

Infantry

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Commandant's NOTE

MAJOR GENERAL MICHAEL F. SPIGELMIRE Chief of Infantry

THE ESSENCE OF INFANTRY

The Infantry exists for one purpose: "To close with the enemy by means of fire and maneuver to destroy or capture him, or to repel his assault by fire, close combat, and counterattack." The Infantryman's aggressive spirit both originates from the proving ground of close combat and ensures his success on that ground. This spirit is what makes the Infantryman uniquely qualified to accomplish his mission. Although this quality is intangible, we can best define the essence of Infantry by discussing the concepts and attributes that have always determined the Infantryman's success in the close fight.

It is the Infantryman's responsibility for this close personal combat that distinguishes his units from those of the other members of the combined arms team. The outcome of nearly every land battle has been decided by warriors who have met in close combat, and the essence of Infantry is found in those warriors and in their units. It is found in the individual and collective attributes that Infantrymen and Infantry units have always cherished—the initiative, discipline, competence, and courage of the individual soldiers; the tenacity, resourcefulness, and innovation of their leaders; and the versatility, cohesiveness, and ability of their units.

These qualities, although desirable in all soldiers, are fundamental to the Infantry; in fact, the close, personal nature of the Infantryman's fight makes them essential to his survival. The essence of Infantry motivates and inspires the Infantryman to risk death to ensure the safety of his comrades, the survival of his unit, and the accomplishment of his unit's mission.

This is not to say, of course, that the close fight is the Infantryman's exclusive domain. To succeed on today's battlefield, the Infantry will fight alongside the other members of the combined arms team. While the soldiers in these other units will also have to be competent and courageous, few will endure the same discomforts, pain, and horror of battle that the Infantryman will endure. This is true even in training, because the Infantryman's training must, by necessity, be tough, painful, and continuous.

If we as leaders understand the importance of these indi-

vidual and unit attributes, our priority must be to instill them in every Infantryman and every Infantry unit throughout the Army. We must realize that the fighting capability of every Infantry formation flows from the individual soldiers in it. We must therefore develop in our soldiers the confident belief that they constitute the most capable weapon on the battlefield. Whether the U.S. Army Infantryman walks, rides, flies, or jumps into the close fight, once he gets there he must feel that he owns the ground.

The essence of Infantry must be the focus of every Infantryman's training program. That training must emphasize, especially, the importance of physical fitness and marksmanship, and these areas should be integrated into every training event. In addition, since the night has always been the Infantryman's ally in battle, once he has mastered the essential combat tasks in the daytime, he must also master them at night. This is especially true of night live fire training.

To be successful, training events and exercises must require unit leaders to use their initiative and think on their feet. Situational training exercises must be developed that support independent action, and the training environment must be realistic and stressful. The training must challenge our soldiers to master all the Infantry tasks, individual and collective, and it must constantly remind them of their mission, their heritage, and the physical and mental toughness that is required of them.

Our squads and platoons must be trained to fight through the enemy at the lowest echelon with the weapons immediately available. By fighting in this manner, they retain the initiative and prevent the enemy from reacting effectively. Infantry squad and platoon combat drills, which link individual proficiency to unit success in battle, are designed to enable a unit to save precious seconds on the battlefield and to seize the initiative quickly through decisive, aggressive action.

These drills also provide an excellent vehicle for developing teamwork and cohesion, and it is at the small unit level that the fighting capability of a unit benefits most from this kind of cohesion. Few soldiers will be expected to fight

alone; most will fight as members of capable and cohesive squads and platoons. And from their fellow soldiers, they will gain the trust and confidence they need, not just to occupy ground but to dominate it.

This cohesion must also extend upward through the chain of command. Our Infantrymen cannot merely be sent into battle; they must be led into battle by one of their own, a leader they respect and trust. This means our Infantry leaders—especially those at squad, platoon, and company level—must be trained, resourceful warriors who understand how to fight their units effectively on the basis of their mission, their situation, and their commander's intent.

An effective unit leader training program must begin with the identification and selection of the best soldiers to become team and squad leaders. Our Infantry leaders, as the combined arms team integrators that are closest to the fight, must be the most skillful soldiers, expert at employing all of the supporting arms.

Because of the lethality of the modern battlefield, our squads and platoons must be able to operate independently. Accordingly, commanders must be confident enough in their units to allow decentralized operations. They must also be able to develop their concepts and articulate unit missions in ways that fully support the exercise of initiative. If we expect our subordinates to display initiative in battle, we must allow them to practice it in training.

Our doctrinal manuals are an important part of maintaining the readiness of our Infantry units, but the essence of Infantry is not found in a book. It is found in the leaders and soldiers of our Infantry units. It is developed and shared by these men in the heat and the dust at the National Training Center, in the forests at the Joint Readiness Training Center, and at the countless other locations where Infantry units train. Finally, it is evident in the only place it has ever counted—on the battlefield where U.S. Infantrymen must fight to accomplish their mission.

How can we tell when our Infantrymen and our Infantry units have this warrior spirit? How do we measure the intensity of this spirit within their hearts and minds? These are questions that every leader must answer before he leads his men into the fight.

How did the company commander in the lead aircraft carrying the 75th Ranger Regiment know, as it approached the drop zone at Rio Hato in the dark, that his men were ready for whatever awaited them on the ground? How did the squad leader in the 193d Infantry Brigade know, as he and his squad moved out shortly before H-Hour, that he had prepared his men for the mission at hand? Or—an even more crucial question—How did the soldiers in these or any of the other units that participated in the recent action in Panama know they were ready to fight and win?

Each leader knew because he had already found the answer during his unit's training in preparation for combat. He knew because he had spent countless hours observing and evaluating his men in training. He knew because he had seen it in the faces of his men at the end of the last field training exercise. He knew from the results of his

unit's last weapons qualification. He knew because of his trust and confidence in his soldiers. Each of the soldier knew the unit was ready for the same reasons, but also because he knew that his buddies were going to be there too and that he could depend on them just as they could depend on him.

Victory on the field of mortal combat is paid for in advance during many days and nights on the training field. The courage, confidence, and trust required to enter this fight also began there.

The most recent example of Infantrymen who have this warrior spirit came after the 3d Battalion, 75th Ranger Regiment's airborne assault onto the Torrijos airport. The two Rangers involved were members of a fire team assigned to clear part of the airport terminal. The team leader was shot and wounded in a small room by two soldiers of the Panama Defense Force (PDF). These two Rangers immediately evacuated their wounded leader from the room, one of them receiving two rounds in his helmet.

While one Ranger tended to his buddy's wounds, the other started back to the room to clear it of enemy soldiers. After trying to kill the enemy with two hand grenades, this same Ranger again entered the room. After shooting one PDF soldier at close range and pushing him out a window, he engaged the other soldier in hand-to-hand combat. The second Ranger, after treating his team leader's wound, also reentered the room and with well-aimed fire killed the PDF soldier who was engaged in hand-to-hand combat with his buddy.

The courage, skill, and tenacity these two men displayed epitomized those individual warrior attributes. Their teamwork, cohesion, and concern for their fallen Ranger are remarkable examples of the collective attributes that all Infantry units must possess if they are to fight and win.

These Infantrymen and countless others involved in Operation Just Cause demonstrated the essence of Infantry. They paid the price to ensure that when called upon to enter the fight they would not be found lacking.

This, then, is our challenge for the future. Every Infantryman in the force must exemplify the attributes I have discussed. All Infantry units must display the warrior spirit in their tactical operations. They must maneuver aggressively, using stealth and the terrain to get to the enemy's weak points. Their tactics must be oriented on the offense in all situations. Even in the defense, they must routinely ambush, attack, and counterattack.

Our Infantry units must capitalize on the strengths of their tough and spirited soldiers to seek out and destroy the enemy on his terrain using initiative, stealth, and surprise. These tactics require the highest degree of tactical excellence. An Infantry unit's ability to operate during periods of limited visibility and to use its camouflage skills properly are combat multipliers its tactics must exploit.

Above all, these operations must be conducted by resourceful leaders, capable of independent action, who fully understand how to apply the combat power inherent in their units.

INFANTRY LETTERS



MORTARS, FORGOTTEN ASSETS

I do not mean to add fuel to the already highly volatile and seemingly parochial approaches many authors have taken recently on the question of whether mortars are maneuver or artillery weapon systems. I do believe, though, that these authors have failed to get to the crux of the matter, which, for me, is the fact that mortars are not "broken" but simply forgotten indirect fire assets.

As an Artilleryman assigned to the Infantry School as a fire support instructor for the past year, I continually find myself telling Infantrymen that mortars are the maneuver force commander's most responsive indirect fire asset because he owns them, and that a fire support officer's responsibility to the maneuver commander is to assist, advise, and make recommendations to him on all matters pertaining to the integration and synchronization of all fire support assets into his battle plan.

The crux of the problem for me, then, is not one of who owns the mortars but who doctrinally has been given staff responsibility and tasked to ensure that all the support assets are in fact incorporated into the maneuver commander's plan and that these assets accomplish the maneuver commander's intent of fires. That responsibility rests, and rightfully so, with the fire support officer.

The solution to the problem does not lie in the parochial question of who should own the mortars. It lies more in the realm of aggressive mortar platoon leaders and fire support officers who know the mortars' capabilities and limitations, the complementary nature of mortars to the overall fire support system, and how to "sell their wares" to the maneuver commander. By "selling their wares," I mean the mortar platoon leaders and the fire support officers must ensure that the maneuver commander

understands that mortars are extremely useful indirect weapon systems that provide him with combat power.

When I make reference to mortars in teaching my classes, I always caveat these remarks by telling the students that if the training of their mortars and our fire support personnel is not integrated in peacetime, when war comes, the mortars will still be a forgotten indirect fire asset.

If we continue this futile parochial argument about which branch should own the mortars, the real problem of remembering to use them at all will continue to haunt the maneuver and fire support communities alike, to the detriment of all.

The solution again for "our forgotten mortars" lies not in ownership but in the selection and training of aggressive mortar platoon leaders and fire support personnel at the company and battalion level who will "sell their wares" as indispensable indirect fire assets.

PETER C. LENTZ
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ANTIARMOR TECHNIQUES

I read with great interest the articles "Killing Enemy Armor," by Major James B. Leahy, Jr. (pages 8-11) and "Team Eagle," by Captain Mark J. Perry and Lieutenant Marc A. Sierra (pages 11-13) in the November-December 1989 issue of INFANTRY, and would like to comment on them.

On the first of these articles, the TOW missile, with its long time of flight, is not suitable for free-wheeling armor battles. It is best used in carefully sited positions with stringent engagement orders. Because of its high-power sight and high hit and kill probabilities, it is best used

for high payoff targets, not just "tanks."

The following are examples of the targets on which I would use TOWs:

- Commanders' vehicles.
- Mine plow/roller tanks.
- Air Defense Artillery vehicles.
- Self-propelled artillery in a direct fire role, or the 2S9 SO-120 self-propelled mortar.
- Scout vehicles.
- A BTR 60/70/80 in a formation that is otherwise equipped with tanks and BMPs. (It is probably an engineer vehicle.)
- MTLBs or ACRVs. (They are probably division artillery or frontal aviation controllers).
- Antitank vehicles or antitank guns (Rapira 3).
- SU-130 assault guns. (If this gun exists, it is a 130mm field gun on a T-62 tank chassis.)
- Minelaying vehicles.
- AVLB or ribbon bridging.

If we use these targeting priorities, we will be able to erode the enemy's command and control systems, remove his supporting arms, and blunt his ability to create and breach obstacles. Our combined arms team will then be able to destroy him in detail. Naturally, at some point, TOWs may have to engage tanks, but this engagement should be at a point specified in the operations order.

As for my comments on "Team Eagle," the authors basically reinvent the combat support company and miss the real issue: Why does a Bradley fighting vehicle battalion (which has 53 TOW launchers plus the antitank company) need improved TOW vehicles (ITVs) at all? ITVs are slow, poorly protected, have a low rate of fire, are not suitable for overwatch, and provide the enemy with an organizational clue as to what type unit he is facing. A tank company in the BFV battalion makes much more sense.

As I wrote in *Armor* in 1986, this tank company would do the following:

- Increase the combat power by as much as four to nine times over the ITV by providing a well-protected, accurate, long range weapon system with a high rate of fire capable of penetrating all targets on the battlefield. (Determined by using methodology found in *Numbers, Prediction, and War*, by Colonel T. N. Dupuy.)

- Slightly reduce the size of the mechanized infantry battalion.

- Eliminate the need to routinely attach a tank company to a mechanized battalion, thereby increasing teamwork within the organization and concentrating the firepower of the tank battalions.

- Increase operational security, because a mechanized infantry and tank task force would have identical vehicles.

- Slightly ease service support, because tank ammunition takes up less space than missile ammunition. Of course, the fuel consumption of the battalion would be increased, but it would be well within the capability of the J-series battalion.

- Training the tank company would not be a great burden in this organization. It could probably lend the battalion much knowledge in gunnery training. The ranges for the vehicles would be virtually identical (especially on an installation that had a multi-purpose range complex). If all else failed, it could always train with a sister tank battalion.

The tank is an essential part of the infantry battalion task force. As General Spigelmire says in his Commandant's Note in that same issue of *INFANTRY*, "It is difficult to imagine an Infantry officer who does not jump at every opportunity to increase his mastery of his unit's weapons."

For years, regimental armored cavalry squadrons have employed a disparate set of weapon systems—three ground cavalry troops, a tank company, and a howitzer battery—that are capable of acting with great teamwork, of piling onto an enemy when he is found, and of massing immense combat power. Adding a tank company to the BFV battalion would increase its flexibility, firepower, and staying power. (Now if only tank bat-

talions would get a BFV company . . .)

In an era of tough resource constraints and ever more capable opponents, these techniques and organizations are vital to the success of the combined arms team on the battlefield. I urge all armor and infantry officers to consider them carefully, and to employ them whenever it makes tactical sense.

MICHAEL K. ROBEL

MAJ, *Armor*
Redlands, California

DECLINING PRESTIGE OF THE EIB

The prestige of the Expert Infantryman Badge (EIB) is in decline. Look around. Everyone seems to be wearing one. Are there really that many "experts" in our ranks today? How do so many soldiers come away with an award that was once very difficult to earn? The standards have been lowered, and practice sessions are often scheduled for large units that ensure large numbers of recipients. And how prestigious can an award be when nearly everyone owns one?

According to the Chief of Infantry in the September-October 1989 issue of *INFANTRY* (page 1), "The standards for these tasks are taken from the current Soldier's Manuals and related publications." Since the standards are the same as those required for the average Infantryman, I recommend that the "Expert" be taken out of the title and that the award be called simply the Infantryman Badge.

Experts in any field should be able to do things much better than the average achiever. All of us have seen soldiers whose performance is much better than that required by the Soldier's Manuals. These soldiers are in a class by themselves, and the EIB was meant for them.

Scheduled training for the EIB test devalues the award by producing greater numbers of recipients. Setting aside time for concentrating on selected tasks cannot help improving the soldiers' passing potential through an exercise called "repetition," which is famous in the Army. What ever happened to self-

motivation?

One should compare the "voluntary Expert Infantryman Badge Test with the mandatory Army Physical Fitness Test. Army Regulation 350-15 states, "Temporary training periods solely devoted toward meeting APFT requirements are discouraged."

I recommend that the standards for the Expert Infantryman Badge be raised above Soldier's Manual standards so that the recipients can truly claim the "expert" title. I further recommend that commanders rely on the self-motivation of their soldiers to seek the badge on their own and to devote their personal time practicing for the test. Fewer individuals would receive the award, to be sure, but its value would climb to past levels, and the award would regain its former prestige.

MARSHALL K. MADDOX

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SOCIETY OF THE FIRST DIVISION

The Society of the First Division (Big Red One), which is made up of men who served in World War I, World War II and Vietnam, as well as in peacetime will hold its 72d Annual Reunion 22-24 August 1990 in Louisville, Kentucky.

For more information, please contact me at 5 Montgomery Avenue Philadelphia, PA 19118; telephone 215-836-4841.

ARTHUR L. CHAITT

Executive Director

173d AIRBORNE REUNION

A reunion of the 173d Airborne Brigade (Separate) will be held 5-8 July 1990 in Washington, D.C. The brigade served in Vietnam from 1965 to 1971 and in Okinawa prior to Vietnam.

Further information is available from Sigholtz-Capital Chapter, International Society of the 173d Airborne Brigade P.O. Box 27478, Washington, DC 20038-0478.

INFANTRY NEWS



TWO RANGE DETERMINATION programs are under way for the Bradley fighting vehicle system (BFVS)—the TOW Sight Improvement Program, which will include a laser rangefinder, and the Mini Eyesafe Laser Infrared Observation System, a hand-held laser rangefinder. These devices will not be fielded, though, for several years.

Meanwhile, Bradley platoon leaders and company commanders may be overlooking an accurate range determination device that is already available—the AN/GVS-5 Hand-Held Laser Rangefinder issued to the forward observers in the fire support teams.

The operational concept would be for Bradley platoon leaders and commanders to use the AN/GVS-5 when the platoon or company is mounted and the platoon forward observer or company fire support officer is riding in the back of the vehicle and not using the rangefinder to call for indirect fire.

Even though the AN/GVS-5 is not eye safe, it can be used during live fire training on laser certified ranges, in the live fire exercises at the National Training Center, or even on the battlefield.

A **LOW COST OPTICAL** sight will be fielded as the primary sight for selected M16A2 rifles and M249 machineguns. It will be issued to infantry platoons beginning in the fourth quarter of 1991.

It will be a 3-power to 4-power militarized sight with an illuminated reticle. The M16A2's upper receiver will be modified to provide a more suitable sight interface. The M249 will require no modification.

THE M4 CARBINE, a gas-operated, air-cooled selective-fire shoulder weapon, is scheduled to reach forward units beginning in the fourth quarter of

Fiscal Year 1994.

The M4, a shorter, lighter version of the M16A2 rifle, is fed by M16 magazines containing either 20 or 30 rounds. Its functioning is identical to that of the other weapons in the M16 family, which greatly simplifies training, maintenance, and supply.

The carbine will replace all M3 submachineguns and selected pistols and rifles. It is 10 inches shorter and one and one-half pounds lighter than the M16A2 rifle.

The following are the M4's characteristics:

Caliber	5.56mm
Overall length (butt-stock closed)	29.8 inches
Overall length (butt-stock extended)	33.0 inches
Barrel length	14.5 inches
Muzzle velocity	2,950 feet/second
Rate of fire	700-950 rounds/minute
Type of fire	Semi/3-round burst
Ammunition	M855 Ball/M856 tracer

THE MK19 MOD 3 GRENADE machinegun is now being fielded. It is an air-cooled, blow-back operated, belt-fed weapon that fires standard high velocity 40mm grenade cartridges. It is fitted with an adjustable rear sight, spade grips, and a charger assembly similar to those on the M2HB .50 caliber machinegun.

The MK19's exploding munitions lessen the need for direct hits and increase their suppression capability and terminal effectiveness.

It replaces or augments existing combat, combat support, and combat service support capabilities provided by the M60 (7.62mm) and M2 .50 caliber machineguns.

In infantry units equipped with M113 armored personnel carriers, the MK19 will be fielded in a two and two mix with .50 caliber machineguns in infantry pla-

toons as well as throughout the battalion's command and control and support elements. In Bradley units, the MK19 will be fielded in the battalion's command and control and support elements.

The first 1,275 weapons are scheduled to go to the 9th Infantry Division and TRADOC service schools.

THE TOW'S PERFORMANCE as part of the combined arms team has been examined at the Infantry School over the past year. Lower than expected probability of hit results with the TOW and TOW MILES (multiple integrated laser engagement system) at the National Training Center have been of particular concern.

The School does not believe that there is a problem with the existing TOW hardware but feels that a concerted effort to improve TOW training and training devices will improve performance.

The TOW MILES gunnery tables and situational training exercises (STXs) have now been validated. The squad, section, and platoon STXs are included in the ARTEP 7-91 Mission Training Plan (MTP), which has been fielded (PIN 066010-000).

ARTEP 7-91 Drill, which contains the antiarmor crew and battle drills, will be printed and fielded in the second quarter of Fiscal Year 1991.

FM 23-24, TOW Weapon System, is being revised to include the complete TOW training strategy and information on the new series of training devices.

To help units with their training, the Infantry School will provide three new courses through the Army Correspondence Course Program (ACCP) for the TOW squad leader, TOW platoon leader, and Echo company commander in the fourth quarter of Fiscal Year 1990.

Anyone who would like more information may write to Commandant, U.S. Army Infantry School, ATTN: ATSH-

TD-V, Fort Benning, GA 31905, or call AUTOVON 835-7574, commercial 404-545-7574.

THE DIVISIONAL LONG RANGE surveillance detachment (LRSD) now has four additional positions in its table of organization and equipment (TOE) for a detachment executive officer, an operations sergeant, a supply sergeant, and an armorer.

A reanalysis of the detachment's mission, along with data provided by the field, substantiated a clear-cut need for these positions. The Infantry School endorsed these requirements, and the positions were documented in the October 1989 Consolidated TOE Update.

LESSONS LEARNED from the Combat Training Centers (CTCs) are being analyzed at the Infantry School in an effort to identify significant trends and to incorporate these lessons into the training at the School.

The following are the six areas currently being analyzed:

Mortars and the Combined Arms Team. Mortars are underemployed at the CTCs and do little to affect the outcome of a battle when they are called upon.

Intelligence. Intelligence assets, especially scouts, are not being employed successfully at the CTCs.

Direct Fire. Too often, commanders at all levels fail to win the direct fire battle with the opposing forces.

Terrain Use. Leaders at all levels display an inadequate understanding of terrain. This problem is manifested in such areas as poor land navigation and the inability to position key weapon systems for the best effect.

Casualty Evacuation. There are too many "died of wounds" casualties at the CTCs.

Dismounted Infantry. Uncertainty and inconsistency have been noted, especially by mechanized infantry units, in their employment of dismounted infantry on the battlefield.

