

Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM

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Infantry

A PROFESSIONAL JOURNAL FOR THE COMBINED ARMS TEAM

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The more we sweat in peace, the less we bleed in war. (*Chinese Proverb*)

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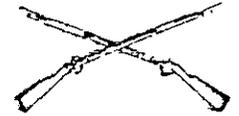
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Major General Edwin H. Burba, Jr.
Chief of Infantry

Commandant's NOTE



DISTINCTIONS BETWEEN BRIGADE AND BATTALION COMMAND

One of the biggest mistakes I made as a brigade commander was trying to command that unit as if it were a battalion. As I talk to senior commanders and see units operating throughout the Army, I sense that this is also a problem today throughout the Infantry force. I am not saying that some of the units have not figured this out, because many of them have. But for those who have not, I will present one perspective on the challenge. It is not presented because it is necessarily right but because it is a means of addressing some of the issues so that some of our great commanders in the field can think through the solution in consonance with their own personalities and command perspectives. No one has a monopoly on good ideas for command; certainly no two commanders will command the same way.

It is important to initiate this discussion by looking at what brigades and battalions do in combat. Normally, platoons fire or maneuver, companies fire and maneuver, and battalions fight the battle by synchronizing their combined arms assets. Brigades task organize and fit their troops and units to the terrain, assess the progress of the fight, and redistribute their combined arms combat power and assigned terrain accordingly. (This redistribution normally equates to the employment of the reserve and putting in and taking out combat support and service support elements.)

The division applies force multipliers and sustainment assets and integrates tactical and operational plans and operations. The corps and the field army execute the operational level of war through intelligence, deception, support, major task organizations, and broad METT-T taskings of fire and maneuver.

Applying these general organizational concepts in peacetime, we find that a brigade must be principally a resourcing and assessment headquarters. That is what it does in war; that is what it must do during peacetime when training takes the place of operations. Resourcing can be broken down into time, dollars, people, and facilities.

At the same time, the brigade commander must ensure that a prime time training system is working in his subordinate units. He must establish clear time frames in which high-quality training can be con-

ducted and the units are not burdened with such diversionary missions as post support. The brigade commander and his staff have the time to analyze any incongruities and weaknesses in the prime time system and have the clout with division to sort them out.

With future budget deficits chasing high equipment, procurement, and personnel costs, training dollars will be limited and will demand the detailed attention of our brigade commanders. All units are different and require different levels of funding in many different areas. The brigade staff must be discriminating in its analysis of how to equitably divide funds for POL, ammunition, spare parts, and other needs. Battalions and companies simply don't have the time to conduct the level of analysis required in this important area.

In the personnel area, the brigade commander and his S-1 must keep close watch over the incoming and outgoing status of his company commanders, first sergeants, platoon sergeants, mechanics, supply sergeants, dining facility managers, and other critically important personnel assets. If this analysis and resource decision-making is left to division and higher headquarters, it will likely be fragmentary, reactive, and unwittingly biased in one manner or another. Again, the brigade commander and his staff have the time and the clout to purify the analysis and ensure that their subordinate units are getting the people they need.

As we modernize our Army and apply weapon systems with increased range and mobility to our maneuver warfare doctrine, we find that our training areas, ranges, and facilities are coming under severe stress. The brigade must think through the issues associated with these challenges and alleviate problems that could significantly affect the training readiness of its battalions and companies.

There are no magic solutions here. The brigade commander and his staff compare subordinate unit training plans and methods with available resources and make trade-off decisions. Although most units are complaining about a lack of training facilities of one sort or another, we find that the actual use of these facilities is abominably low. There are obvious exceptions, but across the board our brigade

commanders and staffs must better analyze the challenges and sort through the solutions. Otherwise, our battalions and companies will get bogged down with training management functions not rightfully theirs or will cop out of good training because of a perceived "lack of training resources."

As peacetime resourcing is to wartime task organizing, so peacetime assessment is to wartime battle analysis. After the assessment/battle analysis, a brigade commander is then in a position to redistribute his assets and to direct further operations through another round of resourcing or task organizing. This is the way brigade commanders and their staffs properly influence the action; they are not down directing the firefights on an hourly or daily basis.

Too frequently, however, today's brigade commanders and their staffs are down in the training areas, motor pools, supply rooms, and arms rooms on a daily basis directing the action and promulgating guidance in many different areas. And they are not the only ones, for division staff members, ADCs, and others are participating in this same endeavor.

These are all smart people with good experience and are in a position to help, but when they descend upon the line companies in an incoherent manner they become disruptive instead. The lives of our company officers, NCOs, and soldiers are too frantic. The division commander, for example, may be visiting Companies A and C, while the battalion commander may be in Company B's area, the ADC may be in the motor pool, the brigade commander may be checking arms and supply rooms, and the division G-1 may be in the area checking OPERS.

Several staff officers or commanders may be in the same company during the course of one day. Too much guidance from too many sources creates a frantic environment for our battalions and companies. The best way our senior leaders and staff officers can influence the action at company level is to resource properly, promulgate well-thought-out, long-range guidance, and then, at a practical time, assess the performance of the line units.

I would therefore propose that brigade commanders put out quarterly guidance that would embrace measurable training, maintenance, administrative, and logistical objectives. At the end of a quarter, the brigade commander and his staff should determine how the units have implemented that guidance, sampling down to company level. The brigade commander might insist on setting aside five days out of the quarter during which he and his staff could do this assessment—say, three days for tactical assessment and two days for maintenance, administrative, and logistical assessments. This could be accomplished to high standards through the proper organization and training of the brigade staff.

During the other days of the quarter, the brigade commander and his staff should be assisting the companies by executing their resourcing functions and mentoring/teaching the battalion commanders and their staffs. They should not be in the company areas on a daily basis and should do their best to keep others away. Assessment day is the proper time for these visits.

This way of doing things will not only lead to a less frantic training environment in the line companies but should alleviate the zero defects, reactive environment that is endemic to those units. It will also allow the companies to make daily mistakes and learn by them so that when the day of assessment arrives, they can perform to high standards. This approach will also be more in line with developing the type of leadership—bold, imaginative, and non-reactive—that we need at the company and battalion levels to execute our current maneuver doctrine.

Now, let's talk about the battalion commander and his staff. Battalions synchronize and fight the battle in wartime. Similarly, and based on the brigade commander's guidance, a battalion must syn-

chronize its training, maintenance, and administrative/logistical programs during peacetime.

Just as a good battalion commander cannot command properly from a TOC during a battle, neither can he command properly from his headquarters during peacetime. He must be the one at the point of battle, knowing exactly what is going on and supervising various functions throughout his command. He must manifest his command guidance on the ground through his words and actions. His own staff officers become the companies' staff officers, and their feet must be held to the fire for the management and assessment of training, maintenance, administration, and logistics, and for operational support, if necessary. In my judgment, if a battalion or company commander is in his headquarters or orderly room for more than three hours a day, he is mortgaging the success of his outfit.

The battalion commander must be constantly assessing the training environment and solving problems on the spot, inspiring people with his command presence and calling on brigade for assistance when necessary. Daily, he must sense the status of his units' morale, maintenance, supply accountability, leader proficiency, and diversionary mission requirements. He must look in a discriminating fashion at how the mission is being accomplished in regard to who is being trained, to what tasks and standards, and how that training is being conducted. He must know whether it is the soldiers, NCOs, platoon leaders, company commanders, or small or large units that need to be trained.

He must determine whether Soldier's Manual tasks, collective tasks, ARTEP missions, marksmanship, gunnery, maintenance, or administration need more attention. He must decide how to integrate physical training, NBC, night operations, MOUT, maintenance, and motivational tasks and how to integrate the "who to train" with the "what to train." He must determine whether battle drills, individual skill stations, TEWTs, CPXs, or FTXs are to be conducted, or whether EDREs, CAPEXs, CALFEXs, or Admin/Log stations are to be implemented. He must insist that multi-echelon training be conducted—vertically, squad through company, and horizontally, across functional area tasks in combined arms areas.

To ensure that a risk-taking leadership is developed in his line companies, the battalion commander on a daily basis must place an umbrella over his companies to free them from diversionary missions and over-supervision. All these issues must be dealt with in a mentoring role and on the ground, if they are going to happen. In short, the battalion commander must command and lead his unit during peacetime just as he would during wartime, and he cannot have brigade and higher level commanders and staff officers interfering with his firefight. He can exercise his command functions only with the assistance of his higher level commanders, and particularly his brigade commander, who is in a position to place him in an environment where this can occur.

Officers who have served in command positions both during war and during peace much prefer combat conditions. Why? Well, it's because combat conditions dictate that divisions, brigades, and battalions perform the roles and missions for which they were designed. Regrettably, in peacetime, the command lines related to those roles and missions become blurred, and we find higher level commanders and staffs performing the business of lower level commanders and staffs.

If we can get the command and staff responsibilities performed in peacetime aligned with those performed during war, we will develop more positive command environments, better combat leaders, and higher unit readiness. At least, that's what I think. But you should think through the issues and do what is right for you. Drop us a line if you disagree or have ideas worth passing along.

ARMY PHOTOS

The article on unit histories by Major Glenn W. Davis (INFANTRY, January-February 1987, pages 13-14) is an excellent reference source, and I intend to use it as the basis for helping patrons of our museum library with questions about the histories of various Army units.

It should be noted, however, that the paragraph on page 14 concerning photographs needs to be updated to reflect the move last year of millions of Army photos of World War II and Korea from the Department of Defense to the National Archives and Records Service.

As I understand it, the Defense Audio-visual Agency now has Army photos only from 1955 to the present, while the National Archives maintains the earlier photos.

Additional information on photographs can be obtained from the Still Picture Branch, National Archives, Washington, DC 20408; telephone (202) 523-3236/3237.

DAVID A. HOLT
Librarian
Patton Museum
Fort Knox, Kentucky

OVER-BURDENED

Reference the excellent article "A Soldier's Load," by Captain William C. Mayville (INFANTRY, January-February 1987, pages 25-28), I quite agree with the captain—the foot soldier is a sadly over-burdened fighting man who cannot reasonably be expected to perform at his best on the battlefield. It seems to me that the "soldier loaders" would take a look at battle history and learn a few things. Apparently, they don't. They recommend that the soldier's load be restricted to 40 pounds. That's a lot of weight to carry on your back when you're fighting a war.

Realizing that infantry combat today is entirely different from that of World War II, I would like to pass on what the typical Canadian infantryman carried on his back and in his hands into battle in that war. It certainly wasn't 40 pounds, but perhaps half that weight.

He wore the standard two-piece wool battledress uniform, a steel helmet, and high boots (incidentally, the first "combat boots" issued to any Allied troops). He carried his Lee-Enfield rifle with its 10-round magazine (and "one up the spout" for insurance), an Imperial-pint canteen (water, tea or whatever was locally available), a short bayonet and scabbard, web belt, shoulder harness, and small pack on his back. In front, he wore two Bren pouches (each large enough to carry two Bren gun magazines but invariably filled with personal gear). In addition, he had one, sometimes two, Mills bombs (grenades), a cloth bandoleer holding ten 5-round clips of rifle ammunition, mess tins, knife, fork, spoon, housewife (sewing gear), groundsheet, socks, underwear, cigarettes (often at the expense of other gear), razor, soap, toothbrush and paste, and whatever he had in his pockets. He was ready for anything war had in store. (Chemical warfare was unknown, so gas masks were quickly turned back to platoon supplies. They were rarely discarded, for King's Regulations took an extremely dim view of soldiers who purposefully lost or destroyed government property.)

All of that tipped the scales at not much more than 20-25 pounds—and we felt vastly over-burdened. Quite often, depending on the job at hand, the small pack was left with the platoon 15-cwt (three-quarter ton) truck, and an extra bandoleer of ammunition or a couple of extra Mills bombs were substituted.

Those infantrymen didn't lay down volumes of fire. They had been trained to shoot straight, and a bolt action Lee-Enfield was an accurate rifle. Bren gun-

ners (light machinegunners, three per platoon) carried pistols if they could scrounge them, as did the number two men on the teams—the ones who toted the heavy ammunition boxes.

Often enough in the summer the battledress tunic was discarded, and the war was fought in rolled-up shirtsleeves. Also, very few over-burdened German infantrymen were seen around, and they were the real pros in that war—the rest of us were amateurs, reluctant or otherwise.

In short, the World War II Canuck infantryman went into battle carrying what he required for immediate survival, not what some quartermaster type back in Canada thought he should be carrying. Food and ammunition were his basic requirements, and food was often in the form of Cadbury raisin-chocolate bars or a handful of hard sugar candies. Hot meals were almost always provided by conscientious company cooks as quickly after an action as possible.

Granted, today's infantryman will fight a much different war from the one his World War II predecessor fought, but it seems to me that if he is suitably armed, munitioned, and fed, he should be ready for combat without having to struggle under an overload of "extras."

Besides, a heap of supplies and equipment on his back makes it all that much harder for him to hide himself when he hits the dirt.

ROBERT E. ROGGE
ARMOR Magazine
Fort Knox, Kentucky

PROOFREADERS DOZED OFF

Thank you for publishing my article "Bradley Platoon Organization" (INFANTRY, March-April 1987, pages 16-18). In reading it, however, I discovered three errors:

First, although the byline reads "Ma-

101." I am still a captain.

Second, in the illustration on page 17 one of the Rs (for rifleman) was omitted from the fire team on the right. There should be four men on that team.

Finally, the last sentence of the center column on page 17 should read "Each BFV platoon would lift an infantry platoon by taking the six fire teams (four or five men each) . . . not "four or six men each."

CHESTER A. KOJRO
CPT, Armor
Fort Knox, Kentucky

JOHNNY STILL CAN'T READ A MAP

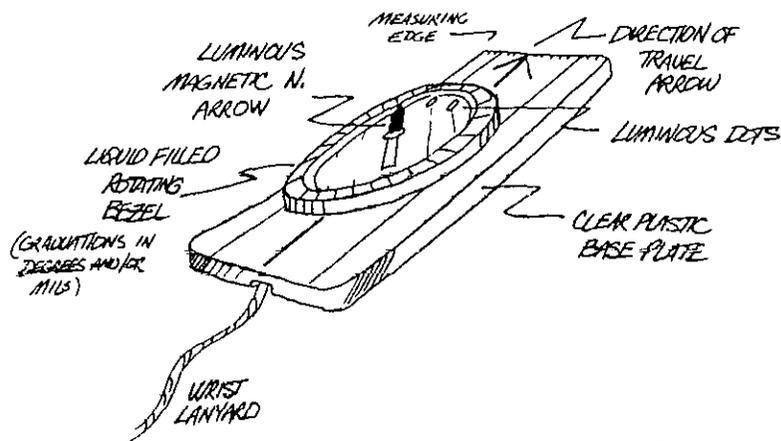
Some of the innovative tools and techniques used for years by sport orienteers are now becoming more common in the military community. These tools allow new navigators to learn the basics faster, progress more rapidly, and retain instruction better. But more units and agencies should be taking advantage of the dramatic benefits.

In his article "Why Johnny Can't Read . . . A Map" (INFANTRY, July-August 1979, pages 6-8), Lieutenant Colonel Dan Telfair identifies the problems with teaching map reading:

Because our training base has not come up with a training methodology to use in teaching our junior enlisted soldiers land navigation in a reasonable amount of time, the subject has been dropped from POIs or reduced to a minimum level of familiarization. . . Johnny can't read a map because for all these many years we have given him the wrong tools and have taught him to use them in the most complex way imaginable.

But now, eight years later, Johnny still can't read a map.

One of the orienteering tools that we could be using to a greater extent for military applications is the clear-based protractor-style compass, which simplifies the basic techniques employed with all compasses. (Common manufacturers of this compass are Silva, Brunton, and Suunto.) It is superior to other compasses when instructing new navigators, and its simplicity and ease of use makes



TYPICAL PROTRACTOR-STYLE COMPASS

it an excellent device for advanced navigators as well. Inexpensive models are available that incorporate bearings in degrees and mils, clicking bezel rings, pace counters, and luminous markings. A specific sighting-model protractor-compass is accurate to within half a degree and is used universally by makers of detailed orienteering maps during their field surveys.

Contrary to traditional thought, novice navigators learn quicker and retain more basic instruction with accurately detailed, five-color, large-scale (1:10,000 or 1:15,000) orienteering maps. Then they can more productively make the transition to less detailed, smaller-scale maps (1:24,000, 1:25,000, or 1:50,000). With the emerging popularity of sport orienteering, the local availability of maps of this type has increased. Five-color maps of International Orienteering Federation quality exist for many of our urban parks and state or national wildlife preserves.

For new students, the complexities of deciphering the declination deviation and the grid-to-magnetic angle can be simplified temporarily for the sake of instruction by altering standard military maps. A straight-edge and red ballpoint pen can be used to extend the magnetic north lines across a map's face. This simple change, by eliminating the need to convert grid-to-magnetic and magnetic-to-grid angles, allows novices to concentrate on reading the map, selecting routes, and recognizing terrain features.

Methods of teaching map reading also need to be improved, and, again, orienteering methods can help greatly.

I have been an avid competitive sport

orienteer since 1979 and served for four years as orienteering coach for the U.S. CIOR team. (CIOR is the acronym for the French version of International Confederation of Reserve Officers.) During that time, we successfully used orienteering training techniques to identify the best navigators from about 30 able candidates and then, in about two weeks, to convert them into competitive champions.

Large-scale (1:15,000 to 1:25,000), detailed, five-color orienteering maps, plastic protractor style compasses, and training techniques endorsed by the U.S. orienteering team were used to achieve this rapid and successful training.

In addition to CIOR's use of these techniques, the Army ROTC "Ranger Challenge" competition also employs "score" orienteering competitions to test military navigators.

The reason these tools and techniques work so well for sport orienteers and military navigators alike is that they simplify the tasks involved, emphasize map memory and terrain picturing, and stress economical route selection.

Winning in the demanding environment of competitive navigation requires the same intensity of concentration and accuracy that winning in a combat environment requires. To be successful, navigators have to commit themselves to using the time-approved skills of the professionals. Better tools and techniques are available. We must now employ them service-wide.

MARK M. EARLEY
CPT, Infantry
San Antonio, Texas

TEAM VEHICLES

Mechanized infantry squads equipped with the M113A2 armored personnel carrier have three weapons that can be used with some efficiency against Soviet armored vehicles: the M47 Dragon, the M2 .50 caliber machinegun, and the 7.62mm M60 machinegun. All three weapons are carried in or on the same vehicle.

The Dragon, with a maximum effective range of 1,000 meters, should not be used against tanks but against infantry carriers. Because of its launch signature and long flight time, the Dragon carries an inherent danger for its gunner, who is vulnerable to suppressive fire from long ranges. (There are recorded instances from World War II of U.S. infantrymen using bazookas against German tanks from ranges of 10 yards, and from Vietnam of the use of B40-RPG2s at ranges of 10 meters. But the results were not very pleasant for the gunners.)

The .50 caliber machinegun is of dubious value against anything other than thin-skinned vehicles and area targets, because of its low penetration and the instability of the M113A2 mount. In its air defense role, the .50 caliber machinegun simply slings bullets into the sky.

The M60 machinegun, like the .50 caliber, can damage ancillary equipment on armored vehicles—lights, antennas, and such—but its primary purpose is to kill enemy infantry.

Instead of three squad-sized elements in a mechanized infantry platoon, plus a headquarters vehicle, what is needed are six *team* vehicles—plus, of course, a headquarters vehicle.

With three Dragon vehicles and three machinegun vehicles, each with a crew of five, the mobility and survivability of a mechanized infantry platoon would be increased, and the platoon leader would have more choices as to the disposition and firepower from his platoon. With the proper power plant, seven light vehicles would be able to move faster from one position to another than would four medium-sized vehicles. And, of course, smaller vehicles make smaller targets.

Since team vehicles would be small and lightly armored, state-of-the-art laminate armor would not be necessary. Spaced-armor boxes could be slung on areas of

greatest vulnerability.

As presently constituted, a mechanized infantry squad has three teams: a carrier team, a Dragon team, and an M60 machinegun team. Since the squad's primary weapons are the Dragon and the M60, the squad is built around these two weapons. The carrier team delivers the Dragon and M60 teams to their destination. The function of the two teams is to protect each other—the Dragon team protects the M60 team from enemy armor, and the machinegun team protects the Dragon team from enemy infantry.

Since the squad, as now constituted, has two major teams, why jeopardize the survival of the teams by placing them in the same vehicle? If the teams were split, each with its own vehicle, their survivability would be increased.

The Dragon team would consist of:

- Dragon gunner, with Dragon and M16A1 rifle.
- Assistant gunner, with M16A1 rifle.
- Squad leader, with M203 grenade launcher.
- Vehicle commander, with mounted machinegun.
- Vehicle driver, with M203 grenade launcher.

The machinegun team would consist of:

- Two machinegunners, with weapons mounted on vehicle pintles.
- Team leader, with M203 grenade launcher.
- Vehicle commander, with mounted machinegun.
- Vehicle driver, with M203 grenade launcher.

Rank integrity would be maintained by having the squad leader in command of both teams and still carrying the rank of staff sergeant. The machinegun team leader and the Dragon gunner would be sergeants. (Since the Dragon is the squad's primary antiarmor weapon, why not give the gunner more rank?) Vehicle commanders would be specialist fours. To take the idea a step further, the Dragon vehicle could be built with a pop-up launcher—a "mini-ITV."

No doubt, research is in progress on a replacement for the Dragon. Whether it turns out to be television guided or "fire-and-forget," an antiarmor vehicle for each squad should also be considered; combined with a machinegun vehicle, it

would make the mechanized infantry squad more mobile and better able to survive on the modern battlefield.

ROBERT C. MERRIMAN, JR.
SFC
Sulphur Springs, Texas

OLD GUARD REUNION

The 3d U.S. Infantry (The Old Guard) Veterans Association will hold a reunion at the Officers Open Mess, Fort Snelling, Minnesota, on 19 September.

Companies are encouraged to hold reunions the previous Friday.

For more information, anyone who is interested may write or call Howard Wright, 10341 Harriet Avenue South, Bloomington, MN 55420; (612) 888-2038.

ELLSWORTH A. ANDERSON
CW3, Retired
Junior Vice Commander

47th INFANTRY REACTIVATING

The 47th Infantry, which is being reactivated, is searching for an Honorary Colonel and an Honorary Sergeant Major of the Regiment. Retired officers in the rank of colonel or above and retired noncommissioned officers in the rank of sergeant first class or above with prior service in the 47th Infantry may apply.

In addition, active duty, retired, or former soldiers who served in the 47th are being sought for nomination as Distinguished Members of the Regiment. Anyone who would like to share regimental memorabilia from the 47th should also contact us as soon as possible.

Upon selection of the Honorary Colonel of the Regiment, an official reactivation ceremony will be held at Fort Lewis.

Further details are available from Commander, 2d Battalion, 47th Infantry (ATTN: ILT DeBoer), Fort Lewis, WA 98433-6430; (206) 967-3647/3871.

STUART A. WATKINS
LTC, Infantry
Commander
2d Battalion, 47th Infantry

THE U.S. ARMY OFFICER Candidate Alumni Association was officially activated on 12 February 1987 with ceremonies at Fort Benning, Georgia. The association's purpose is to track the achievements of Officer Candidate School (OCS) graduates, on both a military and national or state level, and to foster, maintain, and strengthen a sense of fraternity among OCS alumni. The association will acquire information on the history, activities, and objectives of the Officer Candidate School and disseminate it through its quarterly newsletter.

Four general types of membership are available (all members are entitled to equal participation and benefits of the association):

- Active membership for persons of any branch of the Army now on active duty who graduated from the Officer Candidate School at Fort Benning, Georgia, or the Ground General School at Fort Riley, Kansas, and subscribe to the purpose for which the association was formed.

- Corporate membership for corporations that subscribe to the purpose for which the association was formed and pay an annual membership fee determined by the Executive Council. Membership shall be for one year, renewable annually.

- Association membership for military retirees, civilians, or Reserve Component personnel who graduated from or served as cadre at the Officer Candidate School at Fort Benning, Georgia, or the Ground General School at Fort Riley, Kansas, and subscribe to the purpose for which the association was formed.

- Honorary membership for persons distinguished in civilian life or military service who are deserving of recognition for their support of the Officer Candidate School.

Current dues for active and associate members are \$10 a year or \$100 for a lifetime membership. Corporate dues are \$1,000 annually. Honorary members are granted free membership upon selection

by the Executive Council.

Anyone who wants a membership in the OC Alumni Association or more information about it may send an application to or contact the Secretary, OC Alumni Association, P.O. Box 2192, Fort Benning, GA 31905; (404) 545-5434/5460.

A COMMANDER'S SUPPLY Handbook has been developed for unit level commanders to use in managing their supply responsibilities.

The pocket-sized handbook outlines commanders' regulatory responsibilities in two ways—the things that must be done on a periodic basis, such as monthly or quarterly, and the things that must be done in unit functional areas, such as the supply room, arms room, or motor pool. It provides guidance on such subjects as change of command inventories, relief from responsibility actions, and unit supply personnel and training.

The handbook is part of the command supply discipline program initiated by the Army Logistics Evaluation Agency. Further information is available from Commander, USALEA, ATTN: DALO-LER, New Cumberland Army Depot, New Cumberland, PA 17070-5007; AUTOVON 977-6634/6618.

THE ARMY FITNESS BADGE is awarded to soldiers who score at least 290 points out of a possible 300 and who meet the Army's weight standards. These soldiers may keep the badge as long as they maintain these same requirements.

The badge is worn on the upper left side of the organizational sweatshirt or T-shirt or in a similar location on individually owned PT clothing.

Until the badges are available in the Army supply system, initial award copies can be obtained through local-purchase procedures in coordination with the Army and Air Force Exchange Service

(AAFES) special order process.

The badge is also available in AAFES military clothing sales stores for soldiers who want to buy extra copies.

CROSSED ARROW INSIGNIA has been approved for wear by officers assigned to and affiliated with Special Forces or special operations units. Officers who are affiliated with the 1st Special Forces but not physically assigned to a Special Forces or special operations unit may *not* wear the insignia. In addition, the insignia is *not* authorized for wear in official photos.

The insignia should be available in the AAFES system by the end of the year.

THE WEAROUT DATE for some uniform items has been changed to 30 September 1987 as a result of the delay in fielding the hot weather BDUs.

These items include the OG 107 hot weather jungle fatigue for men, the OG 107 cotton poplin shirt and slacks for women, and the OG 507 durable press utility uniform for both men and women.

These changes will be included in the update of AR 670-1.

U.S. ARMY SOUTH (USARSO), activated in Panama in December 1986, has resulted in the formation of an Army headquarters for U.S. Southern Command (USSOUTHCOM). USARSO was formed from assets of the 193d Infantry Brigade (Panama).

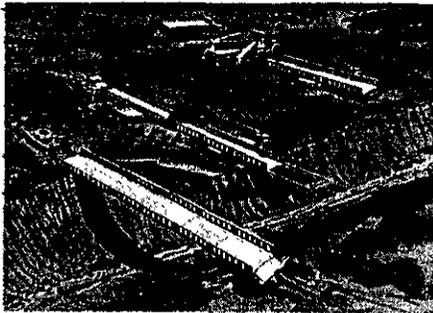
As a major Army command directly subordinate to the Department of the Army, USARSO has been organized to command and provide administrative and logistical support. In addition to its role in defending the Panama Canal and supporting responsibilities in the region, USARSO is better equipped to provide USSOUTHCOM with planning and programming support.

The new command is now the parent unit of the 193d Infantry Brigade and assumes the brigade's functions in support of USSOUTHCOM.

