORY OF THE FRENCH FOREIGN LEGION. By Tony Geraghty (Facts on File, 1986. 352 Pages. \$19.95). Reviewed by Leroy Thompson.

Over the past 50 years, at least a dozen histories of the French Foreign Legion have appeared in English. This new one is not only the most readable but is also in many ways the most probing, because it goes beyond the events that have created the myth of the

Legion to examine the relationship between the French government and the Foreign Legion. Special emphasis is placed on the way the Legion has been used and abused throughout its existence.

Perhaps the relationship of the Legion and politics is nowhere better handled than in the chapters on World War II in which the 13th DBLE, which formed the basis for Charles DeGaulle's Free French forces, is contrasted with the Legion units that remained pro-Vichy. Then, the author's analysis of the Legion during the Algerian conflict and the revolt of the 1st Foreign Legion Parachute Regiment shows that this was not so much a revolt against the government as a revolt against what the Legionnaires, men who put great stress on soldierly honor, viewed as a dishonorable act on the part of the French government.

The author's final chapter on the Legion today is especially useful in placing the Legion in context as the keystone of France's own rapid deployment force for use in the colonial spheres of interest that France seeks to maintain.

His book is recommended both as sound, readable history and as an astute analysis of the unique political situation the Legion has always found itself in.

COMMANDER IN CHIEF: FRANKLIN DELANO ROOSEVELT, HIS LIEUTENANTS, AND THEIR WAR. By Eric Larrabee (Harper and Row, 1987. 723 Pages. \$25.00). Reviewed by Doctor Charles E. White, USAIS Historian.

Few Presidents of the United States have ever exercised their constitutional authority as "commander in chief" with such determination and skill as did Franklin Delano Roosevelt during World War II. In this, probably the best account yet written about FDR and his relations with his military leaders, Eric Larrabee examines the extent and importance of Roosevelt's role in selecting his military leaders and directing the country's wartime effort.

What makes this book so worthwhile

and relevant today is the manner in which the author brings together the best sources in the field to tell a marvelous story about how our political and military leaders learned war by reading books and how our soldiers trained for war as late as 1940 with dummy weapons, and yet, despite all of their shortcomings, planned and executed some of the most brilliant military campaigns in history. The U.S. in World War II deployed forces around the globe, fought on several continents simultaneously, and achieved victory in every theater of operations. No other nation has ever accomplished as much. In Larrabee's opinion, it was FDR's leadership that proved to be the driving force behind our success.

What the reader soon discovers is a source book on U.S. military leadership during the war—Generals George C. Marshall, Douglas MacArthur, Dwight D. Eisenhower, Henry H. Arnold, Joseph W. Stilwell, Alexander A. Vandergrift, and Curtis LeMay; and Admirals Ernest J. King and Chester W. Nimitz. In fact, the book is built around biographies of these military men.

Roosevelt's greatest contribution to victory was the quality of his appointments. They were outstanding. Throughout the war Roosevelt faced many hard choices and he always based his decisions on the needs of the alliance. His selection of Eisenhower to command the Normandy invasion is the best example.

Roosevelt never lost his sense of purpose, and clearly made war an instrument of politics. He was a superb leader and strategic planner. He was, quite definitely, the commander-in-chief.

THE FORGOTTEN WAR: AMERICA IN KOREA, 1950-1953. By Clay Blair (Times Books, 1987. 1,123 Pages. \$29.95). Reviewed by Captain William B. Crews, United States Army.

If you are expecting a heroic saga in the manner of Robert Leckie's MARCH TO GLORY, you will be dis-

appointed. Rather, Clay Blair, well known writer and biographer, explores the political decisions leading up to the North Korean invasion of South Korea on 25 June 1950 and the military actions from that date until a stalemate was reached in 1953.

Relying heavily on primary source documents and personal memoirs, Blair paints a rather unpleasant portrait of an Army rife with complacency and retirement-age officers; units deprived of equipment because of niggardly budgets; and a Far East Command totally out of touch with reality and with the country's civilian leadership.

His book is almost a day-by-day account of the first year of the war (less so for the last two years), and it is refreshing for its candor. Reliefs from command are identified as such, defeats are admitted, and victories are lauded. Blair fairly idolizes successful leaders such as Michaelis of the 27th Infantry Regiment and Freeman of the 23d Infantry Regiment, but excoriates those less capable.

Technically, the book has certain flaws that annoy a student of the Korean War. Blair has an unnatural aversion to dates, and there are times when a reader has to retreat to a known date to count the number of days covered in the narrative. He uses incredibly extensive footnotes, and there is no bibliography. Commanders are often referred to by their nicknames and rank is seldom mentioned. Maps are few and far between and often omit key towns, phase lines, and terrain features. There are other flaws as well.

The reader must also be alert to Blair's own prejudices. One often feels he has neatly divided the Eighth Army into "white hats" and "black hats" and has not given the "black hats" a chance to defend themselves. And while he implies several conclusions in the body of his book, he ends it abruptly without commenting on the significance of the war. His exhaustive research deserved better treatment than it received.