More information on these lessons is available from Commandant, U.S. Army Infantry School, ATTN: ATSH-ES, Fort

Benning, GA 31905; AUTOVON 835-5868, or commercial 404-545-5868.

THE ARMY CORRESPONDENCE Course Program (ACCP) at the Infantry School is involved in a pilot program to integrate non-resident instruction with resident instruction on the TOW weapon system. Students will take certain ACCP subcourses before they begin resident training.

The courses scheduled for this integration program are the TOW Trainer Course, the TOW Squad Leader's Course, the TOW Platoon Leader's Course, and the TOW Commander's Course.

The purpose of the program is to reduce the cost of the resident training and also to provide advanced training in some cognitive areas.

The program is expected to be implemented during the fourth quarter of Fiscal Year 1990.

INTERACTIVE COURSEWARE (ICW) for use with the Electronic Information Delivery System has been developed and distributed to the field, including the following:

Bradley Gunnery. This ICW was developed to support the Bradley Commander Course and the Master Gunner Course. It consists of 14 tasks in the following areas: preventive maintenance checks and services, 25mm gun, M240C coaxial gun, TOW launcher, target acquisition, engaging enemy aircraft, and preparing to swim the Bradley.

Bradley Unit-Conduct of Fire Trainer (U-COFT) Senior Instructor/Operator Course. This ICW consists of U-COFT operation, matrix, maintenance, operation of the input/output station, and evaluation.

Map Reading. This courseware supports the instruction in officer basic courses and NCO programs of instruction. It includes instruction on the use of margin information, terrain features, grid coordinates, elevations, road distances, azimuths, and directions. It also teaches intersection and resection methods.

Videodisc Interpersonal Skills Train-

ing and Assessment (VISTA). VISTA uses videodisc technology to train junior officers in leadership skills. Nine scenarios covering 20 leadership problems are highlighted. The problems include verbal abuse, taking charge, meeting the platoon NCOs, performance counseling, insubordination, financial crises, enlisted evaluation report counseling, and personal crises. Two instructional approaches—experiential and pedagogical—are available.

THE ARMY'S POLICY on the proper display of numerals on awards and decorations was changed on 30 March 1989 as follows:

Numerals starting with two (2) are now used to denote second and subsequent awards of several medals, ribbons, and NCO military education devices. The numeral one (1) is no longer used except when it is part of a two-digit number.

The awards affected are the Air Medal, the Multinational Force Medal, the Observers Medal, and the Army Reserve Components Overseas Training Ribbon. The bar ribbon device represents the first award of each of these honors.

The NCO Professional Development Ribbon (NPDR) emblem (bar ribbon device) denotes completion of the Primary NCO Course; the numeral 2 on the NPDR reflects completion of the Basic NCO Course; and the numerals 3 and 4 indicate completion of the Advanced NCO Course and the U.S. Army Sergeants Major Academy.

Soldiers must replace the numerals to comply with the changed policy, which is detailed in UPDATE 15 to AR 672-5-1.

NEW BLACK WINDBREAKERS (65% polyester and 45% wool) have been approved for wear by enlisted soldiers and officers.

The officer's windbreaker has a knit collar, cuffs, and waist. The enlisted soldier's windbreaker also has knit cuffs and waist but has the standard collar (the same as on the present windbreaker).

Both versions, which cost \$78 each, are already available in military clothing

sales stores, but soldiers may continue wearing the old windbreaker until 30 September 1993.

According to the newly approved policy, both the old and the new windbreakers **must be worn zipped up at least to the top of the second button from the neck of the Army green shirt.**

THE ARMY/AMERICAN Council on Education Registry Transcript System (AARTS) offers free transcripts to enlisted soldiers and veterans who entered the Regular Army *for the first time* on or after 1 October 1981. The transcripts show the soldiers' military experience and educational testing achievements.

All transcript data are reported by computer tape directly to the AARTS Operations Center from official sources, including the U.S. Army Personnel Command, the Army Training Requirements and Resources Systems, Army service schools, the Educational Testing Service, the American College Testing Program, and the American Council on Education.

An eligible soldier or veteran may obtain a transcript by submitting a completed DA Form 5454-R or by writing to the AARTS Operations Center, Fort Leavenworth, KS 66027-5073. A written request must include the soldier's name, social security number, basic active service date, signature, and mailing address.

For more information, individuals may write to the AARTS Operations Center at the above address, or call AUTOVON 552-4211, commercial 913-684-4211.

THE JOINT CHIEFS OF STAFF have determined that the term "Organization of Joint Chiefs of Staff" will no longer be used.

The term "Joint Chiefs of Staff" will be used to refer to the corporate body comprising the chairman and the chiefs of the services. "Joint Staff" will refer to the chairman's staff.

JCS Publication 1-02 has been revised to reflect this change.

THE NEW M119 HOWITZER has been issued to two battalions of the 7th Infantry Division (Light) at Fort Ord, California. The battalions received 36 of

the new towed 105mm lightweight cannons in December 1989. The division's other three battalions are scheduled to get 56 howitzers early in 1990.



Soldiers from the 7th Infantry Division unhook an M119 Howitzer from a HMMWV in preparation for a live fire exercise at Camp Roberts, California.

SENIOR ARMY RESERVISTS are needed to serve on promotion boards—generals, colonels, lieutenant colonels, chief warrant officers four, command sergeants major, and sergeants major from any part of the Reserve.

Most of these boards are held at the Army Reserve Personnel Center (ARPERCEN) in St. Louis, Missouri, although Reserve officers are also needed periodically to serve on Active Army boards held at the U.S. Army PERSCOM in Alexandria, Virginia. These boards last from three days to five weeks.

Further information is available from Headquarters, Department of the Army, ATTN: DAAR-SO, MSG Green, Room 1E427 Pentagon, Washington, DC 20310-2406; telephone AUTOVON 227-9803 or commercial 202-697-9803.

ISRAELI 120mm TAMPELLA mortars were originally scheduled to replace the Army's 4.2-inch mortars on a one-for-one basis during the period 1989 to 1992. The fielding requirement was for 2,606 mortar systems.

Because of funding constraints, however, both the Training and Doctrine Command and the Army Materiel Command have recommended that the total

quantity of 120mm mortars be reduced to 338, the number funded through Fiscal Year 1991.

The final adjustment of funds and quantities for the 120mm mortar program must still be made by the Department of the Army and Congress.

THE U.S. ARMY, PACIFIC (USARPAC) is the new designation of the U.S. Army Western Command (WESTCOM). U.S. Army, Japan, which has been a separate Army major command in the Pacific, will now be a major subordinate command of USARPAC.

The 6th Infantry Division (Light) and the U.S. Army Garrison, Alaska (former U.S. Forces Command units that were recently placed under WESTCOM) will also be under USARPAC.

In addition to Army units in Alaska and Japan, USARPAC will include the Army Support Command, Hawaii; the 25th Infantry Division (Light); and the 45th Support Group—all in Hawaii—and the Army Chemical Activity on Johnston Atoll. It will also have operational control of the 1st Battalion, 1st Special Forces Group, on Okinawa.

The command's headquarters will remain at Fort Shafter, Hawaii.

PROFESSIONAL FORUM



Infantry Combat

GENERAL WILLIAM E. DePUY, U.S. Army, Retired

EDITOR'S NOTE: This article is a slightly edited version of a talk General William E. DePuy presented to Infantry Officer Advanced Course students at the Infantry School in October 1989. General DePuy is a former commander of the Army's Training and Doctrine Command. Commissioned from ROTC in 1941, he served in Europe during World War II. After the war, he held a variety of other command, staff, and attache assignments.

On the premise that it is easier to work your way into the future if you know where you've been in the past, I'm going to talk about infantry combat as it has developed in the 20th century. Obviously, I'm a voice out of the past and whether what I have to say to you today has any relevance to the world in which you live, and to your jobs as you see them, you'll have to decide.

Before I talk about infantry tactics and their evolution, I want to put my remarks in an operational context, because I think that if you just do a bottoms up look at it there's always something missing. I'm going to start with a proposition that will run through my comments. It's a little above your present rank level, but it's going to affect your lives and I want you to grasp its significance.

That proposition is this: that the pur-

pose of offensive operations—tactical offensive operations—is to achieve freedom of operational maneuver toward strategically important operational objectives. That's a big mouthful. What it means, though, is that just attacking isn't the objective of the exercise. The object of the attack is to break through the defense or go around it so you can move to important objectives. Conversely, then, and obviously, the purpose of the defense is to prevent the enemy from doing that to you—to prevent him from breaking or circumventing your defense, achieving operational freedom of maneuver, and moving toward the objectives you don't want him to have. (In NATO, that is not too difficult to visualize.) All else is secondary. Raids, special operations, and so on, are all important, but they're all secondary.

EXAMPLES

Now let me further explain this—still in an operational context—with some examples from this century. Then I'll go back to the nuts and bolts of the infantry business.

In World War I—none of us in this room were alive then—the German Army outflanked the French Army by going through Belgium, which was neutral. The

Germans were going around the flank to get behind the French Army and destroy it and, incidentally, to get Paris, which was the hub of France.

For a little over a month at the beginning of the war, the Germans achieved freedom of operational maneuver. But they ran out of steam in the First Battle of the Marne when their infantry was exhausted and the French mounted a counterthrust. Then both the British and the French on the one hand and the Germans on the other tried to outflank one another in what was later called a race for the sea, and they extended their northern flanks all the way to the English Channel. When they arrived at the Channel, linear warfare descended on the military scene for the first time in history. And we have much of it with us today, although we are now in a transition back toward non-linearity, the mode familiar to Napoleon, Wellington, and Lee.

After these opening moves and the race to the sea, and after there were no more open flanks, the French and the British were unable to expel the German Army, which went on a strategic defensive in the west while it tried to finish the Russians off on the east. So for four years, the western Allies tried, but failed, to break through and chase the Germans out, and they lost a generation of young men trying. For example, the British lost 60,000

in the first day of the Battle of Somme in 1916.

In 1917 the Russians were defeated and had a revolution. The Germans then re-deployed their army from the east back into France—they wanted to finish the war before the U.S. Army arrived in strength. To just give you a feel for that, in July 1918 alone (one month) 600,000 American soldiers arrived in France. So the Germans were in a hurry.

They had a general named Oskar von Hutier, who at Riga in September 1917 had successfully infiltrated his army deep into the rear of the Russians. General Erich Ludendorff, who was fascinated by Hutier tactics, re-organized and re-trained the whole German Army in a period of about three or four months to use those tactics against the British and the French.

In March 1918 the Germans attacked the British 5th Army under General Hubert Gough and destroyed it. They actually advanced 50 miles, which was unheard of in the era of trench warfare, and nearly got to Amiens, a road hub that would have split the British from the French. But they had no operational mobility. Everything was horse drawn. And that was the way the war ended—mutual exhaustion.

From that experience, the Germans learned that they needed operational as well as tactical mobility, and they went to tracked vehicles. Twenty years later, the system they developed was called Blitzkrieg.

In 1940 the Germans attacked through the Ardennes. In this case there was no open flank, but the Ardennes at that time was a weak spot. They gained freedom of operational maneuver as soon as they crossed the Meuse River, and they split the French from the British just as they had tried to do in 1918. The British were evacuated at Dunkirk, and the Germans turned south and rolled up the French Army. Thus, in 1940 they did precisely what they had failed to do in 1918. In 1940, they had the mobility and knew how to use it.

In 1944 the Germans threw a linear defense around the Allied beachhead in Normandy, and the Allies' efforts to break out of that defense failed during



In 1944, as a result of German defensive efforts, the Allied armies had to undergo seven weeks of attrition warfare in Normandy.

seven weeks of attrition warfare. Then, at the end of July, with the help of well over 1,000 heavy bombers, the American forces broke out at St. Lo, moved into Brittany, shrugged off a counter-attack at Mortain, trapped remnants of the German Army at Falaise, and moved on into Holland, Belgium, the Rhineland, and Lorraine. For a month and a half, the Allied forces had freedom of operational maneuver, but they ran out of gas (literally), the Germans rallied, and the war returned to the attrition mode.

I want to make a point here. People talk a lot about attrition versus maneuver. This is not an intellectual choice. The same generals who so brilliantly dashed across France were suddenly forced back into conducting attrition warfare. Nobody doubts that General George Patton preferred maneuver, but maneuver warfare is not a doctrinal choice; it is an earned benefit.

The efforts to break through and obtain operational maneuver in the Fall of 1944 at Arnhem, with the great air-ground operation called Market Garden, failed; the attacks through Huertgen and Aachen were bloody and indecisive, and the attack by the Third Army across the Saar bogged down. In a last operational effort in the middle of December—three months later—the German Army once more sought freedom of maneuver

through the Ardennes.

The Germans enjoyed another tactical success. They penetrated about 75 miles to the west, but they never could turn north toward Liege and Antwerp, which were their operational objectives. They were stopped by the flexibility and mobility of the U.S. Army. That, by the way, was the first and only time in the history of the U.S. Army that it faced a breakthrough armored attack of the kind we have been preparing for in NATO for many years.

If the Germans had had a couple of second-echelon armies then like the Russians have today, the Battle of the Bulge might have turned out quite differently.

After that battle, the Allies gnawed their way through the remnants of the German Army, went to the Rhine and the Elbe, to Czechoslovakia, and to the end of the war. For the last two months of the war, they again had freedom of maneuver. That means they had a total of three and one-half months of freedom of operational maneuver out of 11 months of combat. They wanted it 100 percent of the time; they were able to achieve it less than 33 percent of the time.

After Stalingrad, the Russians developed the breakthrough operation into a brutal art. They broke through at Stalingrad, on the Don, the Donets, the Dneiper, the Vistula, the Oder, and each

time surged forward 100 miles or more.

The two Soviet army fronts, which we would call army groups, that were involved in the breakthrough on the Vistula were commanded by Georgi Zhukov and Ivan Koniev, the Ukrainian and Belorussian fronts. Those two fronts alone comprised 2,200,000 men, 7,000 tanks, and 46,000 artillery pieces, which in the breakthrough area amounted to 460 artillery tubes per kilometer of front. They broke through in a week, went on to the Oder at about 35 kilometers a day, and were stopped there on the last German defensive position in front of Berlin.

Korea was a linear war. The North Koreans started out with freedom of operational maneuver, which culminated at Pusan where the South Koreans and the United Nations troops, mostly Americans, threw up a linear defense around the city. At Inchon the Allies gained freedom of operational maneuver. Some of their elements got all the way to the Yalu, but then the Chinese in turn pushed the UN forces back south of Seoul. The war then deteriorated into a battle of attrition, which President Eisenhower ended with a nuclear threat.

In Vietnam, we, the United States, never decided firmly and collectively on operational objectives. And without operational objectives we went on and fought hundreds of successful tactical operations. We inflicted 800,000 KIA on the North Vietnamese and the Viet Cong and wounded a million, to no good end. We never achieved freedom of operational maneuver simply because we never decided which objectives we needed to take, and many of them were in North Vietnam.

Grenada was a non-linear war like the Falklands campaign of the British. The operational objectives were all within reach of the tactical forces from the first day.

Now, you can say, what does all this mean to you, the commanders at the tactical level? Well, it means in the first place that you are going to be executing tactical missions that are part of an operational commander's concept—operational commanders, army group joint commanders, and the like.

If the commander's mission is strate-

gic defense as in NATO and his purpose is to deny freedom of maneuver to the Russians, then of course there are certain defensive and counteroffensive operations you may be asked to undertake. The NATO commander has to maintain the forward defense and break the enemy attack. According to AirLand Battle doctrine, you could have the mission of blocking, delaying, counterattacking, spoiling by deep maneuver, or attacking deep with the fires of rockets, missiles, or TACAIR. Or you could be part of a deep operational counterstroke.

Now, which of these missions you receive depends on the whole set of concepts, all the way from the joint commander at the top, down through the corps, divisions, brigades, battalions, and down to you. Make no mistake about this—in all cases, you're going to be told what to do as the company commander. In most cases, you will be permitted and required to decide how to do it.

INFANTRY EVOLUTION

With that in mind, I want to go back to the infantry evolution over this same period. Now we're in the meat and potatoes part.

World War I was an infantry-artillery war. The standard offensive tactic was to fire an incredible amount of ammunition over a very long period of time, followed by an assault of long lines of infantry, supported by other long lines of infantry, trying to follow close behind the grinding, slow moving artillery barrages.

The German defenses were deep and elastic, layered, dug in; machinegun crews came out of deep bunkers when the artillery lifted. The machineguns were generally devastating against the long lines of exposed infantry trying to move through wire, shell holes, mud, and churned terrain. After the machineguns did their deadly work, the remnants of the attacking force, which by then had fallen behind the rolling barrages, were almost automatically counterattacked by division-sized elements. And the defending artillery, of course, fired very effectively on pre-registered concentrations and barrages.

Indirect fire suppression turned out to be inadequate during that entire four years, during which time one generation of Frenchmen, one generation of Britons, and one generation of Germans all went down.

The direct fire that came from the lines of skirmishers turned out also to be inadequate; moving skirmishers could not develop enough rifle fire to suppress the enemy machineguns. And by virtue of their linearity they masked their own machineguns. So, all in all, World War I was an operational and tactical failure, except that at the very end the Germany Army—the German nation—was simply worn out. The French were also staggering at the time, as indeed were the British. The fresh American Army was coming on strong. But the American Army also failed to solve the problem of the trenches and the machineguns and operational mobility. So it ended almost with a whimper instead of a shout.

When World War II came along, we found we hadn't learned much, while the Germans had. Our infantry went into World War II just about the way it had come out of World War I. Suppression was done primarily by artillery. And although the troops were told in all the manuals published here at Fort Benning between the wars that open warfare by skirmishers was the way to go and that fire suppression had to be achieved by the infantry itself, it was rarely tried and more rarely accomplished.

In Normandy in 1944, it was standard practice to fire mortars at the first hedgerow, where the first layer of German defenders were, 105mm howitzers at the second hedgerow, 155mm howitzers at the third, and then (you guessed it) to line up the infantry and assault straight forward into the killing zone.

In its six weeks in Normandy, the division to which I was assigned lost 48 percent of its rifle platoon leaders each week. That means the on-the-job time for a lieutenant was two weeks plus a day or two and the losses were 300 percent in six weeks. The end effect, of course, was that few were seasoned and few were around long enough to learn how to fight.

In the face of these kinds of problems, some units resorted to marching fire to

fill the gap between the lifting of the indirect fire and the arrival of the assault line at the enemy position. In marching fire the soldiers simply fired a round every few steps, aimed or from the hip, to try to retain fire superiority while moving. The anomaly was, of course, that when they needed fire superiority most, they rose from their positions behind the hedgerow and lost most of it. And generally they were masking their own machineguns. This, incidentally is a problem you have today.

LONG HISTORY

There's a long history with respect to direct fire suppression, and not all of it in the U.S. Army. I know you have solved a lot of these problems, but I doubt that you have solved all of them.

I suppose most of you have read General Erwin Rommel's book *Infantry Attacks*, and you may remember that he had the same problem with the Italians and the Rumanians, in the Carpathians and the Alps. He was in that unusual battalion that had three, four, five machinegun companies and a lot of rifle companies, and he personally positioned all the machineguns and gave them targets. After shutting down all enemy fire, he then penetrated on about a one-squad front—brought his reserves through personally and operated in the enemy's rear. That is probably the most difficult task—tactical technique or task—that one could devise. But it's just about the only way you can get through a linear defense frontally with acceptable casualties (acceptable means very low).

I know you practice that some of the time. That means that instead of two up and one back, you've got one up and five back, or one up and three back. In other words, the bulk of the force is shooting. The greatest part of the force is involved in firepower and the smallest part is involved in maneuver in that particular technique. I know that is counter-intuitive in an Army that favors *maneuver*—but think about it.

The Israelis solve the problem by dropping into a base of fire position any element that initially receives fire from an

enemy trench line or a bunker or an airfield defense, and bringing armored vehicles up to augment the base of fire. Then they go around the flank and work down the trench line with rifles and hand grenades.

About halfway through World War II, the U.S. Army began to learn how to do that. The first signs of wisdom are enshrined in a statement that became popular: "Pin 'em down and go around 'em." That is good sound tactics.

Armored combat commanders, much like you have in your mech and tank task forces, from the very beginning learned how to suppress with all the firepower of the armored task force. The first time I ever saw that happen I was awestruck. I saw a tank-infantry task force of the 4th Armored Division going by the edge of a forest. On the way by, they turned every gun they had toward the woods. They called it reconnaissance by fire in those days, but what it was was suppression. They put so much fire on the woodline no one ever knew if there was anything in the woods.

Mechanized infantry today has the same opportunity. Ninety percent of the firepower of the mechanized platoon is in its armored vehicles and others of the task force, and only a small amount with the dismounted infantry. Obviously, you're not going to put the 15 to 20 men in the rifle platoon in a killing zone unsupported. So you're going to have to shut the enemy down.

That is a short story of the evolution of infantry tactics. It connects what you're doing with what people learned the hard way a long time ago.

I want to talk to you now about another dimension of these problems that I call the baleful influence of boundaries. In World War I, such great men as George Marshall, who was then G-3 of the 1st Division and then G-3 of an army, became famous for moving masses of troops around and squeezing them into very narrow zones of attack. For example, in the Meuse-Argonne some of the American division sectors or zones were only three kilometers wide, and these were divisions of 27,000 men. Now that, gentlemen, is why the whole idea of two up and one back became in-

grained—embedded in the doctrine and the consciousness of western armies. It was the way to crowd a lot of troops into a very small area. But, obviously, the effect of that was that they all attacked straight ahead.

Unfortunately, the two up and one back technique—which was invented for control purposes, a way to squeeze a lot of people into a small area—was adopted by our World War II amateur army (that was what it was) as a concept of operations. I would say that half of our battalion commanders in World War II thought that two up and one back was a concept of operation instead of just a formation. The very first attack I participated in in Normandy as a battalion S-3, we did exactly that—two up and one back right into the killing zone. It accounted for the kinds of casualties we suffered.