Headquarters for USARSO is at Fort Clayton, Republic of Panama, which has been the headquarters of the 193d Brigade.

A MODULAR COMPOSITE-material bridge is being developed that can be erected three times as fast as the dry gap bridge the Army now uses and with fewer men and less equipment.

Composite materials are the new lightweight, high strength materials of aramid fibers, carbon, and epoxy that have been used successfully in space and also on earth in such items as skis, tennis rackets, and the Army's new helmet.



The use of these materials will result in a bridge 27 feet longer but weighing 40 percent less than the current standard medium girder bridge.

The bridge will be carried in 60-foot modules and launched by trucks equipped with rollers and cranes. When they arrive at the site, the modules will be rotated 90 degrees and expanded to provide bridge sections 60 feet long, 15 feet wide, and 80 inches deep.

Six men will be able to complete the operation in 45 minutes, compared to the 33 men and three hours it now takes to erect the MGB.

THE DIRECTORATE OF Combat Developments has provided the following items:

The Military Motorcycle (MILMO). A development program currently being pursued will result in the acquisition of a commercial two-wheeled motorcycle for use by the Army. The program will satisfy an Armywide requirement for a sup-

plementary means of performing command, control, communications, and other specialized missions, such as liaison, limited logistical resupply, and rapid long-range reconnaissance. About 6,000 motorcycles will be purchased and issued to combat, combat support, and combat service support units throughout the Army

Current procurement planning projects the award of the MILMO production contract for July 1987 and, after production testing, a first unit equipped (FUE) date of June 1988. The completion of parallel efforts to develop training materials, logistic support packages, and a motorcycle helmet is expected to coincide with the FUE date.

Enhanced Position Location Reporting System (EPLRS). EPLRS, to be fielded in the near future, will give the infantry commander additional command and control capabilities. It will provide position location, identification of friendly forces, navigation aid, and secure communications.

The approved distribution of the EPLRS equipment—the Enhanced Position Location Reporting Users Unit (EPUU) and the Users Readout (URO) device—will be to brigade main, rear, and tactical CPs and to battalion main and tactical CPs and combat and field trains. The equipment can be mounted on a combat vehicle or man-packed during dismounted operations.

Operational testing of EPLRS is to begin in Fiscal Year (FY) 1988, with the 1st Cavalry Division at Fort Hood being the lead unit.

The present fielding schedule is 1st Cavalry Division—FY 90; V Corps—FY 91; VII Corps—FY 92; XVIII Corps and I Corps—FY 93; and III Corps and all others—FY 94.

Advanced Small Arms Program. The U.S. Army is now undergoing a small arms modernization process that introduces six new weapons to replace six old ones: The M16A2 replaces the M16A1 rifle; the M16A2 Carbine, the M3SMG; the M9 pistol, the .45 caliber; the M249 SAW, the M60 machinegun; the MK 19 MOD 3 GMG, the M2 .50 caliber machinegun (50%); and the sniper weapon system, the M21 sniper rifle.

Although these improvements provide

a significant increase in capability, the Infantry School believes there is a requirement for an advanced small arms program that includes an unprecedented improvement in lethality and accuracy of munitions and in the means by which these munitions will be delivered.

On the basis of an analysis of tactical scenarios, the School has determined that a family of three weapons should be fielded:

- The advanced personal defense weapon (APDW) will provide a highly lethal effect against threat personnel within 25 meters. It will replace all combat pistols and selected carbines.

- The advanced individual combat weapon (AICW) will be the soldier's basic armament. It will kill or incapacitate personnel and light armor and suppress movement of personnel at medium ranges. It will replace all rifles and individual grenade launchers.

- The advanced crew-served weapon (ACSW) will accurately deliver highly lethal munitions against personnel and light armor at long range. The ACSW will replace all heavy machineguns and the MK19 MOD 3.

The primary focus of this effort is on target effects. Through the use of exploding and fragmenting munitions and laser beam sighting and fire control measures, the small arms program will be able to achieve the revolutionary changes needed to significantly increase infantry capabilities.

New Computer for TOE and BOIP Development. In the future, Tables of Organization and Equipment (TOEs) and new equipment Basis of Issue Plans (BOIPs) will be developed using a new computer system. The new system, by linking all of the Army schools' organization development divisions to the organization master files at Fort Leavenworth, should reduce the turn-around time for TOE and BOIP actions.

The heart of the new system is an INTEL 310 microcomputer using the XENIX operating system and TRADOC-developed application software. The new computer standardizes the organization ADP system and offers marked improvements in power, capacity, and flexibility over the current MOHAWK system.

With the planned future software im-

provements, TOE and BOIP developers will be able to develop documents the same way letters are typed, edited, and corrected on word processors. The expanded capacity will allow the sorting and cross-checking of the documents within the data base, thus eliminating time-consuming manual procedures.

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

Short-Range Thermal Sight (SRTS). Since 1980 the Infantry School has been receiving word from the field indicating interest in a rifle sight system that will provide an all-weather, day-and-night firing capability.

During a functional area information briefing by the Center for Night Vision and Electro-Optics in May 1984, the U.S. Army Training and Doctrine Command (TRADOC) was tasked with providing a requirement document for a thermal rifle sight. The Infantry School, as proponent for infantry rifle sights, asked the Infantry Board to conduct a concept evaluation program (CEP) test of three short-range thermal sight (SRTS) candidate systems.

The SRTS, which can be mounted on the carrying handle of the M16A2 rifle, is a short-range, lightweight, passive thermal, day-and-night sighting device to be used during all weather, climatic, and battlefield conditions, including smoke and dust. The sight can be used during daylight operations because of its ability to see through single-layer foliage and camouflage. It is modular in design to allow for maximum commonality and interchangeability of parts with other systems (crew-served weapon sights, handheld thermal sights, and goggles).

The CEP test was conducted from 3 November 1986 through 7 January 1987 at Fort Benning under existing weather conditions and ambient light levels during both day and night. Twenty infantry soldiers who were qualified on the M16A2 used the candidate systems, the AN/PVS-4 individual weapon night vision sight, and the unaided eye in a series of side-by-side comparisons during nonfiring day and night battlefield target detection and recognition exercises. During a night live-fire target engagement exercise, test soldiers fired the M16A2 rifle with

the SRTS candidate systems and the AN/PVS-4.

The tests included target detection and recognition, hit probability, reliability, position disclosing effects, and human factors and safety.

The Infantry School will use the test results to assess the potential of the SRTS for infantry application.

Sniper Weapon System (SWS). A need exists for an easily maintainable, accurate, and highly reliable sniper weapon system (SWS) that can be carried by or delivered with an individual parachutist. Because the current M21 sniper rifle does not meet the maintainability criteria, actions were taken by the U.S. Army John F. Kennedy Special Warfare Center and the U.S. Army Infantry School to procure an SWS through the nondevelopmental item (NDI) program.

Two SWS candidate systems were provided for testing. Both were 7.62mm bolt action rifles with adjustable stocks, four-round capacity magazines, and 10-power telescopic sights. One system weighed 11.2 pounds and the other 13.5 pounds.

Sixteen experienced riflemen, eight from the U.S. Army Marksmanship Unit, four from the Special Warfare Center, and four from the 3d Battalion, 75th Ranger Regiment, participated in the user test conducted by the Infantry Board from 7 January through 2 February 1987. Hit performance data was collected on the capability of each system when engaging targets at ranges of 500, 700, and 800 meters. Ruggedness data was generated during 21 parachute jumps with each system.

The test results will be used by the Special Warfare Center and the Infantry School to formulate a recommendation to the material developer, the U.S. Army Armament Research, Development, and Engineering Center, concerning the NDI program for the SWS.

THE NATIONAL INFANTRY Museum has provided the following notes:

A mural depicting North African desert terrain is being added to the walls adjacent to the World War II *Kubelwagen* on display in the Museum's Axis Powers wing. The vehicle was used extensively

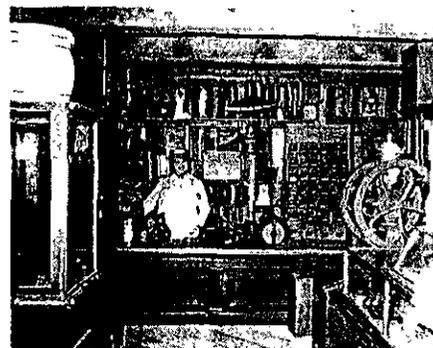
in Germany's African campaigns, and the new background will add interest and perspective.

The 36th Engineer Group has constructed seven new concrete pads on the Museum grounds for the exhibit of artillery pieces and armored vehicles.

A collection of early 20th century medals, both U.S. and foreign, worn by Major General Charles H. Muir, has been donated to the Museum by his family. Already on display were the U.S. Military Academy uniforms of five generations of the Muir family.

The Museum was honored with a \$1,000 grant from the Rockwell International Corporation Trust in recognition of the Museum's effort to honor the Infantryman.

A number of other monetary contributions have been received in memory of Major General Thomas J. Tarpley, who died recently. General Tarpley was a former Fort Benning commanding general. After his retirement, he was instrumental in raising a large amount of money for the National Infantry Museum Association's building fund and continued to be an active supporter until his death.



Sutler's Store

The Museum's Sutler's Store display was featured in a film relating the history of the Army and Air Force Exchange Service. A copy of this interesting film was given to the Museum by the AAFES and is being shown to visitors.

Noted author and military historian Martin Blumenson recently gave a lecture on the Italian campaign in World War II to a capacity audience in the Museum's auditorium. Dr. Blumenson wrote several volumes in the Green Book series, the official history of the U.S. Army in World War II, and more recently, books on

Generals Mark Clark and George S Patton.

The Directorate of Logistics has issued to the Museum an M561 one-and-one-quarter-ton cargo truck known as the "Gama Goat" for its designer, Roger L. Gamaunt. Designed in the late 1950s, it won out over seven other entries in competition for such a vehicle and at last entered service with the Army in 1970. The vehicle is now being replaced by the High Mobility Multipurpose Wheeled Vehicle (HMMWV).

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 or \$10.00 for a lifetime membership.

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

A PLASTIC FUEL CAN that holds more, weighs less, and is more durable than the standard five-gallon metal can has



been developed under a joint program by the Canadian Army and the U.S. Army Troop Support Command's Belvoir Research, Development, and Engineering Center.

The can, which holds a little more than

5½ gallons, will not corrode, and it is designed to fit the same vehicle racks as the metal can

It will undergo environmental tests at the Cold Regions Test Center in Alaska, the Yuma Proving Ground in Arizona, and the Tropic Test Center in Panama. Further tests will be conducted by the 9th Infantry Division and selected quarter-master units.

If the tests are successful, the Army will develop a technical data package for quantity procurement.

ORGANIZATIONAL CLOTHING and individual equipment are always in the process of being modernized and improved. The following is an update of estimated delivery dates of supply (EDOS) for current items:

- The Personnel Armor System Ground Troop (PASGT) Helmet is now about half fielded.

- The Combat Vehicle Crewman Uniform System (CVCUS) is to be fielded some time this fiscal year.

- The Hot Weather Battle Dress Uniform (HWBDU) has been fielded on a limited basis. (Mandatory possession date for one set HWBDU and wearout date for green fatigues has been changed to 1 October 1987.)

- The Extended Cold Weather Clothing System (ECWCS) has been issued to the 7th Infantry Division and the 10th Mountain Division. Follow-on issue will be to special operations forces, Rangers, the 6th Infantry Division, and units in climatic zone VII. Other issues will be made as stocks of current cold weather clothing are exhausted.

- The new combat boot is now stocked in clothing sales stores.

In addition, there is a continuing effort to provide all soldiers with less bulky items through the application of new technologies and materials. Initially such items will go to the light infantry divisions. The following are examples of these items:

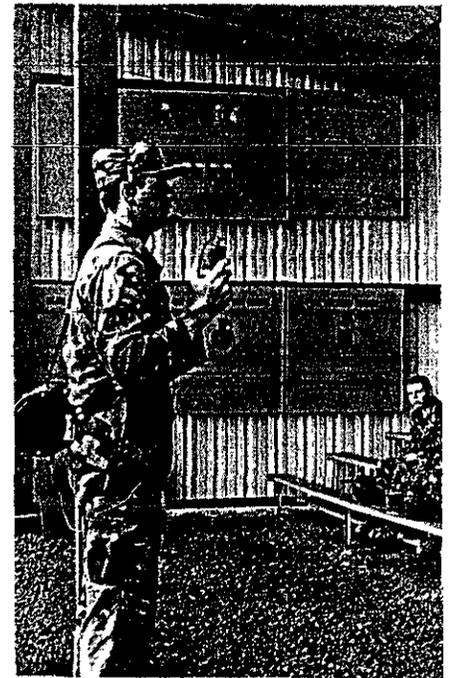
- Extreme Cold Weather Sleep System (ECWSS) to be fielded in FY 1989.

- Individual Tactical Load Bearing Vest (ITLBV)—FY 1988.

- Field Pack, Large, with Internal Frame (FPLIF)—FY 1988.

- Individual Multipurpose Shelter (IMPS)—FY 1989.

THE ARMY'S NEW AUDIOPACK sound system (NSN 5830-01-140-8220) has proved to be a boon to cadre training. The portable, 24-volt system has improved training by amplifying and projecting instructors' voices in a 360-degree circle up to 100 meters. In addition, it leaves the user's hands free to demonstrate weapons handling and self defense, hold a clipboard and pen, or react to emergency situations.



The AudioPack is convenient to use, even for extended periods of time. An instructor simply slips the six-and-a-half-pound public address system on like a backpack and regulates the volume control by a twist of the dial on the headset microphone.

The added voice power ensures that all the soldiers in a typical class in the field hear vital instructions, especially in a noisy training environment.

INFANTRY HOTLINE

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

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

Military History Its Importance Today

MAJOR JOHN. L. LANE

It is not unusual to hear someone argue that the study of military history is of little value in solving current tactical problems. This is certainly not a new argument. For example, Lord Seaton, one of Wellington's officers during the Peninsular Wars against Napoleon I, was once asked how a man could gain proficiency in the art of war. Lord Seaton replied, "By fighting, Sir, and a great deal of it." No doubt this distinguished officer meant to imply that a little practice is worth a great deal of theory.

But consider a most telling comment made by Frederick the Great:

A mule who has carried a pack for ten campaigns under Prince Eugene will be no better a tactician for it, and it must be confessed, to the disgrace of humanity, that many men grow old in an otherwise respectable profession without making any greater progress than that mule.

I certainly do not belittle the value of war experience. After all, Prince Eugene's mule lacked the mental creativity to apply its own unique war experience. Today, though, there are only limited opportunities for military leaders to gain first-hand experience in warfare and to profit from that experience. Substitutes, therefore, must be found to prepare our tactical leaders for the actual experience of war. And while the Army has developed a number of excellent tactical leadership training methods, this training

must be supplemented by a study of the tactical lessons of the past, because it is precisely through this kind of study that our leaders can develop the mental flexibility they will need on the modern battlefield.

I do not hold that the study of military history will make all tactical leaders brilliant, or that it will confer resolution and rapid decision making abilities on those who are timid and irresolute by nature. But the quick, the resolute, and the daring, recognized for their sound decisions and rapid actions, will be all the more likely to decide and act correctly in battle if they further their study of the art of war.

OBJECTIVES

Military history may be studied with different objectives—to learn strategic lessons and the higher branches of the art of war, or to extract from the readings tactical lessons that are still applicable to the conditions of our own time.

For our purposes, the first of these objectives deserves only a brief comment. It is sometimes argued that only officers who aspire to high command or hold important positions on high level staffs should find it necessary to study strategic lessons from history. This idea is either an impudent excuse for idleness or an ab-

ject admission that this branch of the military art is utterly beyond the capacity of the ordinary leader. Every tactical leader must study the historical foundations of current strategic doctrine if he expects to understand that doctrine and insure its correct application at the operational and tactical levels.

If this view of the need to study strategic lessons is accepted, what about the study of tactics? The study of tactics must develop from the foundations taught at the service schools into a committed study of tactics in the field. Studying and contemplating the tactical lessons of the past is important to all professional soldiers.

Determining how to study tactics, though, is not without considerable difficulty. Whatever may be said of the immutability of the principles of war, there can be no question that the constant changes and improvements in weapons alone profoundly affect tactics. Accordingly, it is foolish to imply that past tactical lessons can be blindly applied to today's tactical challenges. This being the case, it may be difficult to comprehend what today's professional soldier can learn from studying the battle of Agincourt in 1415 or firefights in the Vietnam war.

Perhaps the best way to overcome this difficulty is to recognize that two basic historical methods are used to analyze

past tactics. First, there is the speculative method, which, from the study of armaments, new inventions, weapon testing, and incidents on the battlefield, tries to identify and analyze the changes that have taken place in tactical principles from previous battles. Second, there is the method that concentrates on actual war experiences. This method also considers the modifications to tactical principles that new arms and appliances may produce, but it is more concerned with the similar conditions that ruled the past battles. This method traces the continuities in tactical principles.

The professional soldier should be a student of both methods, for the study of history matures the professional's judgment and perception without involving him in the actual violence of past battles. It gives the professional soldier an appreciation of the realities of combat, and recognizes that man is the fundamental instrument of war. The vivid descriptions of how rain, mud, protective clothing, fatigue, and the leader's will affected soldiers and tactics at Agincourt and in Vietnam can take on new meaning. Combined with a sound study of current tac-

tical principles, these will enable the professional leader to discriminate between what he can accept as applicable to the present day and what he must reject as inappropriate.

Currently, the analysis of tactical lessons in military history has taken on a variety of forms to supplement the available historical monographs: staff rides, map exercises, terrain models, visual effects, and copies of original correspondence. Each of these, however, remains closely associated with the historical time period of the particular battle. Thus, this kind of analysis is only the first step in uncovering and understanding the tactical lessons of the past.

The next step is to concentrate on the leaders. The student must place himself in the commanders' shoes and in their minds. He must examine their backgrounds and experiences, and then reconstruct their thought processes during the battle. This is not something new. Frederick II of Prussia implored his officers to go beyond memorizing the military exploits of any commander and "work hard mainly to examine thoroughly his overall views and particularly to learn how

to think in the same way."

The student can also gain experience through an imaginative participation in the experiences of others. When he is studying, or out on a staff ride to a battlefield, he should not only envision the past tactical situation but also speculate about those tactical lessons that may be applicable today.

Studying military history with imagination and vision is the key to applying the tactical lessons of the past to the tactical challenges of the present. By exercising their minds in this manner, professional soldiers gain experience, and this is what distinguishes the competent professional from Prince Eugene's mule.

A constant dialogue between the lessons of the past and the tactical challenges of the present and future can heighten our ability to recognize those challenges, analyze all the possibilities and then take decisive action.

Major John L. Lane is an assistant professor in the Department of History, United States Military Academy. He has served in a variety of infantry assignments with the 82d Airborne Division and the 1st Armored Division. A 1975 graduate of USMA, he also holds a master's degree in history from Stanford University.

Aerial Photography

CAPTAIN EUGENE J. PALKA

All branches of the military service rely upon the products of aerial photography. Although rapid and highly technological advances have been made in the systems used to acquire and produce air photos, the two principal military applications of aerial photography are still map-making and intelligence.

The military applications of aerial photography date back to the Civil War when innovative commanders tried to use "balloon photography" to obtain information about enemy positions. It was not until World War I, however, that aerial photography was first recognized as a military

necessity. By then, it had become apparent that, apart from its immediate application to intelligence activities, aerial photographs could be used to produce new maps or to revise outdated ones in a relatively short time.

World War II provided the conditions under which aerial photography was able to grow from an art into a science. Military usage was based upon involvement in worldwide operations, the need for both strategical and tactical intelligence, and the requirement for thousands of time-sensitive maps. It was during this period when aerial photography achieved paramount

importance with the rapid development of photogrammetry, for which aerial photos provided the basic source of map data.

In addition to its value to map-making, some sources have concluded, aerial photography during the war provided military experts with almost 90 percent of their intelligence information.

The development of military aerial reconnaissance capabilities continued through the Korean conflict and the Cuban crisis. In Vietnam, practically every movement made by U.S. troops demanded aerial reconnaissance, because the terrain greatly favored the guerrilla tactics

of the Vietcong. (They traveled lightly under the cover and concealment of the jungle, continuously attempting to exploit the element of surprise and then disengage.)

Today, in its intelligence role, the aerial camera is the eye of the Army, and it supplies vital information about terrain and enemy positions and activities. Moreover, photo reconnaissance provides a substantial portion of the intelligence and targeting information for military planning and operations.

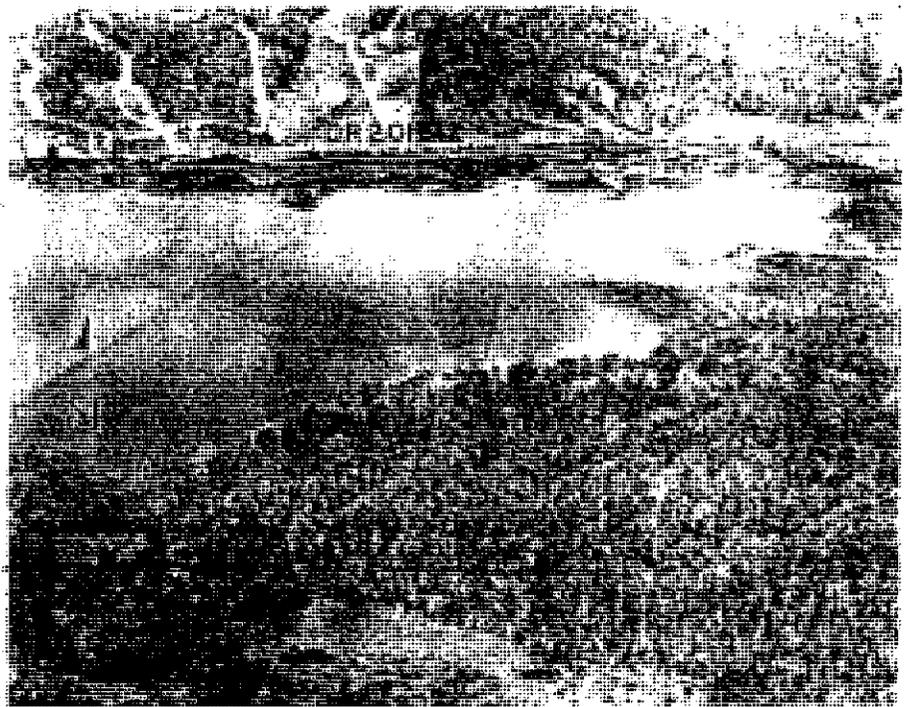
Photo reconnaissance is used at all three levels of war, strategic, operational, and tactical. The strategic and operational levels involve the highest echelons of all branches of the military services and are focused upon national goals and interests. The tactical level involves the employment of the specific techniques that smaller units use to win battles and engagements in support of operational or strategic objectives.

Applications of aerial photography at the tactical level are governed by the intelligence information that the military commander and his unit must have to accomplish their mission. This is the application that is of the greatest interest to infantry units. Such information is time sensitive, pertains to a particular piece of terrain or activity, and involves the principles of war.

Today, therefore, the acquisition and interpretation of aerial photographs are integral parts of the planning phase of each mission. Moreover, advances in technology have enabled military commanders to obtain this critical information more quickly.

AIRCRAFT

Many aircraft have proved capable of conducting photo reconnaissance missions. The selection of a particular aircraft to fly a mission is based upon such criteria as the distance from the operating base to the target, the presence of enemy anti-aircraft guns, the proximity of enemy air-interceptor aircraft, the weather conditions, the time of day, the type of information desired, the area of coverage required, the armament necessary, and the time available. In general, the aircraft



Aerial photograph shows obstacles (shrubs and ditches) in landing zone.

selected must be able to deal with the specific challenges posed by a given scenario, obtain the desired coverage, and return to its base safely without being detected.

Avoiding detection by enemy radar or weapon systems is a key aspect of a reconnaissance mission, since detection could result in the destruction of the aircraft, delay the coverage data, or, most important, reveal the intentions of friendly units whose success may have depended upon achieving surprise. Consequently, photo reconnaissance aircraft try to fly either at high altitudes where they are less likely to be intercepted or at low (treetop) levels where it is more difficult for enemy radar or other tracking devices to detect them.

Air Force or Navy fighter-photo aircraft that generally fly at lower altitudes are usually equipped with vertical, oblique, and panoramic cameras. They also have side-looking airborne radar (SLAR), while the higher altitude aircraft do not always have this capability. Currently, almost all reconnaissance aircraft have passive radar and an infrared capability.

Helicopters may be the aircraft most widely used by tactical units for photo missions. Unlike the UH-1H (Huey) helicopter of the 1960s and 1970s, the UH-60 Black Hawk has superior stability, is twice

as fast, can reach high altitudes, and is equipped with excellent navigational equipment. Moreover, since it is usually organic to infantry units, it offers a much faster response time between the initial request for aerial photo coverage and the finished products. The Black Hawk also has certain special qualities that enable it to avoid enemy detection and radar—a vertical take-off capability, extended fuel range, and maneuverability that improves contour and nap-of-the-earth flying techniques.

During the planning phase of any tactical operation, all available intelligence information is collected and thoroughly analyzed. Such operational studies are designed to facilitate the planning and execution of offensive and defensive maneuvers; the estimation and prevention of equivalent enemy operations; and the evaluation of the enemy's intentions, capabilities, and dispositions.

The types of photographic coverage normally requested to supplement operational planning include vertical photographs and both high-angle and low-angle oblique photographs. Since these three types of coverage are based upon the orientation of the camera axis, each can offer different yet significant information about the same area.

Vertical photos are taken with the op-

tical axis of the camera held in a vertical position (perpendicular to the ground). The type of oblique shot depends upon the camera's degree of angular inclination from the vertical. High oblique photos include the apparent horizon of the earth, because the camera is inclined at a much greater angle from the vertical than it is for low oblique shots, which do not include the apparent horizon.

Vertical photos are frequently used to produce photomaps, to which grid lines, place names, and marginal data are usually added. Such maps are extremely valuable to infantry units, particularly to those deployed to parts of the world with which they are not familiar. These maps are also used when units are forced to operate in areas where maps are either outdated or not available at all.

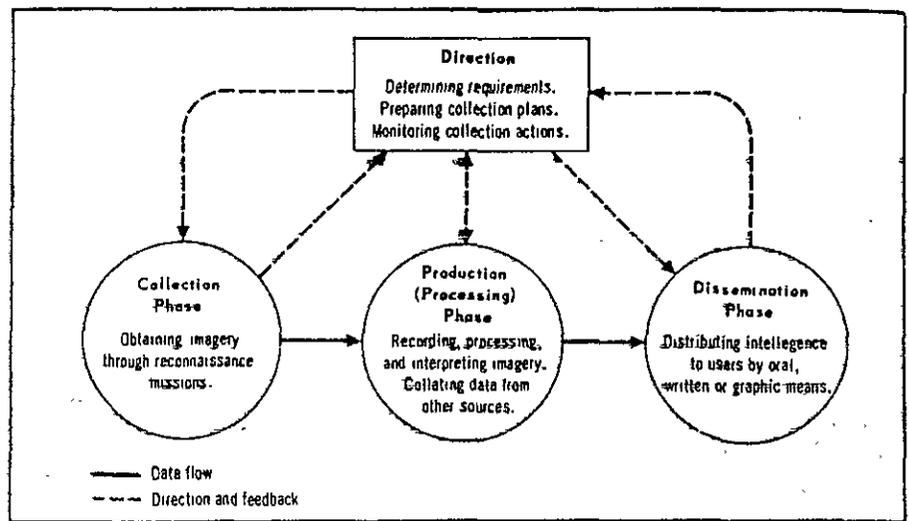
Vertical photographs are ideal for revealing hydrologic features, roads or trail networks, land use patterns, cultural features, and the density of existing vegetation. Such knowledge is critical to the planners in infantry units, because it allows them to assess the degree to which the terrain in the area may impede movement. This, in turn, allows them to predict movement rates, applicable movement formations, fatigue factors, and likely avenues of approach.