For all of its shortcomings as history, it is easy--at times engrossing--reading and is recommended for anyone interested in either the Korean War or

the social history of the United States Army.

In today's climate of budget cuts, many would do well to read Blair's analysis of the effects of the dismemberment of the U.S. armed forces by the Truman administration in an attempt to balance the ledger books.

CONTEMPORARY STUDIES IN COMBAT PSYCHIATRY. Edited by Gregory Belenky (Greenwood Press, 1987. 271 Pages. \$39.95). Reviewed by Major Lisle K. Brook, United States Army.

This is an excellent selection of essays written by specialists from England, Canada, Israel, Egypt, West Germany, the United States, and other countries. They are generally written in a layman's terms and cover a variety of topics in addition to combat psychiatry.

The book is organized into three parts: the role of group cohesion and personality in maintaining effective performance in combat; the neurobiology of military and combat stress; and the psychological context of performance in combat. Numerous tables and figures support the essays, and the editor effectively links the essays with an informative introduction and conclusion.

Modern killing technology has increased the potential for combat-related psychiatric problems. The Arab-Israeli wars have shown that modern warfare will cause high numbers of battle stress casualties. Both military and civilian leaders should read this book to understand the causes, prevention, and treatment of such casualties.

It is especially recommended for infantry leaders because they have the professional obligation of understanding the behavior and emotions of their soldiers when they are placed under the stress of combat.

THE PERFECT FAILURE: KENNEDY, EISENHOWER, AND THE CIA AT THE BAY OF PIGS. By Trumbull Higgins (Norton, 1987. 224 Pages. \$17.95). Reviewed by Doctor

Joe P. Duun, Converse College.

Military historian Trumbull Higgins's five previous books have focused on war planning and military miscalculation in World War II and Korea. As a chronicler of military failures, he now turns his attention to one of the ultimate fiascos of the postwar world, the ill-fated Bay of Pigs operation of April 1961. How could the combined efforts of the National Security Council, the Joint Chiefs of Staff, and the CIA under two Presidents result in such a disaster?

Based upon interviews and recently released documents, Higgins relates a story of vacillating government officials, ambitious but poorly informed intelligence operatives, and frustrated military critics, as well as an overreliance upon undercover activities and military technology, especially the panacea of air power. He gives good insight into the approach taken by and the vulnerabilities of the Eisenhower and Kennedy administrations, and for the first time the critics of the operation are given a significant hearing.

Higgins's liberal point of view is strong. His biases are clear, and the book is overly judgmental and outspoken about individuals and policy. A didactic tone predominates throughout. Since the focus of this brief book is decision making, it is not as detailed on the actual events as is Peter Wyden's *The Bay of Pigs* (1979).

But all considered, this is an interesting and useful contribution to the literature. Moreover, it causes us to think about our covert activities later in Laos and Vietnam, as well as the same problems of communication, absentee command, and lack of good local intelligence evident in the invasion of Grenada, which *luckily* turned out better than did that of Cuba.

RECENT AND RECOMMENDED BRITISH SECURITY POLICY AND THE ATLANTIC ALLIANCE: PROSPECTS FOR THE 1990s. By Martin Holmes, et al. Institute for Foreign Policy Analysis, Special Report 1987. Pergamon-Brassey's, 1987. 140 Pages. \$9.95, Softbound.

WILD BLUE YONDER: MONEY, POLITICS, AND THE B1 BOMBER. By Nick Kotz.

Pantheon Books, 1988. 314 Pages. \$19.95.

THE REAL WAR. By Jonathan Schell. A Reprint with a New Essay by the Author. Pantheon Books, 1988. 398 Pages. \$7.95, Softbound.

NUCLEAR, BIOLOGICAL, AND CHEMICAL WARFARE. By T. J. Gander. Hippocrene Books, 1988. 128 Pages. \$22.50.

GAS ATTACK: CHEMICAL WARFARE 1915 TO THE PRESENT DAY. By William Moore. Hippocrene Books, 1987. 262 Pages. \$22.50.

THE BUSHMASTERS: AMERICA'S JUNGLE WARRIORS OF WORLD WAR II. By Anthony Arthur. St. Martin's, 1987. 270 Pages. \$18.95.

WINNING THE RADAR WAR, 1939-1945. By Jack Nissen, with A. W. Cockerill. St. Martin's, 1988. 224 Pages. \$19.95.

THE NIGHT TOKYO BURNED. By Hoito Edoiu. St. Martin's, 1988. 248 Pages. \$16.95.

THE LONG WAIT: THE FORGING OF THE ANGLo-AMERICAN NUCLEAR ALLIANCE, 1945-1958. By Timothy J. Botti. Contributions in Military Studies Number 64. Greenwood Press, 1987. 272 Pages. \$39.95.

THE LAST GAITER BUTTON: A STUDY OF THE MOBILIZATION AND CONCENTRATION OF THE FRENCH ARMY IN THE WAR OF 1870. By Thomas J. Adriance. Contributions in Military Studies Number 73. Greenwood Press, 1987. 192 Pages. \$32.95.