It has also been devastating at the operational level. When you look back and wonder why, for example, the U.S. Army ever attacked in the Huertgen Forest, the answer is obvious. The forest was straight in front of the VII Corps of the First Army—and everybody just went straight ahead.

Now, in most cases, it's not just a formation, but two up and one back is, of course, the worst possible thing to do. I know none of you would do that, but there are plenty of people who still do it. If you know where the enemy is, then you certainly won't put two of your three combat elements in his killing zone. And if you *don't* know where the enemy is, you aren't going to put two of your elements forward where they might stumble into his killing zone.

LEADERSHIP COP-OUT

Anyhow, using formations instead of concepts of operation is simply a leadership cop-out. The Russians call them corridor commanders—commanders who simply take their mission, divide it up among their subordinates, and sit back and wait for the bad news.

In my discussions earlier this morning with some of you, and in the read-ahead material I was sent earlier, I found and we discussed some questions about de-



centralized versus centralized control, and we talked about attrition versus maneuver. I want to say to you that none of these theological debates get you very far. The fact of the matter is that when you get in your companies and battalions you're going to be executing concepts of operation cooked up by your next higher commander, and it will inhibit you to some extent. His concept—his order—will tell you exactly what to do, where to do it, and when to do it. You can look on that as being restrictive and counter-productive, but let me tell you that if your superior commanders do not have a concept of operation and if that concept is not dominating the battle you are in, your side is losing. You may have all the freedom you want, but you're also going to have the freedom to lose. You need to put yourself in that context.

What is left for you to do, and how do you do it? There's often a discussion of whether synchronization is incompatible with maneuver, but that's a dumb way to look at it. Synchronization is not just a complicated word. Synchronization is combining the arms within some kind of operational concept in a particular engagement or battle. You should be horrified, each of you, if your battalion staff, brigade staff, and division and corps staffs are not synchronizing all the combat support they can get their hands on in behalf of their concept and your lesser included role within it.

Synchronization is not a bad word. The name of the game, the formula to be

followed, is that you should get all the synchronization that time and good judgement will allow.

I want to end up by saying that although we don't like rules, we do like principles. But it seems to me that there's a rule we learned in World War I, in World War II, in Korea, and in Vietnam that really ought to be elevated to the status of a principle. That rule or principle is "Never fight a battle—any battle, in the offense or defense—the way the other guy wants you to fight it." He wants you in his killing zones. He wants you to get mousetrapped, and then destroyed by a counterattack. He wants you to be two up and one back.

So the name of the game is never to do that, but to use your head to figure out some way to handle the other guy in a way he doesn't want, doesn't like, doesn't expect, and can't handle.

I'll just give you a few of the things we discovered along the way, some of which are applicable to you and some of which may be chiefly of historical interest. The repertoire of alternatives to ploughing into the enemy's killing zones arise out of the conviction that almost anything is better than that.

The easiest solution, and the one that armored divisions in World War II used, was encapsulated in that somewhat rude statement—"Bypass, haul ass, and call for the frigging infantry." That is, just leave the problem behind. One problem is that we now have armored forces, but no infantry divisions following along to

do the dishes. So just bypassing the enemy and leaving him there is not always permissible. But when you get to exploitation and operational maneuver, it's *exactly the thing to do*. Just let him stay back there hopelessly and uselessly behind.

The second best solution, we thought, was to find a gap and slip through it with a battalion (usually a whole battalion) often single file, often at night, and sit down on a piece of terrain behind the enemy that he couldn't afford to let us have—a piece of terrain that once we were on it he had to come after us or abandon the entire position.

Then the enemy has to attack you and you're down and waiting and he's up and moving and, gentlemen, no matter how romantic you may be about the attack being the preferred method, my preferred method is staying alive while killing the enemy. The aim is to get him up and moving while you're down and waiting. That doesn't mean you don't go on the offense. But if you can sit down on a piece of terrain right behind his front, in the middle of his airfield or whatever, and he has to come to you, that's what you constantly seek once you become a seasoned soldier.

If you can't find a flank or a gap, the third solution that we learned to prefer was simply to infiltrate through him, at night, using very small units (squads, maybe platoons) right to the final objective.

That is not the way the enemy wants to fight the war. He doesn't want somebody infiltrating through him. He wants them to come in by platoons and companies and issue orders and talk on the radio and call artillery and to keep trying it again and again. All of this, of course, he wants to take place on the terrain he has selected. Infiltration, then, is a superior solution.

The fourth is to pin him down with very heavy suppression and go around him and attack him on the flank or the rear. That is, I would say, sort of the classic solution, right? That's a sort of drill that we go through, and the drill the Israelis go through all the time.

And the fifth solution, the toughest of all, is to do a Rommel. You ought to be

able to do a Rommel in your light infantry company or your battalion, but you won't be able to do one unless you practice it a lot.

I would say that if you become professional at your job, whether you're in a mechanized company or in a Ranger company, whether you're going on a raid, whether you're fighting in Europe or in a light battalion in Central America, you're going to come up against all of the problems I've been discussing. They are eternal infantry problems.

In other words, you will find yourself having to attack an enemy position to accomplish a mission. Wherever it may be, you're going to find out that the defender has a lot of advantages that you will have to avoid or overcome. The time to think about all those things is now.

When I commanded the 1st Infantry Division in Vietnam, we received hundreds of lieutenants from Fort Benning and OCS, and I have to tell you that almost without exception—this was in

1966 or 1967—these platoon leaders would, if not otherwise instructed, almost automatically proceed in a column and deploy into a line when the first shots were fired and assault into the enemy position as a sort of puberty rite, a test of manhood.

Instead, a platoon leader should always think of the leading element as being on a reconnaissance mission for the company commander and the battalion commander so he's out there to find out where the enemy is, try to figure out the enemy strength so that the company and battalion commanders can make decisions. That's the professional way to fight a war.

It just so happens that the Viet Cong very often did it right. Our companies or battalions would be probed a few times by their reconnaissance elements and then sometimes nothing more would happen. We had to conclude that they took a look at us and decided it was a bad show and they would wait until another day. The

U.S. Army seldom does that. There's some kind of an automatic exhilaration that takes place when the first rounds are fired. We have a very strong tendency then to charge.

I know that the lessons I have been talking about were primarily learned in World War I, learned again in World War II and Korea, and learned again the hard way in Vietnam, in Grenada, and probably in Panama. They have not gone away. They are classic infantry problems that you, too, will face. The thing to do now is to think them out ahead of time and practice ways to avoid repeating the U.S. Army's bloody initiation rites during almost all of its wars.

Good luck!



The Lancers Heroes Past and Present

CAPTAIN DAVID L. SONNIER

EDITOR'S NOTE: The opinions expressed in this article are the author's and do not represent those of the Department of the Defense or any element of it.

On 25 July 1819, Simon Bolivar's Liberation Army, while fighting the royalist Spaniards, was flanked at a site known as the *Pantano de Vargas* in what is now Boyaca, Colombia. Faced with a grim tactical situation, Bolivar did the right thing: He sent a Colonel Rondon with 14 Lancers—soldiers on horseback and armed with long spears (or lances)—

to halt the enemy's flanking attack. With his parting words of "Colonel, save the country," Bolivar unleashed the fury of the small band of Lancers on the advancing enemy columns.

The Lancers, through the audacity and aggressiveness of their attack, created panic among the enemy troops and foiled their flanking attack, thus saving the Liberation Army from destruction. This display of courage by Colonel Rondon and his Lancers turned the tide of the battle, disheartened the enemy, and led to the Spaniards' defeat and eventual withdrawal. A monument stands today at

the *Pantano de Vargas* in honor of the heroic Lancers.

Today, Colombia's Lancero School stands on a hot, arid plateau at the military base of Tolemaida. The school, which is similar to the U.S. Army Ranger School, was formed in 1955 for the purpose of training dedicated and capable leaders in counterinsurgency operations to fight the subversion in that country. It is no surprise that the school, and those who pass through it, bear the name of Simon Bolivar's heroic Lancers. (See also "Lancero," by Captain Ralph Puckett, Jr., and Lieutenant John R.

Galvin, INFANTRY, July-September 1959, pages 21-23; and "Lancero," by Captain David A. Morris, INFANTRY, May-June 1981, page 14-15.)

The modern Lanceros, although equipped with the more sophisticated weapons and communications equipment of the 1980s, still put a great deal of emphasis on maintaining the "*Espiritu de Lancero*," the fighting spirit of Bolivar's valiant Lanceros.

Each year between September and December, the Lancero School runs an International Lancero Course. Officers and occasionally NCOs from various Latin American countries, the United States, and Europe attend the grueling 10-week course. Those who finish the course leave with a better understanding of the way Latin American insurgents fight.

Little more than a year ago, 54 Colombian officers and 10 foreign officers reported to the school for the 26th International Lancero Course. Of the foreign officers, two were from El Salvador, two from Ecuador, two from Honduras, two from Panama, and two from the United States—a Special Forces captain and I.

When we reported, the commander, a lieutenant colonel and a veteran of some 20 years of fighting guerrillas, had some encouraging words for us: "The course is tough. The climate is tough. But we train to fight guerrillas, and they're dedicated. We have to turn out officers and NCOs who will be well trained and dedicated enough to take them on. Good luck in the course. I hope you both make it." We left to begin four days of moderate physical training and our adjustment to the climate.

During the next ten weeks, we underwent extremely difficult and challenging training. In the first three-week preparation phase, wake-up was generally around 0345, PT at 0400, breakfast at 0545, and training from 0600 to 1200, 1230-1800, and 1900-2200. Generally, there was more training from 2230 on, including penalty laps around the school for minor infractions during the day. Sometimes "lights out" was within an hour of reveille.

Much of the training during the first phase resembled that at our Ranger



Lancero students training in small boat operations.

School, such as hand-to-hand combat, demolitions, communications, bayonet drills, and an obstacle course. Additionally, the first phase included extensive weapons training, instruction in guerrilla warfare, counter-guerrilla tactics, and analyses of tactical cases in which the Lancero School commander discussed various battles that had taken place between the Colombians and the enemy. The instruction was oriented toward guerrilla warfare, specifically the way the guerrillas fight. This exposure to the enemy's tactics and methods proved most helpful to us in the weeks to come.

The third week ended with the entire class being captured and sent to a prisoner of war (POW) camp, from which we had to escape to a rally point. The treatment in the POW camp was brutal, but from what my Colombian classmates told me, it was a picnic compared to what a prisoner goes through at the hands of the real enemy. Once the "prisoners" were released and returned to the rally point, the patrolling instruction began.

For the next two weeks we underwent extensive, basic patrolling classes followed by several two-or-three-day patrols. The patrolling classes and training sessions were conducted in an area some six or seven miles from the garrison. The tactics were similar to those taught at the U.S. Army Infantry School. At least the principles were the same.

By the end of the two-week patrolling phase, the number of students in the class had dropped to 37 out of the original 64. We marched back to the garrison, cleaned equipment and weapons, and began preparing for a three-day patrol up into the mountains that would be followed by a two-week mountain phase.

That same night we left the garrison again, but we went only a short distance before setting up a patrol base. A platoon leader and squad leaders were selected in what appeared to be a random manner (in reality, the selection had been made earlier). The platoon leader issued an operations order and we began preparing to march at first light.

The squad leader designated me and several others to go pick up rations. Boxes of potatoes, bags of rice, sugar, salt, beans, bottles of cooking oil, and four large pots were then divided among the four squads. Each squad had a designated cook (called a "ranchero"), and we voted for the platoon's head cook in a very democratic fashion.

Those of us who were foreigners, and therefore unaccustomed to this ration system, were told that we were responsible for what we were given, down to the last potato, until it was called for. We were also told that students who repeatedly had rations mysteriously disappear from their rucksacks would be eliminated from the course for honor violations. I stood watching, aghast, as a classmate

poured potatoes out of the box and carefully divided them up. Having been indoctrinated with C-rations and MREs (meals, ready to eat), I had my doubts that this system of feeding would work. ~~My fellow U.S. officer, who didn't seem to suffer the same degree of culture shock, even volunteered to be one of the rancheros, claiming he could cook as well as any Colombian.~~

We left at first light, marched steadily upward first over rocky hillsides, then ~~over hillsides covered with banana trees~~ that gave shade to coffee plants weighted down with clumps of red coffee beans ready to be hand picked. As we approached our objective—an enemy safe house—the temperature steadily dropped until it was chilly at night. Both days, the patrol halted for three or four hours during the day and set up security on the high ground around a valley that had a creek in it.

The squads' rancheros built a fire, boiled some water from the stream, and cooked rice, potatoes, coffee, or whatever the head ranchero had planned for the one meal of the day. This took a lot of time, but the system worked.

Moving tactically, crossing danger areas correctly, stopping for three or four hours every day, and taking special care not to expose ourselves to the possibility of enemy detection, we arrived within sight of the objective at 0100 the day of the attack. Four and a half hours later we had positioned ourselves around the enemy safe house. The acting platoon leader, a 20-year-old Colombian second lieutenant, gave the inhabitants an opportunity to give themselves up, announcing that they were surrounded. (This was a technique that the Colombians used against their real enemies with some success. Often those inside would surrender voluntarily, making a firefight unnecessary and avoiding the risk of injuring friendly or innocent personnel.) But for this exercise those inside had been told to play tough, so we assaulted the objective capturing five "subversives" and "killing" two who tried to escape. (The "subversives" or, aggressors, were soldiers from the Lancero School.)

From there we continued uphill to our base camp, a flat, tree-covered mountain-

top. Within an hour of our arrival, with scarcely enough time to catch our breath, we were given a new chain of command, a patrol order, and more rations. We conducted repeated patrols over the next two weeks, ~~the final one being a patrol of two and a half days back down from the mountains, hitting an enemy encampment near Tolémaida. After cleaning and accounting for our equipment, we were released for an overnight break in Bogota.~~

For the jungle phase of the course we were flown to one of the southernmost areas of Colombia, the *Intendencia de Putumayo*. Because the landing strip would not accommodate our C-130 aircraft, we landed in the nearby *Departamento de Caqueta* and flew the rest of the distance to the small jungle landing strip in a C-47 that had to make three trips to get us, the instructors, and some soldiers there.

18-MILE ROAD MARCH

Once the entire class was on the ground we road-marched 18 miles overnight, boarded a boat in the Caqueta River, and traveled another 30 minutes until we arrived at *Fuerte Amazonas*. Most of the structures on the tiny installation are built from bamboo, with bamboo walkways between them.

The first four days of instruction there included jungle land navigation, survival training, a jungle obstacle course, and an overnight patrol.

The survival training proved to be a lesson in exactly how harsh the jungles of South America can be. The classes in edible plants and animals included preparing and eating creatures that I had never known existed. (It could have been a zoology lesson instead.) We spent that night without the comfort of mosquito nets.

The survival training was followed by a two-day training patrol that included instruction in jungle tactics—such subjects as tracking, jungle base camp procedures, and passing "critical points," or danger areas. Danger areas in the jungle can be nothing more than a wide tree, a fallen tree, or a small creek.

The final patrol took us through the jungle for eight days. We received an operations order to locate and track down a band of "guerrillas" operating in the area. We moved to a pre-determined site, searched for tracks in a pattern, and once we had located them, began tracking the enemy through the jungle, taking security measures at the danger areas.

At 1630 every day we stopped moving and began securing and setting up the base camp for the night so that by 1800, when it was so dark that we couldn't see our hands in front of our faces, the base camp was secured. We ran strands of fishing line from the perimeter out to the listening posts so that a soldier could follow them in the dark when it was his shift.

Every morning the Lancero School commander, who accompanied us on the patrol, held a critique. He repeated constantly "Behind every wide tree, there's an enemy sentinel; behind every fallen tree, there's an enemy lying in ambush" until we actually began to believe it. Then after the critique we would move out, following enemy tracks, keeping pressure on them, knowing that they were getting tired of running from us and that eventually they wouldn't be able to go any farther and would be forced to fight on our terms. We moved cautiously, keeping in mind that they could be waiting in an ambush position, and sent out a reconnaissance team to search every danger area carefully.

We had daily contact with the aggressors, and they were good. Led by a former guerrilla who had fought with the Armed Revolutionary Forces of Colombia, they managed to surprise us in about half of the contacts, while we spotted them first in the other half.

The trek through the jungle brought us into an area with millions of fire ants. Anywhere we stood, within minutes the ants would begin crawling up our legs. The only way to protect ourselves from them during the night was to squeeze three-inch lengths of mint green toothpaste on the lines at both ends of our hammocks and on the lines suspending the plastic shelter above them. The ants would climb over each other until there was a fist-size wad of them on the line,

but they wouldn't go past the toothpaste.

At the end of the eight-day patrol through the jungle, we arrived in Puerto Leguizamo Naval Base where we were given five minutes to change for the final PT test—push-ups, sit-ups, and ten-kilometer run. (This was the final test to see who would say "I can't.")

After the PT test, the 36 hungry and tired Lanceros in the officer's course, and another 25 in an NCO course, were finally given a big meal and a good night's sleep. The following day we returned to Toleraida for an overnight break and the graduation ceremony.

Thus ended what I consider the best lesson a U.S. Army officer or NCO can get in how Latin American insurgents fight. Going through the Lancero course provided us with valuable experience and also a variety of ideas.

The Colombians don't like to use jungle boots in the dense jungle terrain, for example. Instead, they use knee-high rubber "gaucho" boots, which protect their feet from the constant immersion in water. If the boots fill with water, they

can be removed and emptied, and they dry quickly. And because they're rubber, they last much longer than leather boots in the constant humidity.

At night the soldiers sleep in hammocks with specially adapted mosquito nets wrapped loosely underneath. Without the nets the mosquitos would bite through the cloth all night long. The plastic shelter—approximately twice the size of a poncho liner—is suspended above the hammock to protect a soldier from the never-ending torrential downpours so that he can at least be dry for a few hours during the night.

One of the interesting things I learned in the mountain phase was how to heat a canteen cup of water Colombian style. A candle, cut in half, with both halves lit and placed beneath the cup, can heat water as efficiently as a heat tab, and it's good for at least five more cups of water. It can get wet without being ruined, and it costs seven cents. This simple discovery was a good reminder that often in our high-tech Army we forget that there may be a simpler way of doing a

job just as effectively.

As the tactical officer called out the names of my Colombian classmates and the units to which they were being assigned, nobody smiled. Nearly all were going to units heavily engaged in the counter-insurgency and counter-drug effort. Most of them had taken part in that effort before going through the course. And because of the enormous amount of money in the drug business, they knew their enemies would often be better equipped than they were.

As each of them left Toleraida to continue the long and drawn out struggle to maintain order and confront their country's enemies, they carried with them something special—the fighting spirit of Bolivar's Lanceros. The other U.S. captain and I considered ourselves fortunate to be able to share in that spirit.

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COHORT Reenlistment

LIEUTENANT COLONEL COLE C. KINGSEED

A commander's efforts to retain high quality soldiers—our future NCO corps—require the enthusiastic involvement of all leaders in the unit, both officers and noncommissioned officers. Success is directly related to the quality of leadership they exhibit.

The single indispensable factor in all retention programs is a positive command climate that makes a soldier's first experience in the Army a generally favorable one. Commanders who conduct tough realistic training and demonstrate a genuine concern for the soldiers entrusted to their care rapidly develop

disciplined units. In turn, the soldiers take a great deal of pride in being members of the command. Bonds between the soldiers of disciplined organizations are uniformly stronger than of those in less disciplined units.

In addition, all commanders must be familiar with AR 601-280, the regulation that governs reenlistment. It succinctly outlines the duties and responsibilities of commanders and retention NCOs at all levels and discusses the reenlistment options available to the soldiers.

Nowhere, though, do battalion and company commanders face greater

reenlistment challenges than in traditional COHORT units where the soldiers all become eligible for reenlistment in an eight-month period at the end of the unit's life cycle. What can be done to prepare for this surge?

As a COHORT battalion commander, I made several key decisions early. Although some of these decisions are more controversial than others, I am convinced that they were important factors in the battalion's retention program, which succeeded in retaining 40 percent of the eligible first termers in the Active Army. Although this program focuses

primarily on retaining first termers, the same principles can be applied for mid-termers and careerists as well.

The initial step was educating the company commanders. While many senior commanders may have lived with daily reenlistment challenges when they were company commanders, that is not the case with COHORT company commanders. Since the soldiers are not eligible for reenlistment until they are within eight months of ETS (expiration term of service), company commanders generally do not face initial term quotas until that period. Consequently, they have little incentive to become familiar with reenlistment regulations. Unless a senior commander directs otherwise, reenlistment will not become a command priority until the soldiers are already in the reenlistment window. If commanders do not anticipate the surge and begin planning for it, they may not be able to handle such numbers. More important, they may not be able to pursue the soldiers' desired options as aggressively as they should.

Equally important to the education process was making certain everyone understood that reenlistment is a privilege, not a right. Commanders have a moral obligation to their country to retain high quality soldiers, and a similar obligation to bar substandard soldiers. The last thing the Army needs is to reenlist a soldier merely to meet a quota, when that soldier is likely to become a substandard NCO. The emphasis must be on quality, not quantity.

The next step was to ensure that strong leaders filled the battalion and company retention NCO positions. (A commander *must not* allow a retention NCO position to be filled by an NCO who could not quite make it in the line.) Although a company is not authorized a full-time retention NCO, the number of eligible soldiers does require one during the last year of a COHORT unit's life cycle. I strongly encouraged my unit commanders to give the retention NCOs all the time they needed to pursue reenlistment options. Within weeks, this policy paid dividends.

The commanders then began talking to the soldiers about reenlistment options, and in monthly addresses, I mentioned

reenlistment. There were a few snickers at first, but gradually soldiers asked the company representatives to explore a few options. Many asked the retention NCOs to do this in strict confidence lest their contemporaries ridicule them. It was here that the strength of the COHORT system began to surface.