Hydrologic and cultural features and certain land uses may hinder movement, expose personnel to artillery or weapon fire, or channel units into killing zones or ambushes.

Roads and trails may provide high-speed avenues of approach for attacking units or may serve as networks over which supplies can be transported. Patterns exhibited on the photos usually allow infantry units to determine how to control major networks by simply occupying the terrain that dominates key road junctions.

High-angle oblique photos help infantry units plan flight routes and corridors for the helicopters upon which they often rely for transportation and logistic support. These shots may reveal valleys and folds and variations in tree height. Such information reveals the presence and location of cover and concealment that may be used to hide and protect the helicopters along their flight routes.

Low-angle oblique photographs are also often used in planning air assault opera-



Reconnaissance in the basic intelligence cycle.

tions for infantry units. The angle reveals the relative heights of trees, buildings, or other man-made structures adjacent to a prospective pickup or landing zone. These photographs also offer a better look at the slope of the ground and may afford a better look at any small shrubbery or obstacles in the area that could damage the tail rotor of the aircraft. This enables leaders to select the pickup and landing zones where there is the 10:1 ratio (of horizontal distance to the vertical height of the closest obstacles) that is necessary for taking off and landing large formations of helicopters.

Tactical operations in urban areas also rely upon all three types of photographic coverage. Vertical shots provide an understanding of the principal patterns of roads and other transportation networks, the relative locations of key facilities, and the variations in land use or development. Oblique coverage complements the vertical photos by showing the relative heights of buildings, the basic construction materials used, and the fields of observation the defender may have. In addition, oblique photos indicate the angle of trajectory needed to put artillery and mortar fire in among the buildings most effectively.

Obviously, getting aerial photographs to the infantry commander on the ground takes time, because they may pass through several sets of hands on the way. But the principle that applies to all tactical air photos is to expedite the process. Because the battlefield represents an extremely fluid situation to the infantry commander, attempts should be made to provide him

with the finished shots as quickly as possible after he requests them. In fact, it is not uncommon to sacrifice photographic quality or even expert interpretation when time is the most critical element of concern to a tactical unit.

An infantry battalion's requests for air photo coverage can be handled by the brigade if helicopters are to fly the mission. Otherwise, requests must be submitted to the division headquarters where representatives from the Army and Air Force jointly decide on the best method and the most suitable aircraft for the mission.

Any number of factors, therefore, can serve to slow the response time of a photo reconnaissance mission. Consequently, infantry commanders must make every attempt to anticipate upcoming missions to increase their available planning time. Ideally, of course, the required air photos should be on hand at the outset of the planning stage of an operation.

Current technology can produce aerial photos that contain an enormous amount of highly detailed intelligence information for the infantry commander. And the expertise to use such assets effectively is an absolute prerequisite for commanders in today's Army.



Captain Eugene J. Paika is an Infantry officer assigned to the Department of Geography and Computer Science at the United States Military Academy. A 1978 graduate of the Academy, he has served as a company commander and a battalion S-3 in the 101st Airborne Division (Air Assault).

Mortars for Light Platoons

RICHARD K. FICKETT

The evolution of light infantry platoon organization and firepower since the late 1950s has been particularly interesting to me, since I led two rifle platoons in the 2d Battle Group, 2d Infantry in Germany during 1959 and 1960. I would therefore like to share a historical perspective on the subject and argue the case for a bold and aggressive adjustment in firepower at platoon level. In short, I propose that the M60 machinegun be replaced by the M224 60mm mortar—and the sooner the better.

When I came on active duty in the late 1950s, my first rifle platoon was made up of 45 men—a three-man headquarters, three 11-man rifle squads, and a nine-man weapons squad. At platoon level, the primary direct-fire weapon was the M1919A6 caliber .30 machinegun. At squad level, the M1918A2 Browning automatic rifle (BAR) provided fire support for each five-man fire team.

The organization and weaponry of the rifle platoon at that time reflected the lessons learned in the Korean War. Thanks to a peacetime draft, rifle squad strength had increased from nine to 11 men. Squad organization and tactics had matured from an unstructured, individual-initiative fire-and-movement context to a well-conceived, two-fire-team unit employing fire and maneuver.

Today's light infantry platoon is authorized 34 men. The current platoon structure consists of a seven-man headquarters (including two machinegun teams) and three nine-man rifle squads. Fire team strength has been reduced from five men to four. M60 machineguns have replaced the BARs used in my era. The new M249 5.56mm squad automatic weapon (SAW) now provides the base of fire at fire team level.

By 1986 standards, my 1959 rifle platoon

was manpower-rich and firepower-poor. On the surface, these seem to be the trends:

- Manning has declined by almost 25 percent.

- Automatic firepower potential has increased by more than 84 percent. (See table for a quick trend analysis.)

- The automatic firepower for each man in the platoon has nearly doubled.

Although this may give the impression that today's light infantry is doing just fine, a second look at the table reveals some *disturbing underlying* trends:

- The machinegun range advantage over the squad automatic weapon has decreased from a ratio of 2.2:1 in the late 1950s to about 1.3:1 today.

- The rate of fire of the M249 SAW now exceeds that of the M60 machinegun by 27 percent.

- Although overall platoon automatic firepower has increased, most of this growth has occurred at squad level.

- The firepower contribution of the platoon-level machinegun has fallen off from 38 percent in 1959 to 25 percent today. The future deployment of the burst-capable M16A2 rifle will further erode this contribution.

We owe it to ourselves as professionals to ask some obvious—and rather tough—questions: Has the platoon-level machinegun outlived its usefulness? Has the time come to replace it, *and if so*, with what?

Complete answers to these questions won't be found in the trend statistics in the table or, for that matter, in this article. Some insights do begin to take shape, however, after walking the FLOT (forward line of own troops) and visualizing a light infantry platoon dug in along the military crest of a ridgeline.

Traditionally, platoon-level weapons have served three tactical purposes: They permit the platoon leader to influence the action (by range, rate of fire, and lethal-

Platoon Trends in Firepower Potential, 1950s-1980s

	Late 1950s		Mid-1980s	
	M1918A2 BAR	M1919A6 LMG	M249 SAW	M60 LMG
WEAPON CAPABILITY				
Effective Range (meters)	460	1,000	800	1,000
Cyclic Rate of Fire (RPM)	550	450	700	550
Firepower Potential ¹	253	450	560	550
	Late 1950s		Mid-1980s	
FIREPOWER POTENTIAL¹	Amount	Percent	Amount	Percent
Squad-level ²	1,518	62%	3,360	75%
Platoon-level ³	900	38%	1,100	25%
Platoon Totals	2,418	100%	4,460	100%
Net Change			+2,042	+84%

Notes

1. Defined as the product of cyclic rate of fire and effective range (expressed in kilometers) per engagement minute.
2. Squad-level firepower based upon six automatic weapons.
3. Platoon-level firepower based upon two machineguns.

ity, or any combination of these) throughout his assigned sector of responsibility, provide a sustainable base of fire to facilitate platoon maneuver; and provide a firepower edge that not only complements the capabilities of squad-level weapons but extends beyond them.

There is no doctrinal evidence to suggest that these basic roles have changed or that they should change. What has changed, however, is the fact that platoon-level machineguns may no longer be up to the task.

Let's consider a hypothetical situation: A full-strength light infantry platoon has been assigned a defensive sector about 400 meters wide. The platoon is semi-isolated from its parent company and has overwatch responsibility for one of the division's boundaries. Platoon defense is tied in with an Allied unit on the flank. The enemy is made up of motorized infantry. Terrain is close and broken. Observation and fields of fire are fair-to-good out to about a kilometer. The platoon leader has been ordered to establish a combat outpost forward of his main defensive position.

After conducting a thorough map and ground reconnaissance, the platoon leader jots down his main areas of concern for later discussion with his commander:

- *Limited grazing fire available—OK for the SAWs but no really profitable opportunity to employ and control machineguns and detail them to squads but have no other choice.*

- *Combat outpost has to occupy an exposed knoll. It will be difficult to break off contact and withdraw without supporting fires.*

- *Once the combat outpost is driven in, the enemy can exploit several covered dismount points. He has good hull-defilade positions for overwatching fire from his BTRs, and I have nothing available to keep him from using the terrain to his advantage.*

- *Plamayas (Soviet automatic grenade systems) can spray the entire platoon area with a heavy volume of 30mm grenades from partial defilade positions at about a kilometer—too far out for my M203s, and my M60s can't touch them.*

- *Gaps in FPLs outnumber available M203s—some on-call area denial artillery munitions (ADAMs) will help—but*

the commander says battalion doesn't have priority of fires.

- *Once the combat outpost pulls back, I can use the bald knoll as a reference point for an air strike—sure could use some WP for marking insurance and screening.*

- *Looks like it's going to be another long night—better get hot on range cards.*

But suppose the platoon's two M60 machineguns were replaced by two M224 60mm mortars? Would it make a difference to this hypothetical platoon?

SOME LIABILITIES

Before arguing the affirmative case, it should be remembered that mortars do bring some liabilities to the battlefields:

- **Mortars are notoriously manpower-intensive.** They require three separate and independent system components: a forward observer to control the mission, a fire direction computer to develop firing data, and a team to prepare ammunition for, to lay, and to fire each mortar.

- The probability of achieving a successful mortar mission is determined by the probability that all three of these components will operate successfully. Even at 95 percent efficiency, mortar system efficiency turns out to be about 86 percent.

- To gain adequate sector coverage of their parent-unit positions, mortar elements must accept a reduction in their maximum engagement range to obtain the necessary setback distance from the FLOT. The employment rule of thumb is that setback distance equals about one-third of the mortar's maximum engagement range.

- Mission fire commands are habitually transmitted over jammable radio nets.

- A mortar's high angle-of-fire trajectory can be detected on the enemy's countermortar radar screens. Fire unit locations can expect quick-response countermortar suppressive fires.

- When the parent unit assumes a reserve mission, all unit weapons, including mortars, assume non-firing roles. Unlike artillery, which is never held in reserve, up to one-third of infantry mortars could be placed in non-firing reserve during a defense of the main battle area.

- Many of these liabilities can be alleviated, however, by employing the 60mm mortar under an autonomous infantry mortar (AIM) concept. Basically, each 60mm mortar team would habitually employ one of two direct-lay, direct-fire techniques—the team-leader adjust or the gunner direct lay.

In the first of these, the team leader remains within 100 meters of the mortar and acts as the observer. All corrections are given to the gunner in mils for direct sight-setting. The team leader uses land-line communications or arm-and-hand signals to control the mission.

In the other technique, the gunner lays his mortar directly on the target. He estimates the range and sets the proper elevation, while his assistant prepares the round with the proper charge. The gunner gives the command to fire.

From a doctrinal standpoint, the employment exception would become the employment rule.

ADVANTAGES

This proposal also has several advantages:

- **Engagement Range.** When the 60mm mortar is employed at—not behind—the FLOT, there is no range penalty for setback distance. The 60mm mortars can be brought to bear on known or suspected targets out to a maximum standoff range of 3,490 meters—about 260 meters short of the maximum range of the TOW-2 and a 249 percent improvement over the effective range of the M60. Combat outposts can be supported by mortars from the main defensive position. Important boundary "seams" can be protected by mutually-supporting mortar positions. The platoon leader is better able to influence the action throughout his sector.

- **High-angle, top-attack.** The 60mm mortar takes away the enemy's free ride on defilade. Compared to direct fire weapons, mortars have a relatively unlimited target access. Except for caves, terrain offers no natural protection from mortar fire. Potential BTR troop dismount points and hull defilade overwatch fire support positions beyond the effective range of the M60 can be targeted and

masked. The AGS-17 Plamya, firing from partial defilade, can be targeted and mortared. Closer in, gaps in final protective lines can be covered by 60mm mortar barrages.

• **Effectiveness.** Although the direct-fire M60 machinegun and the indirect-fire M224 60mm mortar cannot be precisely compared, several "lowest common denominators" can be used to compare their effectiveness. Both systems can employ traverse-and-search techniques for wide-target engagement. The M60's sustained rate of fire (SROF) is 200 rounds per minute (RPM) compared to 120 RPM for the M224. What the 60mm mortar loses in SROF, however, it more than makes up for in area coverage and lethality. At a comparable range of 1,000 meters, the circular bursting area of one high explosive round sprays fragments over more than 700 square meters. The beaten zone of one burst of six 7.62mm rounds covers a considerably smaller area. The handheld laser rangefinder used with the M224 can provide precise target range, which permits the M224 to use multi-round ambush, or surprise, fires on troops in the open. The M60 loses the element of surprise after the initial burst and provides a detection signature with its tracer rounds. As for accuracy, the M60 must hit to wound or kill, while with the mortar's area fire, close may be close enough.

Both systems would use range cards and night sights for low-visibility firing. Although not required by definition, the 60mm mortar team could employ expedient reference stakes marked with strips of luminous tape to fire pre-planned targets and illuminate pre-designated areas. Finally, the M224 fires a tactically versatile family of ammunition, including high explosive, smoke, and illumination, while the M60 is limited to ball and tracer.

• **Terrain-siting.** The platoon leader could employ his 60mm mortars on the reverse slope, just over the topographical crest, or in natural defilade on the forward slope. The gun sites afford cover from enemy direct-fire weapons. The mortar observation post could be forward of, at, or behind the gun positions, so long as it remained within 100 meters. Later development of an extendable peri-

scope-type sight could improve site effectiveness.

• **Greater Response.** Direct observation means the rapid, direct adjustment of mortar fires, yielding shorter response time, and rapid engagement of fleeting targets of opportunity. Masked observation in one sector may not mean masked observation throughout. Squad leaders can be trained to call for and adjust fires beyond the platoon leader's direct observation.

• **Mission Continuity.** The proximity of the observer and alternate communication means (wire, hand signals) reduce the probability that radio jamming will abort fire missions. Centralizing all three mortar system functions at one geographical location would improve command and control and overall efficiency. The platoon leader, platoon sergeant, or senior mortar team leader could exercise direct control over the two-team section.

• **Higher, Dispersed Density.** The replacement of the M60 machinegun by the M224 would triple the number of 60mm mortars in a light infantry division—from 54 to 162 tubes. Mortar firepower, therefore, would become more dispersed, complicating enemy targeting. The proliferation of light mortars would saturate enemy countermortar radar crews, increase targeting workloads, burn up reaction times, and perhaps take some heat off other divisional indirect-fire systems.

• **Committed Mortars.** In a classical "two-up, one-back" defense, the number of committed (non-reserve) 60mm mortars would increase by 200 percent.

• **Weight.** The replacement could be accomplished at an equal weight trade-off. The four-component 60mm mortar is manportable and weighs 45.7 pounds. The inclusion of the AN/GVS-5/6 handheld laser rangefinder would increase the weight of the system to just over 50 pounds. This approximates the weight of the current M60 machinegun when the gun, the M122 tripod, the traverse and elevation mechanism, the AN/TVS-5 night sight, and the spare barrel kit are included.

• **Manpower.** The M60s could be replaced at an equal manpower trade-off. Each light infantry company is authorized two crewed M224 60mm mortars. Assuming the six 60mm mortar crewmen

currently authorized at company level could be used, together with the 12 men who now man the machineguns, two three-man 60mm mortar teams could be organized in each light infantry platoon.

DISADVANTAGES

The proposal does have some disadvantages.

• **Minimum Range.** At charge "0" (emergency fire), the minimum range of the M224 is 70 meters, while the M60 has no minimum range. But subject to troop safety and the availability of overhead cover, one 60mm mortar team could displace to an alternate firing position (within a FLOT setback of about 100 meters) and continue to walk the supporting fires right into the foxhole line.

• **Ammunition Weight.** The 7.62mm linked ammunition for the M60 is packed in 960-round containers, each weighing about 74 pounds. Ammunition for the 60mm mortar is currently packed in 16-round containers, each weighing about 112 pounds. That computes to a packed weight of about seven pounds per 60mm mortar round and .08 pounds per 7.62mm round. For logistical planning, the ammunition trade-off would be about 88 7.62mm rounds per round of 60mm mortar ammunition. One method of easing the 60mm ammunition resupply burden at platoon level would be to repack the 60mm ammunition in four-round bandoleers, each weighing 28 pounds. The 30 non-mortar members of the platoon could carry at least one bandoleer each for a distributed basic load of 120 rounds.

• **Costs.** The equal-crew trade-off would generate no additional manpower costs, but the deployment of the M224 would represent a new, out-of-pocket cost to the Army. The cost of an M224 (in Fiscal Year 1986 dollars) would be about \$21,000. (This figure was arrived at by going back to the last Army procurement of 190 XM224 60mm mortars for \$2.7 million in Fiscal Year 1978 and inflating those dollars to Fiscal Year 1986 dollars at a constant five percent per year.) The procurement cost of deploying the M224 to all five light infantry (and mountain) divisions (at 162 mortars per division) is estimated to be \$3.4 mil-

lion per division—or \$17 million for all five. (Of course, life-cycle costs would have to include 60mm ammunition for training and prepositioned war reserve stocks as well.) Offset savings in 7.62mm ammunition would most likely be \$5-\$10 million.

Without going into cost calculations any further, it is obvious that my proposal would cost a lot of money over 20 years. So the idea may be doomed from an affordability standpoint.

There is an option available, though. The 60mm mortar program could be funded with the cost savings in training

ammunition that the 60mm would create across the entire Army mortar family. Thus, the M252 81mm and the new 120mm mortars could be equipped with a 60mm mortar subcaliber kit, and training could be conducted with the cheapest mortar round—the 60mm. The development standard would be the 60mm mortar subcaliber kit currently issued with the M30 4.2-inch mortar. (In 1961 my 4.2-inch platoon fired hundreds of 60mm mortar rounds in Germany while preparing for a division-administered annual Army training test, and the training was highly successful.) Overall, the subcali-

ber ammunition would cost less than half as much as the ammunition used with the 81mm and 120mm mortars.

The M224 60mm mortars may well be the most overlooked, under-utilized, yet most important weapon of leverage in today's infantry arsenal. Can our light infantry platoons afford to deploy without it?

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Heavy Mortar Platoon Stepchild or Hip-Pocket Artillery?

CAPTAIN TERRY L. DURAN

The J-series heavy mortar platoon, as the battalion task force's "hip-pocket artillery," is a potentially priceless asset, but all too often it is misused—or not used at all.

Most company and battalion commanders grew up with the H-series mortar concept—a three-gun 81mm mortar platoon in each of three line companies and a four-gun 4.2-inch (107mm) heavy mortar platoon in the combat support company. The J-series mechanized battalion—both Bradley and M113 transition—has only a six-gun 107mm platoon in its headquarters company. While this makes things easier on the four J-series rifle company commanders and puts more indirect fire punch under the battalion's control, it is an overall decrease of 44 percent in the battalion's ability to put mortar-delivered steel on target.

The J-series 107mm mortar platoon does have two organic M577 fire direction centers (FDCs). Although this organization enables the platoon to operate as two fully independent sections, it does not

totally offset the decrease in available mortar support. To make up for this decrease, therefore, a battalion commander, his S-3, and his company commanders have to be familiar with the capabilities and limitations of mortars.

Too often, though, when company commanders think of indirect fire assets they tend to think only of field artillery. But the battalion heavy mortar platoon is often more responsive: The mortar platoon leader (and sometimes the FDCs) can monitor the battalion net directly without having to go through a fire support officer (FSO). Forward observers (FOs) can talk directly to the FDCs or the platoon leader on the fire direction net. The mortar platoon leader can call for fires directly on the basis of spot reports rendered by the scout platoon over the battalion net. Also, the mortar platoon doesn't have to fire for any other unit except that battalion—ever. On a highly electronic mechanized battlefield, the mortar platoon will also be closer to the companies (and therefore usually easier to reach) than the battalion FSO, and

certainly closer than the firing units themselves. (This is true even in peacetime maneuvers.)

The mechanized infantry battalion commander I worked for in Germany told his company commanders repeatedly to plan for mortar fires. "The mortars," he would say, "are your hip-pocket artillery. The field artillery batteries are going to be too busy with counterbattery fire to support you very much." And what I saw as a mortar platoon leader supported that position. Unfortunately, most officers now serving as commanders and S-3s were never mortar platoon leaders as lieutenants and now, with only one platoon per battalion, still fewer of them serving in those positions in the future will have had that experience.

Too often, therefore, the mortar platoon is treated with benevolent neglect, and the subunit mission paragraph on mortars reads, "GS to the battalion." Then, when the mortar platoon leader asks the FSO for guidance, he is told, "Oh, just do whatever you think is best." This car-

ries down all the way to the FOs, and sometimes the FDCs have to wake them up over the radio and plead with them to call a fire mission. But once a company commander flunks an ARTEP task for not calling for smoke when withdrawing, the lesson is learned.

In the field, the mortar platoon leader does not work for his nominal boss and rater, the HHC commander, but for the battalion commander, the S-3, and the FSO. In some units, either the S-3 or the FSO is the intermediate rater on the mortar platoon leader's officer evaluation report. His job is equal in importance to that of the scout platoon leader, who—if he's good—garners the glory because he is in a more visible position, out in front of the battalion.

The mortar platoon leader in the field is, in effect, a separate company commander. His is a small company, true, with only ten vehicles and no XO or other lieutenants—but he works directly for the battalion commander, has his own separate missions, and can directly affect the outcome of the battalion's mission.

Since this is the case, the mortar platoon leader must be chosen carefully. The job should not be thought of as just a bone to toss to a lieutenant who didn't get a company XO position or staff job after he had paid his dues as a rifle platoon leader. It should be considered a job for an aggressive, mission-oriented, and self-confident officer who is capable of becoming technically proficient in everything dealing with mortars—from boresighting a tube to operating an aiming circle to plotting rounds in the FDC. This means, preferably, a lieutenant who has attended the Infantry Mortar Platoon Course (IMPC).

But the IMPC, which is conducted at Fort Benning, is not usually one of the courses lieutenants in the basic course choose as follow-on schools—Airborne and Ranger, perhaps, and maybe Pathfinder or ITV Trainer. Then, when a mortar platoon job does come along, those lieutenants will not know much about it. All they will probably know is that there is one mortar platoon in the battalion; mortars are heavy and cumbersome (they may have dragged one around doing crew drills during an afternoon's instruction in IOBC); they hung a couple of rounds on some kind of mortar during the basic

course; and it was a lot louder than the things that went 'thoonk' in the Special Forces. They also probably have negative, non-glamorous perceptions about the job, because they have seldom if ever heard anything about mortars unless something has gone wrong.

Even if the lieutenant chosen did go to IMPC after IOBC, he has probably spent the past year or more as a rifle platoon leader and has forgotten most of what he ever knew about an M16 or M19 plotting board.

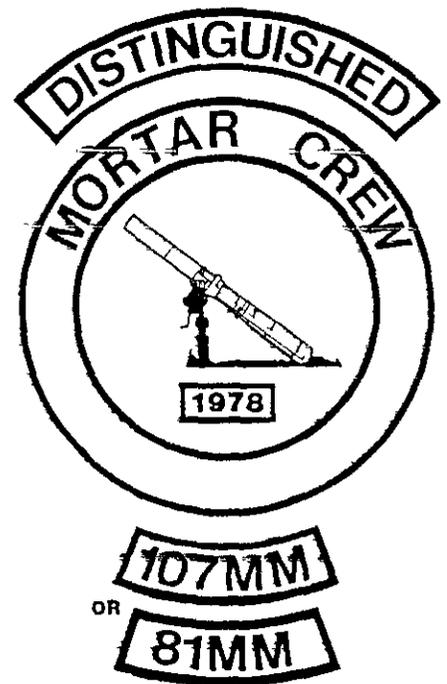
Part of the solution to this problem is to send the lieutenant picked for the mortar platoon job to IMPC on a TDY-and-return basis. Even in these days of budget cutting, it will be well worth a unit's time and funds in combat readiness gained by sending a proven, capable officer to the course.

This often does not happen, though, and the lieutenant must learn on the job—especially in Europe. If he has a good platoon sergeant and good NCOs and is himself intelligent and self-starting, then this may not be a problem. But if he has below-average NCOs and can't figure things out for himself—watch out! This situation amounts to a disaster just looking for a place to happen. And that's not fair to the lieutenant, the soldiers in his platoon, or those of the rest of the battalion, who may not get the necessary support in wartime from a poorly trained mortar platoon.

BOOST MORALE

The other half of the solution is to increase the overall prestige of the mortar platoon. A new live-fire ARTEP with "distinguished" standards—and a revival of the mortar qualification patch or its equivalent—would greatly boost morale and esprit among mortarmen.

Some divisions today do have division-wide live-fire competitions to build morale among their mortar platoons. Others say, "It's not a competition"—but to the troops and NCOs it's always a competition. (Once when my mortar platoon did better than the other two platoons in the brigade on a live-fire ARTEP for the second year running, the brigade FSO said, "It's not a competition." But the brigade commander complimented the



platoon for "beating the socks off of" the other platoons.) Competition is always a prime motivator, and often a competitive attitude results in the difference between an average mortar platoon and a finely honed indirect fire team.

The mortar platoon sergeant is, if anything, even more important than the platoon leader. He usually stays in the platoon longer than the lieutenant and furnishes continuity and stability. Since the mortar platoon functions as a de facto separate company in the field, the mortar platoon sergeant is more of a First Sergeant than any other platoon sergeant in the battalion. The Infantry School recognized this a while back when it made the mortar platoon sergeant slot a master sergeant position.

With this extra rank, the mortar platoon sergeant in the field should be able to coordinate and interact directly with the battalion staff when supplies or support are needed. Field Manual 7-90, Tactical Employment of Mortars (June 1985), is an excellent manual, but it calls for the J-series mortar platoon to request supplies and support through the HHC executive officer or First Sergeant, as well as forwarding all required reports through them.

This just does not work very well. The HHC XO in the field is usually acting as the officer in charge of the TOC (tactical operations center) or is performing some

other important function and is not really able to act as company XO much. The HHC First Sergeant, who is usually in the combat or field trains, often just cannot be responsive enough. As a de facto separate company, the mortar platoon should be able to talk directly to the support elements (maintenance, communications platoon, S-4, and the like) without going

through anybody.

A Division 86-style, six-gun, two-section heavy mortar platoon can be either a potent combat multiplier for a battalion task force or a frustrating ne'er-do-well unit that adds nothing. The key elements that determine which it will become are the competence of the mortar platoon leader and the way the battalion com-

mander views his mortars—as stepchildren unworthy of his full attention, or as his own “hip-pocket artillery.”

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Light Artillery

LIEUTENANT CARL R. MOORE

The U.S. Army has traditionally been organized to counter heavy conventional forces, but with recent increased instability throughout the world, there was a need for some modification of conventional operations. To fill this need, the Army created the light infantry, a force capable of negotiating all types of terrain and operating during day and night in all geographical regions. With the emergence of the light infantry concept, the traditional role of the Field Artillery also had to be modified. This new fire support organization is the light artillery.

Light artillery differs from traditional field artillery in several ways. While the normal infantry brigade is supported by an artillery battalion, here in the 2d Brigade, 10th Mountain Division, there are no supporting artillery units. The chief source of firepower is the 81mm mortar at battalion level and the 60mm mortars in the companies. With such limited fire support assets, a company fire support officer must carefully consider engaging targets with the proper type and amount of munitions.