REPORT OF THE CONGRESSIONAL COMMITTEES INVESTIGATING THE IRAN-CONTRA AFFAIR. By the U.S. House of Representatives and U.S. Senate Select Committee, 1987. 708 Pages. \$29.00, Softbound. USGPO S/N 052-070-06378-5.

THE ARAB MILITARY OPTION. By General Saad El-Shazly. American Mideast Research (3315 Sacramento Street, Suite 511, San Francisco, CA 94118), 1986. 329 Pages. \$26.00.

A HISTORY OF THE ISRAELI ARMY, 1874 TO THE PRESENT. By Ze'ev Schiff. Macmillan, 1986. 304 Pages. \$24.00.

TERRORISM: HOW THE WEST CAN WIN. Edited by Benjamin Netanyahu. Farrar, Straus and Giroux, 1986. 254 Pages. \$18.95.

TO SERVE WITH HONOR: A TREATISE ON MILITARY ETHICS AND THE WAY OF THE SOLDIER. By Richard A. Gabriel. Praeger, 1987. 243 Pages. \$14.95, Softbound.

WAR ANNUAL I. By John Laffin. Brassey's, 1986. 187 Pages. \$14.74, Softbound.

ZONES OF CONFLICT: AN ATLAS OF FUTURE WARS. By John Keegan and Andrew Wheatcroft. Simon and Schuster, 1986. 158 Pages. \$10.95, Softbound.

THE ILLUSTRATED HISTORY OF THE VIETNAM WAR: TUNNEL WARFARE. By Tom Mangold and John Penycate. Bantam Books, 1987. 158 Pages. \$6.95, Softbound.

THE MILITARY RETIREE'S SOURCE-BOOK. By the Vanguard Editorial Staff. Vanguard, 2211 Lee Road, Suite 103 (Code PR), Winter Park, FL 32789. 1987. 100 Pages. Softbound.

UNITED STATES ARMY IN THE KOREAN WAR: THE MEDICS' WAR. By Albert E. Cowdrey. U.S. Army Center of Military History, 1987. USGPO S/N 008-029-00147-1. 416 Pages. \$21.00.

THE UNITED STATES GOVERNMENT MANUAL, 1987-1988. Office of the Federal Register, 1987. USGPO S/N 069-000-00006-1. 892 Pages. \$20.00, Softbound.

From The Editor

MISTAKEN IDENTITY

On a number of occasions in recent years, people have confused **INFANTRY** with a former well-known magazine called the **INFANTRY JOURNAL**. We are not and were not related. The **INFANTRY JOURNAL** was published by the old Infantry Association, a private organization that joined with the old Field Artillery Association in 1950 to form the present Association of the United States Army or AUSA. Today, that association, in addition to its many other activities, publishes **ARMY** magazine.

Our publication, which is now a professional bulletin, began in 1921 as the Infantry School **MAILING LIST**. For \$1.50 a year, subscribers to the **MAILING LIST** received individual pamphlets and other instructional material published by the School. Beginning with the 1930-1931 academic year, the School material was collected and published semi-annually in bound volumes. At the same time, original articles began to appear with increasing frequency in the publication.

The **INFANTRY SCHOOL QUARTERLY** replaced the **MAILING LIST** in July 1947, and in April 1957 the title of the publication was changed to **INFANTRY**, although its publication remained on a quarterly basis. In October 1959, we began the bimonthly schedule on which we still operate.

Thus, we are the oldest continuously published service school journal in the United States, although no volumes were printed in 1945 because of a paper shortage. We are quite proud of our long history of service to the United States Infantryman. With your continued support, we intend to keep our record of service intact for years to come.

REQUESTS FOR REPRINTS

We are always pleased to receive letters requesting reprints of our articles. If you are interested in one of them, and if the article is not copyrighted, please feel free to reproduce it. (If an article is copyrighted, it will say so on the title page.) We do ask, though, that you give the author and **INFANTRY** credit for prior publication if you reprint one of our articles. You can also buy reprints of our articles from University Microfilms International, 300 N. Zeeb Road, Ann Arbor, Michigan 48106.

The only other way you could obtain an article would be to buy a back issue from our subscription service fund's inventory. We do not make reprints.

SUBSCRIPTION RATES

INFANTRY is available to subscribers at \$12.00 for one year and \$23.00 for two years. Foreign (non-APO) subscribers must add \$4.00 per subscription per year to cover mailing (surface mail) and handling charges. Foreign air mail rates will be furnished on request. Single copies are \$2.50 each if sent to a U.S. address.

Payment must be made in U.S. currency, by international money order, or by a check or draft drawn on a U.S. bank. For best service, payment should accompany each order, because we cannot start a subscription until we have received full payment for it. Checks, money orders, or drafts should be made payable to **INFANTRY**.

One-year subscriptions are not refundable. Two-year subscriptions are refundable, but service and handling charges will be deducted.



DEPARTMENT OF THE ARMY
INFANTRY MAGAZINE
US Army Infantry School
ATTN: ATSH-I-V-M
Fort Benning, Georgia 31905-5593

SECOND-CLASS MAIL
POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
USPS Pub. No. 370630

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300



PIN: 064012-000