As the initial inquiries came in, the retention NCOs began to target certain individuals. The first were the COHORT first termers who had achieved NCO rank, soldiers who had demonstrated a willingness and an ability to lead during their first two and one-half years of service. Most of these were highly respected by the other soldiers because they were "one of us," not cadre who were already on station when the COHORT package arrived.

LEADERS SOLD THE IDEA

Once those junior leaders demonstrated an interest in reenlisting, the other soldiers followed. Frequently, the junior NCOs sold the reenlistment idea to the other members of their squads and teams. In fact, it was not uncommon for two or three soldiers in the same squad to select the same CONUS station of choice. In short, the most successful company reenlistment programs were those in which the junior NCOs actively participated in the retention process.

While this was happening at company level, the battalion retention NCO was giving me daily updates on the battalion's progress. Quite frankly, we managed reenlistment on a name-by-name basis. Although this process consumed an inordinate amount of my time as a battalion commander, I became knowledgeable of the options potential reenlistees wanted. Consequently, the subordinate commanders also made an additional effort to become familiar with the needs and desires of the individual soldiers.

This renewed command interest led to an immediate increase in reenlistments as more leaders began talking to the soldiers. The retention NCOs became much more aggressive in pursuing reenlistment options. Although they encountered bureaucratic red tape in some

instances, persistence proved the key. The judicious use of the commander's override program also resulted in some soldiers obtaining their units or stations of choice.

By the time our COHORT unit reached the end of its life cycle, the reenlistment results were encouraging. The battalion met or exceeded every quarterly reenlistment quota, including one quarter when the quota was 55 first termers. The battalion became the first to register more than 100 reenlistments in a six-month period. Of those reenlistments, 87 were first termers, and 75 of these chose to retain their 11B MOS. Three CONUS duty stations attracted 18 soldiers each, clearly demonstrating that COHORT soldiers retain the bonds of kinship beyond their initial duty assignment.

In summary, a COHORT unit offers numerous reenlistment challenges but provides just as many opportunities. It was my personal observation that the professional and personal bonds of COHORT soldiers were more powerful a motivation for reenlisting than the soldiers' initial reasons for joining the Army. Instead of choosing to leave military service, many decided to remain in the Army to pursue educational benefits.

In short, the recipe for success is actually quite simple: Assign quality leaders to key retention positions; make reenlistment a command priority; and prepare subordinate commanders for the reenlistment process. Then inform the soldiers of the available options and aggressively pursue the ones they select.

Above all, create a positive command climate. No soldier will reenlist if his initial tour has failed to meet his expectations, or if he perceives that his leaders are interested only in meeting quotas. Only by taking care of the individual soldier and challenging him daily will leaders succeed in retaining the Army's future NCOs.

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Organic Indirect Fire In the Heavy Maneuver Force

LIEUTENANT COLONEL THOMAS R. ROZMAN

I believe the organic indirect fire system of our heavy maneuver battalions is deficient, and I expect that deficiency to continue. The current system—six 107mm (4.2-inch) mortars mounted in M106 mortar carriers—cannot render effective organic fire support on the AirLand Battlefield, and extending this same capability into the AirLand Battle-Future (ALB-F) force will only widen the gap.

My primary reasons for making these statements are the following:

- In the context of the currently portrayed threat, the M106 mortar carrier may not be able to survive forward of the battalion rear boundary.
- Because the vehicle must be opened at the top when the mortar is brought into battery, the crew may not be able to survive in a counterbattery or a nuclear, biological, and chemical (NBC) environment.
- As we complete the conversion of the rest of our heavy force to "full up" J-Series Tables of Organization and Equipment (TOE)—with M1 tanks, M2 infantry fighting vehicles, and M3 cavalry fighting vehicles—the mortar system will not be able to keep up, and it will be far less responsive than it needs to be.
- Given these threat, mobility, and survivability problems, it will be difficult, if not impossible, to execute the current doctrine concerning fire control methods and procedures for laying the section.
- The 107mm mortar system does not

have the growth potential to serve as the basis for improvements in organic indirect fire support for the heavy maneuver battalion.

The system's current capabilities, the planned or anticipated upgrades and improvements, and some long range programs need to be considered, and a responsive and survivable organic indirect fire (high angle) fire support system for the maneuver battalion level needs to be identified.

BACKGROUND

Some background material will be useful at this point. First, according to the Infantry School's concept, as stated in the July 1985 Army Mortar Plan, "The traditional role for Army mortars has been to provide immediate, responsive indirect fire support for maneuver forces," and the Army's "AirLand Battle Doctrine has validated that role."

In offensive operations, this role includes providing fires that support the scheme of maneuver by undertaking immediate suppressive missions to complement the maneuver commander's direct fire assets; by firing smoke rounds on known and suspected enemy positions and along the flanks of maneuver elements; and by firing illumination rounds at critical junctures in an operation as an alternative to using FLIR (forward looking infrared) and image intensification devices without illumina-

In defensive operations, it includes firing on targets in the range band between direct support artillery and infantry small arms; firing on dismounted enemy elements (or, with the development of precision mortar munitions, more directly contribute to the destruction of enemy armored systems); and giving the commander the option of illuminating the nighttime battlefield and using smoke to obscure portions of the battlefield.

The current system, in some form or other, has been filling the role of the organic indirect fire support system in our heavy maneuver battalions since the late 1930s. Although the 107mm mortar was initially used to deliver chemical munitions, it found its way into infantry battalion direct support roles during World War II. Between 1945 and 1962, its organizational configuration—under field artillery or infantry proponentry within or outside maneuver battalions—changed, but it remained a powerful, responsive, and effective system—and it was relatively cheap.

As a result of the adoption of Reorganization of the Army Division (ROAD), a maneuver battalion's mortar system was reorganized into a four-gun section, and an armored cavalry squadron's into one mortar squad per platoon or three per troop.

In the case of mechanized infantry and tank battalions and armored cavalry squadrons, the mortars were eventually mounted in the M106 mortar carrier, a derivative of the M113 carrier. Although the M106 vehicle gave the crew some

protection by allowing it to fire from its vehicle, certain operations were necessary to bring the mortar into battery—opening the modified cargo hatches, putting out aiming stakes, elevating the tube—actions that took time, even with well-trained squads.

Still, given our fighting doctrine and the mobility and survivability of the other vehicles in the force at the time—M114s, M113s, M48A3s, M60s, M551s—this heavy mortar package made sense. Additionally, the 107mm was augmented in the mechanized battalions by the 81mm medium mortar mounted in the M125 mortar carrier (also an M113 derivative and almost identical to the M106). Three of these mortars were provided to each company. As a result, across a mechanized battalion's front, 13 tubes provided fire support from four platoons or sections (depending on the MTOE).

More recently, as part of the J-Series MTOE Army of Excellence (AOE) reorganization, the organic indirect fire support of a mechanized infantry battalion was changed from 13 tubes in four firing elements into six tubes in two elements, plus the loss of nine tubes from the divisional armored cavalry squadron. And, of course, the mechanized infantry and armor battalions and the armored cavalry squadrons were equipped with the newer, faster tanks and fighting vehicles.

Adding to these adjustments has been an increase in Soviet indirect fire support assets from the army down to the regiment, and a tendency in the U.S. Army to increase the centralization of field artillery assets at brigade level and higher. Additionally, Allied and threat nations have almost universally "upgunned" their heavy maneuver force mortars to 120mm, and the Soviets have equipped their airborne units with a tracked, lightly armored personnel carrier (BMD) mounted combination gun. The gun reportedly has a high explosive antitank (HEAT) direct fire capability out to one kilometer, fires conventional 120mm mortar rounds, and has a 120mm high explosive (HE) howitzer round available. The Soviets are also exploring the 120mm combination gun (2S9) turret and gun system technology in their motorized



Crewmen prepare to fire a live round.

rifle battalions (MRBs).

Our short-range plans to compete with these improvements consist of purchasing a 120mm drop-load system to be mounted in the M106, while our long-range plans describe a heavy force modernization (HFM) concept with a turreted system that probably will not be available before the year 2000.

In short, our mortar problems are likely to continue for quite a while. For various reasons, the purchase of the planned 120mm mortar has been slowed, and although this mortar has a potential for firing precisely guided and improved conventional munition (ICM) rounds, the Army can probably expect to see only an austere conventional 120mm ammunition inventory. In fact, the package that is shaping up will not present the "force multiplier" opportunities that it should in the J-Series MTOE battalions, for the following specific reasons:

- When considering the full range of Soviet capabilities—NBC, counterbattery, field artillery saturation fires and the like—two three-tube sections of M106s are less likely to be able to survive in the battalion's battle area. The upgrade of M113A2s (on which the M125 and M106 are based) to M113A3s will help (provided the funds available will cover the upgrade of the M106s).

In any case, the continuing need to open up the vehicle to bring the mortar

into battery will compromise any protection upgrade. An aggressive policy of diverting scarce engineer assets to protect the mortars with revetments would work against another major survival tenet of mortars—their constant and rapid displacement. Even in an extremely deadly counterbattery environment, systems that have more protection must also be able to displace rapidly. A mortar mounted in the present M106 will not survive long against tomorrow's threat.

- Aside from the partial exposure of the crew when the mortar is brought into battery, the system of laying the section with any precision requires the crewmen to completely expose themselves. Too, the mortarmen have little protection against chemical or biological attack, except for their individual protective equipment. For a system from which we want continuous and responsive fires, the decrease in performance that will result from operating the mortars in an exposed and dirty environment may be a higher price to pay than we realize.

- Because of the mobility difference between the M106 and the M1 and M2, if the battalion moves more than 20 kilometers at a fast rate of speed, the tank and rifle companies will rapidly outdistance their mortars. Accordingly, and depending on the tactical situation, if a security force of M1s or M2s is not left behind to accompany them at a slower

pace, the mortars will be exposed to the enemy. Even the 120mm mortar's improved range of seven to nine kilometers will not support operations in which movement may exceed 20 kilometers in terms of being able to give continuous and responsive fires to the forward elements.

- In laying the mortars, the requirement to establish a correct triangulation by placing aiming stakes 100 meters from each vehicle and the lack of a positive navigation system, assure a relatively slow and potentially inaccurate fire control system. Moreover, even the 120mm drop-load mortar, if it were mounted on the same vehicle, would have difficulty executing our current doctrine. That doctrine requires the two three-tube sections to displace separately and frequently in leap-frog fashion, thus sustaining continuous fire and reducing the effect of counterbattery fire.

- The 107mm mortar round, because it is smaller, has less potential than the 120mm for accommodating improved munitions such as ICMs and smart missiles.

Three additional points must be made.

- Achieving a "combination gun" capability would give us a large caliber, low velocity direct fire system for the support of the mechanized infantry in urban terrain and "bunker busting" operations. (No replacement combat engineer vehicle is planned.)

- Systems such as non-line-of-sight missiles do not provide an over-the-hill "volume" fire capability because of their

expense (about \$75,000 each) and their slower fire control. This means that mortars will have to continue meeting this requirement for some time.

- The heavy mortar is the maneuver battalion's most responsive smoke and illumination system.

There are some possible solutions, though. The Infantry School has stated a need for a turreted future mortar system and two designs are being considered.

One design has a muzzle section on a swivel mounting fixed to the roof of the turret. The crew can load it rapidly by placing a round in the muzzle section, then swiveling it into place with the lower portion of the mortar, the round sliding down onto the firing pin.

The second design has the traditional breech loading cannon configuration but fires conventional mortar ammunition at high angle mortar trajectories. (It can provide direct fire as well.) This solution offers considerable potential for meeting and exceeding all the requirements for a mortar system that is mobile and lethal, and can survive on a modern battlefield.

In summary, today's mortar component of the heavy force is inadequate to its task of providing that force's organic indirect fire support, and planned improvements will only partially correct this deficiency.

At the very least, the Army needs to make three changes: First, upgrade the mortar's caliber from 107mm to 120mm; second, improve the carrier's mobility; and third, improve the system's survivability.

The most obvious short-term solution to these three problems would be to procure a 120mm drop-load system and mount it in an M2 chassis. But such a solution would not solve problems with crew survivability, fire control, and rapid movement and fire tactics. To achieve even an 80 percent solution in all of the deficient areas, the system would have to be reconfigured into a turreted design.

My conclusions are that the system most capable of meeting the requirements of the heavy force is a breech loading turreted system introduced with the heavy force modernization program, preferably in the first increment. If this is not fiscally possible, we should pursue a modular fighting station to be incorporated into a chassis that is compatible with the M1-M2 fleet of vehicles and later into a heavy force modernization chassis.

With these advances, the Army's heavy maneuver battalion organic indirect fire support system should be able to fully carry out its role in support of the maneuver elements on the battlefield of the future.

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THE LANGUAGE OF

FIRE SUPPORT



LIEUTENANT COLONEL ROBERT D. SANDER

The synchronization of fire support is dependent upon the ability of a maneuver commander and his fire support officer (FSO) to communicate their intent and plans clearly. Results from the National Training Center (NTC) indicate that units training there frequently fail in this area.

The language of fire support is precise, and when a commander gives guidance to his FSO, or the FSO backbriefs him, both must understand the definitions of the terms they are using, or risk miscommunication.

If you are a maneuver commander, the following examination of a portion of the language of fire planning and methods of engagement—along with the nuances of these terms as they affect synchronization and the effects of indirect fires—may prove helpful.

(These are relatively narrow subjects dealing primarily with execution. A complete discussion of synchronizing fire support requires a full examination of fire planning as it applies to all battle operating systems.)

Fire Planning

Targets can be divided into two general categories, planned targets and targets of opportunity. Planned targets can be either *scheduled* or *on call*. While scheduled and on call targets make up two separate categories of planned targets, schedules of fire can also be executed on call.

Scheduled targets can be single targets or a collection of targets assembled as target *groups*, *series*, *programs*, *preparations*, or *counter-preparations*. You can slate the execution either for a specific time (such as 0900 hours), a relative time (such as "10 minutes from my mark"), an event (such as when crossing the line of departure or a phase line), or "on call," in which case the term "scheduled" refers to a predetermined sequence for engaging the targets. If needed, any single target

within the schedule can be treated as an on-call target.

A common type of schedule you can request or direct is the *group*, which is defined as two or more targets to be fired at simultaneously. If you direct that a group of targets be planned, or if your FSO includes a group in his plan, these are some of the factors you should consider.

A group is two or more targets, but how many more? And how do you know how many is too many? The answer, of course, depends upon your analysis of METT-T (mission, enemy, troops available, terrain, and time).

For purposes of this discussion, let us assume you command a heavy brigade supported by a direct support artillery battalion and are defending against a motorized rifle division.

First, consider the nature of the targets and the effect you hope to achieve. If the target is the attacking BMPs and T-72 tanks of a first echelon motorized rifle battalion and your intent is to *destroy* it (to obtain 30 percent casualties, as defined in fire support terminology), you are setting yourself up for disappointment from the outset. To get this type of effect against this type of target with DPICMs (dual purpose improved conventional munitions), you will need to mass your field artillery fires, preferably at a point where you have stacked the attacking echelon up at an obstacle, and fire multiple battalion volleys at it.

When you specified "group," you really said "simultaneous attack of targets." With a *simultaneous* attack of targets, you will not achieve mass to your full potential. Of course, if you have a reinforcing artillery battalion in addition to the DS battalion, you will have a better chance, assuming all of the batteries will be available. In this case, a group consisting of two targets may work, assuming the enemy stays in the target area long enough to receive the multiple battalion volleys that will be required.

If your intent is to *neutralize* the enemy battalion (10 percent casualties, by fire support definition) instead of *destroy-*

ing it, a group is closer to a workable solution. If your intent is to *suppress* it, however, a group consisting of three or four targets (enough to cover the target area) may be ideal. One battery per target should be enough.

The point is that groups, by definition, do not promote mass. If the nature of a target requires massed indirect fires to achieve the desired effect, you should consider some other targeting technique.

When executing groups during your training exercises, keep in mind a recurring problem that has been observed at the NTC. As often as not, when a commander plans a group on an avenue of approach or on templated enemy positions, he or his FSO tends to call for the entire group, even though one or more of the targets in it will have no actual effect on the enemy. Train your observers to call only for those targets that will have an effect.

When you need to attack multiple targets in a relatively short period, and when mass is necessary to achieve the required effects, consider using a *series*. For our discussion, the prime portion of the definition of a series is two or more targets to be fired *sequentially*, and you can determine the sequence of attack as part of your fire plan. If the schedule is set up so that there is one minute between targets (the sustained rate of fire and shift time for the M109A2/3 howitzer), the battalion can mass on each target.

COMPARISON

For purposes of comparison, assume that you have three targets you would like to incorporate into either a group or a series to compress execution time. A total of three battalion volleys (or nine battery volleys) can be fired, with your constraint being either the controlled supply rate or the time available. All three batteries of the artillery battalion are available. In either case—group or series—the minimum time lapse between the arrival on target of the first volley and the arrival of the last is two minutes at the sustained rate of fire. The difference between them is in their effects.

If you use a group, the three targets will be fired simultaneously and each will receive three battery volleys. If you use a series, each target can receive a battalion volley. A series exploits mass and surprise and is more destructive, while a group extends the effects over a longer period on each target and provides suppressive effects on all three targets at the same time. In either case, the time required to complete the attack of all three targets is a fraction of the time needed to fire on the targets if they were set up as separate, on-call targets.

Experience at the NTC indicates that about six minutes of processing time is the average for on-call missions. Given this factor, and assuming each target mentioned above was engaged by a single battalion volley, 18 or 19 minutes would be required to complete the mission. Using an on-call group or series, this time could be cut to about eight minutes (six minutes for processing and two minutes for the delivery of fires).

Series have applications in both offensive and defensive

situations that require mass and compressed engagement times. A series is an ideal targeting technique for bringing maximum destructive power to bear against a static, defending enemy.

During defensive operations, series can be effective when they are planned along an avenue of approach, with the individual targets planned at intervals consistent with the anticipated enemy rate and direction of movement and the weapon system's rate of fire and "shift time." (Shift time is the time required to shift from one target to the next. In the case of the M109, the shift time equals the sustained rate of fire.)

To offset the loss of flexibility that may be associated with using a series, pay particular attention to the following techniques:

- Against a moving enemy, timing the initiation of a series is critical. Given six minutes of mission processing time (a time factor that depends on the artillery battalion's state of training and other variables), and assuming the enemy is moving at one kilometer every three minutes, the trigger line has to be at least 2,000 meters in front of the first target. The observer must be positioned so that he can see both the trigger line and the target area. The possibility of visual obscuration must also be considered.

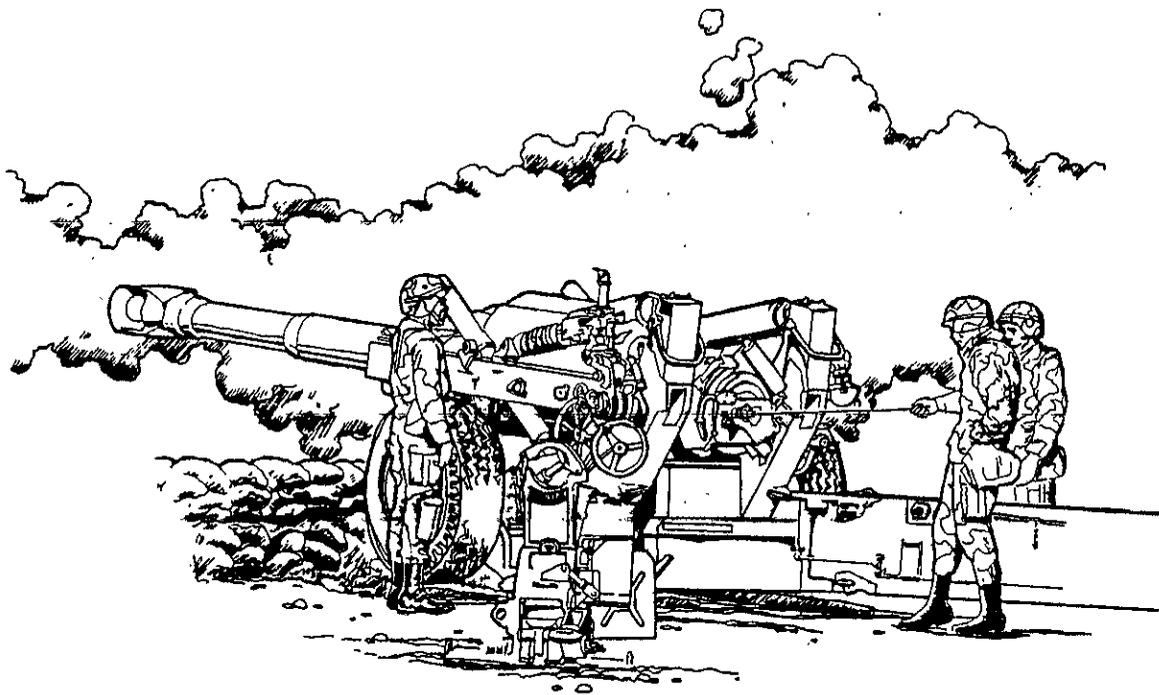
- If the enemy is not detected until after he has passed the trigger line, you can still use a series by deleting the first target during the call for fire and timing the initiation of the series with the enemy's arrival at the second target.

- Assuming you are firing multiple volleys at each target and the enemy moves faster than you had expected, or you are simply behind the target, give the command "cease loading" on the current target, and direct the guns to fire on the next one.

- If the enemy does not go where you thought he would and, as a result, the rest of the series will have no effect on him, give the commands "cease loading" and "end of mission." "Cease loading" allows the guns to go ahead and fire the rounds that have already been rammed, and rounds will continue to hit for 30 to 40 seconds (the time of flight plus about 10 seconds).