Another difference comes in the area of fire support personnel. In conventional units, fire support personnel are consolidated at the artillery battalion, which permits little coordination between the artillerymen and their infantry counterparts. In this brigade, however, the fire support personnel are organic to the

infantry battalion and attached directly to the rifle companies they support. Because of this attachment, a unique relationship is formed between company commanders and their fire support officers (FSOs), who also serve as company headquarters platoon leaders. Because of this close contact, the FSOs can formulate their fire support plans to suit their commanders' intents with little or no guidance.

Another distinction of the light artillery in this brigade is the rating scheme. The infantry leaders have a direct role in writing the efficiency reports of artillery officers and NCOs—the battalion S-3 and commander rate the battalion FSO, the company and battalion commanders rate the company FSOs, and the company commanders endorse the ratings of company fire support NCOs.

In the light artillery, an artilleryman must train to become a good infantry soldier as well as a good artilleryman. This dual-training is accomplished through two field exercises—Light Fighters Courses I and II.

During Light Fighters Course I, the artillerymen receive training in the basic soldiering skills: common task training, construction of defensive fighting positions, tactical road marches, and land navigation. During Light Fighters Course II, the emphasis changes from infantry training to forward observer training. The major event in this exercise is a cer-

tification of forward observer skills, which involves an evaluation of basic communications skills, day and night land navigation, and observed fire procedures. The fire support teams also operate with their supported companies in tactical missions, developing an awareness of the value of stealth, noise and light discipline, and cover and concealment.

At the conclusion of these two courses, the artillerymen are qualified forward observers and infantrymen, ready to tackle any light artillery mission. They know light infantry tactics, appreciate mortar capabilities as well as artillery capabilities, can go where the light infantry goes, do what the light infantry does, and maintain an ability to shoot, move, and communicate.

The light artillery has moved into the limelight alongside the light infantry. These two comrades-in-arms hold the key to success on the modern, low intensity battlefield. A soldier in the light artillery faces many difficult challenges, but if he has what it takes, he emerges as one of the most powerful forces on the battlefield.

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**THE
LOST
ART
OF**

PATROLLING

MAJOR THOMAS J. KUSTER, JR.

A reconnaissance patrol had missed its last two scheduled contacts and hadn't been up on the net since the previous afternoon. As the hours passed, the tension increased in the operations center.

Various explanations were considered. "Got to be radio problems." "They must be in a low spot." "Maybe they stumbled onto something and the lieutenant put them on radio silence." But everyone was thinking the same thing. "They got hit!"

When the element was located, it had been overrun, probably the night before. Nine soldiers had been killed.

The lieutenant leading the element had moved his patrol down near the confluence of two small rivers with the obvious intent of monitoring small boat traffic on both rivers from one site. Assessment by the follow-on patrol indicated that the patrol's resistance to the enemy attack had been almost negligible.

How could something like this have happened? The members of the patrol had been well rested when they left the base camp. And all of them were good soldiers. Their squad had, in fact, won the division patrolling competition a month before their deployment. Surely all of them couldn't have fallen asleep—not on patrol.

Then the battalion command sergeant major remembered hearing a platoon sergeant tell about a patrol similarly annihilated in the Sierra Maestra mountains in Cuba during the revolution. The platoon sergeant had been so influenced by that action that he required each of his squad leaders to carry as a reminder a laminated card that read as follows: "Never set up next to a river. The murmuring of the current, like music, will lull everyone to sleep. Besides, it makes it that much harder to hear anyone approaching your position."

This was a lesson from a past war—a lesson once learned but, unfortunately, not remembered—an experience filed away, forgotten, and, regrettably, not passed on to succeeding generations of infantrymen. Many such lessons have been learned and similarly forgotten, particularly those learned in Vietnam.

The war in Vietnam forced us to develop unique tactics for fighting in an often unorthodox environment. As our wounds healed, however, we focused mostly on the "what-might-have-beens" of the conventional side of Vietnam and tended to forget the experience gained in the unconventional side of that conflict.

Throughout the 1970s and early 1980s we became preoccupied with preparing for the "big war"—mid- or high-intensity conflict in Central Europe or Southwest Asia. Our preparation for future conflict, therefore, stressed heavy forces—mechanized infantry and armor—and conventional operations. Our "How to Fight" manuals sought to teach our soldiers how to fight outnumbered and win in this kind of environment.

In the past several years, however, there has been an increasing realization that while large-scale conventional conflict would be the most devastating, it would also be the most unlikely. Our involvement in small wars, so called "low-intensity conflicts," is now considered far more likely.

This growing recognition of the need for forces and doctrine for small wars has gradually begun to bear fruit. Many



France, 1918

initiatives are under way, including the expansion of Special Operations forces, the publication of new doctrinal materials such as Field Circular 100-20 (Low-Intensity Conflict), the conduct of a TRADOC-sponsored joint study of low-intensity conflict, and the formation of a low-intensity conflict cell at U.S. Southern Command (Small Wars Operations Research Directorate—SWORD).

Part of our effort to revive our knowledge of how to fight small wars should certainly include an analysis of how we fought during our last involvement in a small war—Vietnam—not to mention how other countries have fought similar small wars. It seems timely, therefore, to revisit Vietnam, to relearn some forgotten lessons, and to focus special attention on the skills involved in patrolling. After all, in any small war, patrolling takes up the greatest part of an infantryman's time.

The art of patrolling, whether in a combat or a reconnaissance mission, must be mastered at both the individual and the collective levels, and all patrol members must be made to realize they are cogs in the smooth, efficient conduct of any mission. They must plan before moving into hostile territory, anticipating what they will face, and then execute that plan or adjust it as necessary.

The following tips have been gleaned from the collective experiences of numerous infantrymen, of several nations, who had been exposed to various tactical situations and environments. Although many of these points may seem rather rudimentary to the seasoned eye, they can serve to reawaken the imaginations of all concerned. They are presented, not as a magic elixir, but rather as a way to sweep the cobwebs from lessons long ago filed away in dusty corners.

First, every leader should make a pre-mission checklist to ensure that nothing is left undone and a post-mission checklist to make sure nothing is left behind. There are, of course, numerous matters to be considered when preparing for an operation—weapons, grenades, mines, survival and health items, communications, and navigation.

All weapons should be test fired before departure and then not torn down again for detailed cleaning, or they will have to be test fired again.

The muzzles of weapons should be taped to keep out water

and dirt, the lower portion of the flash suppressor slits should be kept open for ventilation. Weapon swivels should also be checked or removed from weapons, to improve noise discipline.

Magazines should be placed upside down in ammunition pouches with the rounds pointed away from the body. This will prevent water and dirt from fouling the magazines and will reduce the chance of a sympathetic explosion of rounds if an ammunition pouch is hit. All magazines should be checked before and during operations to ensure that they are clean and properly loaded. Triangular bandages should be placed in the bottom of ammunition pouches to make the magazines easier to remove. Pull tabs should be put on all magazines to facilitate their removal.

During movement to anticipated contact, rifles should be loaded with magazines of tracer ammunition or some mix of tracer and ball. If part of the patrol is taken under fire, the tracers will indicate to other patrol members the area from which the patrol is receiving fire; additionally, tracers can be used to direct aerial support.

Whenever possible, when a mix of tracer and ball is used, the last three rounds in each magazine should be tracer to remind the firer that he is nearly out of ammunition in that magazine.

Rounds in the chambers of weapons should be extracted each morning, because dew may cause malfunctions.

Every patrol member should carry the appropriate weapon cleaning materials. This should include a small vial or tube of weapon lubricating oil. Weapon selector switches should be oiled daily and the switches worked back and forth, especially during the rainy season.



New Georgia, 1943

Each patrol member should carry at least two white phosphorous (WP) grenades, one on his web gear within easy reach. If these are used in combination with CS grenades their effectiveness will double.

Grenades should not be carried on the upper portion of the harness, where the enemy can easily shoot at them in an effort to inflict several casualties with one shot.

Paper masking tape should be folded through the ring of each grenade and taped to the body of it to keep the ring open, stop noise, and prevent snagging. The paper tape will tear off quickly when a grenade is needed while plastic or cloth tape

will not. The pins on grenades should not be bent flat, because this will make the rings harder to pull.

Smoke grenades should be carried in the pockets of the rucksacks or inside it, not on the belt or the LBE. The space there can be better used for WP or fragmentation grenades. Smoke grenades may also be tied on the rucksack between pouches, but they must be secure so they don't flop back and forth.



Korea, 1951

Grenades should be checked daily to make sure the primers are not coming unscrewed. And black or OD spray paint should be used on CS, WP, and smoke grenades for camouflage.

Fragmentation grenades should be used to break contact. They also make excellent booby traps to use in delaying the enemy if he is in pursuit.

WP and fragmentation grenades, instead of weapons or claymores, should be used if the enemy is searching for the patrol at night. The grenades will cause the enemy to panic and give away his position. The patrol can then orient its fire or move out in relative safety—while the enemy soldiers may end up shooting each other.

Claymore mines should be placed around a patrol base by two-man teams—one emplacing the mines, the other maintaining security. Back-up mines should be positioned to cover the same area, if the primary mines are detonated, the area will still be covered. Claymore wires should not lead directly to the patrol base but to the kill zone.

The blast from the mines should flank the patrol base. This way, if the enemy turns the mines around, they will not be pointing at the patrol members.

If the enemy is pursuing, time-delay claymores of 60 to 180 seconds are helpful. If the enemy is closer than this, CS or WP grenades, or both, should be thrown to the patrol's rear and flanks to make him want to stop.

Extra fuses should be taken along on missions that call for demolitions or the use of mines to make sure enough are available for replacements or for multiple priming.

For survival, each patrol member should carry, in a first-aid pouch on his harness or belt, one tube of salt tablets and one bottle of water purification tablets. The salt will be essential if a soldier has to live off the land.

Emergency rations should be carried in each soldier's fatigue pockets or in pouches on the LBE harness. Bouillon cubes are particularly useful because they are compact, and one cube in a canteen of water will sustain a soldier for one day.

The water in the canteens in or on rucksacks should be used before the water in the canteens on the web gear. This will ensure a supply of water if rucksacks are dropped or lost.

All survival equipment should be tied or secured to the uniform or harness so they won't be lost if the pockets become torn. This is especially valuable during hasty withdrawals or movement. A claymore mine bag should be sewn onto the top flap of the rucksack for carrying binoculars, extra radio handsets, prepared claymores, or any other special equipment. These items are then easily accessible on patrol or when it is necessary to ditch the rucksack.

Strings or lanyards should be tied from weapons, knife, compass, and canteens to the harness; that way, if they are dropped, they won't be lost. (A sharp knife and honing stone should always be carried.)

Ponchos can be used for many purposes besides protection from the rain—as improvised field litters, as rafts to keep equipment dry when crossing streams or rivers, as improvised parachutes for aerial resupply, as collectors for fresh rain water, and as shelters.



Vietnam, 1968

For security purposes, each member should carry maps, notebooks, and communication-electronics operating instructions (CEOI) in the same uniform pocket. Then if one of them becomes a casualty, the other patrol members can remove these items quickly.

Each soldier should also carry extra socks and foot powder, especially during the rainy season. Insect repellent should be put in plastic bags to isolate it from other equipment. All too often, the repellent bottles leak.

The soldiers should roll their sleeves down while on patrol, both to protect their arms from the jungle and also to improve camouflage. And each should wear a glove on his free hand to protect it from cuts and abrasions from thorns and other hazards in the jungle. The glove will also help a soldier hold his weapon when it heats up from firing.

In the interest of noise discipline as well as survival, paper matches should be taken to the field in waterproof containers.

Cigarette lighters should be left behind, because opening and closing them makes too much noise. Cough medicine should be taken along, and ways to control coughing in the field should be taught.

Several measures should be used to ensure reliable communications in the field. Artillery frequencies or any others that may be needed rapidly should be pre-set on radios before a patrol departs on a mission.

Spare radio batteries should be left in their plastic containers until they are needed; otherwise, they may become wet and lose power. Then these plastic containers should be saved for use in protecting radio handsets during the rainy season. A wool sock should be placed over the handset and then the plastic bag over the sock, with a rubber band to hold them in place. The wool sock will absorb moisture. When it is not raining, both sock and plastic bag should be removed to prevent sweating.

Erasers should be carried to clean radio and handset terminals.

For navigation, compasses should be pre-set for the planned routes and should be checked to determine whether there are differences between the compass readings of the patrol members.

The parts of maps outside the area of operation (AO) should not be cut off too much; five to ten kilometers of the map should be left outside the AO for maneuver room and operational security. (Maps and notebooks should be carried in waterproof containers.)

Several other things should be done before a patrol goes out, and leaders must inspect to be sure these things have been done:

- Black and OD spray paint should be used to cover shiny metal and improve the camouflage of rucksacks.
- All snaps and buckles should be taped (not with paper tape).
- Before deployment, all equipment should be adjusted for noise discipline and comfort.
- The soldiers' clothing should fit loosely. Tight clothing will tear or rip more easily, exposing parts of their bodies to mosquitoes and leeches.
- Waterproof bags in the rucksack should be used for equipment while on patrol. This is extremely important during the rainy season.
- Rucksack straps should be tested before packing for each patrol, and parachute suspension lines or additional triangular bandages should be carried to repair straps that may break.
- All patrol members' pockets should be inspected before departure for such items as compromising information and cigarette lighters.
- Every man, if possible, should have survival equipment and a map. And each should have a pencil, not a pen, for making notes during operations. (Ink smears when it gets wet.)
- Key patrol members should be quizzed on crucial items—such as call signs and frequencies, artillery and air target numbers, compass headings, internal signals, and the like.

Patrol loads should be checked after the equipment has been distributed, ammunition and demolitions issued, and rucksacks packed. And once the patrol's rucksacks have been packed and inspected, they should be stored in a secure place to pre-

vent any tampering before the patrol.

When a patrol sets out, all members should be prepared to pay particular attention to gathering intelligence. They should not rely upon their memories but should take notes. (When feasible, a camera with film should be carried, since a picture is worth a thousand words.) All of the patrol members should be completely briefed so that if some are killed the surviving members can still render a complete report. Each member should carry an empty sand bag, or a plastic bag, in his rucksack in which to store items of intelligence value that may be collected during the patrol.

If they hear voices, the patrol members should cautiously move to within hearing distance and take notes.

They should use binoculars not only to help with long-distance observations but to increase night vision as well. (Night vision devices are worth the extra weight and should be considered essential items.)

The patrol members should be aware that personal papers, maps, orders, and other materials taken from an enemy's clothing or equipment are often more critical than his weapon. They should not approach a wounded enemy soldier, however, until they are sure he is incapacitated. A wounded enemy is the most dangerous enemy, and he may even be booby trapped.

During movement, the patrol should move only as fast as the most heavily loaded man can move. As a general rule, security and stealth override any concern for speed.

No trace of the patrol's presence should be left behind. Trails, routes, rest halts, and patrol bases should be sterilized. Nothing should be thrown on the ground—not even chewing gum or ashes. Limbs or branches on trees, bushes, or other vegetation should not be broken. If they are, they will leave a distinct trail for the enemy to follow. A large pair of socks should be carried for each patrol member to place over his boots when walking on or crossing a trail or a dry stream bed. This will prevent distinctive tracks.

During the dry season, patrol members should urinate in a hole or crevice and not on rocks or leaves, because the wet spot will be visible, and the odor will linger.

Radio traffic should be kept to an absolute minimum. Hand and arm signals should be used as much as possible. The signals should be practiced within the patrol, and each member must be alert during movement for signals from the man in front or behind.

Trails, stream beds, and roads should be avoided, because these are the most common routes of travel for an indigenous enemy.

When crossing a stream, the patrol should observe first for activity and then cross it as they would a danger area, putting out flank security and reconnoitering the far bank before crossing. All personnel should cross before stopping to fill their canteens with water.

The compass man should be checked often to verify that the patrol is on the desired azimuth. The patrol should avoid setting a pattern and should change direction frequently to confuse anyone who may be following. The enemy should not be allowed to anticipate the patrol's destination. If he can predict what the patrol will do, he will plan accordingly.

All-around security should be maintained. Trees should be checked out and the patrol should watch for snipers, trail

watchers, and booby traps. The point man is often preoccupied with breaking a trail and may miss enemy movement. (The point man should be rotated frequently, especially when moving in rough terrain.)

In sudden short-range encounters, patrol members should fire low in front of suspected positions. A ricochet from a short round is just as deadly as a direct hit.

Although a patrol should not permit itself to be encircled, if it is, it should break out as soon as possible. The longer a patrol stays in place, the more the enemy will increase his advantage.

In a firefight, the members of a patrol should never turn their backs to the enemy; rather, they should lay down suppressive fire and then back off but should not run.

A patrol should never return over the same route it used going out.

Even during halts, patrol members should never take off their web gear—day or night.

In an area where it is necessary for the soldiers to put on additional clothing at night, no more than one-third of the members should do so at a time. Similarly, if socks need to be changed, this should be done at the patrol base, and no more than one-third of the patrol should change socks at one time. A soldier on patrol should never take off both boots at the same time.

When a patrol stops for listening halts, chow, rest, or radio contacts, at least 50 meters around the position should be checked. Each patrol member should study the trees and bushes around the base before nightfall.

Before sleeping in a patrol base, each member should know where all the other members are positioned. If some patrol members snore or talk in their sleep, handkerchiefs should be put in their mouths.

The patrol base should be moved during the night if there is any suspicion that it has been discovered.

Faces and hands should be recamouflaged every morning, and camouflage should be inspected at every rest halt.

The success of any patrol depends, to a large degree, upon the leaders. Leaders should exude confidence, enthusiasm, and a positive outlook. They should plan ahead, anticipating each day what they will be doing that night and the next day, but should stay flexible. They should also keep all the patrol members informed and involved. They should not be afraid to take advice but should not lose control.

Most of all, leaders should keep a list of the lessons learned, experiences, field tips, and advice, and should add to it as they go along. They should also pass the list around periodically. Not only will others learn from it, but they will also contribute new ideas or techniques to it.

All of us should make an effort to keep such lists dusted off so that we do not again so easily forget the lessons we have previously learned about patrolling.

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HOLD THAT HILL

LIEUTENANT DAVID R. HUGHES

EDITORS NOTE: We began the Infantry in Action series four years ago as a way of highlighting the U.S. Infantryman—through historical accounts of his past combat actions—as one of the best fighting men in the world. The series has included several original articles as well as reprints from various sources.

This article continues that tradition. Reprinted from INFANTRY's predecessor, the Infantry School Quarterly (April 1953, pages 38-52), it tells how the men of a small unit—Company K, 7th Cavalry—took and held an important hill near Yon-

chon, Korea, in September 1951. It is a story of infantrymen who, when confronted with a difficult situation, proved themselves to be highly competent, resourceful, and heroic fighters and leaders.

The author, who commanded Company K and served in various staff assignments with the 7th Cavalry, was assigned to the Infantry School upon his return to the United States, serving as an instructor in what was then called the Tactical Department.

Taking Hill 339 wasn't so bad—but holding it was different. It looked to us as though the enemy had only one mission in life—to knock us off that hill. Let's see why this particular hill and the terrain surrounding it were so important.

The average elevation of the friendly main line of resistance (MLR) and of the enemy MLR 4,000 yards away was approximately 300 meters. Between the two opposing lines was a series of short narrow valleys and 300-meter hills. The major exception to this was a triangle of three hills about 1,000 yards from the enemy positions. These hills, 339, 321, and Ridge 330, formed a rough triangle with 339 the apex pointing toward the enemy. The peaks were about 1,000 yards apart. Hill 339 was commanding terrain in the area and for two months was alternately in friendly and enemy hands. It provided United Nations forces a good observation post for the placing of artillery on enemy emplacements, artillery and mortar positions. It was also an excellent advanced departure point for patrols.

For these reasons, the 3d Battalion of the 7th Cavalry was ordered to seize and hold Hill 339 as a patrol base. It was decided that after seizure, Company K would hold 339 and the connecting ridges for a frontage of 900 yards. Company L would tie in with Company K and extend over 321 for a

1,000-yard front and Company I on the other flank of Company K would tie in at the road and extend back over 330 for a 1,000-yard front. Due to the rough nature of the terrain and the necessity for maximum protection especially toward the front and flanks, which were cross compartmented with many minor ridges and ravines, the 700-yard rear of the patrol base would be merely outposted and the valley closed off by tanks.

The area was seized without organized opposition on 21 September. It was noted that the enemy had outposted Hill 339. On the approach of Company K's leading platoon the enemy set out a red smoke signal before withdrawing. Company K moved into its assigned area and as soon as friendly troops began clustering near the peak, the area was subjected to an intense 20-minute enemy mortar and artillery bombardment that was placed accurately along the ridge line and over the peak. There were several casualties. This enemy fire began a pattern that did not vary for seven days. Due to the advanced position of the hill and a slightly concave enemy MLR on the front of it, Hill 339 was under enemy observation from three sides, and any movement on the peak or grouping of personnel on the reverse slope drew immediate pre-registered fire.

The hill itself presented several problems of defense. Com-

any K's area was "L" shaped with two ridges joining at the peak. The peak was a symmetrical dome, very steep on the front face and dished out on the rear, so that immediately behind the very crest there was only a ten-yard slope before it dropped off as a rock cliff for another 20 yards. This drop-off extended right and left for a hundred yards behind the hill, permitting no direct foot route to the peak, but rather forcing us to come to the ridge on either side of the obstacle and then to the peak.

There were two direct enemy routes into the hill. These were on two entry ridges 200 yards apart that came into the shoulders of the peak and joined the two flank ridges that formed the L (Figure 1). This brought up two important decisions for the company commander: How to deploy the platoons for the best defense of the peak and where to place his headquarters and the mortar section.

After a careful look at the terrain, the company commander reasoned that the battle for the peak would be fought on the flank ridges. Any direct assault on the front face could easily be resisted. It was bare and enemy troops would have to physically crawl up the steep slope. If the enemy attempted envelopment of the hill, the rear cliff would prevent him from assaulting the position from directly in the rear. He still would be forced to attack the highest ground up the two flank ridges. But if the enemy were able to seize the two critical points on either flank of the peak, where the flank ridges and the entry ridges joined, then the peak would be isolated, lateral communication cut, and because of the convex shape of the company front, the enemy would have short range direct fire and observation on the rear slope.

With these enemy possibilities in mind the company commander decided on a flexible defense with the greatest attention paid to the two entry ridges. He deployed the first platoon on the left, tying in with Company L, and extended its front up to the critical ridge junction on the left shoulder of the peak. The attached heavy machinegun section from heavy weapons company was given the left entry ridge and twenty yards farther up the hill to the right to defend. One 57mm recoilless rifle was employed to cover the left entry ridge. The peak, for a front of approximately fifty yards, was covered by ten attached Republic of Korea (ROK) soldiers with one light machinegun covering the front face.

The second platoon went from the military crest on the right of the peak down over the right entry ridge for a 200-yard front along the flank ridge. The other 57mm recoilless rifle was placed to cover the right entry ridge. The third platoon joined the second and defended a 300-yard front joining Company I at the road on the right.

A tank was placed by the battalion commander on the road at the top of the pass. While a section of tanks would have been more desirable, there was room for only one.

There were two basic choices for the 60mm mortar section and the company command post. Either could be emplaced on the peak where it would be confined to an area less than 15 yards from the crest and less than 25 yards from the riflemen's positions, or else down at the base of the sheer hill, an elevation difference of about 100 meters. If the enemy seized the two critical areas on the flank of the peak, then no route

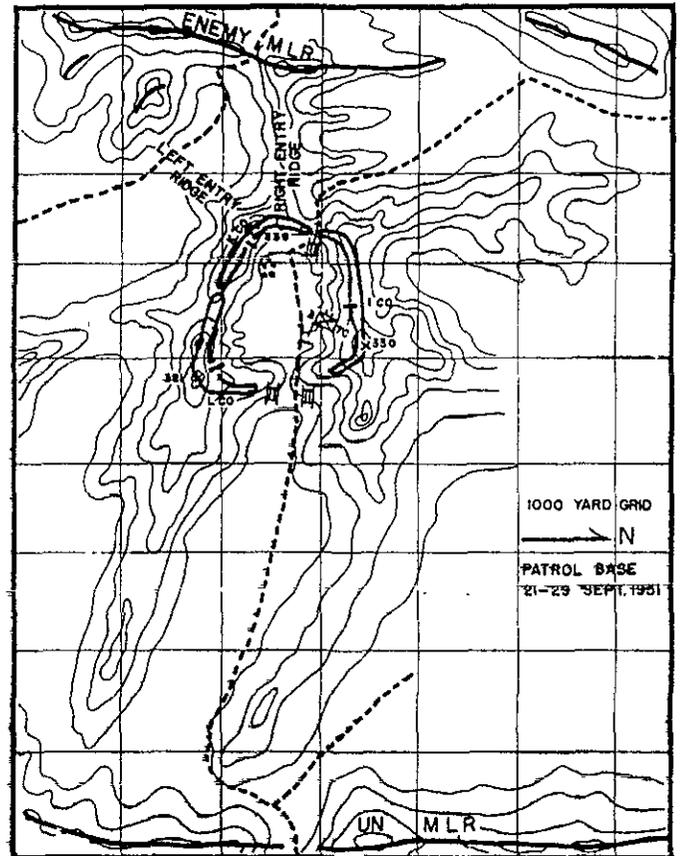


Figure 1. Patrol base 21-29 Sep 51.

would be available to the OP, and the enemy could descend directly on the command post and the mortars. Although the enemy 120mm and 82mm fire was particularly intense on the reverse slope of the peak, the company commander decided to place his mortars on the peak, on the right half, and his command post on the left half.

An organic ammunition trailer was placed at the base of the hill, 400 yards away, as an ammunition supply point. Two men with a sound power phone were there.

There was a large number of enemy and friendly bunkers available for use until the men had a chance to get dug in. The company moved into position as rapidly as possible so it could get organized almost completely by nightfall. However, the bald face of the peak was under direct observation and as the men attempted to get over the crest of the hill and dig in on the forward slope of the peak, the enemy placed heavy volumes of artillery and mortar fire on them with good effect. After several attempts to dig in on the front, the company commander directed that the forward slope of the peak be occupied after darkness. The intense fire made this a daily occurrence and permitted only two constant observers on the forward slope.

As soon as he had walked the company front once to insure complete coverage of the ground, the company commander moved with his weapons platoon leader, 81mm FO, 4.2 FO, and artillery FO to the OPs available near the crest and planned his defensive fires. (The types and locations of the planned and prefired concentrations are shown on Figure 2.) The company commander directed that the 4.2 mortar concentration

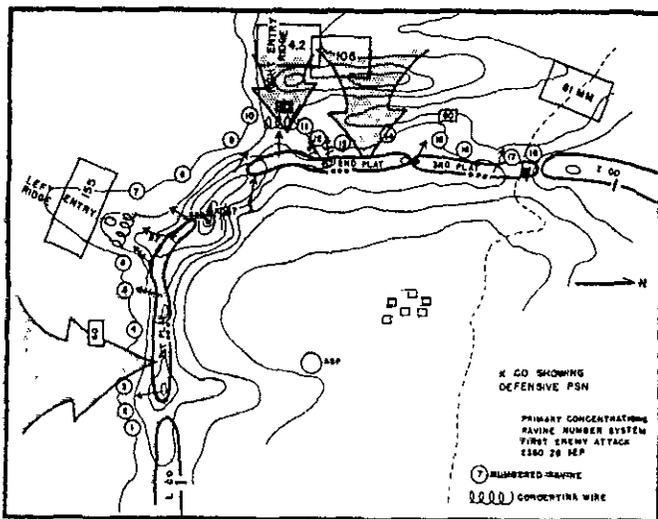


Figure 2. Company K's defensive position.

plotted on the right entry ridge be registered to within 150 yards of the friendly positions. He directed that the artillery concentration on the left entry ridge be registered to within 200 yards of the friendly foxholes. These distances were selected to give the maximum effect against the enemy, who had been recently using the technique of closing his assaulting elements and supporting automatic weapons to within 200 yards of the objectives before assaulting so that normally placed defensive fires would fall beyond him.

The trajectory of the artillery fires supporting Company K did not pass overhead when they fell in front of the left portion of the company zone; hence any dispersion affecting the company would be caused more by errors in deflection than in range. This permitted the very close registration of artillery, but the 4.2 mortars had five short rounds in the next seven days. The 81mm FO was given normal distance concentrations with particular emphasis on the extreme right flank and the road.

The 60mm mortars were given concentrations all along the company front, and on the right entry ridge were registered to within 100 yards of the 2d Platoon positions. The 60mm mortars had an angle frontage of 270 degrees to cover with their three tubes. Because of this, the tubes were laid on different concentrations, the center tube set on a flare concentration over the right entry ridge.

By nightfall, half of the plotted concentrations had been registered. The company commander retained a contour sketch of the company front with all the defensive fires plotted and numbered.

Due to the heavy enemy fire and anticipated action, an extensive communications network was planned and executed. A wire line was laid to each platoon from the CP for EE8 telephones. Wire was then laid between platoons as an alternate EE8 line. A sound power line was then run all along the company fronting in each platoon and continued down behind the hill to the company ammunition supply point and back up to the other flank, making a complete circle. Thus the line would have to be severed on both sides of a telephone to put it out of contact. Each wire line was laid over a different route.

An SCR 300 radio was given to the 1st Platoon and to the 3d Platoon, with the extra radio at the command post. All radios were on the battalion command net. Two lines were run from the battalion switchboard to Company K; one dropped over the cliff behind the command post and the other ran up a flank ridge. The four operable company SCR 536s were given to the mortar section for fire control. The command post was in voice contact with the mortar section.

In spite of this communication setup, enemy fire caused wire contact to be lost with battalion headquarters on an average of three times a day. Within the company net, a wire was severed on the average of once every two hours for seven days. This required continuous repair by the communications section. The platoon runners stationed at the company command post were used to help repair lines.

Extra ammunition was brought up the hill by Korean civilian carriers and platoon carrying parties. The first night, each rifleman had three grenades, five bandoleers and a flare grenade on position. The light machineguns had 2,000 rounds, the 60mm mortars 200 rounds for the section, and the two 57mm recoilless rifles had 25 rounds apiece. At the company command post a box of 25 hand grenades, three cases of bandoleers and 2,000 rounds of machinegun ammunition were kept. This would permit some resupply flexibility. (The ammunition supply point at the bottom of the hill was only 400 yards away, but a round trip required almost 40 minutes.) About 20 trip flares were set out by the platoons. All the foregoing was completed by 2100 hours on the first night.

The company commander ordered that the C-rations issued in the morning had to last till the next morning (since two Korean civilian carrying parties were destroyed by mortar fire).

The platoons would be placed on a 50-percent awake status. Platoon headquarters would check into the company switchboard every 30 minutes.

Before darkness the company commander required each platoon leader to give his men these instructions:

- That under a mortar barrage each man must stick his head out from his bunker to observe every few seconds, since it was the enemy's practice to come in and enter positions under his own mortar fire.
- That in case the enemy penetrated the company line and their own positions became untenable, they must move toward the peak and delay the enemy at each automatic weapons position. Under no circumstance were they to leave the ridge line and fall back toward the battalion command post.
- That if casualties became heavy they must make certain the machinegun nearest them was manned at all times, since the machineguns would be the best defense against mass attacks.

ACTION 21 SEPTEMBER

Enemy fire slacked off at 2030. The 2d Platoon reported the sounds of digging to their front at approximately 2230. At 2330 an intense barrage of artillery, 120mm, 82mm, and 60mm mortar fire was received. As soon as the company com-

commander determined the heaviest area of enemy fire, which was on the right flank ridge in the 2d Platoon area, he requested defensive fire on the right flank concentrations. He also requested an artillery flare on the right.

In 10 minutes (2340), defensive fires were falling on the right but no enemy was observed. At 2400 another enemy barrage of all types fell on the peak and the right flank. These artillery and heavy mortar fires suddenly let up, however, and only 60mm mortar fire was received for some minutes.

An automatic weapon began firing from a position about 150 yards in front of the 2d Platoon. Five minutes after this fire commenced, an enemy assault of approximately platoon strength came across the short saddle on the right entry ridge. The enemy soldiers fired rifles and submachineguns, supported overhead by an automatic weapon. They came in while their light mortar fires were still falling.

The company commander ordered the 60mm mortars to fire flares every minute and to fire the 2d Platoon concentrations at a maximum rate. At the same time the 3d Platoon reported an enemy column moving up the road in front of them. The company commander shifted the 81mm fire to the road. The 3d Platoon held its fire until the enemy was within 100 yards of the tank position. When the tank opened fire with its .50 caliber machinegun and the platoons flanking the road fired their weapons, the surprised enemy scattered and withdrew. The first enemy assault was halted by the 2d Platoon.

The enemy attacked again at 0045 but due to the illumination from artillery, 81mm and 60mm mortar flares, and the continuous 4.2-inch and 60mm mortar fire within 150 yards of the 2d Platoon, the enemy assault did not reach the 2d Platoon's riflemen. Defensive fires were lifted at 0115.

The 2d Platoon reported that it was short of grenades and machinegun ammunition. It was resupplied from the company command post. The mortar section reported only 30 rounds left on position. A five-man carrying party was organized from headquarters personnel and sent to the ammunition supply point. (The mortar ammunition bearers had to act as riflemen on part of the extended line.)

At 0130 another barrage was received and a small enemy force, supported by three automatic weapons firing from a knoll 50 yards in front of the 2d Platoon, attempted to enter the platoon positions by infiltration and occasional rushes in small groups. Close defensive fires were called for and the company commander ordered the 60mm mortars to fire within 75 yards of the 2d Platoon. The enemy was repulsed.

The 1st Platoon reported movement within 200 yards at 0400, and 81mm defense fires were called in for 10 minutes. At daylight five enemy dead were found within 10 feet of the 2d Platoon's light machinegun. Enemy equipment was found along the right flank.

The company commander, after directing that the company continue to improve its positions and supplies, closely questioned the members of the 2d and 3d Platoons as to what they had observed the night before. By 1000, the company commander determined where the enemy had placed his supporting weapons and had a picture of the enemy's assault technique. During the action, four breaks had occurred in the right flank telephone lines and two in the battalion line, but wire

communications had been maintained on alternate lines.

Certain problems arose during the action:

First, the 60mm mortars were too slow in delivering their initial rounds of defensive fires. This was corrected by having the 60mm weapons platoon leader constantly rehearse the mortar section on the shifting of fires, and to have prepared rounds on hand to fire. This procedure cut the 60mm elapsed time to 15 seconds for an initial round on the normal barrage target and to 30 seconds for a new concentration.

Another problem was that the riflemen and machinegunners had fired indiscriminately and too rapidly, even when not under attack. To solve this problem, the company commander ordered the platoon leaders to exercise more fire discipline and to pass fire commands through the squad leaders during a fire fight.

Finally, during the initial phase of the attack, the company commander had not been able to get accurate enough information from the platoons as to the exact position of the enemy in front of the lines. To solve this, on the second day the company commander walked the company front from left to right. Beginning with the leftmost ravine, he numbered each ravine consecutively across the company front (Figure 2). There were 18 such ravines along the broken ground leading into the ridges occupied by the company. He required each rifleman to memorize the number of the ravine in front of him, and to post the number on a cardboard sign in his foxhole and also on a tree or rock outside his foxhole. Each ridge separating the ravines was numbered by joining the numbers of the ravines adjacent to it. Thus the ridge between ravines 6 and 7 was numbered 67. Each platoon leader had a sketch of his area and a sketch contour map with the numbers on it. The company commander retained a company sketch.

Thus, each man occupying a foxhole could quickly and easily notify his squad and platoon leader of any enemy to his front, and the company commander could pinpoint the enemy and bring more accurate fire on them. By posting the numbers visibly, changes in personnel were handled with no loss of control, and a rough guide of the company area was furnished to guide wiremen or other personnel, even during the night, to specific points.

For the remainder of the day, more trip flares were laid, overhead cover was worked on, and defensive fires were adjusted for better control. Two flamethrowers were brought up and placed on the right entry ridge. The company commander carefully approved each automatic weapon emplacement.

The enemy probed the company positions for the next five nights. He still prevented the forward slope of the peak from being organized during daylight by his continuous fire. When attempts were made to lay barbed wire, casualties became excessive, but eight barbed concertina rolls were placed, blocking the two entry ridges to the peak. A small area was finally covered with anti-personnel mines 50 yards in front of the 2d Platoon positions.

The company sent daily platoon-sized patrols out on battalion order, and they ran into stiff resistance 800 yards from Hill 339. This later proved to be the enemy MLR. During the day, the artillery FO fired continuously on enemy positions and weapons with good effect. By 28 September, the enemy

decided that the patrol base was a painful thorn near his MLR, and he made a strong effort to remove the United Nations troops occupying it

By this time the company had evacuated 29 casualties which had resulted from enemy artillery, mortar fire, and patrol actions. This required replacing some riflemen with weapons platoon ammunition bearers and manning part of the peak with headquarters personnel.

The strain of continuous bombardment was beginning to tell on the nerves of the men, and the nightly probes robbed them of rest. No hot meals could be brought up, but the company kitchen did go all out to provide hot coffee and soft pastry every day, and this supplement to the combat ration raised morale considerably. The company commander also made a point of visiting and talking to each man for a few moments each day.

The company commander requested and received three additional heavy machineguns and one light one. He positioned two of the heavy machineguns in the 2d Platoon zone to cross fire the entry ridge on the right, and the other he kept as a company reserve near his command post. The light machinegun was placed on the left portion of the peak and was manned nightly by headquarters personnel. Weapons—especially machineguns—had a way of bolstering morale.

The evening of the 28th was filled with heavy enemy artillery and mortar fire all along the company front.

At 2330 the enemy directed a heavy barrage on the peak of Hill 339. The 1st Platoon reported two trip flares had gone off in draws number 3 and 4. The company commander called in all defensive fires along the company front with the exception of the 60mm mortars. He called for artillery flares on the left and 4.2 flares on the right flank. At 2340 small arms fire was coming up the ravines into the 1st Platoon positions.

At 2345 the company commander noted a red Very pistol star going up on the left flank and one on the right. Immediately a barrage of 120mm mortar fire landed exactly on the peak of 339 while small arms fire fell into the 2d Platoon area from the ridge 50 yards to its front. By 2350 an enemy company was attacking the 1st Platoon up draws 3 and 4, while an enemy company attacked the 2d Platoon in draws 13 and 14 and across the entry ridge.

Meanwhile, the company commander had placed 60mm fire on the enemy on both flanks and ordered mortar flares every half minute. The enemy soon overran the left flank of the 1st Platoon and then directed his attack up the ridge toward the peak. By 2400 the enemy had also penetrated and overran one squad of the 2d Platoon and turned their attack up the ridge. These enemy soldiers moved across behind the cliff to the rear of the company and joined with those on the other flank, completing the double envelopment and cutting the wires to battalion headquarters. The 3d Platoon had not been attacked. Enemy mortar fire continued to come in on the mortar position and the company command post.

The force of the enemy assault rolled up the flank of the 1st Platoon, overrunning a light and heavy machinegun and the platoon command post. The platoon leader, however, gathered the men around him and delayed the enemy for

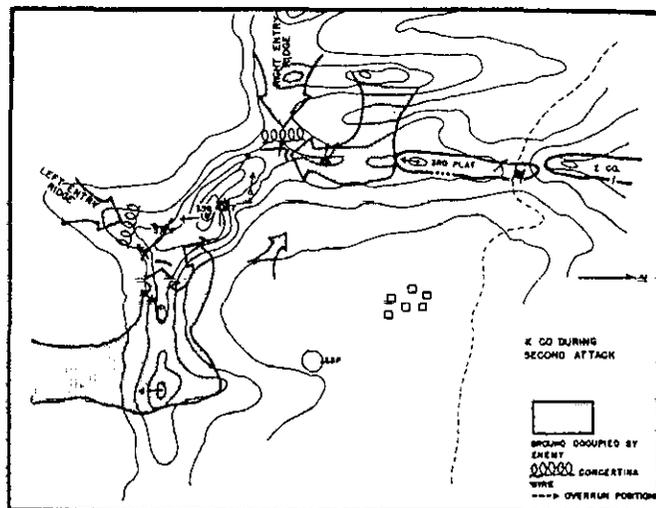


Figure 3. Company K during second attack.

several minutes while the wounded were carried to the company command post. Part of this delaying group was overrun and the platoon fell back still farther up the hill.

On the right flank, the enemy continued to attack up the ridge and overwhelmed a heavy machinegun. The 57mm gunner pulled back, and when the enemy started firing the captured machinegun, he knocked it out with his recoilless rifle. A second assault was launched across the right entry ridge and the machinegun at the junction of the two ridges was soon under attack from two directions. Riflemen formed a line there, however, and repelled the enemy.

On the left flank, a second assault started up the left entry ridge toward the 57mm position. The gunner held fire until the enemy started to cross the concertina. He then fired with good effect. The remainder of the 1st Platoon was scattered by the enemy and the company commander intercepted the stragglers at the peak and formed a new line tied in with the 57mm around to the reverse slope at the cliff. The enemy followed after the withdrawing platoon.

The company commander quickly placed his reserve, one heavy machinegun, in the path of this assault. He directed a radio operator to man the weapon. The enemy was now within 20 yards of the command post bunker, which was filled with wounded (Figure 3). The heavy machinegun was placed just beyond the bunker, and it inflicted heavy casualties on the attackers. The enemy set up 60mm mortars on the ridges on both flanks and placed fire on the weapons on the peak at a range of 100 yards. The heavy machinegunner on the left waited until he saw the powder sparks fly from the tube below him and then fired, destroying the crew and weapon.

The company commander realized that his left flank, now pushed to within 30 yards of the peak, was in danger of giving way. He ordered the artillery FO to bring fire in as close as possible on the left. The enemy succeeded in getting behind the 57mm recoilless rifle and the lower heavy machinegun. The company commander ordered the first sergeant to go down to these weapons and displace them upward to form a line higher on the hill. As soon as the two weapons started to pull

back, the enemy took advantage of the darkness and confusion to try and mingle with the gun crews and walk to the peak. A few succeeded but they were shot by the headquarters personnel. It was now 0120.

Another enemy attack started on the right flank, and the company commander moved to that flank to see how he could influence the action. The enemy had reached the 2d Platoon's command post and forced them out and up. The company commander, seeing the light machinegun under attack from two directions, ordered the platoon to withdraw higher and tie in with the mortar platoon. This would present a complete perimeter around the peak. Enemy small arms and automatic weapons fire covered the rear slope and made the firing of the 60mm mortars difficult. One mortar base plate broke, but by resetting the tube each time, the crew of that weapon was able to fire flares. The enemy attempted to attack from the rear and crawl through the mortar positions, but the squad leaders and section sergeant killed them individually.

Fire control became increasingly difficult for the 60mm mortar crews. One squad leader crawled to the topographical crest and began adjusting fire by calling out handle turns and degree raises. The fire continued to be effective in front of the 2d Platoon at a gun-to-target range of 55 yards where enemy soldiers were moving in all along the platoon front. Another mortar base plate broke. It, too, was reset after each round. Artillery and mortar flares became unavailable at 0200. A C-47 flare plane appeared at 0330, however, and gave good general illumination the remainder of the night.

The company commander's estimate of his position at that time was roughly this: The enemy held 200 yards of terrain on the company right flank and 300 yards on the left flank. The peak was isolated. The enemy behind him made both evacuation and resupply impossible. The company still had a perimeter established around the peak with four machineguns and approximately 50 men. One mortar was still operable but it had only 35 rounds of ammunition. Carbine ammunition was low but other types were adequate for at least one more assault.

The enemy, reasoned the company commander, was probably preparing for another assault. He reported these facts of the situation to battalion headquarters by radio and then prepared for the enemy attack.

He moved the good mortar to the top of the peak with half of the remaining mortar ammunition. It was registered in on the left ridge at 75 yards range. He ordered that the wounded men be carried to the open foxholes on the very peak. He announced that if the enemy were to overrun a portion of the line the remainder would draw halfway up to the peak (which was 25 yards from their present positions).

The enemy attacked again at 0240 (Figure 4). On the left, an apparently new company moved up the entry ridge toward the concertina wire. The artillery FO moved to a very exposed position overlooking that ridge and called 105mm and 155mm fire to within 150 yards of himself and the riflemen. By stacking used BA 70 batteries around him, he maintained some cover and the batteries absorbed several rounds of small arms fire. The reserve heavy machinegun overheated. The coolant can was shot through, but a can of cold coffee was used successfully as a substitute.

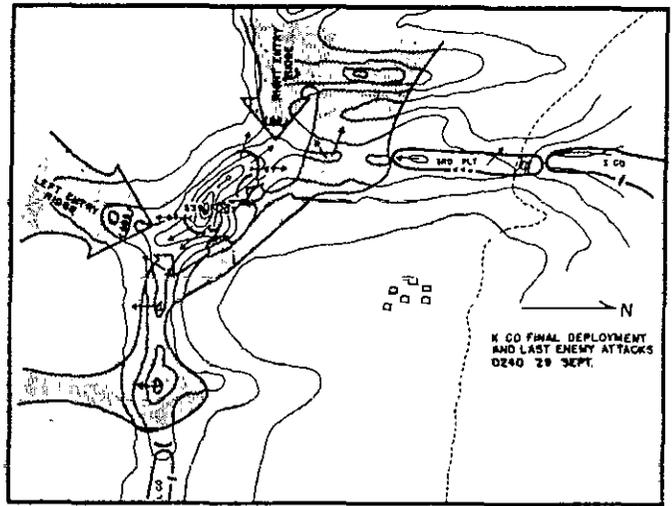


Figure 4. Company K's deployment and last enemy attacks, 0240 29 Sep.

When the enemy attack reached the barbed wire, the artillery FO called for maximum fire. This fire caught the center and trailing elements of the enemy units. They withdrew, carrying dead and wounded. The leading units tried to assault the reserve heavy machinegun, which would have given them entry to the peak of the hill, but the machinegunner placed effective fire on them. The few enemy that reached the skirmish line were killed by grenade and carbine fire.

On the right, the enemy assaulted again, but in less strength. At 0300 about 50 enemy rushed across the saddle firing their submachineguns in an attempt to overrun the light machinegun there. A rifleman of the 2d Platoon found he was in a foxhole complete with a flamethrower. He turned it on the enemy soldiers in one long burst just as they reached grenade range. Eight or ten enemy soldiers were caught in the burst. The light machinegunner opened fire, and the enemy skirmishers withdrew, throwing down their weapons.

That was the last enemy assault. It was now 0330. Ammunition was nearly exhausted.

Within 30 minutes enemy indirect fire resumed on the hill and heavy concentrations were placed on the flanks of the peak, preventing any movement on those ridges. At first light, the company commander ordered the 2d Platoon to attack down the right ridge and clear the enemy there. This was done, but no live enemy remained. Contact was reestablished with the 3d Platoon. The company commander then went with the 1st Platoon down the left ridge, clearing it. Large numbers of enemy dead were found along both ridges.

Firing started again on the right flank of the 2d Platoon at 0630. It was the fire of disorganized isolated groups of enemy soldiers who were attempting to escape toward their MLR. They were taken under tank, mortar, artillery, and small arms fire with good effect.

Company K had held Hill 339. The men were exhausted, the company was still under fire—but morale was high. The company commander realized, as have company commanders before him, the deep satisfaction that comes with a successfully accomplished mission.

Room Clearance in MOUT

CAPTAIN DAVID G. JESMER, JR.

Room clearance techniques, as described in our current doctrine for military operations on urbanized terrain (MOUT), are designed for a dual purpose. Properly applied, they should reduce casualties and also hasten the accomplishment of a MOUT mission. Unfortunately, the techniques taught today can, in fact, increase both military and civilian casualties and delay mission accomplishment by wasting ammunition and increasing logistical requirements. Minor changes in our doctrine can reduce this wanton use of firepower and improve our ability to accomplish a MOUT mission.

The Army's doctrine for room clearance can be found in FM 90-10, Military Operations on Urbanized Terrain (MOUT); FM 90-10-1, An Infantryman's Guide to Urban Combat; and TC 90-1, Military Operations on Urbanized Terrain Training. The training circular, which was recently distributed, contains the latest techniques being taught to our soldiers. Briefly, those room clearance techniques are:

- The clearing team positions itself to one side of the entry point into a room.
- One soldier cooks off a fragmentation grenade for two seconds and throws it vigorously into the room.
- When the grenade detonates, two soldiers enter together.
- The front man moves to the left as the rear man moves to the right, and they fire into opposite portions of the room, spraying with automatic fire.

- A third man covers the team's rear and blocks the door from enemy soldiers or from other friendly clearing teams.

- Cleared rooms are marked according to a unit's SOP.

- The team consolidates to continue the mission.

There are several problems with this procedure. First, it assumes that all occupants of the buildings being cleared are enemy. Some accounts of MOUT battles in past wars, particularly World War II, may lead one to believe that most of the occupants of a city had left before the fighting began. But numerous autobiographies and after-action reports mention that civilians were killed or wounded when soldiers threw grenades and sprayed a room or basement with automatic fire before identifying the occupants. And in future conflicts civilians are much more likely to be mixed with combatants, because increased urbanization, particularly in Europe, has left fewer rural areas either for refugee evacuation or for combat.

Additionally, it is more likely that most of our future conflicts will be of the low-to mid-intensity kind, in which the civilians will be less likely to leave the cities. (Vietnam and Lebanon are examples of this type of conflict.) Unfortunately, our MOUT doctrine appears to be written more for high-intensity conflicts. (FM 90-10 vaguely addresses the problem of noncombatants with a general statement that only military targets may be attacked,

but it does not explain to our soldiers how this will be accomplished in urban areas.)

In addition to civilians, our own soldiers can become casualties from the use of excessive firepower. Thin walls, doorways, and windows will not stop the fragments from the grenades presently in the Army's inventory, and ricochet rounds are a constant danger within buildings.

Besides causing needless casualties, the practice of spraying every room with automatic fire is a waste of ammunition. In practical terms, one can easily imagine a member of a clearing team depleting his basic load of ammunition before clearing 15 rooms, many of which will not even be occupied by enemy forces.

Although ammunition expenditures are expected to be greater in city fighting, the demand is exaggerated under our current doctrine. With time, attacking soldiers will learn not to waste so much ammunition, but this knowledge will not come from training but from costly experience.

With just a few changes in our training and equipment, these deficiencies can be rectified. My proposed changes are based on tactics and technology used by special operations forces throughout the world and on recent experience with city fighting in Lebanon. The primary goal of these proposed changes is to keep friendly forces as secure and safe as possible during room clearance. Additionally, these changes would result in a decrease in noncombatant casualties as well as in the amount of small arms ammunition re-

quired to support urban operations.

The first proposal is a specific change *not so much in doctrine as in presentation*. For example, TC 90-1 states that the minimum number of men in a clearing team is three (including the soldier at the entrance covering the rear). Although this is a good number with which to train, the training manuals should emphasize that the assault party organization is flexible. As long as the basic principles of room entry and clearance are followed, two to four men could safely clear the inside of a room. The first two men entering would move from left to right and right to left. Any additional personnel entering would scan the top half and the bottom half of the room. In other words, the responsibilities would be divided on the basis of the number of soldiers available to clear rooms.

The next proposal is one that does require considerable change in our doctrine. That is, the Army would need to develop an offensive grenade similar to the so-called "flash-bang" concussion grenade used by special operations forces in hostage rescue situations. (At one time, the U.S. Army had an offensive grenade in its inventory—the MK3A2. It was designed so that the force of its explosion was dissipated mainly in the form of shock waves instead of high velocity fragments.) The bright flash and loud noise of such a grenade would stun the occupants of an enclosed space for a few seconds but would not necessarily kill or maim them. The blast effects would give friendly forces enough time to clear a room before the occupants could recover their senses and react.

This type of grenade has been used successfully by numerous SWAT teams in the U.S., by the British Special Air Service during the recovery of the Iranian embassy in London, and by the German GS-9 during the assault on a hijacked airplane in Mogadishu, Somalia. Although these examples are from special operations, there is great potential for using such grenades in conventional military operations on urbanized terrain.

With the reduction of needless deaths from grenades, there would still remain the problem of small arms fire in room clearance. Again, borrowing from special operations tactics, we could, through additional training, eliminate the require-



Our MOUT doctrine deserves closer study.

ment to spray automatic fire blindly into a room. Soldiers must enter rooms quickly following the explosion of a "flash-bang" grenade to take advantage of the stun effect.

A technique to help soldiers enter a room is to have the first two soldiers who are going into a room cross through the doorway. For this technique, the two men are positioned on either side of the entrance, and the man closest to the doorknob opens the door by kicking it open or by firing at the doorknob. After tossing in a grenade, the man next to the door's hinges crosses into the room following the explosion. He crouches low as he moves and keeps his rifle pointed along his line of sight.

The second man immediately crosses behind the first man through the doorway in a higher stance with his rifle over the first man. The second man looks behind the door and then back to the center of the room. Both look at the hands of any oc-

cupants. They scan for weapons, grenades, and enemy uniforms, and fire at the people who have them. They clear all the way through the room to the far side, checking behind furniture along the way and talking constantly with each other so they will be always aware of their relative positions. They fire only when necessary. If there are additional members of the clearing team, they follow the second man through the entrance, scan up and down, and support the first two soldiers from a position just inside the entrance.

Codewords are designated for enemy hand grenades and booby traps. A member of the clearing team who notices a grenade or booby trap uses the codeword to alert the others. This keeps any occupants from deceiving the clearing team by shouting "grenade." When each of the first two members of the team has cleared the room to the far wall, he shouts "clear." The team leader then announces "all clear," and the team withdraws.

They mark the room and move on to the next.

This type of room clearance requires more training, but the benefits to be gained are worth the extra effort, and the training can also be interesting for the soldiers. Targets similar to those used by the FBI and SWAT teams should be developed for use in the Army's MOUT live-fire training facilities. Civilian targets should be mixed with opposing force (OPFOR) targets—and different objects could be placed in their hands, such as purses, cameras, pistols, or rifles—so that the assaulting soldiers could develop the proper reactions. MILES equipment could also be used for this training, and personnel in civilian clothes could be integrated with the OPFOR soldiers. Additionally, quick-fire training should be incorporated regularly as part of marksmanship training. Again, soldiers must be given an opportunity to develop their reaction time

when fighting at close range.

These proposed changes would not completely eliminate noncombatant or friendly casualties in city fighting, but the positive effect on the morale of both the local population and the friendly forces would be of great advantage to an assaulting force. After all, an alienated local population can greatly hamper the accomplishment of both tactical and strategic objectives. And it is well to remember that noncombatant casualties receive much greater attention today than they did before the age of television and satellite communications.