Do not give the command "check firing" unless the indirect fires pose a hazard to friendly troops. A "check firing" command immediately ends firing and can put the howitzers out of action while the crews remove any projectiles that have already been rammed. Because a howitzer does not have an extractor, the crew must assemble a long rammer staff and punch the round out from the muzzle end. This process is not only time consuming, it usually damages the rotating band on the projectile and renders it unserviceable.

In some cases the techniques of series and groups can be applied to the same targets. For example, if a motorized rifle company attacks and you have been able to locate two of the platoons and the combat outpost, you can target each platoon and the outpost using a series to mass fires successively on each target. In another case, as your front line of troops begins to approach the maximum effective range of the enemy's direct fire weapons, you can fire on all or part of the targets as a group to suppress him while you maneuver to complete his



destruction with direct fires.

Programs can combine the characteristics of both series and groups, but they are distinguished by the fact that some programs address targets of a similar nature, such as a suppression of enemy air defense (SEAD) weapons or a counter-battery program.

Preparations are scheduled by a time-proved three-phase system in which the enemy's indirect fire units and artillery headquarters are attacked in Phase 1; his C3 (command, control, and communications), reserves, logistics, and assembly areas in Phase 2; and his forward maneuver elements in the third and final phase. This sequence considers his reaction and recovery time and saves the attack of his forward elements until last to reduce the time between the completion of the preparation and your attack.

Counter-preparations can be planned to support your defense, and they are scheduled in two phases. The enemy's indirect fire assets and forward elements are attacked in Phase 1 and his C3, logistics, reserves, and assembly areas in Phase 2. A properly timed counter-preparation should be fired just before the enemy's preparation. Therein is the challenge. Detecting that critical moment requires an intense and dedicated effort on the part of the S-2 and the fire support coordinator (FSCOORD). Properly timed, executed, and supported by good target intelligence, counter-preparations can be tremendously successful.

The term *priority target* often leads to misunderstanding. In its pure definition, it simply means that a mortar platoon or an artillery battery will be laid on that target when not otherwise involved in a fire mission. You must consider the effects you require on your highest priority target and the actual number of firing units you expect to have consistently available during each phase of the operation. Depending on the nature or size of the target, all of your available assets may be required to mass their fires. If you are not specific in your in-

structions, you may find that your priority targets are engaged in a timely manner but with insufficient firepower to get the results you want.

Two other terms that are often misused or misunderstood are *TRP* and *register*. A TRP (target reference point) is not a target and is not targeted unless an effort is made to do so. If a target is planned at a TRP, it is identified by a target number through fire direction center channels just like any other target. Adjusting fires before execution is *adjusting*, not *registering*. Final protective fires are a good example of targets that should be adjusted in advance.

Registering is computing the difference between the theoretical fire direction solution and the actual solution that is needed to hit a target, given the current weather, undetected battery position area survey errors, and deviations from standard or previously measured muzzle velocities.

Once the registration correction is determined, it is included in all of the subsequent fire direction computations until circumstances dictate an updated registration. The registration point (target) must therefore be located with survey accuracy to avoid a location error that would be a part of all subsequent computations.

Methods of Engagement

Various terms and phrases that are used incorrectly in methods of engagement can also affect the flexibility, responsiveness, and synchronization of supporting mortars and field artillery pieces.

Unless otherwise stated in the call for fire, the method of engagement is *when ready*. This means that each howitzer will fire as soon as the chief of section has verified that the correct data has been applied. *When ready* has the advantage of expediting a response; the first rounds are fired as quickly as

possible. But there are also disadvantages:

First, neither you nor the FSO knows precisely when the first volley will be fired. You find out after the fact with the announcement of "shot" by the FDC. This problem is further complicated by the fact that other fire missions may be ahead of yours. This target "queue" can further delay your mission unless the fire support plan gives priority to you, the nature of your target, or both. This uncertainty works against synchronization and in fast-moving offensive operations can contribute to fratricide.

Second, as previously stated, mass has a direct bearing on the effects of the fire. Senior observer-controllers and trainers at the NTC have noted that mass is more than a number of rounds hitting in the same area. Mass is achieved only when all of those rounds hit in a relatively short time. Compacting the time of impact increases both the surprise and destructive effects. Conversely, it can be argued that stretching out the time of impact can spread the effect of suppression over a longer period.

If you need to control the exact time volleys are fired in order to synchronize fires, you have several options. First, you can use the previously mentioned technique of scheduled fires and tie their execution to a specific time, although this may not give you the flexibility you need. Other methods of engagement can be included in the call for fire that, for a price, can give you this control—*time on target*, *at my command*, and *at my command; do not load*.

In using these methods to achieve responsiveness, you lose some flexibility, because the firing units will have to have time to prepare and synchronize these missions internally. For purposes of the discussion that follows, "responsiveness" is defined as a measure that ensures that all the rounds in the first volley hit at the time desired, while "flexibility" is a measure of the firing units' ability to handle a wider array of missions, and in fact a greater number of fire missions during a given time period.

Time on target (TOT) exploits the factor of surprise to its fullest potential since all of the rounds will hit within plus or minus three seconds of the specified time. The destructive effects of the fire are greater when surprise is achieved, and the timing is precise. This technique can be applied either to multiple targets or to a single target to exploit mass.

In computing data for a TOT, the time of flight for each weapon must be calculated, because time of flight will vary for each weapon depending on its range relative to the target. Each weapon is then fired at a slightly different time to achieve simultaneous impact. Given the computations required, 10 minutes of processing time—including time of flight—is a reasonable estimate of the advanced warning or lead time required to fire this kind of mission. Again, a firing unit's proficiency as well as the type of computers used in the FDC will

have a bearing on processing time.

Once you have given the call for fire and have specified TOT as the method of engagement, you can change the time of impact to meet the needs of a fluid maneuver situation in one of two ways: If you need the fires immediately, give the command *cancel time on target*, and the method of engagement will automatically default to *when ready*. All of the guns that are ready will fire immediately. If you still want to control the approximate time of impact but want to change it, you have the option of giving the command *cancel time on target; fire at my command*.

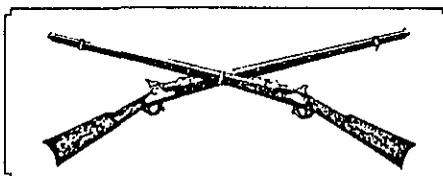
At my command means the mission will be fired on your command and the rounds will hit at approximately the time of flight plus five to ten seconds for communications. When you specify *at my command*, the FDC will notify you when all the participating batteries or platoons are ready. Again, if needed, you can expedite the impact of the first rounds by cancelling this method of engagement and allowing the mission to be fired *when ready*. Because the time of flight of each individual weapon does not have to be determined and applied, less preparation time is required. You therefore have more flexibility than you would have with a TOT, but the message *ready* is tied to the slowest section participating in the mission.

A word of caution is in order when considering *at my command* and *time on target* missions. When an artillery gun crew reports *ready*, it has mated and set the fuse, rammed the round, and cut the propelling charge. The weapon is laid and ready to fire. All that remains is to pull the lanyard. If you give *end of mission* before the first volley is fired, again you put the gun out of action for a time, because a change of projectile, fuse, fuse setting, or propelling charge may be required for the next mission. In addition, safety concerns will not allow a crew to leave the round in a hot tube.

You can still control the execution time, but to a slightly lesser extent, by using *at my command* followed by *do not load*. The gun crews, when they get that command, take all of the same actions except that they leave the rounds on the loading trays until the fire command is given. Although this requires four or five seconds of additional response time, you retain greater flexibility.

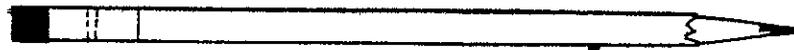
Synchronizing fire support with maneuver is a complex task, but it can be made less so if a commander and his FSO speak the same language and fully appreciate the nuances of targeting techniques and methods of engagement.

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FIRE SUPPORT

The Written Side



MAJOR JEFFREY W. YAEGER

Despite the critical nature of the fire support process, far too few fire support officers and maneuver commanders know how to prepare and use the fire support portions of an operations order.

The primary doctrinal references, service schools, and unit training usually do not expect or require that fire support officers (FSOs) do more than state in the Fires paragraph of an operations order which units have priority of fires. Unfortunately, this leaves a void in a process that is supposed to tie the concept and the initial plan to the refinement and execution of that plan.

The importance of the fire support portions of the order cannot be overstated. Since fire support assets are the maneuver commander's most important combat multiplier, they must be synchronized within the framework of his concept of operations. The fire support system, however, is made up of many parts (observers, guns, fire direction centers), and most of these parts are far removed, mentally as well as physically, from a maneuver commander. This diversity makes fire support as complex to the maneuver commander as it is helpful.

Making the system productive requires the efforts of both the commander and the FSO. The commander must understand what the fire support system can do, must decide what he wants it to do for his operation, and then must be able to transmit that idea to the FSO. The FSO, for his part, must understand the commander's idea, translate it to match the capabilities of the fire support system, and articulate this information to both fire support and maneuver personnel. The fire support portions of the operations order, if they are used properly, can accomplish these goals.

There are major problems, though, with the way these areas of the order are currently used:

First—with the growing emphasis on top-down fire planning as the most promising technique—clear, concise, and structured methods of conveying guidance must be used. The FSO must be educated in the expected end product, the quantifiable

result of his effort. If he is not, his efforts will be wasted.

For example, "from the LD to the OBJ, on the OBJ, beyond the OBJ, and to the flanks" is simply not specific enough for the FSO to plan the proper support for a 40-kilometer task force movement to contact on multiple axes in open, unrestricted terrain. The commander must give the FSO specific information that will convey the support he needs for his operation.

Second, with less than specific doctrinal information on which to rely when he's trying to put together the fire support portions of the order, an FSO is often forced to improvise. From maneuver manuals and field artillery manuals, he must deduce the proper format and the information he needs to include. As a result, the FSO's portion of the order is usually reduced to the lowest common denominator. Doctrinally, the FSO, the S-3, and the commander need to know and understand what *is* before they discuss what *ought* to be.

Three portions of the operations order are critical to effective fire support: The Fires paragraph of the maneuver operations order, the Fire Support paragraph or the Fire Support Annex to the order, and the artillery-produced Field Artillery Support Plan.

The Fires Paragraph. The Fires paragraph of the maneuver order is the most critical for the development of the overall fire support plan. It establishes the basis for the employment of all fire support in the maneuver operation just as the Concept of Operation paragraph gives an overview of the maneuver units' actions. The Fires paragraph must include, in as much detail as possible, the commander's concept of the use of indirect fire systems.

The paragraph contains three particular ideas that outline the commander's intentions—purpose, priorities, and allocations.

The Purpose portion gives the commander's concept of the way fire support will be integrated into the scheme of maneuver—or what he wants fire support to do for him. This

is the most difficult information to obtain and to format into the paragraph. Although we all know intuitively what fire support should do in a grand sense, we may not know how to state it specifically for a particular operation.

The purpose can usually be stated in one sentence such as: "Fire support will be used to suppress AT systems during movement on AXIS BLACK and to suppress the objective during the assault." Or "Fire support will be used against the enemy advance beyond PL RED to disrupt and slow formations, to assist channelization into EA BLUE, and to suppress ADA systems." Statements such as these, though sometimes difficult for the commander to conceptualize as the battle is wargamed, immediately focus the FSO's targeting efforts and help the supporting artillery units plan, position, and prepare to execute the order.

The Priorities portion of the paragraph allows the commander to state his fire support requirements in terms of units, target types, events, or sectors, zones, and areas. Most FSOs do this with little difficulty but also with little imagination. Almost routinely, the Fires paragraph will read: "Priority of fires to Tm A, B, C, D in order." While this may meet the requirement, it may not lead to effective execution.

A more explicit statement could be: "Priority of artillery fires to Tm D until the enemy crosses PL RED, then priority to EA BLUE; o/o priority is to execute SEAD to support CAS." Priorities can be established for the available ammunition and if necessary can be defined for each target, area, or unit: "Priority of DPICM missions will be TF 1-15 sector." In some cases, priorities may be based upon particular target types as opposed to other criteria: "Priority of fires will be to antiarmor targets first, then to Co A." The point is to use the most productive means of getting the greatest possible effects out of the available systems.

ALLOCATIONS PORTIONS

Finally, the Allocations portion of the Fires paragraph should spell out the use of the assets available to the supported units. It should give the number of priority targets for units with priority of fire, including final protective fires in the defense. At the brigade level, this part will discuss the disposition of combat observation lasing teams (COLTs) as well as such items as the number of close air support (CAS) sorties to be planned by subordinate task forces.

The Allocations portion may also include the number of FASCAM (family of scatterable mines) targets to be planned—by density, size, and munition type—along with limits on other types of ammunition expenditures. For example, it may define the number of battalion DPICM (dual purpose improved conventional munition) volleys a maneuver commander can expect to receive. The allocations portion of the order may even assign targets for execution by subordinate units with such implied or stated tasks as the positioning of observers, the establishment of communications to the firing units, and the triggering of missions.

The Fires paragraph can also include any general informa-

GENERAL OUTLINE

BATTALION LEVEL FIRE SUPPORT PARAGRAPH

Air Support

(a) **General**—Includes CAS available to higher units and the commander's concept for employment; major roles or tasks for air elements.

(b) **Allocation**—Gives distribution of sorties to subordinates.

(c) **Miscellaneous**—Gives coordination instructions, fire support coordination measures (FSCMs), planning guidance, and procedures that are not SDP.

Field Artillery

(a) **General**—Gives commander's guidance on employment and priorities. May include targeting guidance, maximum range at which targets are expected to be engaged, commander's criteria and information on fire planning (groups, series, or planned fires), counterfires.

(b) **Organization for Combat**—Lists in numerical order units that are supporting the organization and mission; division and corps orders include all organic, assigned, or attached FA units. Brigade orders include DS and R units; GS and GSR units are listed in paragraph 1b, Situation-Friendly Forces. Battalion orders can list DS units.

(c) **Miscellaneous**—Lists instructions to FA units (may include on-order missions, restrictions on fires for units, positioning considerations, initial and proposed locations, movement times, routes and zones of fire).

Naval Gunfire

(a) **General**—Gives commander's guidance on employment, targeting criteria, and priority of fires.

(b) **Allocation**—Lists each ship by identification, type, and mission, and allocation to units or formations. Allocates observers and frequencies.

(c) **Miscellaneous**—Lists coordination instructions, FSCMs, restrictions or control requirements other than those that are SOP.

Battalion Mortars—(Subunit instructions for mortars are written in paragraph format within the Fire Support paragraph.) Includes priority of fires, priority targets, or the support relationship for the mortars. (Mortars are no longer given DS or GS mission statements but are controlled by priority of fires and targets or by attachment.) Also gives positioning guidance, movement criteria, ammunition usage, resupply requirements or constraints, and other general considerations.

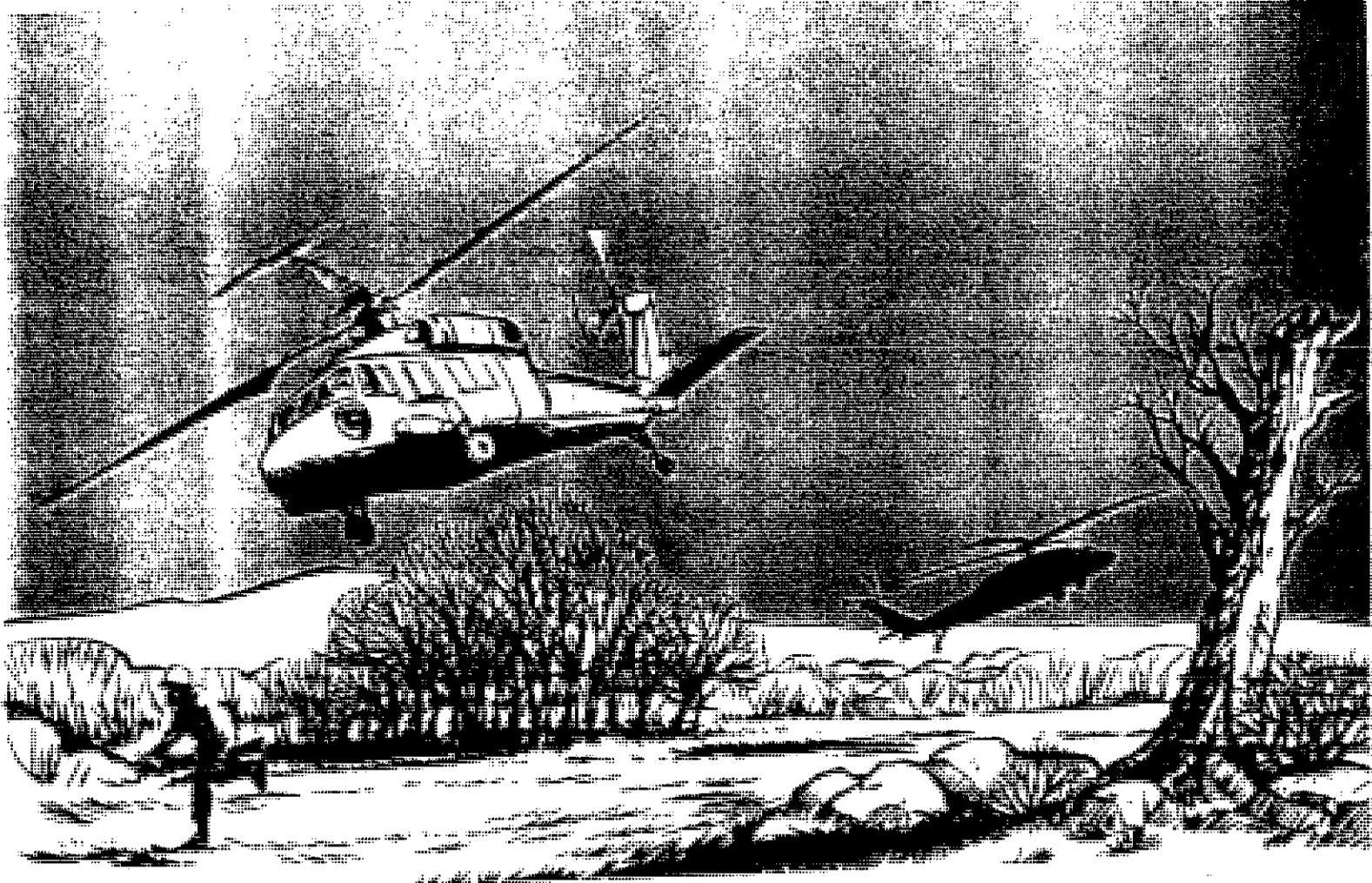
Coordinating Instructions

(a) **Fire Planning and Control**—List all FSCMs with location, effective date-time groups, and establishing headquarters. Establishes H-hours and instructions on targets to be engaged by more than one delivery system.

(b) **Safety**—Gives means of insuring safety, such as emergency cancellation of fires, procedures for changing FSCMs, and other non-SOP items.

tion that affects the force as a whole, and it must be as detailed as the Maneuver paragraph. It is written in standard paragraph format as opposed to bullet or outline style.

The Fire Support Paragraph. This paragraph is used, if needed, to amplify the general instructions in the Fires paragraph. It details the plans for the employment of all the individual assets available to a unit. Just as the maneuver subunit instructions tell particular groups about their actions during the operation, the Fire Support paragraph (a subunit instruction) does the same for the indirect fire assets. It is used regularly at brigade and higher levels but is also frequently incorporated into battalion or task force orders.



AIR ASSAULT PLANNING

CAPTAIN BARRETT F. LOWE

Helicopters—with their speed, agility, and firepower—are a unique and versatile addition to the combined arms team. They provide a means of bringing combat troops and firepower quickly to the battlefield where the infantry mission really begins. Infantry leaders at platoon and company level, therefore, must learn how to integrate aviation, along with all the other combined arms assets, into their tactical operations.

When battalion headquarters assigns a platoon or company an air assault mission, it is understood that the aircraft will be available. Because of the numerous contingency plans needed, however, there is still much to plan. In fact, leaders must plan an air assault mission in the same detail as a patrol. And in all phases of their planning, the company commander or platoon leader (hereafter referred to as the ground commander)

and the battalion S-3 Air must coordinate closely with the air mission commander (the pilot in command of the aviation element that is flying the mission).

Since the air movement plan for an operation must support the ground scheme of maneuver, it is imperative that the leaders follow a reverse planning sequence: First developing the ground tactical plan (the mission); then the landing plan (actions on the landing zone and in the assembly area); the air movement plan (flight enroute); the loading plan (actions on the pickup zone and crossloading); and the staging plan (movement to and organization on the pickup zone).

The ground commander visualizes every step of the operation from the time the unit begins moving to the insertion pickup zone (PZ) until his unit has safely returned to a friendly



area. (A partial list of helpful Army publications that pertain to air assault operations is shown in the accompanying box.)

As in any tactical mission, the commander's estimate starts with an analysis of the mission and an evaluation of the factors of METT-T (mission, enemy, terrain, troops, and time). Once the commander understands his mission, he examines all of the other factors in terms of their effect upon the successful accomplishment of the air assault operation.

The enemy's air defense capability and the types of weapons he has are of critical importance. Other factors to be considered, however, are whether the enemy can interdict friendly

air assault operations with his own fixed wing or rotary aircraft, how quickly he can react to an insertion, how mobile he is, what electronic warfare capability he has, how effective he has been in disrupting friendly communications, and whether his engineers have blocked possible LZs and PZs in the zone to limit air assault operations.

The commander analyzes the terrain in terms of OCOKA (observation and fields of fire, cover and concealment, obstacles and movement, key terrain, and avenues of approach). He examines the flight routes for ease of navigation (especially at night or during adverse weather), and for areas where the enemy may be able to observe the route.

He looks at the best places to use the terrain to mask the air movement, the best places for nap-of-the-earth flying, possible covered or concealed positions for attack helicopters, and LZs that offer cover and concealment for the infantrymen when they land.

Although the unit can bypass most obstacles during the air movement, the commander must consider obstacles that will affect the ground scheme of maneuver. Key terrain is normally dependent on the mission. Usually PZs and LZs should be considered key terrain, as well as occupied or planned forward area rearming and refueling point sites, and enemy air defense artillery positions.