Although ammunition requirements for urban operations would still be much greater than those for operations on open terrain, the proposed changes would reduce the overall amount needed. Since city fighting requires so much in the way of resources, our doctrine needs to accommodate, to a certain degree, our antici-

pated logistical constraints.

With an increasing likelihood of our fighting on urban terrain in future conflicts, our MOUT doctrine deserves closer study. Reducing civilian casualties and our logistical requirements would certainly improve our ability to accomplish MOUT missions. Incorporating the outlined proposals into our doctrine would accomplish these goals and contribute to the Army's continuing improvement in *AirLand Battle* doctrine.



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Live Fire Exercises

CAPTAIN WILLIAM B. CREWS

Live fire exercises require a considerable amount of an Infantry company's time and other resources, but they do not guarantee a good return on the investment.

At their worst, live fire exercises are counterproductive and potentially dangerous. More closely akin to demonstrations, they are characterized by numerous controllers and carefully rehearsed soldiers following a rigid scenario. Such exercises teach soldiers the wrong lessons, destroy their confidence in themselves, and teach their leaders absolutely nothing.

At their best, however, live fire exercises can teach soldiers more in a couple of hours than they would learn from days of blank firing and the leaders more than they would learn on countless FTXs. A properly designed exercise will tax a company's SOPs and find training weaknesses

that otherwise would never come to light short of actual combat.

To conduct this kind of exercise instead of the worthless kind, a company commander must take several steps—securing resources, planning the exercise, organizing and preparing the range, appointing controllers, and then executing the entire exercise.

A live fire exercise begins with an ammunition forecast and a range request. The ammunition must include service rounds for all the weapons the exercising unit has. (The only exceptions are that 40mm target rounds are used instead of 40mm HEDP, and 35mm subcaliber rounds instead of LAWs; AR 385-63 mandates that live rounds from these weapons be fired into permanent impact areas.)

If the mission allows it, claymore mines, hand grenades, and demolitions

should be used. In a light infantry company, it is better to use Dragon rounds against simulated bunkers instead of against armored hulks. The use of the Dragon in such a role is very likely, and both Dragon gunners and riflemen must become accustomed to its launch signature and its explosive effect.

After securing the needed resources, the company commander begins his planning. The mission he chooses for the training will be a function of the resources available and the battalion commander's training guidance. Limited training land may also restrict the type of mission and the unit echelon that can be trained. For a platoon live-fire exercise, for example, the ideal area is an installation with a low troop density. (A good example is Fort Hunter Liggett, California, where a unit can choose the real estate it needs instead

of using an established range.) In any case, the terrain should have easily identifiable features to facilitate control. The preparation of the range fan, in accordance with AR 385-63, can be as easy or as difficult as the range control officer chooses to make it.

Planning also includes deciding on the learning objectives of the exercises. The mission is not necessarily the learning objective. A movement to contact, for instance, may be used to reinforce the need to overwatch movement or to demonstrate the need for fire control measures and fire commands. Live fire missions are an excellent way to evaluate a unit's degree of proficiency in coordinating fire and movement, controlling the rate and distribution of its fires, breaching obstacles under fire, reconsolidating and reorganizing after contact, and evacuating casualties and captured equipment.

Once the mission has been decided upon, the range needs to be organized. The target array that will be used must be much more than simply a group of targets strewn about the landscape. Properly placed targets improve realism and act as both safety and control measures. It is important not to use too many targets—a platoon on a movement to contact should not confront more than seven to ten targets at a time; a squad on the same mission should not face more than three. Target banks can be arranged in sequence with the successive groups of targets representing a moving enemy force. The important point is that a unit should never face at one time more targets than it can realistically engage.

Aside from the IRETS (infantry remote target system), there are basically four types of targets that can be used: simulated firing positions (such as sandbags to simulate a bunker), E-type silhouettes, remote-controlled pop-up targets, and oxy-acetylene machinegun simulators. Each of these devices has certain peculiarities but all of them have a place on any live fire range. A warning is in order on two of the systems, however. The control device on the remote-controlled targets often malfunction. (The targets are more reliable when they are "hot wired" and activated by two bare strands of WD-1 wire touched together.) This warning also applies to the oxy-

acetylene machinegun simulators, which present the additional difficulty of keeping the proper gas mixture.

To allow for a more objective evaluation of accuracy and to provide an element of competition, it is useful to staple balloons to all of the targets. Subjective judgment must be used to evaluate suppression of a target.

When the remote-control system is being used, the receivers should be placed out of the target area and clustered together. This removes the receiver from the target area, improves reception, and makes maintenance easier by grouping the most troublesome devices.

When the "hot wire" method is to be used, the positioning of the bare wires becomes critical; the controller must wargame the exercise to see where he thinks he will be when the targets must be activated. Regardless of the system used, all wires must be buried two or three inches to give them some protection. Even so, some wiring will probably have to be replaced after each exercise.

LIMITS

Finally, the left and right limits of the range must be established. With the approved range fan as a guide, markers should be placed on either flank. In addition, a marker is needed at the start line and another at the last group of targets. The total number of markers used will depend upon the terrain as well as the training level of the unit. (A VS-17 panel is an excellent device for marking boundaries.)

The next step is formalizing the control plan, which is a critical point in the process. A well-conceived control plan will allow a unit to execute its mission with no interference, while a poor one may require changes in the unit's operations order and limit what can be done because of safety considerations. No doctrinally sound action should be stopped.

The first measure of control is the use of operational graphics. Boundaries, phase lines, and objectives add not only realism but also control. Imaginary units can be established to prevent certain maneuvers.

Controllers are then appointed, ideally one per fire team but at least one per

squad. The senior controller also needs to play the role of the next higher commander. Unit leaders should be included in the control plan as well to supplement the dedicated controllers—if the unit leaders are to share the responsibility for control and safety in combat, they must have an opportunity to do the same in training. In fact, as much as possible, the exercise controllers should be inconspicuous observers. An overly aggressive controller can cause a leader to relinquish his duties to the controller and lead soldiers to wonder who is really in charge.

Controllers must walk their lanes several times and know all areas of them. An internal checkpoint system must be established so that each controller quickly knows where the others are.

For communications, each squad controller needs one AN/PRC-77 or AN/PRC-68 radio. The senior controller needs two nets, one for communicating with the other controllers and another to keep him in constant contact with Range Control. Ideally, a third net could serve as the company commander's or platoon leader's radio to allow radio communications with the unit on the range. Because most units do not have that many radios, however, face-to-face contact with the unit leader may be the only way to pass along instructions from the imaginary higher headquarters. This is not necessarily bad.

As a final step before execution, "stage props" can be placed on the range. These can take the form of OPFOR weapons strewn selectively about the objective, electrically detonated artillery flash simulators to simulate preparatory fires, and "blood-stained" field dressings in abandoned positions. Concertina wire will add a degree of difficulty as will Soviet-style mines (usually available from training aids centers). The addition of mines and wire will test supplemental mission skills as well as unit SOPs and the leaders' ability to think quickly.

If the mission is a night ambush or a night defense, a portable cassette player can add greatly to the realism. A tape containing troop noises—metal-on-metal contact, coughs, breaking branches—can create the illusion of an actual enemy. The best procedure is to record the noise at the very end of a tape but to start the tape at

the beginning. This will allow controllers to turn the tape player on before the unit is actually in position. In an ambush, the long time lag will serve as a good test of the unit's alertness, patience, and discipline.

When the unit arrives in the training area, the leaders are given their mission. The operations order (OPORD) or fragmentary order (FRAGO) must be doctrinally correct and must be prepared for one echelon above the unit going through the exercise. (A platoon leader should not receive a platoon OPORD from a controller!) When a leader is briefed on the location of the imaginary units to his left and right and on pertinent operational graphics, he is forced to create his own control plan to keep from firing on friendly units. This serves, to some extent, to keep fires within the range limits.

Before the leader issues his OPORD, he should be allowed to conduct a tactical leader's reconnaissance. This reconnaissance should allow the leader and his reconnaissance element to see what they could realistically be expected to see in combat. Unless range regulations require a unit to conduct a dry run of the exercise first, it should not do so, because dry runs destroy the realism of the training and can cause safety problems if leaders try to outsmart the scenario.

Before a leader gives his OPORD, he should back-brief the senior controller on the plan in the same manner as he would back-brief his commander before an operation. This will ensure that the leader has correctly interpreted the OPORD and has planned adequate internal control measures. It will also allow any necessary

corrections to be made before the order is given to the soldiers.

After the OPORD has been given, a safety briefing must be conducted. The entire unit should be brought to one location and briefed personally by the company commander. This not only gets the information down to the lowest level, it gives the senior controller a chance to impress upon each soldier his safety responsibilities. Although this mass gathering damages realism and disrupts the continuity of the exercise, it is fairly well established that platoon and squad operations orders are not the most effective way to disseminate safety instructions. At the end of the safety briefing a realism briefing should be conducted. In essence, this briefing tells the soldiers, "do the mission as you would in combat" and "if it isn't safe here it's not safe anywhere."

Once the execution phase starts, some basic rules must be followed. Leaders must make their decisions without interference from the commander unless the problem is becoming disorganized. Above all else, simulation should not be allowed. Whether a task is breaching a minefield or treating a simulated casualty, it must be done to Soldier's Manual standards.

When the battle is joined, all the planning comes together, and soldiers orient their movement on the targets as the targets appear. With the targets selectively placed, the maneuvering units and their fires can be guided away from each other.

The use of MILES helmets and body harnesses and a control gun allows overly aggressive soldiers and fire teams to be suppressed without the controllers in-

terfering with the problem. Selectively "wounding" and "killing" soldiers, along with MILES wound cards, can significantly slow the action down and also tax the platoon medic and the aid-and-litter teams. Care must be taken to "kill" leaders only if that is a planned situation to be injected into the exercise or if a leader obviously seems to consider himself invulnerable. The best candidates for simulated casualties are soldiers who are careless or inattentive to orders.

Suppressive fires can reduce entire squads to a slow crawl by making casualties of soldiers who do not respond to the simulated enemy fire. By using enemy action to set the pace at which units can maneuver, control can be more than adequately maintained without resorting to administrative measures.

Once an action has been completed, a thorough after-action review (AAR) should be conducted on the objective in the same manner as a MILES AAR. Immediate feedback should be provided to the unit on the number of targets successfully engaged as well as on the unit's losses.

If a live fire exercise is well-planned, it can be an invaluable training event in preparing for combat. For maximum value, each exercise must have a realistic scenario and a control plan that ensures safety and realism. Such an exercise is too costly in time and resources to be conducted any other way.

Captain William B. Crews served in the 7th Infantry Division (Light) as a brigade assistant S-3 and as a company commander in the 2d Battalion, 32d Infantry. He is now assistant Inspector General, U.S. Army Recruiting Command.

Air Defense With Small Arms

CAPTAIN ANTHONY J. O'CONNOR

The critical role that tactical air support has played in conflicts over the past few years points to a continuing role for it in

the future. This means we must have a good air defense capability. Our current air defense artillery (ADA) weapons could

control a great deal more air space than those of World War II, and we have almost twice as many of them. But the tac-

al aircraft against which these ADA weapons might be employed have also improved—they are several times faster than their World War II predecessors and can carry 30 times the ordnance with greater accuracy and killing power.

In Soviet doctrine, the role of tactical air is changing as the mission of frontal aviation units shifts from air defense to ground support, and this shift poses a powerful threat to our ground forces. Too, the Soviets' increased emphasis on attack helicopters, along with the addition of a new series of such aircraft to their arsenal, reinforces their increased effort to beef up their ground attack capability.

Sophisticated air-to-surface weapon systems are capable of destroying even the most fleeting of targets. The threat of devastating air attack is therefore very real for the frontline soldier, and our combat operations must take this threat into careful consideration.

Air defense artillery weapons and fighter interceptors will not be available in sufficient numbers and strength to ensure our air superiority, or even parity. In addition, their primary mission will be to defend priority targets, such as logistical centers, command and control areas, and airfields, which will leave few of these scarce assets available for commitment to forward units. These maneuver units must therefore be able to provide some sort of defense for themselves.

Presented with this threat, and without the firepower, computer controls, and electronic guidance of sophisticated ADA missiles, what effect can an individual soldier and his small arms have on aircraft? Quite a bit, judging from past wars. During the Korean War, 544 U.S. aircraft were lost to small arms and air defense fire, and in Vietnam 410 fixed-wing aircraft and 2,100 helicopters were downed by small arms fire. More recently, in the Falklands War, Blowpipe missiles, machineguns, and other small arms played an important air defense role.

With the cancellation of the division air defense gun (DIVAD), the need for a soldier to protect himself from air attack is greater now than ever. With some imagination, however, most units can incorporate effective air defense training into their busy training schedules without disrupting their other training.



Soldiers should be trained to react to enemy aircraft.

First, the actions a unit takes to increase its air defense capability can be broken down into passive and active measures. Passive measures are based on camouflage and protection, while active measures are those taken to avoid being hit and to engage and defeat hostile aircraft. Then, both can be integrated into a five-step air defense training program:

- The integration of air defense actions and drills into normal tactical operations.
- Aircraft identification training for the individual soldiers.
- Drone or glider dry fire and immediate action drills. (See also "PORTRAD," by Lieutenant Philip D. Macklin, *INFANTRY*, September-October 1981, pages 38-39.)
- Drone firing exercises with the multiple integrated laser engagement system (MILES).
- Live fire exercises with radio-controlled miniature aerial targets (RCMATs).

In the first training step, passive air defense actions are analyzed and adopted. In this part of the training the techniques involved are the same as those used in normal tactical exercises—camouflage, cover, and concealment—except that a soldier is taught to view his position from a new direction; that is, from above as well as from ground level.

Darkening or covering reflective surfaces, seeking shadows and overhead cover, moving to locations that break up the outline of a vehicle from above, and dispersing are all techniques of passive air defense. Other essential actions are posting air guards and developing a warning system to alert troops to the approach of hostile aircraft.

Air guards and passive techniques, therefore, should be incorporated into field exercises. If air assets are available, they should be integrated into the tactical play; if not, a unit can use RCMATs to simulate hostile air.

Air defense annexes should become part of every SOP and should be exercised. An ADA annex should also become routine in all tactical operations orders, especially in convoy and movement orders, since that is when a unit is particularly vulnerable.

The next step is to train the individual soldiers to identify hostile aircraft, react to it, and engage it—if attacked or ordered to do so.

Enemy aircraft identification can be introduced with the use of training aids such as playing cards, scale models, and pictures. To speed training and minimize confusion, emphasis should be placed on an ability to identify only a limited number of ground attack aircraft and, more im-

portant, helicopters. In all probability, attack helicopters will be the primary threat to the frontline soldier. Because they are slower, however, helicopters can be more effectively engaged with small arms fire.

A good background in aircraft identification will enable soldiers to avoid detection and to engage only hostile aircraft when both hostile and friendly aircraft are operating in the same area. The exact composition of this training program should be adapted to the area where each unit is stationed; in Europe, for example, more emphasis should be placed on NATO aircraft. Soldiers should learn to identify at least 10 fixed-wing and 10 rotary aircraft. On this list should be the A-10, UH-1, AH-1, Black Hawk, CH-47, Hind (in both variations), and C-130. (Training Circular 44-30, Chapter 2, provides guidance on picking out the differences between aircraft and on aiding aircraft recognition training.)

The third step is training the soldiers to react to enemy aircraft. The exact nature of the reaction depends on the air defense posture the unit assumes—the weapon control status, enemy activity, and command guidance from higher headquarters. Once attacked, however, a unit must assume an active defense, initiating evasive action and seeking covered positions. During this time, soldiers who are able should return the fire of the attacking aircraft.

Active air defense measures consist of the actions taken when a hostile aircraft starts to approach a unit's position—stopping, turning into the attack, or dispersing. Once the unit engages the aircraft, everyone who is able takes the proper lead and opens fire. In air defense, the volume of fire is the key to an effective small arms deterrent.

The best way to engage hostile aircraft with small arms is covered in various manuals. The individual Soldier's Manual for MOS 11B10 provides some instruction on how to fire an M16 rifle at aircraft; ARTEP 7-15 has the engagement of aircraft as a supplemental task for a light infantry battalion. TC 23-44 still provides the best guidance on small arms in air defense and includes both active and passive techniques that can be incorporated into field exercises.

Although there is no need to repeat what

is covered in the manuals, some of the points should be considered. One of these is the importance of "leading" a target. An aircraft traveling at 150 miles an hour will travel 218 feet in one second; a bullet will hit a target 460 meters away in about half a second. This means that even a slow target such as a helicopter at 460 meters will need to be given about 100 to 200 feet of lead; as the distance increases so must the lead. In that same half-second, the bullet will have dropped four feet, so super-elevation is also needed. Since there is only a slight probability that a single round will hit, the volume of fire is important since it increases the number of bullets a plane must fly through.

Having a soldier fire service ammunition at RCMATs is an excellent way to train him and test his air defense weapon skills. Unfortunately, there are two basic drawbacks to this system. First, there are no aerial gunnery standards for small arms, although Appendix B of FM 44-20 does contain some suggestions for range operations. Captain Robert Kilmer, Jr., in his article "Air Defense Training" (INFANTRY, January-February 1982, page 26) also lays out the operation of an air defense range.

Other problems are a shortage of ammunition and also of areas in which small arms can be fired at high elevations. This is especially true in Reserve Component units where access even to a standard range may be limited and where live ammunition is tightly controlled and used only for weapons qualification.

A solution to this problem and a relatively cost-effective way to train even active duty soldiers is to incorporate MILES equipment into the RCMATs. With this technique, extensive hours of training can be conducted in a garrison environment in an area no larger than a football field. This training, then, constitutes the third and fourth steps in the proposed training program—dry fire and immediate action drills that include drones or gliders, and drone MILES firing.

The use and operation of RCMATs is discussed in FM 44-1-2, Chapter 14, and need not be covered here. But what is of note is the ability to modify the miniature targets to resemble other operational aircraft. Because these drones can carry the additional weight of the MILES equip-

ment, they can be used both at home station and in a garrison environment for aircraft recognition and aerial gunnery drills.

One problem must be considered, however—a laser does not have the same ballistic properties as a 5.56mm bullet. This problem can be addressed by shifting the firer's sights. With maximum windage cranked into the rear sight, the firer's line of sight will lead the target while the muzzle will actually be pointed at the target. This effect will work, of course, only in one direction at a time, so this somewhat arbitrary constraint must be allowed for. If RCMATs are not available, cheap training aids in the form of styrofoam gliders can be obtained from some hobby shops.

These models can be fitted with the MILES equipment and towed behind a quarter-ton truck. Used in this fashion they can simulate a slow speed ground attack, allowing the soldiers to practice immediate action drills and aerial gunnery in a small area as part of squad or section battle drills. If blank ammunition is in short supply or if noise is a problem, the MILES dry fire cord can be used to determine target hits.

The final step in the program is to take the soldiers and vehicles to a range and have them fire service ammunition at RCMATs to test the effectiveness of their earlier training. At the same time, studies should be conducted on the effectiveness of various weapons—such as TOWs, Dragons, and tank main guns—on aerial targets to determine how these weapons can best join in the antiaircraft battle, especially against attack helicopters.

While the air threat is real and deadly, an infantryman or a tanker does not have to be a helpless victim. If properly trained, he can play a significant role in fending off hostile aerial targets.



Captain Anthony J. O'Connor is a 1971 ROTC graduate of Siena College, Albany, New York. He has held various command and staff positions, including Redeye platoon leader and assistant S-3, in armor, cavalry, and infantry battalions, and is now an ROTC instructor at Rensselaer Polytechnic Institute.

A Mortar SOP

EDITOR'S NOTE: In our recent issues we have carried a number of articles concerning mortars, and there is another one in this issue. The article that follows is a good

example of an SOP for a 60mm mortar section in a light infantry unit. It was prepared by Sergeant Robert Florek who, when he prepared it, was a mortar sec-

tion leader in Company C, 2d Battalion, 14th Infantry, 2d Brigade, 10th Mountain Division.

MOVEMENT

Mortars deployed as a section, no security element attached. Number 1 gun's assistant gunner will take point. (#2 assistant gunner and #1 assistant gunner will flip-flop positions as point man when ordered to do so by section sergeant or squad leader.) Speed is of the essence: section will operate in the traveling mode. Gunners will secure gun systems to their rucksack frames and have their M16s at the ready.

Sector of fire responsibility:

#1—11 o'clock to 1 o'clock

#2—10 o'clock to 2 o'clock

Note: Must be aware of point man's location at all times.

#3—8 o'clock to 10 o'clock

#4—2 o'clock to 4 o'clock

#5—7 o'clock to 9 o'clock

#6—3 o'clock to 5 o'clock

#7—5 o'clock to 7 o'clock

At halts, weapons will be oriented to those sectors of fire. (REFER TO FIGURE 1 FOR WEDGE FORMATION, FIGURE 2 FOR COLUMN FORMATION.)

Mortars deployed with company as part of headquarters element. Gunners will have mortar systems at the ready with M16s strapped to rucksack frames. (REFER TO FIGURE 3 FOR WEDGE FORMATION, FIGURE 4 FOR COLUMN FORMATION.)

Actions Taken at a Halt: #2 gunner moves left, #1 gunner moves right, positioned about 25 meters apart. Gunners will orient guns in hand-held mode to the direction of travel and index 500 meters on the range indicator, unless distance and direction is called to section by CO, XO, or FSO. Gunners will ensure they have

mask and overhead clearance to fire a mission.

• Assistant gunners will move to ap-

proximately 5 meters from gunners and orient themselves to protect gunners' outside flanks. On a call for fire, assistant

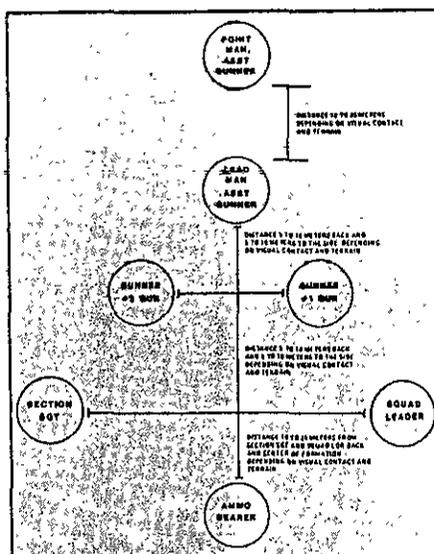


Figure 1. Deployed as section in wedge formation.

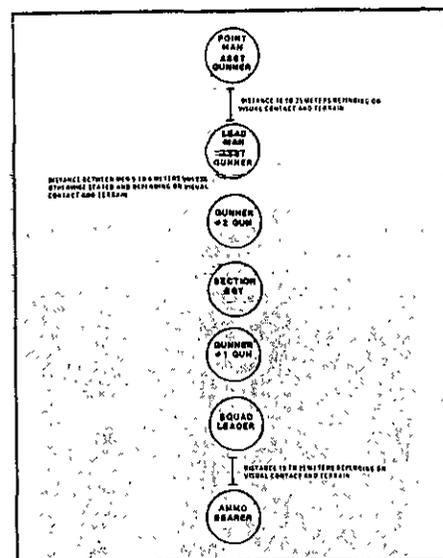


Figure 2. Deployed as section in column formation.

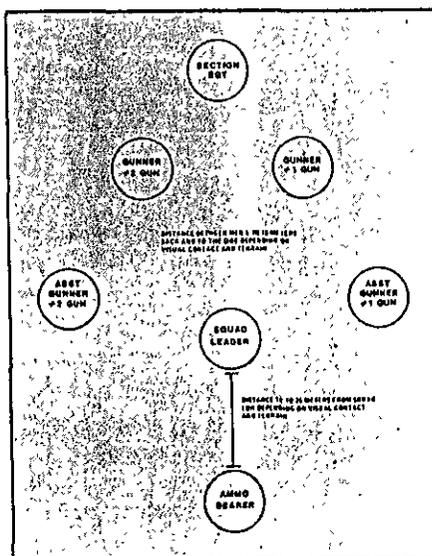


Figure 3. Deployed as part of headquarters element in wedge formation.

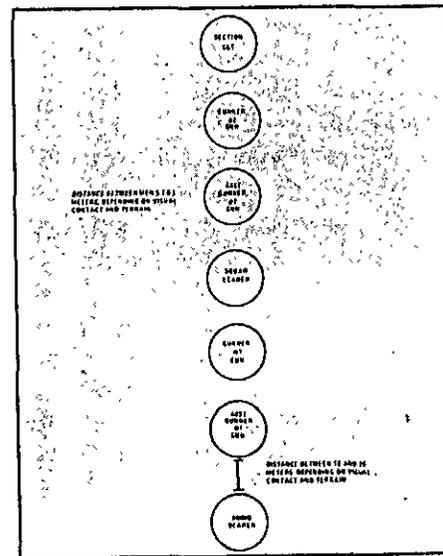


Figure 4. Deployed as part of headquarters element in column formation.

TRAINING NOTES

gunner will remove rounds from gunner's rucksack frame first.

- Squad leader will move to #1 gun, ensure that mask and overhead clearance is good and that range and direction is correct, and then orient himself to protect gunner's rear.

- Section sergeant will move to #2 gun, ensure that mask and overhead clearance is good and that range and direction is correct, and then orient himself to protect gunner's rear.

- Ammunition bearer will center himself between guns laterally and maintain a distance of about 15 meters to the rear. He will orient himself to provide rear security to mortar section.

(NOTE: A two-round FFE from section will be fired; gunners' rounds on rucksack frames will be prepared on a Charge 1.)

Action at Danger Crossings: Same as Actions at a Halt until headquarters element starts to move toward danger area. Mortars move when headquarters element moves and cross danger area as a section. Changes will be directed by CO, XO, or FSO.

DEFENSIVE PERIMETER

Mortars will move into center of perimeter, orient gun systems in hand-held mode, direction toward base of triangle at distance of 500 meters. Number 2 gun will move left, and #1 gun will move right about 25 meters from #2.

- Squad leader and section sergeant will make sure direction and distance is correct and mask and overhead clearance is good. Guns will remain in hand-held mode until triangle is adjusted.

- Assistant gunners will remain with gun systems.

- Section sergeant will meet with XO or FSO to determine primary, alternate, and supplementary mortar positions. Once mortar positions are determined, section sergeant will put in #2 gun first; mortars will set up in the indirect mode with direction and distance.

- Ammunition bearer will be with #1 gun, which will remain in hand-held mode until #2 gun is set and ready to fire missions.

- Section sergeant will also show #2 gunner the alternate and supplementary

positions and give him the distance and direction for those positions.

- Section sergeant will then get the squad leader from #1 gun and the entire crew and move them into their primary position, to include the ammunition bearer.

- Section sergeant will lay in #1 gun and then show squad leader the alternate and supplementary positions along with direction and distance for each.

- Ammunition bearer will take roll of wire and TA-1s and set up communications between the two mortars. He will remain with #2 gun and take orders from either section sergeant or gunner. He will also set up communications with CP for XO with TA-1.

On command, mortar crews will take gun system out of action:

- Gunners will set up in the hand-held mode in the direction of the last command and distance; rucksack frames will be loaded and ready to move.

- Assistant gunner will have rucksack frame loaded and ready to move.

- Ammunition bearer will roll up wire and give it to squad leader of #1 gun along with TA-1s; he will have rucksack packed

and on his back when this happens.

- Squad leader will then give the section sergeant an UP once wire is secure, as this will be the last task performed.

- Section sergeant will then report to his commander that section is ready to move.

DELIBERATE DEFENSE

Priority of Work:

- Section sergeant lays mortar section in direction of fire prior to digging in, usually to the front of selected mortar position.