The air avenues of approach tie the previous factors

REFERENCES

- FM 90-4, Air Assault Operations.
- FM 7-8, Infantry Platoon and Squad (Infantry, Airborne, Air Assault, Ranger).
- FM 7-10, Infantry Company (Infantry, Airborne, Air Assault, Ranger).
- FM 7-70, Light Infantry Platoon and Squad.
- FM 7-71, Light Infantry Company.
- FM 55-450-1, Army Helicopter External Load Operations.
- FM 55-450-2, Army Helicopter Internal Load Operations.
- FM 57-38, Pathfinder Operations.
- The Ranger Handbook.
- The Air Assault Handbook.

together. A good air avenue of approach offers good mobility for the helicopters with few obstacles to flight, little or no channelization, terrain masking to limit the effectiveness of the enemy's air defense artillery (ADA) weapons, and landmarks that are readily identifiable from the air.

Weather and visibility also affect air assault operations, perhaps more than terrain. Fog, low clouds, heavy rain, and the extensive use of smoke, for example, will limit visibility for the aviators, and the moon's illumination and angle will affect the pilots' ability to fly with night vision goggles (NVGs). High winds can limit the directions in which helicopters can land (or whether they can safely fly); snow and dust can cause whiteout or brownout problems; and even high temperatures can affect aircraft performance by reducing the loads they are able to carry.

The number of assault helicopters available will determine how much combat power can be placed on the ground in one lift. Planners must also consider the endurance of the aircrews (although in an emergency the commander of the aviation battalion involved can increase the amount of time the crews are allowed to fly).

Just as the lift helicopter is important in executing an air assault, though, so is the integration of the other combat and combat support elements. Often an air assault will go beyond the range of supporting artillery, for instance, and attack helicopters can provide the commander with fire support until the howitzers can be lifted forward. Attack helicopters can also cover insertions or extractions, seal off high-speed avenues of approach into the landing area, screen a high-risk flank, or provide armed route reconnaissance. (The fielding of the AH-64 Apache has significantly improved the ability of the aviation elements to support the ground maneuver in all weather.)

ARTILLERY ELEMENTS

A ground commander should also consider inserting artillery elements early so they can support the infantry insertion. A detailed plan to suppress the enemy's air defenses (SEAD) needs to be coordinated, especially if the enemy has sophisticated air defense weapons. Aerial forward observers can be used to control the supporting artillery elements until the ground force has been established. The availability of a tactical air control party can also provide for positive control of close air support, especially if the air assault is far beyond the FLOT (forward line of own troops). (Normally, this would be for a battalion rather than a platoon or company mission.)

Engineers clear LZs and PZs and provide sappers to support the ground tactical plan. Stinger crews help protect the landing areas and helicopter laager sites until extraction. Signal elements provide such long range communications as AM radio and tactical satellite links.

Time is extremely important in preparing for an air assault operation, because more planning and preparation time is usually required than for other types of operations. While the aviation unit is preparing its aircrews, servicing its aircraft,

and planning its flights, the infantry is also preparing for its mission. The two elements must then be brought together for rehearsals, especially if an unusual mission is being planned, such as a helocast, a rappel or fast-rope insertion, or a Stabo extraction. Additional time must also be factored in for night operations, especially if the mission calls for using multiple PZs and LZs or conducting slingload operations.

The key to maintaining surprise for an air assault is operational security (OPSEC). With the helicopters' vulnerability to ground fire and his reliance on radio communications, a commander cannot afford to let the enemy find out what he is doing before he lands. He can improve security by using secure equipment when radio listening silence is not feasible and by properly using brevity codes and radio procedures, false insertions, and false artillery preparations.

The commander must also plan for security on all LZs and PZs. Normally, the first element lifted in provides LZ security and the last element to be lifted out provides PZ security. If the situation permits, attack or scout helicopters can assist the ground force.

The commander must always assume that the enemy is watching the PZ or LZ and act accordingly. On insertions, he should treat an LZ as a danger area, move away from it quickly, and do his map check somewhere else. He should plan fires either on the LZ and the access routes into it or on the terrain that dominates it. This reduces the chances that the ground force will be surprised.

EXTRACTIONS

On extractions, as much of the force as possible should be kept in a security role for as long as possible, and the PZ should not be occupied too far in advance of extraction because this will make it more vulnerable to compromise. And once in position, the troops should stay off the PZ until the last moment (except, perhaps, for a signalman). The commander should plan fires on the PZ to be used when the unit is extracted to catch any enemy soldiers who may be trailing it.

As soon as the ground commander has determined how he wants to carry out the mission, he begins coordinating with the supporting aviation element. The aviators should be brought into the planning as soon as possible to give them enough time to prepare, and also to identify any significant aviation-related problems early so they can be solved. The air movement table and air mission briefing format found in Field Manual 90-4 are good guides to use.

The ground commander and the air movement commander must go over the ground scheme of maneuver, the locations of the PZs and LZs (including alternates), how they will be marked, the primary and alternate flight routes, downed aircraft procedures, all the codewords, the communications plan, the fire support plan (including SEAD), and a time check. The ground commander should give the air movement commander a copy of the air movement table and a copy of the overlay that shows the routes and all the PZs and LZs. And he should make sure the air commander clearly understands

the plan.

The air mission briefing also outlines other requirements for aviation support to the infantry—for example, a functioning patrol leader's handset, door gunners (infantry troops can assist), times and locations for rehearsals, and the agreed-upon configuration of the aircraft for the mission (that is, with or without seats, cabin tiedown for rappelling, and the like).

The ground and aviation commanders must also go over contingencies for a hot LZ, the bump plan, abort criteria, flying and landing formations, and back-up aircraft; the latter should be on standby in case there is a maintenance problem during the operation. The two commanders can use the air mission briefing format, which covers all the pertinent details, to improve the chances that all of the important information is disseminated between the infantry and aviation units. But the plan should be as simple as possible to keep from adding unnecessary complexity to an already complex mission.

The most important specific considerations in developing the landing plan are the availability, location, and size of the LZs, and also how easily identifiable the LZ is from the air. To avoid disorienting the troops, the pilots must seriously try to land on the heading that has been briefed (or at least to brief the senior man aboard before landing elsewhere).

The commander must decide, too, whether to use a single LZ or multiple LZs. (Platoon and company level operations usually use a single LZ.) LZs are usually five to ten kilometers away from the objective by day and as close as three to five kilometers at night, but these distances may vary depending on the mission. The landing formation should support quick assembly on the LZ, and the assembly plan must be simple enough to facilitate quick movement off the landing zone.

AIR MOVEMENT

The actual air movement can be conducted along either a route, a flight corridor, or a flight axis. (A route is the most restrictive control measure and a flight axis the least restrictive.) Aerial checkpoints should be relayed from the pilots to the senior man aboard so he can keep track of his location while in flight. This becomes critical when an aircraft goes down en route or lands in the wrong spot. The route should avoid enemy positions, avoid built-up areas (especially at night), and provide for ease of navigation. If multiple lifts are used, time for refueling must also be factored in.

The loading plan must cover PZ operations, and each aircraft must be crossloaded to spread out the unit's key assets. (To reduce the time it takes to load, each soldier should be assigned a specific seat on the helicopter so that he knows exactly where to go.) This is critical when multiple lifts are required so there will be no confusion as to who boards when. The soldiers who carry large loads (Dragon gunners, M60 machinegunners, RTOs, or mortar men) should be assigned the outboard seats. If at all possible, the soldiers should board from both sides of the helicopter, and they should practice loading and unloading as often as possible.

PZs must be properly marked, including touchdown points and obstacles. During daylight operations, only a signalman is necessary. At night, infrared (IR) lights or regular chemlights, IR glint tape, and the like are the best means of marking a PZ (or an LZ). A strobe light should always be available for back-up in case the pilots have difficulty finding the PZ. If there is high grass on the zone, the chemlights should be raised on sticks. The land heading should not force the pilots to land into the sun, especially at dawn and dusk, because this will cause problems with their night vision goggles.

Sometimes it is possible—if it has been arranged for the helicopters to arrive early—to conduct rehearsals at the initial PZ before going on the mission. A bump plan must always be prepared that also includes straggler control. The wrong number of aircraft may come, or one of them may develop a maintenance problem, for example. The ground commander should always plan for the worst and expect a glitch to throw off an otherwise good plan.

The staging plan gets the troops to the PZ. For an infantry-pure lift, the troops should arrive at the PZ 15 to 30 minutes before liftoff. More time may be needed if the PZ needs to be marked or if sling-load operations are planned. This part of the operation usually goes smoothly if it has been properly prepared.

CONTINGENCIES

The ground commander must consider many different contingencies, such as the following:

- The LZ or PZ is hot.
- The aircraft land on the wrong LZ.
- The aircraft do not arrive on time.
- The wrong number of aircraft arrive.
- The aircraft show up with the wrong communications equipment (no secure radio, no handsets).
- The ground element cannot communicate with the aircraft that do arrive.
- An aircraft is downed en route or on the LZ.
- An aircraft lands on the wrong heading.
- Communication is lost during the mission.
- An aircraft crosses the gun-target line for SEAD or CAS.
- Bump and straggler plan.
- A soldier gets off the aircraft on a false insertion.
- MEDEVAC plan from the LZ or PZ.
- Back-up aircraft plan.
- Weather plan (especially if the weather turns bad between insertion and extraction).

While this is not a complete list of the things that can go wrong in planning for unexpected events, it is a good guide. Unit SOPs can often take care of some of these problems.

The following are some additional tips for air assault operations that may be useful:

- The senior infantryman flying on each helicopter should be trained to use the patrol leader's radio and to talk to the pilots. (It is easier for him to use the aircraft radio than to

have his radio-telephone operator hook into the coaxial connector for man-packed AN/PRC-77 radios.) He must keep abreast of what is going on, especially in navigation, and must have the pilot relay the aerial checkpoints to him. If he believes the pilots are putting him down in the wrong place, he should ask them for a doppler reading before he gets off. (The doppler device gives a reading of the grid coordinate for the helicopter's present location. If the device is properly set and calibrated before the mission, it shows the location quite accurately).

- A good rule is to have each soldier put an extra set of dogtags in his bootlaces to help in casualty identification in the event of a crash. Additionally, each platoon leader and platoon sergeant should carry a strobe light, and the squad leaders, too, if the unit has enough of them. All squad leaders and above should also carry signal mirrors and orange panel markers for signaling aircraft.

- During insertions in wooded areas, the troops should run all the way to the nearest woodline as soon as they get off the helicopter. There is no need to get down and linger in the open until the helicopters fly away. The less time spent there the better. Also, troops should not cross the LZ to get to their assembly area on the other side, but should move around to it along the edge of the woodline.

- LZs that are only large enough for one to three helicopters make it easier for the troops to get into the woods quickly and are easier to secure and defend. The same is true for extraction PZs.

- During extractions, security is vitally important, because by this time the enemy has some idea where the unit is and it is vulnerable to indirect fires. The troops, except for those in the marking party, should stay off the PZ until the helicopters actually touch down, and the soldiers should never be lined up in chalk order when being extracted from the field. Since each soldier knows which aircraft and which seat he has been assigned to, the squads should maintain cover and concealment until the squad leaders give the order to board.

- For a company level extraction, the commander must plan to have the security elements enter the air flow so that security can be maintained until the last lift. The platoon leader whose platoon is responsible for PZ security should be on the last helicopter of the last lift so that he can make sure nobody is left behind.

- An important consideration in marking LZs or PZs is the way the pilots see the different colors of chemlights with their night vision goggles. Orange, red, and infrared chemlights work the best for marking a landing area. Green or blue chem-

lights are more difficult to see because of the way green light is filtered in the goggles.

Safety is vitally important and must be stressed whenever infantry troops operate with helicopters. Different units may have slightly different SOPs, but soldiers should never be allowed to forget that they could be seriously injured or killed if they are careless. The soldiers should always wear their helmets with chinstraps fastened and wear their dogtags. Their shirtsleeves should be rolled down. Their weapons should point downward with the selector switches on safe, and no rounds should be chambered until the helicopter is on short final approach.

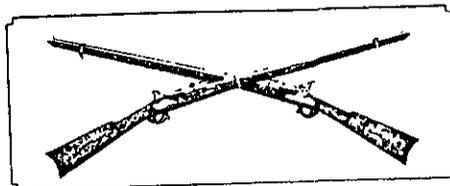
Radio antennas must be bent down to keep them clear of the rotor blades, and soldiers should stay clear of the tail rotor and stay crouched down until they are away from the helicopter. (The safety procedures when conducting slingload operations are more detailed, and units should consult FM 90-4, FM 55-450-1, and the Air Assault Handbook for more information.)

An air assault mission is complex, because it forces a commander to fully integrate his aviation, artillery, air defense, and other combat and combat support elements. A commander who fails to use any one of the supporting assets that he has available may quickly find himself in an untenable situation. This complexity requires detailed and centralized planning, although once the plan is complete, it is up to the platoons, squads, and aircrews to carry it out.

Commanders must rely on the judgment of their subordinates to accomplish the mission. There is simply too much happening at once for one man to be able to control everything. Every leader must anticipate unforeseen problems and be prepared to react to them. Because of the sheer number of things that can go wrong, not to mention the effect of the enemy's action, air assault leaders at all levels must be prepared to make quick, reasoned decisions in a fast-changing situation.

This is where an air assault leader develops the initiative and mental agility to fight successfully on the modern battlefield. An infantry officer in this environment really learns how to plan, puts into practice what he has learned, and comes to appreciate the value of the supporting arms.

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TRAINING NOTES



Load Carrying Ability Through Physical Fitness Training

MICHAEL S. BAHRKE
LIEUTENANT COLONEL JOHN S. O'CONNOR

This is the second article in the authors' planned series of three. The first article, "The Soldier's Load: Planning Smart," appeared in the January-February 1990 issue of INFANTRY (pages 8-11). It offers guidance on the various factors a commander must consider when planning the operational loads his soldiers will carry. This second article details a physical training program designed to improve our soldiers' ability to carry loads on road marches. The third will provide information gained from a study of the factors that are most important in determining road marching performance.

It is readily apparent that light infantry soldiers today are being required to carry heavier loads than ever before. Data collected from soldiers in the field at the Joint Readiness Training Center (JRTC) at Fort Chaffee, Arkansas, for example, indicate that individual loads are averaging 88 pounds. In fact, it is not uncommon for some of these soldiers to carry more than 140 pounds.

When such loads are expressed as a

percentage of the average infantryman's body weight (165 pounds), the typical soldier at the JRTC may be carrying between 53 and 85 percent (or even more) of his body weight. Some units report that their soldiers are carrying an average of 99 pounds or 60 percent of body weight, with grenadiers carrying loads averaging as much as 123 pounds (75 percent of body weight) and assistant Dragon gunners 167 pounds (more than 100 percent of body weight).

In many ways, these findings are in direct contrast to planning guidance from the Infantry School, which recommends 72 pounds for approach marches and 48 pounds for combat actions as the maximum loads soldiers should carry. In addition, recent research suggests that loads of 30 to 45 percent of body weight (49.5 to 74.3 pounds) are the most desirable of sustained noncontact movements, with 20 to 30 percent of body weight (33 to 49.5 pounds) being the most realistic for combat missions. (We recommended in the first article in this series that unit loads be distributed among the soldiers in relation to body weight.)

Given the excessive loads being re-

ported at the JRTC, it is understandable that soldiers would have difficulty remaining effective in combat following extended periods of carrying such heavy loads.

Some solutions to this problem include developing lighter weight components, using special load-handling equipment, reevaluating current training doctrine, and designing better load planning models. There is also a fifth possibility—developing specific physical training programs that will better condition soldiers to tolerate carrying heavy loads. This is the approach the U.S. Army Physical Fitness School has taken in an attempt to improve the ability of soldiers to carry their mission essential equipment.

The traditional Army physical training programs often revolve around aerobic training (running) and calisthenic-type activities. More recently, resistance (strength) training has also been emphasized. Running and the other aerobic activities are best for improving cardiovascular fitness and allow soldiers to perform physically at a lower relative exercise intensity and for longer periods. In addition, soldiers with high levels of

TRAINING NOTES

cardiovascular fitness recover more quickly from exhausting exercise. Calisthenic activities may improve muscle strength and endurance the first few weeks of training, but further improvements are generally slight without adequate overload. As evidenced by recent experiences in the Falklands and Grenada, such traditional training programs are not enough to improve the ability of soldiers to carry heavy loads over long distances.

The physical training program presented in Tables 1-7 is designed primarily to improve load carrying ability (road march performance) in a light infantry unit. It is based upon our experience with soldiers from the 2d Battalion, 17th Infantry, Fort Richardson, Alaska, who took part in a nine-week physical training program designed to improve the basic components of the soldiers' physical fitness (aerobic and anaerobic capacity, muscular strength and endurance, flexibility, and body composition) and improve their load carrying ability.

The program is conducted daily, Monday through Friday, for nine weeks. Generally, one day a week is devoted to resistance training (partner-resisted exercises, strength training equipment, push-up/sit-up/pull-up improvement, and the like), one day to cardiovascular training (ability group run), one day to anaerobic training (sprints, relays), and one day to circuit training (calisthenic, relay, sandbag). On alternate weeks, the fifth day is devoted to road marching and unit runs.

All of the training is progressive in that both the intensity and the duration of the training increase from one session to the next. Most of the training sessions can be done within one hour, and they require little or no equipment.

Before beginning the program, leaders should familiarize the soldiers with the physical training activities that will be conducted during the first week. This session should cover procedures for proper warm-up and cool-down as well as the proper techniques for cardiovascular and strength training.

A "one repetition of maximum" (1RM) test should also be administered

PHYSICAL TRAINING PROGRAM

WEEK #1				
<u>Monday</u> APFT	<u>Tuesday</u> Resistance Tng Over- view & 1RM	<u>Wednesday</u> Aerobic Tng ABGR 3 miles PU/SU/PU impr	<u>Thursday</u> Resistance Tng Over- view & 1RM	<u>Friday</u> Road March 8 km (5 mi) Time: Less than 2 hrs 30lb/14kg ruck
WEEK #2				
<u>Monday</u> Circuit "X"	<u>Tuesday</u> Resistance Tng "A"	<u>Wednesday</u> Aerobic Tng ABGR 4 miles PU/SU/PU impr	<u>Thursday</u> Resistance Tng "B"	<u>Friday</u> Unit Run
WEEK #3				
<u>Monday</u> Aerobic Tng ABGR 4 miles	<u>Tuesday</u> Resistance Tng "B"	<u>Wednesday</u> Aerobic Tng ABGR 4 miles	<u>Thursday</u> Anaerobic Tng 8x100mx 45-sec. rest PU/SU/PU impr	<u>Friday</u> Road March 11 km (6.8 mi) Time: Less than 2.75 hrs 40lb/18kg ruck
WEEK #4				
<u>Monday</u> Resistance Tng "B"	<u>Tuesday</u> Aerobic Tng ABGR 5 miles	<u>Wednesday</u> Circuit "Y"	<u>Thursday</u> Resistance Tng "A"	<u>Friday</u> Unit Run
WEEK #5				
<u>Monday</u> Aerobic Tng ABGR 5 miles PU/SU/PU impr	<u>Tuesday</u> Resistance Tng "A"	<u>Wednesday</u> Aerobic Tng ABGR 5 miles	<u>Thursday</u> Anaerobic Tng 8x100mx 45-sec rest PU/SU/PU impr	<u>Friday</u> Road March 13 km (8 mi) Time: Less than 3.25 hrs 50lb/23kg ruck
WEEK #6				
<u>Monday</u> APFT	<u>Tuesday</u> Resistance Tng "B"	<u>Wednesday</u> Aerobic Tng ABGR 6 miles PU/SU/PU impr	<u>Thursday</u> Resistance Tng "A"	<u>Friday</u> Unit Run
WEEK #7				
<u>Monday</u> Aerobic Tng ABGR 6 miles	<u>Tuesday</u> Anaerobic Tng 6x200mx 90-sec rest	<u>Wednesday</u> Resistance Tng "A"	<u>Thursday</u> Aerobic Tng ABGR 6 miles PU/SU/PU impr	<u>Friday</u> Road March 15 km (9.3 mi) Time: Less than 3.75 hrs 60lb/28kg ruck
WEEK #8				
<u>Monday</u> Circuit "Z"	<u>Tuesday</u> Resistance Tng "A"	<u>Wednesday</u> Aerobic Tng ABGR 6 miles PU/SU/PU impr	<u>Thursday</u> Resistance Tng "B"	<u>Friday</u> Unit Run

WEEK #9

Monday	Tuesday	Wednesday	Thursday	Friday
Anaerobic Tng	Resistance Tng "B"	Aerobic Tng ABGR	Resistance Tng "A"	Road March 16 km (9.9 mi)
2x200mx 90-sec. rest		6 miles PU/SU/PU		Time: Less than 4 hrs
PU/SU/PU Impr		Impr		70lb/32kg ruck

Note: Each training session is preceded by a warm-up period and followed by a cool-down activity.

ABGR = Ability Group Run.
PU/SU/PU Impr = Push-up/Sit-up/Pull-up improvement (Table 2).

Circuit "X" = see Table 3.

Circuit "Y" = see Table 4.

Circuit "Z" = see Table 5.

Resistance Tng "A" = see Table 6.

Resistance Tng "B" = see Table 7.