- Section sergeant and squad leader make final decision on mortar position. They will center M2 compass over the middle of the proposed pit and get the direction of fire for that pit.

- Assistant gunner will measure the mortar pit along with the squad room (crew living room) and begin to cut or dig mortar fighting position.

- Section sergeant and squad leader will set up M16 plotting boards and determine data for FPF.

- Gunner will index FPF data on gun system and prepare ammunition for FPF after registration mission.

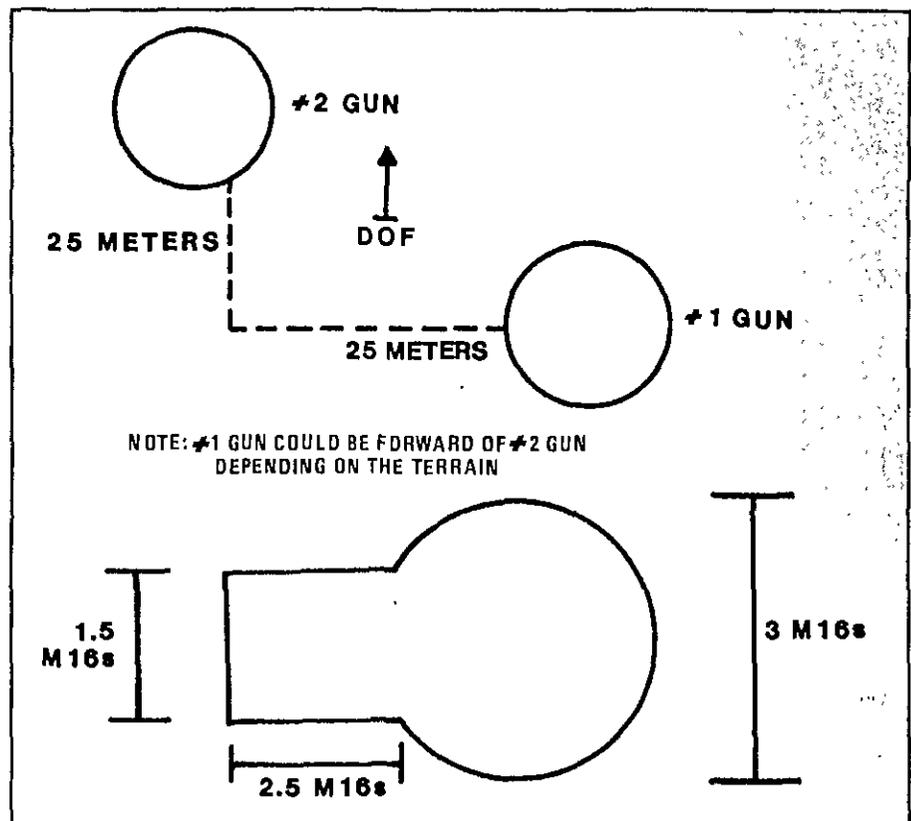


Figure 5. Deliberate Defense.

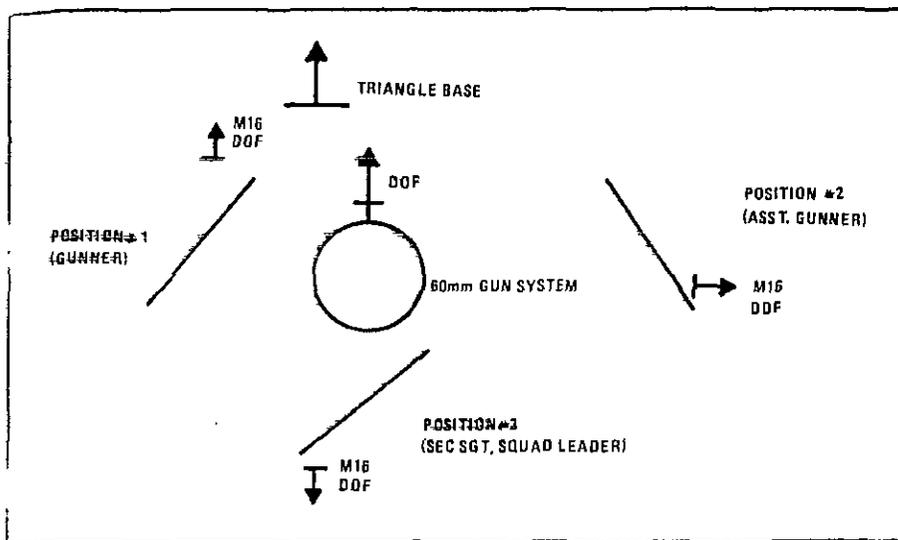


Figure 6. Hasty Defense.

- Gunners will start gathering camouflage and overhead cover.

- A workable rotation will then be instituted between digging, gathering camouflage, cleaning weapons, and filling sand bags.

Positions: If company is to establish a deliberate defense, gun systems will remain in base plate mode and will be oriented in direction of fire. Mortar posi-

tions will be approximately 25 meters apart in width and depth (Figure 5). Terrain will dictate positions.

Each position will be dug in three stages: mortar pit, squad room, and ammunition storage.

- Pit will be 3 M16 lengths wide, depth 1 M16 length (from butt plate to front sight post).

- Squad room will be 1½ M16s wide,

2½ M16s long, and at least 1½ M16s deep. If more than 4 men are to be at one mortar pit, another squad room must be constructed.

HASTY DEFENSE

Defensive Fighting Position: Once the company moves to the objective or into the defense, the section sergeant and CO, XO, or FSO determine the primary positions for mortar section (Figure 6). The mortars will be set up according to defense SOP. When both gun systems are in the indirect mode and communications are established, hasty fighting positions will be dug according to company SOP. Since the mortars will normally be inside the company defensive perimeter, it is very important to know locations of CP, FSO, CO trains, and platoon individual fighting positions.

Each mortar gun crew will establish a 360-degree defense around its system. Hasty positions will be between 5 and 10 meters from the gun system, and direction of fire for the M16 will be established by section sergeant or ranking man.

Antiarmor Fire Distribution

LIEUTENANT DAVID E. JOHNSON

Regardless of their specific unit missions, antiarmor leaders everywhere have the same basic problems: Their mission usually requires them to occupy hasty battle positions with little time to mark trigger lines or target reference points. Because our doctrine calls for antiarmor vehicle positions to be 300-500 meters apart, communication is difficult at best. In addition, there is usually no time to cache rounds to supplement the vehicles' limited basic load, so it becomes even more important not to waste rounds on multiple engagements of a single target.

For these reasons, a good direct fire distribution SOP is critical to the success of an antiarmor mission.

The fire distribution techniques offered here were refined from the "pattern fire" control method introduced in TC 7-24 and were successfully demonstrated during an NTC rotation and numerous local exercises. They were developed for a HMMWV TOW platoon (motorized) consisting of five vehicles, each armed with the TOW-2 system and carrying a basic load of six missiles. The five vehicles were organized into two sections and

a command vehicle, with the platoon sergeant as senior section leader.

Nevertheless, the techniques can be readily adapted to any unit that has an antiarmor mission and can help other antiarmor leaders develop their own SOPs.

First, control measures must be established so that everyone—friend and foe alike—can be easily identified. Each platoon vehicle is identified by bumper number and platoon color: First platoon is red; second platoon is white; third platoon is blue; fourth platoon is green; and

headquarters platoon is black. Thus, the first platoon's vehicles are Red 1 through Red 5, with the command vehicle being Red 1.

Targets are identified by counting from

the direction of movement (that is, the lead target in the platoon sector is number 1)

1) If the opposing force (OPFOR) unit is advancing on line, then the targets are counted from left to right (Figure 1). This

enables the platoon members to readily identify targets to each other; for example, "Red 3 this is Red 2, left of TRP 2; you take 5, I've got 4." This transmission says who will do the shooting, gives Red 3 a reference point to help him spot his portion of the target array, and assigns targets to keep the platoon from expending two missiles on one kill.

Once target identification SOPs are in place in a unit, a set of basic plays, or engagement techniques, can be established. These are selected on the basis of the terrain and are designated in the fire command. The basic engagement techniques are frontal fire, cross fire, and depth fire.

The platoon leader selects the frontal fire technique when the OPFOR's avenue of approach is non-restrictive and the platoon is on a single terrain feature, making hide or hull defilade positions necessary (Figure 2). The platoon engages targets to its front. The rightmost section engages the targets to the far right, with the section leader killing the one farthest to the right and his wingman killing the next one. The leftmost section does the same thing on the left. Then the sections work their way toward the center.

The gunner on the command vehicle fires at priority targets that are designated by the commander in his operational matrix and plugs gaps in the platoon's fire pattern. This lessens the possibility of overlapping fires, protects against flank movements, and makes use of mutual support in the final engagements.

Another technique the platoon leader may select is cross fire. The cross fire technique is selected when the enemy's avenue of approach is moderately restrictive, and when the terrain gives the sections frontal cover yet allows them to fire across each other's front (Figure 3). In this technique, the rightmost section engages the targets farthest to the left, with the section leader killing the one on the extreme left and his wingman killing the next one toward the center. The leftmost section does the same thing on the right.

In the more restrictive terrain associated with cross fire, the command vehicle is positioned so that the platoon leader can observe decision points identified by the battalion S-2, the commander's concept, or the platoon leader's own terrain

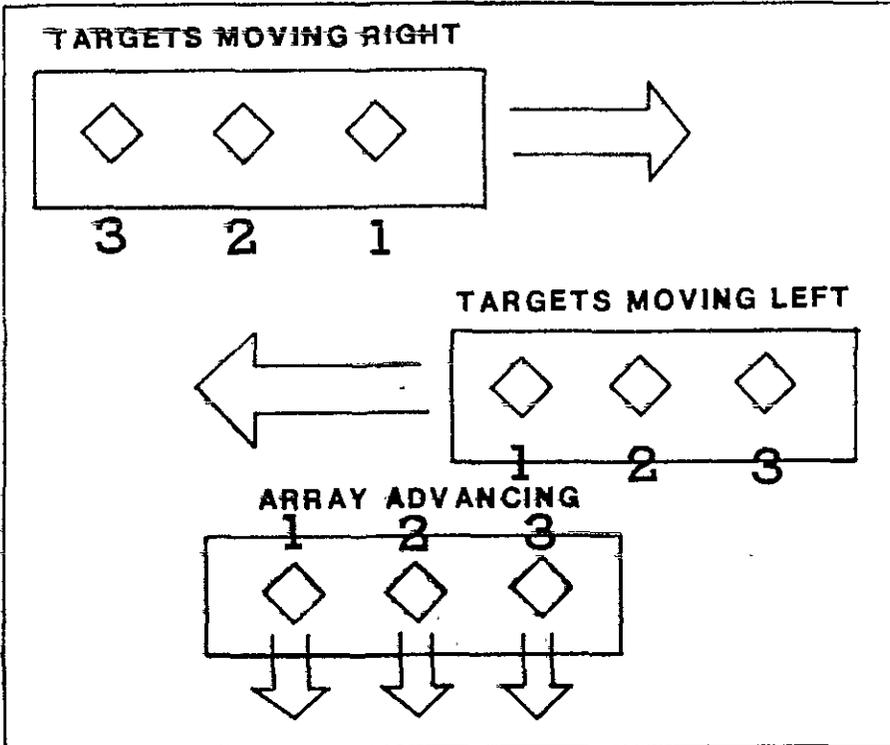


Figure 1. Counting targets.

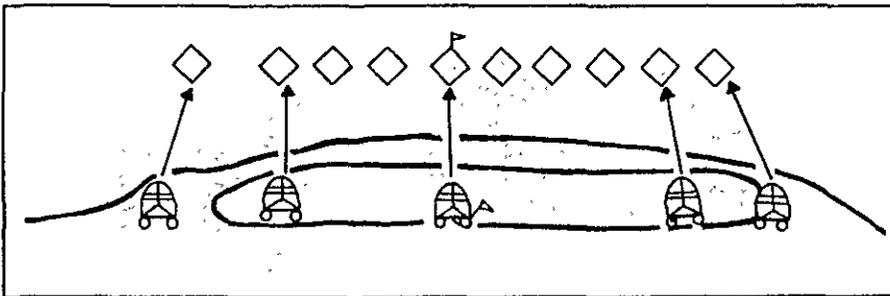


Figure 2. Frontal fire.

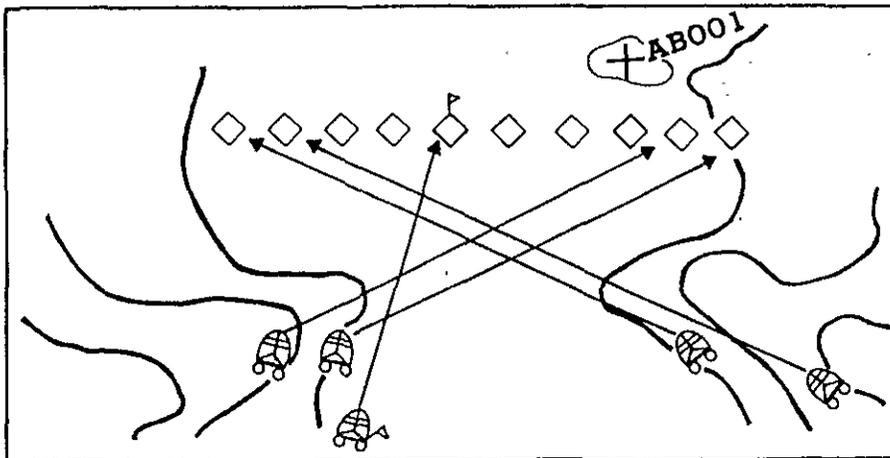


Figure 3. Cross fire.

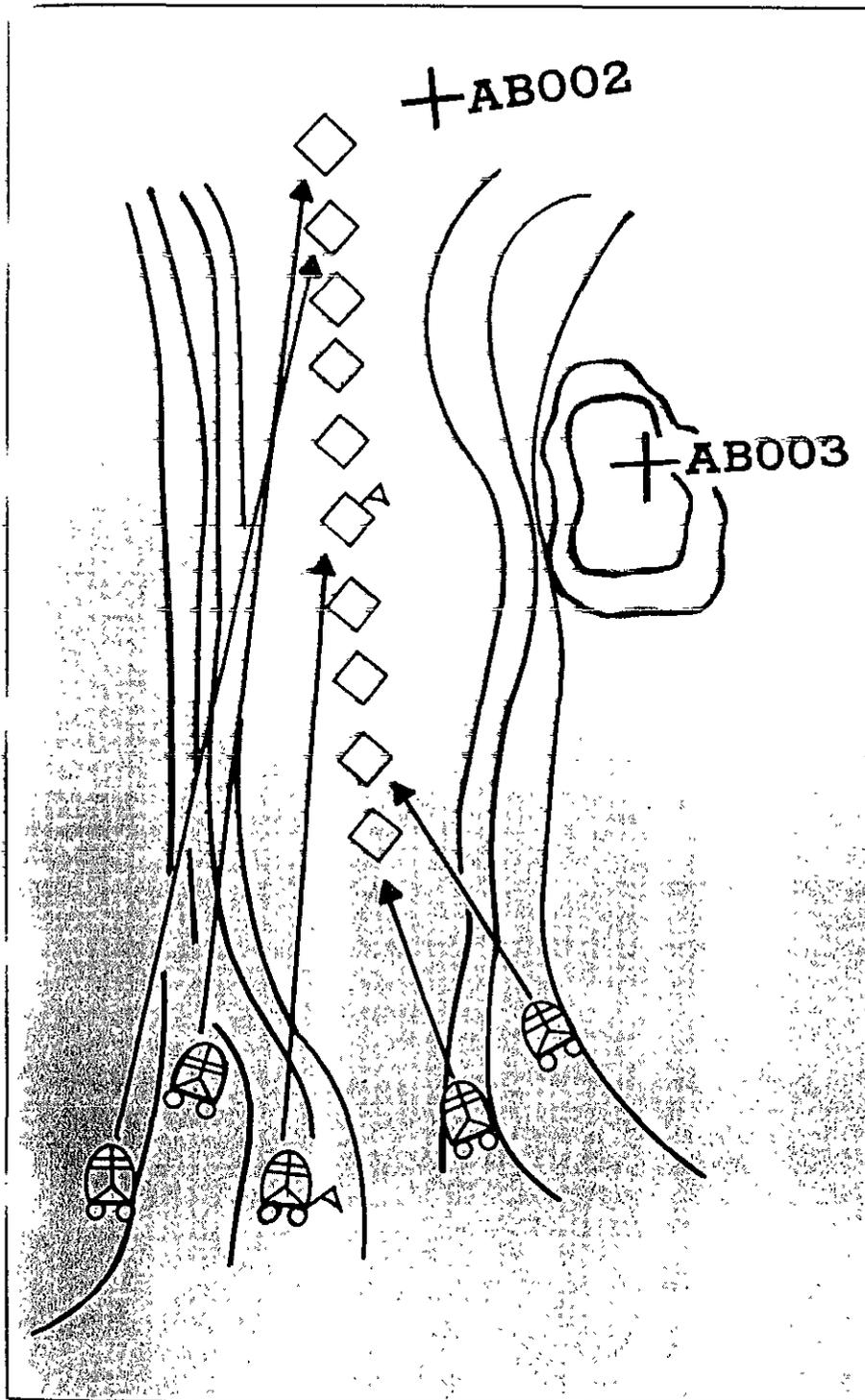


Figure 4. Depth fire.

analysis. From that position the platoon leader must be able to observe and coordinate all fires into his sector, especially indirect fires. The gunner on the command vehicle engages priority targets and fills in gaps in the platoon fire pattern. This technique provides protection against direct fire, masks backblast, produces flank shots, and improves mutual

support in the final engagements.

The platoon leader may also select the depth fire technique (Figure 4). This is most effective when the OPFOR's avenue of approach is very restricted. A narrow pass or a bridge that forces the OPFOR unit into a column formation is ideal. The most experienced section engages the targets farthest to the rear that

are within range in the platoon sector. The other section engages the lead targets. Once again, the sections work their fires toward the middle, and the gunner on the command vehicle shoots at specified targets and plugs gaps in the platoon's fire pattern.

Although these techniques are simple and sound, they do not solve all of the problems facing an antiarmor leader. Like a quarterback, a good platoon leader must be flexible. The three basic plays—frontal fire, cross fire, and depth fire—are made to be modified on the field. In fact, a platoon may use several of them at the same time. If the terrain is compartmentalized, for example, one section may use frontal fire while another uses cross fire. Or an OPFOR array may dictate that one section use depth fire. Casualties can be wargamed in advance to allow for the reassignment of missions within the fire pattern. The control measures can also be adapted to any chain of command or color and number scheme, so long as it remains possible to identify and control the attached units.

Whichever techniques are used, direct fire—like a running play on the football field—is only part of the game plan. A thorough intelligence preparation of the battlefield that identifies avenues of approach and decision points forms the basis for positioning from the battalion engagement area down to the individual gun.

Detailed ground coordination provides the infantry support necessary for defending the platoon against any opposing forces that may be dedicated to locating and destroying the TOW systems before the engagement.

Finally, coordinated TOW, Dragon, MK19 automatic grenade, and heavy machinegun fires across a man-made or natural obstacle to slow the rate of closure—along with timely, accurate, and integrated fire support and air missions against follow-up echelons—can create a catastrophic engagement area.

Lieutenant David E. Johnson is headquarters company executive officer of 3d Brigade, 9th Infantry Division (Motorized). He was an assault gun (ITV/HMMWV-TOW) platoon leader during the NTC rotation upon which this article is based. He is a 1984 graduate of the United States Military Academy.

OCS CLASS SCHEDULE

Four Officer Candidate School (OCS) classes have been scheduled at Fort Benning for Fiscal Year 1988. Although it is too late to apply for the first two, there is still time to apply for Classes 3 and 4, as shown on the following schedule:

CLASS	REPORTING DATES	GRADUATION DATES
3-88	2 Mar-6 Mar 88	13 Jun 88
4-88	30 Mar-3 Apr 88	12 Jul 88

Applications for both classes must be received at MILPERCEN by 4 September 1987 to be considered by a board that meets 5-9 October 1987. (No exceptions.)

Soldiers are ineligible to apply if they have 10 years or more of active federal service or if they will be 35 years of age by the time they can be commissioned through OCS. Neither of these requirements can be waived.

All commanders are encouraged to solicit eligible soldiers to apply for the OCS program.

ROTC SCHOLARSHIPS

Army ROTC scholarships of two and three years are available to Army enlisted personnel. For a three-year scholarship, a soldier must have completed one year of college or its equivalent and have three years remaining in an approved baccalaureate degree program. For a two-year scholarship, he must have completed two years of college or the equivalent and have two years of college remaining in an approved baccalaureate degree program.

A scholarship applicant must be under 25 years of age on 30 June of the calendar year in which he will be eligible for appointment as a second lieutenant. Up to four years extension may be granted for active duty service, but the length of the extension cannot exceed the actual period of service; for example, with two years

of active duty service, a soldier must be under 27 years of age at the time of appointment.

In addition, an applicant must meet the following basic requirements:

- Be an American citizen.
- Be at least 17 years of age before the award becomes effective.
- Achieve a minimum score of 180 with a minimum of 60 points in each event on the Army Physical Fitness Test.
- Have completed at least one year of active duty before the discharge date for enrollment at the institution he plans to attend.
- Have a minimum cumulative grade point average of 2 on a 4-point grading system on completed college work.
- Have a minimum GT score of 115.
- Be accepted as an academic junior for the two-year scholarship or as a sophomore for the three-year scholarship at an institution that offers Army ROTC.
- Be recommended by his or her commander.
- Be accepted by the Professor of Military Science into the Army ROTC program.

These scholarships pay tuition, a standard allowance for textbooks, supplies, equipment, required educational fees, and certain other educational expenses, plus a tax-free subsistence allowance of up to \$1,000 for each academic year the scholarship is in effect.

Active duty Army enlisted personnel who are interested in applying for one of these scholarships may get an application packet by writing Army ROTC Scholarships (AD), Fort Monroe, VA 23651-5000.

MANAGING ASIs

Additional skill identifiers (ASIs) help personnel managers and commanders identify and use soldiers who have special skills. These skills are closely related to those of military occupational specialties

(MOSs) but are in addition to them. Since all soldiers cannot be trained on all equipment, some soldiers must have specialized training to meet equipment needs.

There are now 182 ASIs authorized, 61,000 ASI positions documented, and 82,000 soldiers who have at least one ASI. In addition, the Army expects to train 13,600 soldiers this fiscal year at schools from two to 52 weeks long.

To make sure soldiers with critical ASIs are properly assigned, MILPERCEN has launched several initiatives to improve ASI management. A few of them are the following:

- ⇒ Add space-imbalanced ASIs to the overseas extension incentive program.
- Improve the Enlisted Master Files, SIDPERS files, and Military Personnel Record Jackets by ensuring that ASIs for training soldiers are recorded or withdrawn during personnel actions. Recording and withdrawing ASIs will become an item of interest for personnel assistance teams.
- Revise the definitions of "MOS" and "ASI" to provide for the proper classification of critical skills.

- Use the Army Training Requirements and Resources System to top-load awarded ASIs on Enlisted Master Files.

- Review and revise the current process for determining the target ASI inventory needed for sustainment.

- Develop ASI utilization reports for use at installation and unit level.

- Develop an automation change that will identify 30,000 more ASI-trained soldiers to the field.

The most critical aspect for the success of the ASI program is the support of the Army's leadership. Leaders need to emphasize the importance of assigning ASI-trained soldiers to authorized positions, identify those who are not in authorized positions, and correct any misuse of ASI soldiers.

Leaders also need to ensure that force developers and personnel managers coord-

dinate their ASI actions with MOS-code letters of notification. They need to emphasize the necessity of using all nine MOS-code characters in requisition and documentation.

DREAM SHEET

The "dream sheet" is what soldiers often call the Enlisted Preference Statement, DA Form 2635. This nickname reflects their desire to get the ideal assignments they so often dream about. Too often, though, they prepare their DA Forms 2635 to reflect dream assignments that don't even exist.

Soldiers who want to influence their assignments should make sure their preference statements show areas or installations where they can be assigned on the basis of Army requirements for their MOSs and ranks.

They should also list priorities for the desired areas of preference. Soldiers often request only one location. Then, when there are no requirements for a soldier's rank and MOS at that location, the assignment manager does not have a second choice to consider.

Soldiers should update their DA Forms 2635 every two years, or as their preferences change. For example, many single soldiers request duty in short-tour areas and forget to change this after they are married. Then they are upset to find they are on orders for unaccompanied tours.

The current address of family members, Block 16, should also be kept current. MILPERCEN can then contact a soldier if a change of assignment instructions is needed. Block 17, the family's location while a soldier is assigned to a short tour, is also important, because it is used to help determine his homebase or advance assignment upon completion of a family member restricted tour.

DA Forms 2635 should be submitted to local Personnel Service Centers. The center will submit SIDPERS data change transactions and forward the forms to the appropriate career branches at MILPERCEN.

Enlisted soldiers are usually nominated for particular assignments through an automated system called Centralized Assignment Procedures (CAP) III. Many

factors influence that selection process, including the amount of time since a soldier's last overseas tour and his preferences. This system makes it especially important that SIDPERS correctly reflects assignment preferences. It is about the only way soldiers from private through sergeant can influence their assignments.

NCOs from staff sergeant through sergeant major may submit DA Forms 2635. Assignment managers and professional development NCOs usually review these forms before they complete any assignment or schooling actions.

More information on DA Form 2635 is available in AR 614-200, paragraph 1-7.

WARRANT OFFICERS NEEDED

While the Army is meeting its overall personnel end-strength with the best soldiers in history, the warrant officer program continues to struggle.

There are too few applicants to fill the spaces in some critically short MOSs for both the Active Army and the Reserve Components. To relieve these shortages, the U.S. Army Recruiting Command has gained the responsibility for recruiting soldiers now on active duty and in the Army Reserve to become warrant officers.

MILPERCEN has identified possible candidates from among all qualified soldiers in related MOSs, and USAREC has followed up to urge those who seem interested to apply. But soldiers not identified by MILPERCEN are still encouraged to apply.

The current critically short MOSs for active duty soldiers are Special Operations Technician (180A), Missile System Technician, HAWK (223B), Wheeled Vehicle Maintenance Technician (30A), Support Supply Technician (62A), CID Special Agent (951A), and Counterintelligence Technician (71A).

Critically short MOSs for Reserve Component soldiers are Utility Observation Helicopter Pilot (100B), Special Operations Technician (180A), Communications Electrical Equipment Repair Technician (86A), Engineer Equipment Repair Technician (621A), Wheeled Vehicle Maintenance Technician (30A), Military Personnel Technician (711A),

and General Supply Technician (761A)

Soldiers who want to apply should send their applications through their local MILPOs to Commander, HQ USAREC, ATTN: USARCRO-SM, Fort Sheridan, IL 30037-6000

SPECIAL OPERATIONS (CMF 18)

The nature of the worldwide political situation indicates that the most likely threat scenario is a low-intensity conflict. As a result, Special Operations forces are growing, and the Army needs qualified soldiers in the rank of sergeant and above to apply for Special Forces training and assignment.

Since Special Operations, Career Management Field 18 (CMF 18), is a non-accession CMF, all of its requirements must be filled from within the current force.

Duties within the field primarily involve participation in special operations in unconventional warfare, foreign internal defense, strike operations, strategic reconnaissance, and counter-terrorism.

The mental and physical qualifications are among the most demanding in the Army, and there is a strong emphasis on analytical ability, detailed recall, stamina, agility, and endurance. The duties of a special operations soldier also place a high premium on knowledge of conventional light infantry doctrine and expertise in low intensity conflict and unconventional tactics. These duties include participation in waterborne, desert, jungle, mountain, and winter operations.