Table 1

PUSH-UP, SIT-UP, PULL-UP IMPROVEMENT

PUSH-UPS

Type	Time	Rest Interval
Partner-resisted	30 secs	15 secs
Feet elevated	30 secs	15 secs
Diamond	30 secs	15 secs
Regular (wide-hand)	30 secs	15 secs
Regular	30 secs	15 secs
Regular (on knees)	30 secs	15 secs

SIT-UPS

Type	Time	Rest Interval
Feet elevated	30 secs	15 secs
Regular	30 secs	15 secs
Curly-up	30 secs	15 secs
Crunch	30 secs	15 secs

PULL-UPS

Type	Time	Rest Interval
Overhand wide-grip	20 secs	20 secs
Overhand close-grip	20 secs	20 secs
Underhand wide-grip	20 secs	20 secs
Underhand close-grip	20 secs	20 secs

Table 2

on each strength training exercise. Determining a 1RM involves progressively and systematically increasing the weight a soldier tries to lift until he reaches a weight he can no longer lift. The last weight he successfully lifts, using the correct technique, is the 1RM for that exercise.

Resistance training includes, whenever possible, doing three sets of 8 to 12 repetitions at 70 to 85 percent of the

1RM. The specific strength training exercises described here improve the muscles that are directly involved in load carrying.

The weight training exercises include the squat, the heel and leg raise, the knee extension and curl, the bench press, bent-over rowing, the shoulder press and shrug, and the arm curl and extension. These exercises may be performed using various weight training machines or free

**CIRCUIT "X"
OR PLATOON CIRCUIT**

STATION*	ACTIVITY
1	Run in place
2	Push-up
3	Side straddle hop
4	Abdominal crunch
5	Bend and reach
6	1-inch push-up
7	Mule kicks
8	Twisting sit-ups
9	Back leg raises
10	Ski jumps

ADDITIONAL ACTIVITIES

- Leg scissors
- Flutter kicks
- Bicycle - supine
- Diamond push-up
- Wide-hand push-up
- Side leg raises
- Pull-ups

*Note: 30-45 seconds at each station, move ahead to next station; repeat 2-3 times.

Table 3

**CIRCUIT "Y"
OR FIXED CIRCUIT**

STATION	ACTIVITY
1	Side straddle hop
2	Wide-hand or diamond push-up
3	Partner sit-up (feet elevated)
4	Mule kicks
5	Partner push-up (feet elevated)
6	Flutter kicks
7	Ski jumps
8	Pull-ups
9	Training heart rate check

ADDITIONAL ACTIVITIES

- Piggy back squats/heel raises
- Shuttle run
- Wind sprints
- Grass drills
- Rope Climb
- Bench Stepping

*Note: 30-45 seconds at each station, run to next station; repeat 2-3 times.

Table 4

weight equipment. When a soldier can consistently complete more than 12 repetitions on his final set, the resistance should be increased.

During the push-up/sit-up/pull-up improvement sessions, the soldiers should perform several types of each exercise.

TRAINING NOTES

CIRCUIT "Z" OR RELAY CIRCUIT

ACTIVITY*

"Dizzy-izy"
Piggy-back
Skip and push-up
Hop and sit-up

*Note: Soldiers work in teams and perform a variety of sprinting activities to improve anaerobic capacity. Reference: FM 21-20

Table 5

We also recommend they do a single set of partner-resisted, feet elevated, diamond, wide-hand, regular, and from-the-knee push-ups. Sit-up variety includes feet elevated, regular, curl-up, and crunch types. They should also do wide-grip and close-grip pull-ups and chin-ups.

The soldiers should run in ability groups. The groups are initially determined by the performance of the soldiers on the Army Physical Fitness Test (APFT) that is administered during the first week. (The test is administered again midway through the training program to determine the soldiers' improvement.) At first, they should run three miles and progress about ten percent each week up to six miles in the ninth week.

Anaerobic or interval training begins with six repeats of 100 meters with a 45-second rest period between sprints and progresses to eight repeats of 200 meters with a 90-second rest period between sprints. The soldiers should run the sprints with the greatest possible effort.

The soldiers should road march regularly during the training program. The load they carry, the distance they cover, and the duration of these training road marches should be progressively increased just as the other physical training activities are. We recommend an initial distance of five miles (eight kilometers) with 30-pound sandbag-filled rucksacks. This may be modified, however, on the basis of the physical fitness levels of the soldiers at the beginning of the program. The final road march training distance is ten miles (16 kilometers) with 70-pound rucksacks. The data collected during the Alaska study indicate units with sound five-day-per-week physical training programs can

RESISTANCE TRAINING "A"			
PRIMARY MUSCLE(S) EXERCISED*	NAUTILUS	UNIVERSAL	FREE WEIGHTS
Gluteals, Quadriceps	Duo Squat	Leg press	Squat
Hip flexors	Hip flexor	Leg raises	Leg raises
Quadriceps	Leg extension	Leg extension	Leg extension
Hamstrings	Leg curl	Leg curl	Leg curl
Gastrocnemius	Heel raises	Heel raises	Heel raises
Pectorals, Triceps	Double chest	Bench press	Bench press
Rhomboids	Rowing torso	Seated row	Bent-over row
Deltoids	Double shoulder	Seated press	Military press
Latissimus Dorsi	Behind neck	Pulldowns	Pull-ups
Trapezius	Neck & shoulder	Shrugs	Shrugs
Triceps	Multi-tricep	Pushdowns	Tricep extension
Biceps	Multi-bicep	Bicep curl	Bicep curl
Abdominals	Sit-ups	Sit-ups	Sit-ups

*Note: 8-12 repetitions and 1-3 sets.

Table 6

RESISTANCE TRAINING "B"	
SANDBAG CIRCUIT*	
PRIMARY MUSCLE(S) EXERCISED	EXERCISE
Gluteals, Quadriceps	Squat
Quadriceps	Front lunge
Gastrocnemius	Heel raise
Erector spinae	Dead lift
Pectorals, Triceps	Push-ups
Rhomboids	Bent-over row
Deltoids	Overhead press
Triceps	Tricep extension
Biceps	Bicep curl
Abdominals	Sit-ups

*Note: Fill one-third of the sandbags with 10 pounds, another third with 20 pounds, and the remaining third with 40 pounds. Approximately 70 40-pound, 30 20-pound, and 20 10-pound sandbags are required per platoon. Soldiers move through the circuit three times, spending only 45 seconds at each station and performing as many repetitions as possible with a moderate amount of weight during the allotted time.

Table 7

improve and maintain their road march ability by conducting as few as two road marches a month.

Load bearing by infantry soldiers is a critical part of combat operations. But overloading these soldiers can lead to excessive fatigue, detract from their ability to fight, and may even determine the success or failure of a mission.

Commanders must make wise decisions in determining which equipment their men must carry. But they must also provide their troops with the necessary physical training so they can carry heavy loads without undue fatigue. When it becomes necessary to carry heavy loads,

soldiers who have been properly conditioned to carry them will arrive at the battlefield less fatigued and better able to fight than those who have not been conditioned.

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Similar techniques are required when engaging tanks with the medium and heavy antiarmor missiles. Instead of volley fire, however, sequential fire is required in which a second and possibly a third gunner is ready to engage the same target if the first fails to destroy it.

The Army's present medium antiarmor weapon, the M47 Dragon, will continue in that role until the advanced Antiarmor Weapon System-Medium (AAWS-M) is fielded in the mid-1990s. It weighs 47 pounds (with its night sight) and has a maximum range of one kilometer. (Observations from the National Training Center (NTC) indicate that many of the Army's Dragon gunners continue to engage targets beyond the weapon's maximum range.)

Soldiers in infantry one-station unit training receive familiarization training with the Dragon, and there is a Dragon gunners course that selected individuals attend, but units are responsible for training their Dragon gunners.

It is interesting to note that the Marine Corps' Dragon gunnery scores are significantly better than the Army's, and I believe these differences can be attributed to differences in training. Marine Dragon gunners receive twice as much training on the Dragon in initial entry training as Army gunners. Additionally, the Marine Corps has dedicated gunners who fire more live rounds and are stabilized in their positions longer than Army gunners. Most important, Marine leaders receive periodic training on employing the Dragon.

As for the Army's heavy antiarmor weapon, there are five different TOW missiles in the U.S. inventory and one in development. The only way to distinguish between them is by the markings on the box or the canister. (Comparison data are shown in Table 1.)

The basic TOW and the extended-range basic TOW warhead were developed to defeat the Soviet T-55 and T-62 tanks. The improved TOW (ITOW), which has an improved five-inch warhead and an extendable probe for stand-off detonation, was designed to defeat the T-64 or T-72 tanks without reactive armor. The six-inch TOW2 warhead was designed to defeat the later model tanks.

It has not only an extendable probe for increased stand-off detonation, but also an improved guidance system that permits it to operate through dust, smoke, and limited countermeasures.

Not all TOW launchers have been modified to take advantage of the additional capabilities of the TOW 2. The launchers on the basic M2 and M3 Bradley fighting vehicles can fire the TOW 2 but may lose the missiles in obscurants. The systems that have been modified to fire the TOW 2 must have operational thermal night sights.

The TOW 2A has an explosive tip charge on the extendable probe that is designed to detonate reactive armor before initiating the warhead's main charge.

The TOW 2B missile (BGM71F), currently in development and to be fielded in 1991, uses a fly-over shoot-down technology. But indiscriminately overflying friendly vehicle positions can result in fratricide.

While the TOW is one of the finest antiarmor weapons in the world, recent live fire exercises at the NTC have shown that we may not be adequately training our TOW gunners to conduct prefire checks. The results of one test indicate that the TOW gunners hit only one-third of the targets they engaged.

Those who believe the U.S. TOW can outperform the Soviet AT-5 Spandrel missile are wrong. While the various TOW missiles have maximum ranges of either 3,000 or 3,750 meters, depending on the model, the AT-5 has a maximum range of 4,000 meters. The TOW's

average velocity is 186 meters per second, while the AT-5's average velocity is 250 meters per second. Thus, the AT-5 has both a greater maximum range and a shorter time of flight.

In addition to knowing their own antiarmor weapons, infantrymen also need to recognize and make the most of the systems used by other members of the combined arms team. Observations from a recent light-heavy force rotation at the Joint Readiness Training Center (JRTC) revealed that the light infantry soldiers did not know as much as they should about our armor systems.

First, infantrymen working in front of tanks were unaware of the injuries that could be caused by the discarding petals of the armor piercing discarding sabot (APDS) rounds. (The danger area when firing ADPS ammunition extends out 1,000 meters to the front and 70 meters on either side of a round's trajectory. As a rule, tanks should not be directed to fire over the heads of exposed friendly personnel.) And second, some infantrymen were unfamiliar with the types of ammunition the armored vehicles used.

The basic load of ammunition carried on U.S. tanks (M60A3, M1, and M1A1) consists of two types of main-gun rounds—kinetic energy APDS/APFSDS (armor piercing discarding sabot/armor piercing fin-stabilized discarding sabot) and chemical energy HEAT/HEAT-MP (high explosive antitank/high explosive antitank multipurpose).

The APDS round uses a kinetic energy defeat mechanism while the HEAT uses a chemical energy defeat mechanism.

TOW MISSILE COMPARISON

NOMENCLATURE	MARKING	RANGE (m)	FIELDING	NUMBER
Basic TOW	BGM71A	3,000	1970	-
Extended Range Basic TOW	BGM71A1	3,750		-
Total Basic TOW				311,000
Improved TOW (ITOW)	BGM71C	3,750	1981	49,000
TOW 2	BGM71D	3,750	1983	50,000
TOW 2A	BGM71E	3,750	1987	45,000
Soviet AT-5		4,000	1974-75	

Table 1

Kinetic rounds use speed and mass to penetrate armor, while HEAT shaped-charge warheads essentially "burn" through the armor.

Additionally, it is possible that war stocks of limited issue (rounds for 105mm tanks that are no longer manufactured) may be made available. These rounds are the high explosive plastic used against bunkers, the flechette used against personnel, and the white phosphorous for marking or obscuring targets.

The number of main gun rounds declines from the M60A3's basic load of 63 rounds to the M1's 55 rounds and to the M1A1's 40 120mm rounds. The M1A1 120mm has two APFSDS-T rounds (the M829 and M829A1) and one HEAT-MP round (the M830). The M551A1 Sheridan carries 21 152mm conventional rounds and 8 Shillelagh missiles. The M551's conventional rounds are HEAT-MP effective out to 1,600 meters; the high explosive and canister (flechette) rounds are effective out to 400 meters. The Shillelagh missile has a maximum effective range of three kilometers.

Infantrymen directing the fire of these armored vehicles need to know that both the M60 tank and the M551 Sheridan have an external telephone box on the rear fender; unfortunately, the M1 and M1A1 do not. All armored vehicles have a radio capability and can accept a WD-1 telephone line.

Finally, infantrymen should remember that there are visual blind spaces and weapon dead zones around each tank that can either help or harm them.

When used together, engineer antitank mines and infantry antiarmor weapons are a winning combination. FM 20-32, Mine/Countermining Operations, discusses the use of antitank mines. The M15 and M19 are manually emplaced pressure activated antitank mines. They weigh 30 and 28 pounds, respectively, and are designed to provide a mobility kill. The M21 antitank mine is a manually emplaced full-width killer mine. It weighs 17 pounds and contains a shaped charge with 11 pounds of explosives. It is activated as an enemy tank drives over the tilt rod and is effective against all known tanks.

ANTIARMOR MUNITIONS

<u>MUNITION</u>	<u>PLATFORM</u>	<u>PENETRATION</u>	<u>RANGE</u>	<u>AVERAGE VELOCITY</u>
U.S.				
TOW 2A	BFV/ITV	1,000mm	3750 m	186 m/s
TOW 2	BFV/ITV	900mm	3750 m	186 m/s
I-TOW	BFV/ITV	800mm	3750 m	186 m/s
Dragon	Manportable	500mm	1000 m	90 m/s
120mm M829	M1A1	525mm	2000 m	1,860 muzzle vel
120mm M829E1	M1A1	650mm	2000 m	1,860 muzzle vel
105mm M833	M1/M60	420mm	2000 m	1,500 muzzle vel
SOVIET				
AT-3 Sagger	BMP-1/BRDM	400 + mm	3000 m	120 m/s
AT-4 Spigot	Crew Served	500-600mm	2000 m	181 m/s
AT-5 Spandrel	BMP-2/BRDM	500-600mm	4000 m	250 m/s
AT-6 Spiral	HIND-E	600-700mm	5000 m	450 m/s
AT-8 Songster	T-64B/T-80	700-800mm	4000 m	Not Available
125mm APFSDS	T-64/72/80	450mm	2000 m	1,750 muzzle vel
115mm APFSDS	T-62	350mm	2000 m	1,600 muzzle vel
100mm APFSDS	T-54/55	300mm	2000 m	1,500 muzzle vel
125mm HEAT-FS	T-64/72/80	500 + mm	2400 m	Not Available
115mm HEAT-FS	T-62	450mm	1800 m	Not Available
100mm HEAT	T-54/55	390mm	1500 m	Not Available

ARMOR PROTECTION

Tank

Protection Level Frontal 90 Degree Arc (mm)

<u>U.S.</u>	<u>vs HEAT Munitions</u>	<u>vs KE Munitions at 2 KM</u>
M60A1	325	325
M1	750	350
M1A1	1000	400
M1A1 (DU)	1300	600
SOVIET		
FST 1 w/RA	1200	550
T-80 w/RA	1050	500
T-72 w/RA	900	450
T-64B w/RA	900	450
T-80	500	500
T-72	400	400
T-64	400	400
T-62	300	300
T-55	200	200

NOTES:

1. RA stands for explosive reactive armor.
2. DU stands for depleted uranium.
3. To insure a kill, the number for penetration must be larger than protection level.
4. Sides, rear, top and bottom of tanks are less protected.
5. Chart data from Soviet Gains in Armor/Antiarmor, FM 100-2-3, Soviet Military Power 1987, and Ten Million Bayonets.

Table 2

TC 6-20-5, Field Artillery Delivered Scatterable Mines, discusses the employment techniques for field artillery delivered scatterable mines. The manual states that a 155mm battery requires 15 minutes to fire a planned and approved minefield that measures 400 x 400 meters.

A maneuver commander must consider

several factors before employing artillery delivered scatterable mines:

- The corps commander holds authority for the emplacement of all scatterable minefields in the corps area of operations. He may delegate this authority down to battalion level for a short duration minefield (less than 24 hours) and

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to brigade level for a long duration minefield.

- A firing battery has, as part of its basic load, enough rounds to emplace only one short duration minefield 400 x 400 meters, and those rounds may not be positioned with the howitzers. Additional time may be required to ensure that enough rounds are available to support multiple minefields.

- As many as half of the mines may land outside the desired minefield area, which necessitates a safety area up to 1,500 x 1,500 meters around the 400 x 400 meter minefield.

- Since artillery delivered scatterable antitank mines are round, they may roll off a paved road upon impact, and in deep snow they may not be positioned correctly. Unfortunately, there is no solution to this problem.

- Finally, for survivability, it is standing operating procedure for artillery units to displace after firing a scatterable mine mission; consequently, during the time it takes to displace, move, and emplace a battery again, it will not be available to fire other missions.

Artillery delivered scatterable minefields need to be linked to the commander's decision points identified by the intelligence preparation of the battlefield (IPB) process and to such target areas as choke points. The engineer and the S-3 or G-3 plan and coordinate the minefield, and the artillery fires the mission.

REACTIVE ARMOR

A new challenge to antiarmor operations in recent years is reactive armor on vehicles, which consists of explosive boxes designed to defeat shaped-charge/HEAT munitions. It was first fielded in 1982 by the Israelis, and the Soviets began fielding reactive armor on their T-64B and T-80 tanks in 1984.

The Israeli's reactive armor called "Blazer" protected their vehicles against handheld HEAT weapons such as the RPG-7, the LAW, and the AT-3 Sagger ATGM (antitank guided missile). Most important for today's infantryman is to know that reactive armor will defeat the shaped-charge munitions available to him

and that it is insensitive to kinetic energy munitions.

The number of threat armored vehicles continues to grow, and it is important for leaders to be familiar with these vehicles. Some other characteristics of these vehicles are shown in Table 2.

The Soviets have fielded missile firing tanks that are similar to the U.S. Sheridan in that an ATGM is fired through the tank's main gun. The T-64B and T-80 tanks are known to fire the AT-8 Songster missile, which has a 4,000-meter maximum range. The missile-firing tank's primary role is believed to be destroying antiarmor systems such as the Bradley Fighting Vehicle (BFV), the Improved TOW Vehicle (ITV), and attack helicopters.

Soviet tanks carry three types of main gun rounds—APFSDS, HEAT, and HE-FRAG (high explosive fragmentation). For the infantryman, the HE-FRAG round presents the greatest threat, followed by the 12.7mm and 7.62mm machine-guns. More than half of a Soviet tank's 40-round basic load is HE-FRAG ammunition, which is used to suppress enemy fighting positions and against ATGM sites.

An article entitled "Soviet Gains in Armor Antiarmor Shape US Army Master Plan," published in *Armed Forces Journal International*, February 1989, presents a comparison of the armor protection and munition penetration levels of both U.S. and Soviet systems. Some of these comparisons are shown in Table 2. TC 90-16 is a more precise source of data for planning training exercises against armored vehicles.

Leaders must also recognize and guard against the negative lessons that some training devices, gunnery standards, and training ammunition constraints may instill in their soldiers.

For example, SIMNET, a command and control trainer, uses an unrealistic "cardboard" threat target that burns when it is hit. And Bradley Fighting Vehicle gunnery standards require gunners to hit the target with three out of five rounds—not because a BMP can be killed with three or even five rounds, but because of the high cost of ammunition. The expectation is that soldiers who can

hit a target with three out of five rounds can continue to hit a target until it is destroyed.

Likewise, during LAW/AT4 gunnery, leaders have their soldiers fire one round individually instead of having the squads practice volley fire. A prevailing attitude during most gunnery training is that one shot equals one hit, and that one hit equals one kill. While this idea may be suitable for gunnery training, it does not match the reality of the battlefield where at least two rounds are required for a kill. In addition, leaders must keep in mind that there are differences between the targets used for gunnery and the actual enemy armored vehicles.

The way you and your unit fight the first battle of the next war will set the tempo for the way it fights the remainder of the war. In the worst case scenario, if threat vehicles move into your engagement area, and you engage them with little or no success, two things will happen. First, the enemy will gain confidence in his equipment and his ability to defeat you. Second, your confidence in your weapon systems, and your ability to defeat the threat, will decrease.

If, on the other hand, the threat vehicles move into your engagement area and your soldiers engage them with devastating success, the threat's second echelon, observing the destruction, will lose confidence in their equipment and their leaders.

As Sun Tzu wrote in *The Art of War*: "If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself, but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle."

The art of killing armored vehicles is rapidly approaching a science. It is therefore vital that you know your weapons' exact capabilities, and those of your potential enemy as well. What you don't know could kill you—and your men.

Michael R. Jacobson, a major in the U.S. Army Reserve, is assigned to the Threat Division, Directorate of Intelligence and Security, U.S. Army Infantry Center, Fort Benning, Georgia. During almost 12 years on active duty, he held a variety of armor and intelligence positions.

TOW Trainer Course

LIEUTENANT MICHAEL T. ZARYCZNY

Because of the proliferation of reactive armor throughout the world, not to mention the overwhelming numbers and technological improvements in armored vehicles, our current antiarmor weapons would be challenged to the fullest in any war in the near future.

Since the fielding of the kinetic energy missile (KEM) and the advanced missile system-heavy (AMS-H) has been delayed, and since the fiber optic guided missile (FOG-M) has officially become a part of the Air Defense Artillery's inventory, the infantryman's primary heavy antiarmor weapon system is and will continue to be the M220A2 TOW 2 system.

Our TOW crews, to be effective in engaging enemy vehicles equipped with reactive armor with the TOW 2 (with TOW 2A and 2B missiles), must receive a high level of technical and tactical training.

The U.S. Army Infantry School's TOW Trainer Course (formerly the ITV Trainer Course) at Fort Benning, provides selected officers and NCO leaders with the knowledge they need to conduct training on the TOW and to employ it effectively. The course, the Army's only formal program of instruction on the subject, also gives the students an opportunity to improve their personal mechanical skills.