The prerequisites concerning CMF 18 can be found in AR 614-200 (paragraph 6-15). Additional information can be obtained from the MILPERCEN Special Operations Professional Development NCO, MSG Hennix, AUTOVON 221-8340, or commercial (202) 325-8340.



CORRECTION

Photographs and telephone numbers of the assignment officers at MILPERCEN's Infantry Branch appear in INFANTRY's January-February 1987 issue, page 47.

The telephone number shown on that page for the Branch Chief is wrong. It should be AUTOVON 221-7823.

IOAC HOUSING PLANS

Forty sets of on-post quarters are now being set aside for each IOAC class. Each officer's welcome packet will include a letter from 1st Battalion, The School Brigade, on the housing policy, a questionnaire to be filled out by the student, floor plans of the on-post quarters, and a self-addressed envelope in which to return the questionnaire.

The goal is to notify students 45 days in advance as to whether they will be assigned on-post quarters or will have to live off post.

Any student who does not receive a welcome packet or a questionnaire 60 days before his IOAC class start date should contact 1st Battalion at AUTOVON 835-1962/1043; commercial (404) 545-1962/1043.

ARMY ASTRONAUT PROGRAM

Any Army officer who has a degree in engineering, physical science, biological science, or mathematics with at least three years of related experience should consider applying to become an astronaut.

To support the continuing space shuttle effort, NASA selects astronaut candidates every year on the basis of need and anticipated personnel attrition. The Army's nomination program is open to soldiers of all ranks in both the Active Army and the Reserve Components.

Nominees are chosen from the best

qualified applicants by an annual Army Astronaut Candidate Selection Board. The Army nominees who are subsequently chosen by NASA to enter the astronaut program can expect six-year tours with NASA. Upon their release, they will then be required to complete three-year service obligations with the Army.

Because 1,000 hours of pilot-in-command time in high-performance jet aircraft are required, the Army has a hard time competing for astronaut-pilot positions. Soldiers are very competitive, however, for astronaut-mission specialist positions, and one Army astronaut has been chosen in each of the last four selections.

The 1986 Army Astronaut Candidate Selection Board nominated 45 officers to represent the Army in NASA's 1987 selection process. (These officers came from several branches, but Aviation had the largest representation with 28 selected.) Any of the 45 Army nominees who are selected by NASA as astronaut candidates this year will report for training at Johnson Space Center in July 1987.

Between 1 July and 1 October 1987, the Army will again accept applications for the program. Nominees selected by the Army in 1987 will be considered by NASA for duty as astronaut candidates beginning in 1988.

In addition to the degrees and experience mentioned, applicants must also be able to pass the NASA Class II flight physical (similar to an Army Class II), to include the following standards:

- Visual acuity of 20/100 or better uncorrected, correctable to 20/20.
- Hearing—not to exceed the following maximum dB loss in each ear (ISO standards): 30 dB at 500 Hz; 25 dB at 1,000 and 2,000 Hz.
- Blood pressure not to exceed 140/90, measured in a sitting position.
- Height between 60 and 76 inches.

As for the specific skills sought by the NASA selection committee, mission specialists are considered in six categories:

space science, earth science, life science, materials science, general engineering, and flight test engineering.

Factors that will be considered include the level and quality of academic achievement; applicability and recency of education; amount, applicability, and quality of work experience; and other demonstrated practical and applicable experience and references.

Anyone who is qualified is encouraged to apply. Application letters generally take three to four weeks to complete and should be started as soon as possible.

Write before 1 July 1987 for an Army astronaut application packet to Commander, MILPERCEN, DAPC-OPZ-AV, 200 Stovall Street, Alexandria, VA 22332-0400.

AUTOMATED OFFICER PREFERENCE STATEMENT

Some changes to management documents at MILPERCEN have made the new automated officer preference statement more valuable to the officers involved and to MILPERCEN assignment officers as well.

With the preference information in computer data banks, it is immediately available to the career managers through computer terminals and the officer records brief (ORB). An assignment officer can now scan the files of all the officers he manages to identify those who want to be assigned to a particular location or a certain duty.

The officer preference statement, in use for two years, is a self-contained mark sense form on which officers indicate their individual preferences, schooling desires, and family considerations. It includes instructions and codes and a free-form comments sheet.

With assignment preferences now recorded in Section X of the ORB, an assignment officer can now quickly review

ach ORB to see if an officer's background, expertise, and preference warrant a complete review of his file in filling a projected vacancy.

Another feature is the listing of officer preference in the assignment officer's management books (a listing of officers who are available by date of availability). These books are used extensively by all assignment managers.

Now, more than ever before, an officer's assignment preference is easily brought into the process. In the past, assignment officers may have stopped at the first file that showed a match between a preference and a specific vacancy. Now, because of automation, every officer who has submitted a preference statement has his file pulled automatically by the assignment officer.

Officers are encouraged to submit preference statements (DA Forms 483) within the following time frames:

- About 12 months before completing a long overseas tour.
- Upon arrival in a short tour area.
- About one year after reporting to a CONUS duty station.
- Within 60 days of beginning a course of instruction at a service school, a civilian institution, or a training with industry assignment that requires a permanent change of station in CONUS.
- Any time preferences or family considerations change.

ASSIGNMENTS

Here are some of the questions officers most often ask MILPERCEN, along with the answers:

Q. If an officer does not want to command for a specific period of time, how can he remove himself from consideration?

A. An officer may decline command consideration without prejudice any time before a board convenes, for any category of command for which he is eligible. To do so he must write to the appropriate career branch at MILPERCEN and ask to be removed from consideration for a specified time. An officer who is selected for command or activated from an alternate list, however, and who later declines for whatever reason, is no longer eligible

for command consideration.

Q. Why can't I receive an assignment before leaving for an officers advance course so I can resettle my family at my follow-on assignment?

A. A new program has recently been approved that will allow officers who are selected to attend an advance course to move their families before reporting. This program will apply only to officers who are scheduled for CONUS follow-on assignments and who agree to move their families to that assignment only. More information is available from personnel assignment officers.

Q. What is the current policy concerning applications for Conditional Voluntary Indefinite (CVI) status?

A. Other-than-Regular-Army officers may apply for CVI when they are to be included in the promotion zone for selection for promotion to captain. Officers must apply to be considered, and applications should reach MILPERCEN four to six weeks before the convening date of the announced captains' board.

Q. How does an officer who has been selected as an alternate for command become activated?

A. When a vacancy occurs for which a principal is not available, the first rank-ordered, qualified alternate from the effective list is activated. Alternates are activated only to fill vacancies that occur in the fiscal year for which they are designated. Slated principals, if they are available, will fill those command positions for which they are slated and which become vacant earlier or later than programmed.

ARMY RESERVE OPMS

Following the lead of the Active Army in the Officer Personnel Management System (OPMS), the Army Reserve is also restructuring its commissioned officer classification system. It is converting to a revised system of OPMS codes and terminology for management, assignment, and mobilization purposes. (Army Medical Department, Judge Advocate, and Chaplain branch officers will not be affected by this reclassification.)

In its October 1984 report, the OPMS Study Group recommended changes in the

way the Active Army promotes, manages, and develops commissioned officers to permit a more flexible career development system. These recommendations are being incorporated into OPMS over the next few years.

The two major documents that guide the officer reclassification and recoding actions are AR 611-101 (Commissioned Officer Classification System) and DA Pamphlet 600-3 (Commissioned Officer Professional Development and Utilization), both found in the Officer Ranks Personnel UPDATE.

The Army Reserve's conversion will be implemented over a period of time. Officers will be developed in only one branch, which for most will remain their primary one. An officer will serve in only one branch at a time.

Each basic branch officer (combat arms, combat support, combat service support) will have only one entry level numerical designation for his branch. For example, Signal Corps officers who were formerly coded as 25, 27, or 72 will now all be coded branch 25.

As revisions are made, changes in officer management terminology also will be integrated into regulations and reports. What was previously referred to as a specialty will now be termed a "branch" or "functional area." Specialty skill identifiers (SSIs) will be "areas of concentration" (AOCs), and additional skill identifiers (ASIs) will be "skills."

To prepare for the changes in OPMS coding and terminology, positions on the Army's authorization documents (TOEs, MTOEs, and TDAs) underwent a complete screening by Forces Command (FORSCOM), and positions were recoded in accordance with the new numerical codes.

The initial conversion for Army Reserve officers was accomplished by the OPM Directorate at the Army Reserve Personnel Center (ARPERCEN) during October 1986.

Some codes will require a review of individual officers' official military personnel files and career management files. Personnel management officers (PMOs) at ARPERCEN will review these files as required to determine appropriateness, suitability, and eligibility for code conversions.

For the first time in many months we are pleased to be able to report on a number of excellent books recently published in the field of U.S. military history. In fact, we have received so many that we are forced to hold some of them for our next issue. Here is the first batch:

• **AMERICA'S FIRST BATTLES, 1776-1965.** Edited by Charles E. Heller and William A. Stofft (University Press of Kansas, 1986. 416 Pages. \$14.95, Soft-bound). Although the title of this book is misleading—"The U.S. Army's" should have been substituted for "America's"—and several of the selections are arguable, overall this is a fine piece of work, much needed by today's Army, and the editors and individual authors are deserving of our congratulations.

Ten different authors discuss the Army's first (or near first) battles of our nine major wars. Wisely, the editors selected two opening battles for World War II, one in the Pacific area, the other in the Atlantic area. A concluding chapter assesses the long term effects of the battles as well as their human and technological dimensions.

Each author is well known in the military history field: Graham Cosmas (San Juan Hill and El Caney), Jay Luvaas (Buna), Ira Gruber (Long Island), Martin Blumenson (Kasserine Pass), George Herring (The 1st Cavalry and the Ia Drang Valley), K. Jack Bauer (Palo Alto and Resaca de la Palma), Theodore J. Crackel (Queenston Heights), W. Glenn Robertson (First Bull Run), Allan R. Millet (Cantigny), and Roy K. Flint (Task Force Smith and the 24th Division). John Shy wrote the final chapter.

The editors were at the Army's Combat Studies Institute at Fort Leavenworth during the preparation of this book. (William Stofft is now the Army's Chief of Military History.) They steered it through various conferences and seminars to its completion. Their authors were not required to, nor do they, paint a rosy picture of how the U.S. infantryman reacted

in his first battle and how he then adjusted to his drastically changed environment.

More than anything, the authors point out the important role leadership played in those battles and how today's combat leaders can benefit by analyzing and reflecting upon the art and science of war.

This is another of those books we think all infantrymen should have in their personal libraries.

• **THE OLD ARMY: A PORTRAIT OF THE AMERICAN ARMY IN PEACETIME, 1784-1898.** By Edward M. Coffman (Oxford University Press, 1986. 514 Pages. \$35.00). This is the story of the people who served in three of our "peacetime armies" during the years 1784-1812, 1815-1860, and 1865-1898, many of whom took part in the Army's first battles of three of the wars mentioned in the Heller-Stofft book.

But it is not a story of wars, campaigns, or battles; it is a story of the men who served and of the women who followed them, made their homes, and bore their children. Who were they? Why did they sign on, knowing they would probably be sent to small frontier posts where the living was hard? How did they train and prepare for war? How did they live? Or die?

The author, noted previously for his World War I studies, is a professor of history at the University of Wisconsin. He has done a fine job answering those questions and bringing our military predecessors to life. His book, too, deserves a place in every infantryman's library.

• **PHIL SHERIDAN AND HIS ARMY.** By Paul A. Hutton (University of Nebraska Press, 1985. 479 Pages. \$29.95, Softbound). If you want to know more about the war-fighting activities of much of the third of Coffman's peacetime armies, this book gives you that story. It is wrapped around the man, Philip H. Sheridan, who was the nation's chief Indian fighter from 1867 until he succeeded William T. Sherman in 1883 as overall Army commander.

The author, who teaches history at the University of New Mexico, points out that Sheridan "commanded a larger frontier region for a longer period of time than any other soldier in the history of the Republic. . . . The troops under his command fought 619 engagements with the natives, with a loss of 565 officers and men killed and another 691 wounded."

His story is the story of the major campaigns the frontier army fought, though not the individual battles. He is particularly good at describing the hierarchy of command in the West, the men who occupied the principal leadership positions, and the effects of the Civil War on those men. Unfortunately, he never quite gets hold of his main subject, Sheridan, whom he seems repelled by and yet attracted to at the same time.

Still, his is a good account of the Army in the West and of Sheridan's military career from the end of the Civil War to his death in 1884. He also includes accounts of Sheridan's role in the reconstruction of the South, his actions during and after the great Chicago fire in 1871 and in the great railroad strikes of 1877, and his trip to Europe in 1870-1871 to observe the Franco-Prussian War.

• **SILENT WINGS: THE SAGA OF THE U.S. ARMY AND MARINE COMBAT GLIDER PILOTS DURING WORLD WAR II.** By Gerard M. Devlin (St. Martin's Press, 1985. 410 Pages. \$27.95). The author tells a lively story of the development of the U.S. glider effort during World War II, with its attendant growing pains, operational problems, and eventual demise, although the Army did not officially do away with gliders until 1 January 1953. (The last U.S. training maneuver in which gliders were used—Operation Tarheel—took place in 1949.) The Marine effort, which began in March 1942, lasted only until June 1943.

The gliders were never popular with the troops who had to go to war in them,

even after they began receiving hazardous duty pay in mid-1944. While the glider pilots performed magnificently, their efforts were marked as often by failure as by success.

• **KOREA: THE FIRST WAR WE LOST.** By Bevin Alexander (Hippocrene Books, 1986. 558 Pages. \$24.95). The Korean War has never received the attention it deserves from our military historians. Nor has it received serious study within the Army's ranks. As a result, it is one of our wars that today's infantryman knows little about.

This is too bad, of course, for the Korean War has many lessons to offer. Bevin Alexander, who commanded an Army historical detachment in Korea in 1951 and 1952, has written a book that offers some interesting new views on the war and on the relations between the United States, the United Nations, and Communist China.

He finds serious fault with General MacArthur's handling of the war (except for the Inchon landing, but not for its aftermath), with the U.S. Joint Chiefs of Staff and their seeming lack of control over military events in the Far East, and with the general lack of vision shown by the Truman administration throughout the war. He also finds serious fault with the conduct of the U.S. ground combat soldier during the first six months of the fighting in Korea. He simply does not believe that soldier was a good combat soldier, but thinks he was as often prone to run as to fight unless he had overwhelming fire support and superior numbers.

Alexander's accounts of the first battles of the war, of the Inchon landing, of the fighting in northeast Korea in November and December 1950, and of the prisoner-of-war uprisings on Koje-do in 1952 are excellent. He also devotes a few pages of one chapter to the five-day R&R program in Japan that began in early 1951 for many soldiers and Marines, a program he feels boosted morale throughout the Eighth Army.

But the author's real interests are at the higher levels. For this, his book deserves to be read by all infantrymen. But in their reading, those infantrymen should not overlook the hard combat lessons that were learned and the price the Army had to pay for them.

• **UNITED STATES ARMY IN VIETNAM IMAGES OF A LENGTHY WAR.** By Joel D. Myerson (Center of Military History, U.S. Army, 1986. 225 Pages. GPO S/N 008-020-01031-6. \$22.00). This is the second published volume in the Army's Vietnam series. It is a photographic history, somewhat similar to those produced by the Center for World War II and the Korean War. It is a vivid chronicle of the significant aspects of the Army's experiences in Vietnam, beginning with the period of advice and assistance to the French between 1945 and 1954 through the actual intervention with U.S. ground combat troops in 1965 and the last battles between 1969 and 1973.

The author, a member of the Center of Military History, commanded a military history detachment in Vietnam in 1970 and 1971. He has collected a fascinating group of photographs (both black-and-white and color) and a number of excellent maps to tell his story. He introduces each section of his book—there are six—with a well done narrative that describes the major events and their results during each sectional timeframe, and then lets his photographs with their captions and his maps take over. An index adds to the volume's overall usefulness and reference value.

The author has handled a complex subject in a thoughtful and sensitive manner. His book should be looked at and read for that reason.

In addition to the books mentioned above, we have also received a number of other publications we think you might be interested in. For example, the Osprey Publishing Company (England) has sent several more in its various uniform and equipment series:

• **THE M2 BRADLEY: INFANTRY FIGHTING VEHICLE.** By Steven J. Zaloga. Vanguard Series 43. 1986. 48 Pages. \$7.95, Softbound.

• **AMERICAN CIVIL WAR ARMIES (2): UNION ARTILLERY, CAVALRY, AND INFANTRY.** By Philip

Katcher. Men-at-Arms Series 177. 1986. 48 Pages. \$7.95, Softbound.

• **WARSAW PACT GROUND FORCES.** By Gordon L. Rottman. Elite Series 10. 1987. 64 Pages. \$9.95, Softbound.

• **ANTITANK HELICOPTERS.** By Steven J. Zaloga and George J. Balin. Vanguard Series 44. 1986. 48 Pages. \$7.95, Softbound.

• **AMERICAN CIVIL WAR ARMIES (3): STAFF, SPECIALIST, AND MARITIME SERVICES.** By Philip Katcher. Men-at-Arms Series 179. 1986. 48 Pages. \$7.95, Softbound.

• **U.S. CAVALRY ON THE PLAINS, 1850-90.** By Philip Katcher. Men-at-Arms Series 168. 1985. 48 Pages. \$7.95, Softbound.

• **THE ALAMO AND THE WAR OF TEXAN INDEPENDENCE, 1835-1836.** By Philip Haythornthwaite. Men-at-Arms Series 173. 1986. 48 Pages. \$7.95, Softbound.

• **RUSSIA'S WAR IN AFGHANISTAN.** By David Isby. Men-at-Arms Series 178. 1986. 48 Pages. \$7.95, Softbound.

Here are a number of our longer reviews:

THE NUCLEAR DILEMMA AND THE JUST WAR TRADITION. Edited by William V. O'Brien and John Langan (Lexington Books, 1986. 260 Pages). Reviewed by Lieutenant Colonel John C. Spence III, United States Army Reserve.

In 1983 the Conference of United States Catholic Bishops published a pastoral letter—"The Challenge of Peace"—that addressed the issue of nuclear deterrence. It attracted widespread interest in the news media and various non-Catholic religious groups.

This book contains a series of well-thought-out and varied essays on the issue of nuclear war within the just war tradition. Although some readers may find the essays a bit overly philosophical, the arguments presented are stimulating. For example, James Turner Johnson, professor of religion at Rutgers University, provides an excellent essay, "Defense of Values," which originally appeared in *Parameters* magazine. In it he presents a reasoned analysis of the moral basis for the use of force in both a conventional

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

and a nuclear war environment. And in the concluding essay, William O'Brien, one of the editors of the book, draws a significant distinction between a limited nuclear war fought in response to theater-level aggression and a strategic nuclear exchange between the U.S. and the Soviet Union.

Whether President Reagan's Strategic Defense Initiative becomes an operational reality or not, the debate over nuclear deterrence and its role in national defense will surely continue. This collection of essays is a valuable contribution to that debate.

JANE'S ARMOR AND ARTILLERY, 1986-87. Seventh Edition. Edited by Christopher F. Foss (Jane's, 1986. 1,030 Pages).

This comprehensive and continually updated reference work is always a pleasure to see. This seventh edition contains 750 new photographs and 95 new entries.

As usual, it details the latest available information on the armored vehicles and artillery pieces (including surface-to-air missiles) found in the world's armies. (Unfortunately, our copy has one 16-page signature bound upside-down and backwards.)

Christopher Foss has edited each of the seven volumes published in this series and continues to demonstrate his mastery of his subject. In his foreword he clears up whatever mystery there has been about the Soviet T-80 main battle tank (MBT), holding that it is a further development of the T-64 MBT, which tank, as Foss points out, has also been something of a mystery tank because it has been issued only to Soviet Army units. Foss also says that there may be another new Soviet MBT in service, this one without a turret but with an externally mounted main armament.

The 20-page addenda section contains information and photographs on a number of the projects discussed in the main text. It is correct to 1 August 1986.

NO MORE HEROES: MADNESS AND PSYCHIATRY IN WAR. By Richard A. Gabriel (Hill and Wang, 1987. 179 Pages. \$17.95). Reviewed by

Major Robert L. Maginnis, United States Army.

This is the third in a series of Richard Gabriel's ventures into the field of military psychiatry. In it he focuses on the abject terror the future battlefield will hold for the soldier. He reasons that America's only two alternatives to that terror are to chemically alter its soldiers into aggressive psychopaths (a technique for abolishing fear on the battlefield) or to "disinvent" many of the modern technologies that have contributed to the face of modern war.



He sets the stage by describing the arsenal of modern weapons and argues that most Americans cannot appreciate the full horror of modern war and the effects of modern weapons because they have never experienced conflict on the scale and in the intensity that future conflicts will offer. He gives a rather damning sociological profile of the American soldier—fragile, addicted to all types of drugs (controlled and not) and soap operas, and generally lacking in discipline and proper conditioning for the rigors of modern war.

He recommends, therefore, the use of battlefield prophylactics—chemicals that can be used to alter behavior—to enable the soldier to cope with extremely stressful conditions. The "chemical" soldier would then be given to extreme risk-taking and would function only on the

cognitive plane. Ethics, for the "chemical" warrior, would no longer be appropriate

As for the other alternative, he contends that the armed forces should begin to "disinvent" certain modern technologies, and suggests that their removal would help to reduce the lethality of the modern battlefield.

Gabriel concludes that the armed forces must do either one or the other—resort to chemicals or disinvent technologies—or they will have a force filled with a significant number of battle stress-induced dysfunctional warriors or worse.

The military professional should become familiar with this book because, unfortunately, it may well capture the imagination of many militarily naive civilian readers. Those people may accept his rationale and revelations as being technically and doctrinally accurate. The military professional must be prepared to discount such a blatantly misleading set of recommendations and conclusions.

JANE'S WEAPON SYSTEMS, 1986-87. 17th Edition. Edited by Ronald T. Pretty (Jane's, 1986. 1,127 Pages.)

Although this edition carries Ronald Pretty's name as editor—as all of the other 16 in this series do—it does so because of the kindness of the publisher to a long-serving staffer. Because of a serious illness, Pretty could not carry on as editor and the volume was completed under the editorship of Bernard Blake. The series has not suffered from the sudden change, and this edition meets the high standards of accuracy and reliability established by its predecessors.

As usual, it contains a wealth of detailed information on both ground and naval weapon systems, as well as on air-to-air missile systems, and their accompanying equipment. The almost 100-page analysis section presents in tabular form information presented in this series as well as in other series published by Jane's. Thus, there is a list of the NATO designations for Soviet equipment; five tables with information about army ordnance equipment; another set of tables that identify the major items of equipment found in all of the world's land forces; and tables of information about the most

important naval vessels and the military aircraft of each nation and the equipment they carry.

IRON EAGLE: THE TURBULENT LIFE OF GENERAL CURTIS LEMAY. By Thomas M. Coffey (Crown, 1986. 474 Pages. \$18.95).

WINGS OF JUDGMENT: AMERICAN BOMBING IN WORLD WAR II. By Ronald Schaffer (Oxford University Press, 1985. 272 Pages. \$18.95). Both books reviewed by Lieutenant Colonel Jack Mudie, United States Air Force Retired.

Strategic bombers are much in the news today in connection with arms limitation talks. So also is the debate on the morality of even maintaining a nuclear weapon capability, let alone using it. Both of these books provide insight into the problem.

Coffey's book is a biography of the man probably most readily associated with the actual operational use of the atomic bomb in World War II and the subsequent development of the Strategic Air Command (SAC) into our primary nuclear deterrent. Schaffer's book, on the other hand, takes a unique look at the moral debate that was waged at the high command during World War II over the use of U.S. strategic air power against Germany and Japan.

Commissioned from the ROTC program at Ohio State as a second lieutenant in the field artillery, LeMay almost immediately transferred to the Army Air Corps. His career spanned the struggle for air power recognition in the 1920s and 1930s, the rapid development of that power during World War II, the subsequent establishment of an independent air force, and the heated debate both inside and outside the military services over the proper use of air power in Vietnam.

As a junior officer, LeMay had a career that was typical of the times—long years in each grade, close personal and professional friendships developed in the relatively small Army Air Corps, and the temptation to forsake the poorly paid but exciting military profession for more lucrative and physically secure civilian pursuits. As happened to most of our World War II crop of senior leaders, LeMay rose rapidly in rank. He became the youngest four-star general in U.S. history except for U.S. Grant and served in that grade longer than anyone else.

In his book *The 25-Year War*, General Bruce Palmer, Jr., writing about the Joint Chiefs of Staff in the early 1960s, describes LeMay as "rude and arrogant." Palmer's judgment may be harsh—and possibly biased—but LeMay indeed was called "The Diplomat" somewhat sarcastically even within the Air Force. His "diplomacy," however, succeeded in

getting the job done—over Germany and Japan as a combat commander, in starting the Berlin airlift and, perhaps most effectively of all, in forging and developing the Strategic Air Command as its hard-driving commander

General LeMay's frustrating and losing battles with Defense Secretary Robert McNamara over aircraft development (the TFX) and our Vietnam policies led to his futile run for the vice presidency as George Wallace's 1968 running mate.

This book should be of interest to officers of all ranks and services. Juniors can be consoled that even four-star generals once held innocuous and mundane additional duty jobs: field graders can note that sensible innovations and tough training are the hallmarks of successful combat leaders; generals can be reminded that Clausewitz's principles are still valid; and very senior generals can learn from the frustration of dealing with civilian leaders who consider their own military judgment superior to that of experienced military professionals.

Ronald Schaffer's book, which includes many references to General LeMay's combat record, holds that it is an analysis of the moral ramifications of the strategic bombing policy followed by the United States Army Air Force during World War II. It is evident, however, that the final chapter contains the author's real purpose for writing his book—there-

From The Editor

PROFESSIONAL BULLETIN

On 13 March 1987, Headquarters TRADOC announced the new publication program that will replace the present DA service school periodical program. Beginning with the July-August 1987 issue, then, INFANTRY will be printed as a "professional bulletin."

As a professional bulletin, INFANTRY will look much the same as it does now. The dimensions (8½"x11") will remain the same, as will the number of pages, 56, including the cover. But we will be able to use two colors only on the cover, and we will have to use uncoated instead of coated stock for the text pages.

In the future, too, we will not be able to send appropriated fund copies directly to units, staff offices, and other operating agencies. That function will be taken over by the Army's Publication and Printing Agency for Form 12 account holders only. (It is possible, however, that we may have to continue our previous mailing policies for one or two issues until the Agency can establish its own distribution list. Units and other authorized Form 12 account holders are urged to update their accounts as soon as possible to include INFANTRY.)

We will keep our nonappropriated fund subscription service and will continue to sell subscriptions as we have in the past. At the moment, though, it appears we will have to raise our subscription rates beginning with the November-December 1987 issue. We have managed to keep our subscription rates at their present levels since May 1980, but are anticipating increased printing costs and higher postal rates in 1988. Our subscription fund can no longer absorb such increases.

The July-August 1987 bulletin may be slightly delayed because we must get a new printing contract. We will do our best to keep that delay to a minimum.

Once again we would like to express our deepest thanks to those of you who were so concerned about INFANTRY disappearing from the scene. It's nice to know we have so many friends and supporters.

COMING IN INFANTRY

"Moving Target Marksmanship Training," by Joel D. Schendel.

"Forgotten Heritage," by Captain Robin M. Cathcart.

"The Battalion Adjutant," by Captain Tony Tata.