The four-week TOW Trainer Course (162.5 hours) is divided into three instructional areas that cover 11H Skill Level 1 through 4 tasks. The three areas consist of performance-oriented training, tactical training, and maintenance.

During the first two weeks of the course, battle drills and technical tasks

are taught and then reinforced by performance-oriented tests and written examinations. The students receive hands-on training on the TOW weapon systems—the basic TOW and the TOW 2—and their carriers—the M966 HMMWV (high mobility multipurpose wheeled vehicle) and the M901A1 ITV (Improved TOW Vehicle).

Other subjects taught during the first two weeks include the family of TOW missiles, opposing force armor and antiarmor capabilities, training management, training aids and equipment, troubleshooting MILES (multiple integrated laser engagement system) equipment, and advanced antiarmor concepts.

FUNDAMENTALS

Another critical part of the course is a discussion of the fundamentals of the tactical employment of an antiarmor platoon and company. This three-day block of instruction emphasizes the organization of the antiarmor company, selecting firing positions, and conducting offensive and defensive operations. The tactics instruction includes classes on the AirLand Battle, troop leading procedures, and antiarmor range card preparation.

During the third week of the course, the students receive instruction on maintenance and troubleshooting procedures on the organic TOW carriers. Students are required to perform quarterly and semiannual preventive maintenance checks and services (PMCSs) on both the M901A1 and the M966 and to prepare a battle damage assessment on the vehicles' weapon

systems. Additional periods of instruction during this block include vehicle identification, a live-fire exercise, and planning for airmobile operations.

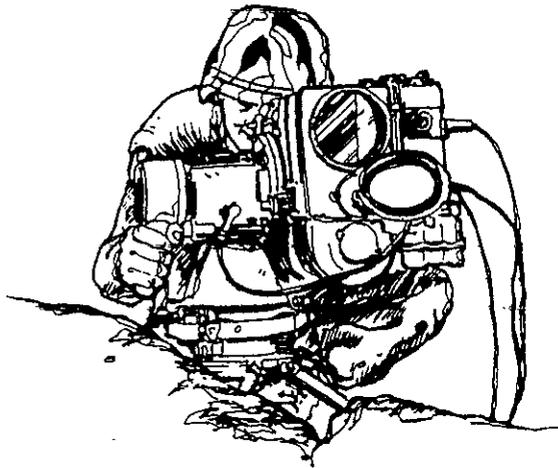
This is not a gunner course but a leader course, in which a student must meet certain standards to graduate. A student must receive "GOs" on all the performance-oriented tests and 70 percent on the 50-question written examination administered at the end of the course.

In addition, the TOW Trainer Course includes several classified periods of instruction that require a Secret clearance, and students must attend these classes to graduate.

Recent TOW Trainer Course classes have averaged 24 students, which is significantly lower than the maximum capacity of 44 students. Armor officers and students awaiting Infantry Officer Basic Course class dates have constituted most of the class population. Although there is no problem with this composition, the course is designed for infantry soldiers who will use their new skills and knowledge in field units. The TOW Trainer Course attempts to tailor its instruction to meet changes in threat technology and to accommodate the needs of commanders and trainers.

Commissioned officers, NCOs, and enlisted soldiers (specialists or corporals in MOS 11H) who are members of the Active Army, the Army National Guard, or the Army Reserve are eligible to attend the course, if they are on orders for assignment to duty positions that require a detailed knowledge of the TOW system.

It is imperative that commanders permit only those soldiers to attend the



course who will use this training to improve their professional knowledge and to contribute to the unit's antiarmor training effectiveness. The soldiers must be retainable within the unit and should be in leadership positions.

Students report to Building 17, Wilkins Hall, Stairwell H-16 in the main post area of Fort Benning between the hours of 1500 and 1700 on the day before the course begins. After inprocessing, each student is issued his TA-50 equipment for use during the course.

Each soldier, when he reports, must have with him at least the following items:

- Five copies of orders.
- Valid Secret clearance (noted on orders.)
- Valid identification card.
- Identification tags with chain.
- One U.S. Army PT uniform.
- Four sets of BDUs.
- Two pairs of boots.
- One pair of black gloves with inserts (seasonal).

- One field jacket (seasonal).
- Two pairs of fitted ear plugs with case.
- Two black ink pens.
- Note pad.

It is advisable for soldiers attending on a temporary duty (TDY) and return basis to receive a partial payment from their units before they leave for the course. The Fort Benning Finance and Accounting Division will not issue checks until one week after a course begins.

Any additional questions pertaining to inprocessing should be addressed to Commander, HHC, 1st Battalion, 29th Infantry, ATTN: Student Operations, AUTOVON 784-3747 or commercial 404-545-3747/1768.

Commanders and trainers who need more information about the course itself are encouraged to write to Commandant, U.S. Army Infantry School, ATTN: Company B, 2d Battalion, 29th Infantry, Fort Benning, GA 31905-5595; or to call AUTOVON 784-6474, commercial 404-544-6474.

The TOW Trainer Course gives antiarmor leaders the technical knowledge they need to supervise TOW antiarmor platoons. There is no doubt that its graduates have improved the quality of TOW training in their respective units.

Lieutenant Michael T. Zaryczny, when he prepared this article, was assigned to the 2d Battalion, 29th Infantry, at Fort Benning.

Ranger Orientation Program

CAPTAIN CHARLES T. SNIFFIN
SERGEANT FIRST CLASS MALLORY L. SUMP

For more than 200 years, Rangers have played an important role in the proud heritage of the United States Army. Serving in Ranger units and

throughout the Army in war and peace, the Ranger's most significant contribution has always been the ability to lead soldiers. And developing leaders has

been the primary mission of the Army's formal Ranger training since its inception in October 1951.

Each year thousands of soldiers, non-

commissioned officers, officers, and cadets volunteer for and pursue the challenge of the Ranger Course, which is offered by the Ranger Training brigade at Fort Benning, Georgia. A pre-ranger training program helps prepare ranger candidates to meet the leadership challenge of the course.

Pre-Ranger training, whenever it is conducted, goes by many different names and follows many different programs of instruction (POIs). One of these programs is the Ranger Orientation Program at the United States Military Academy (USMA). A description of this program may be helpful to others who are either currently conducting pre-Ranger training or who would like to start such a program.

The mission of the Academy's Ranger Orientation Program is to provide demanding training for USMA Ranger candidates so that each cadet selected to attend the Ranger Course will graduate as a leader in his class.

The program's training is geared toward ensuring that each Ranger candidate is fully aware of the challenges the course will present and as well prepared as possible to meet those challenges. The testing, both physical and mental, is geared toward selecting only the best qualified candidates to attend.

Physical endurance, mental toughness, and technical proficiency are essential in the Ranger Course. An understanding of the principles of patrolling—planning, security, reconnaissance, control, and common sense—is also important. But the most critical skill a cadet can learn, develop, demonstrate, and take with him to the course is an aggressive attitude—the ability to "Take Charge, Take Action, and Supervise." Those who have this attitude and apply it to complement the task at hand will succeed in the program.

From the first day, the candidates in the orientation program are forced to adopt this attitude as their own, and those who are placed in the rotating administrative chain of command are held accountable for their every action. In these positions, attention to detail is the key. Deficiencies in performance are quickly pointed out, and relief for cause

is swift. The program gives every candidate several opportunities to exercise his leadership abilities and to learn from his mistakes while the price of the lesson is still low.

During breaks in the training, the candidates are regularly drilled on the basics of Chapter 1 of the Ranger Handbook, which is an important guide to finding out what it means to have an aggressive attitude.

The candidates are also required to act out the first few critical minutes after being appointed to lead a patrol. During these sessions, therefore, each candidate practices giving instructions and explains how he will organize his individual efforts, employ his immediate subordinates, and prepare the patrol for the upcoming mission. The importance of clear and concise instructions, timely questions, coordination, rehearsals, inspections, and backbriefs is emphasized. Mistakes are expected, and the lessons learned early form the basis for future success in subsequent phases of the program.

Every leader has his own style and individual way of dealing with subordinates and organizing to meet the challenge at hand. The basics of each successful approach, however, can be summed up in the words "Take Charge, Take Action, and Supervise."

The Ranger Orientation Program itself consists of approximately 150 hours of

training conducted during the second semester—January through May—of the cadets' junior year. (The 1989 training schedule is shown here as an example.) The training program of instruction (POI) breaks down into five categories, as follows:

• Classroom instruction	11 hours
• Physical testing	22 hours
• Skill training/testing	33 hours
• Patrolling FTXs	80 hours
• Special assignments	4 hours

The screening phase of the program begins in January with an orientation lecture given by the Director of the Department of Military Instruction. This lecture, augmented with a news documentary film and 35mm slides, is designed to give each interested candidate a realistic overview of what he can expect at Ranger School. (After seeing this film, some of the cadets do not return for the screening events that follow.)

The first actual screening event, the Army Physical Fitness Test (APFT), is used to gauge the physical condition of each candidate at the beginning of the program. Getting in shape is an individual responsibility, but the APFT, which is administered five times during the program, and other physical events are used to monitor each candidate's individual conditioning program. The final APFT goals for the program are as follows:

• Push-ups	80 repetitions
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- Sit-ups 100 repetitions
- Chin-ups 15 repetitions
- Two-mile run 12 minutes

The second screening event is a six-mile, cross country, rucksack race, which is a physical and mental challenge. Moving over mountainous terrain, each candidate carries a load of 40 pounds and wears his load bearing equipment. The race gauges physical conditioning, mental endurance, and the "drive-on" attitude. (The POI includes four more rucksack races, over the same distance and terrain, with increasing loads that peak at 55 pounds. The goal is for every candidate to complete each rucksack race in less than 90 minutes.)

Following these two screening events, the top 30 candidates are selected to begin the program's formal training. Although the screening events play an important role in determining the top candidates, each candidate is also evaluated using the following whole-man concept:

- APFT performance.
- Rucksack race time.
- Military leadership/conduct ratings.
- Academic standing.
- Swimming ability.
- Cumulative performance on all graded physical education tests.
- Tactical officer recommendation.

Once the "Ranger Team" has been selected and all the necessary equipment has been issued, the training begins in earnest. The training in February emphasizes land navigation skills, weapons and equipment familiarization, and basic soldier skills. Land Navigation I includes a classroom review of basic map skills, tie-down techniques, waterproofing techniques, and a 300-meter pace-count course. Land Navigation II is a day course, and Land Navigation III is a day and night course. The weapons and equipment familiarization training focuses on the systems that each candidate must be able to employ: M16 rifle, M249 squad automatic weapon, M60 machinegun, 60mm mortar, M203 grenade launcher, and night vision goggles.

Following the spring break recess in March, training begins again. Each candidate is required to take and pass the

Combat Water Survival Test (CWST). Before the actual test, the weak swimmers are identified and tasked to develop a swimming program that will improve their performance.

All patrol field training exercises (FTXs) take place on Saturdays and Sundays and are conducted at platoon level. The first of these is a cadre-led reconnaissance patrol. This patrol emphasizes organization, planning and coordination, preparation and issuing of the operations order, rehearsals, conduct of the patrol, the value of using the Ranger Handbook, and above all else, the importance of an aggressive attitude.

The cadre for this patrol, and for all others, is made up of interested Ranger-qualified officers and noncommissioned officers from the staff and faculty and senior cadets who successfully completed the orientation program and the Ranger Course the previous year.

Although the mission varies with each patrol, the subsequent student-led patrols follow a similar pattern. For example, the second patrol is given a raid mission, the third an ambush, and the fourth and final patrol another reconnaissance mission.

Before each student-led patrol, each candidate receives an oral company order

WEST POINT RANGER ORIENTATION PROGRAM 1989 TRAINING SCHEDULE

DATE	TIME	EVENT	INSTRUCTOR
13 Jan	1230-1330	Orientation Lecture	DIRECTOR
20 Jan	1600-1800	APFT I	OIC/NCOIC
27 Jan	1600-1800	Ruck Race I	OIC/NCOIC
30 Jan	1600	First Cut	DIRECTOR
1 Feb	1230-1330	Equipment Issue	NCOIC
3 Feb	1230-1330	Make-up Issue	NCOIC
4 Feb	1300-1800	Land Navigation I CEOI	CADET CADRE
10 Feb	1600-1800	APFT II	OIC/NCOIC
11 Feb	1300-MC	Land Navigation II	OIC/NCOIC
18 Feb	1300-MC	Land Navigation III	OIC/NCOIC
24 Feb	1600-1800	Ruck Race II	OIC/NCOIC
25 Feb	1230-1700	Weapons Familiarization	OIC/NCOIC
14 Mar	0530-0620	CWST	OIC/DPE
17 Mar	1600-1800	APFT III	OIC/NCOIC
18 Mar	1200-0800	Patrol I (Recon)	OIC/NCOIC
21 Mar	0530-0620	Troop Leading Procedures	CADET CADRE
22 Mar	0530-0820	Warning Order	CADET CADRE
24 Mar	1800-1800	Ruck Race III	OIC/NCOIC
28 Mar	0530-0820	Operations Order	CADET CADRE
29 Mar	1230	Second Cut	DIRECTOR
31 Mar	0530-0820	Patrol Base	CADET CADRE
4 Apr	1600-1800	Ruck Race IV	OIC/NCOIC
5 Apr	0530-0620	Raid	CADET CADRE
7 Apr	0530-0820	Truck Movement Annex	CADET CADRE
8 Apr	1600-1700	Ranger-Run	OIC/NCOIC
8 Apr	1200-0800	Patrol II (Raid)	OIC/NCOIC
11 Apr	0530-0820	Ambush	CADET CADRE
12 Apr	0530-0820	Forward Friendly Unit Coordination	CADET CADRE
14 Apr	1600-1800	APFT IV	OIC/NCOIC
15 Apr	1200-0800	Patrol III (Ambush)	OIC/NCOIC
18 Apr	0530-0620	Reconnaissance	CADET CADRE
19 Apr	0530-0620	Air Movement	CADET CADRE
21 Apr	1600-1800	Ruck Race V	OIC/NCOIC
22 Apr	1200-0800	Patrol IV (Recon)	OIC/NCOIC
25 Apr	0530-0620	Written Examination	OIC/NCOIC
26 Apr	0530-0620	Knot Examination	OIC/NCOIC
27 Apr	0530-0620	Mind-Set Class Final Cut	DIRECTOR
1 May	1230-1330	Equipment Turn-in	NCOIC
2 May	1230-1330	Make-up Turn-in	NCOIC
19 May	1400-1600	Final Record APFT	OIC/NCOIC

Sergeant First Class Mallory L. Sump, a 1983 graduate of the Ranger Course, is an instructor in the United States Military Academy's Ranger Orientation Program. He was previously assigned to the 2d Ranger Battalion at Fort Lewis and participated in the 1983 military operation in Grenada.

Captain Charles T. Smith was commissioned from the United States Military Academy in 1979 and completed the Ranger Course in 1980. Now executive to the commander, he was previously officer in charge of the Ranger Orientation Program and served in the 1st Infantry Division in Germany.

A confidential peer report is conducted in which each candidate ranks his peers by name in numerical order. The results are presented to each candidate individually in the form of a counseling session conducted by the officer and NCO in charge of the program.

Like the scores on the APFT, the rucksack races, and the Ranger runs, individual scores on these exams are all applied to the program's grading scale. Although this order of merit provides some indication of each candidate's readiness to attend the Ranger Course, it is by no means the final determining factor. The Director of the Department of Military Instruction makes the final decision and bases it on the recommendations of the officer and the NCO in charge. Their recommendations, in turn, are based on a total assessment of each candidate and again, more important, on each candidate's demonstrated ability to "Take Charge, Take Action, and Super-vise" in an aggressive manner.

The final decision concerning who will attend Ranger School is delivered to the candidates during the Mind-Set class, which addresses the mental attitude necessary to succeed at Ranger School. Needless to say, the word *quit* is erased from each candidate's vocabulary and replaced with words such as *excel*, *endure*, *persevere*, *lead*, and *graduate*.

During the pre-Ranger training, several special tasks are given to each candidate. For example, each candidate is required to memorize the Ranger Creed and read a summary of Ranger history so they will better understand Ranger traditions and heritage.

To add a little levity to the program, and at the same time teach a valuable lesson, each candidate must read the children's story *The Little Engine That Could*. The lesson they learn from this is, of course, that a motivated Ranger student who thinks he can succeed in the course will succeed!

Each candidate must submit two self-assessments that reveal his motivation for wanting to attend the Ranger Course. The first is designed to show why he wants to attend the course and the second why he should be selected.

In the last assignment, particularly the knot training at Ranger School.

valuable to the candidates, each is required to interview an officer or non-commissioned officer who has attended the Ranger Course. During the interview, the two questions the candidate must ask are: "What was your most difficult Ranger School experience?" and "How did you successfully overcome the difficulty?" These are added to the important file of interviews, maintained from year to year, that the candidates are required to read.

Of the 30 candidates who begin the formal Ranger orientation training, about 20 complete the course and are selected to attend the U.S. Army Ranger Course. They depart for Fort Benning physically ready, mentally prepared, apprehensive of the great challenge before them, and eager to begin their pursuit of the coveted black and gold Ranger tab.

The Ranger Course is not the only Army course that requires preparation ahead of time, or that requires students to report in outstanding physical and mental condition for a specific academic subject area. What separates the Ranger Course from these other courses, and what makes pre-Ranger training so important, is the balance each student must achieve in handling the extensive academic, physical, and leadership demands.

Each student must demonstrate the ability and preparedness to lead soldiers successfully in combat. As long as its primary mission continues to be the development of this type of leader, the Ranger Course will remain an important link in our Army's readiness chain. And for the soldier volunteers who accept its challenge, pre-Ranger training will remain an important first step toward that goal.

The initial chain of command for the patrol is announced at the first formation of the day. The chain of command rotates with each new phase of the patrol—movement to the objective area, actions on the objective, and movement to and occupation of the patrol base.

During the course of a patrol, an evaluator notes the actions of each candidate serving in a graded position. At the conclusion of the patrol, each candidate is briefed on his performance. Although no formal grade is attached to it, the strengths and weaknesses he displays are carefully reviewed.

At the conclusion of each patrol, and following equipment maintenance, an after action review (AAR) is conducted. The evaluators cover their observations, the cadet Ranger Course graduates relate the night patrol to their Ranger Course experience, and the Ranger candidates also review the patrol's activities from start to finish. Around the AAR campfire, they share many valuable lessons. During the patrolling phase of the program, a number of early morning classes are presented that apply specifically to the upcoming patrol mission. Although the program's officer and NCO in charge monitor these classes, members of the senior cadet cadre teach them. This is an important point. Not only can the senior cadets provide meaningful instruction, but as recent Ranger Course graduates, they can help candidates understand what the Ranger Course is really all about and give them confidence that they too can meet its challenges.

(During the patrolling phase, a six-mile Ranger-run is also conducted. This run, pointing toward the five-mile run at Ranger School, supplements the APFT's and rucksack races in checking each candidate's individual PT program.)

As the Ranger Orientation Program draws to a close, the candidates are tested to evaluate their preparedness for the Ranger Course challenge. A written examination tests everything from map reading skills to the operations order format. A knot exam checks the progress the candidates have made since the knot-tying class and verifies their readiness for the patrol.

ENLISTED CAREER NOTES



ADVANCED NCO COURSE

The program of instruction (POI) for the Career Management Field (CMF) 11 Advanced NCO Course is currently generic in nature. All of the soldiers in CMF 11 military occupational specialties (MOSs) receive the same instruction.

In an effort to provide relevant instruction that has specific application to senior NCOs in the infantry MOSs, the Infantry School has upgraded the generic AN-COC POI to a tracked, MOS-specific POI.

The new POI will meet the requirement of producing technically and tactically proficient infantry platoon sergeants. It will consist of six training annexes: U.S. Army Sergeants Major Academy Common Leader Training Phase I; CMF 11 command; and specific training for each of the four MOSs—11B, 11C, 11H, and 11M.

The CMF 11 AN-COC students will verify certain Skill Level 3 tasks upon entering the course. The course will culminate in an infantry platoon situational training exercise (Skill Level 4 tasks). Certification will take place on a live fire range or a field training site during this exercise.

The initial draft of the new tracked POI has been completed, and is scheduled for implementation in the first quarter of Fiscal Year 1991.

More information is available from Commandant, U.S. Army Infantry School, ATTN: ATSH-TD-V, Fort Benning, GA 31905; AUTOVON 835-7574, or commercial 404-545-7574.

BNCOC LINK TO PROMOTION

Graduation from the Basic NCO Course (BNCOC) is now required for promotion to sergeant first class. This means that a staff sergeant must complete

BNCOC before his records can be reviewed and considered by a promotion board.

Leaders must get as many eligible staff sergeants as possible to attend BNCOC before they reach the zone of consideration for promotion. Commanders should make sure the personnel records of these soldiers reflect current information, particularly in their completion of BNCOC.

“SCHOOLS FOR STRIPES” POLICY CHANGE

In January 1990, a temporary change to the Army's “schools-for-stripes” policy was approved that ensures promotion and training opportunities for soldiers who are assigned or deployed to Panama as part of Operation Just Cause. This change is an exception to the Army's requirement that corporals and specialists complete a primary leadership development course (PLDC) before they can be promoted to sergeant or attend a basic NCO course (BNCOC).

Under this change, effective from 1 January 1990 until 1 April 1990, unit commanders in Panama were authorized to promote corporals and specialists who had not completed PLDC. To qualify for promotions, these soldiers had to be on unit-recommended lists and had to meet the monthly cutoff scores for their MOSs. Then they were to be scheduled to attend PLDC as soon as possible.

The policy change also authorized commanders to defer schooling for all soldiers in Panama who were scheduled to attend basic and advanced NCO courses between 1 January and 1 April 1990. The soldiers affected were to be rescheduled to attend resident BNCOC and AN-COC classes when they returned to their home stations.

If there are still any of these soldiers

whose names have not been reported, notification should be sent immediately to PERSCOM, ATTN: TAPC-EPT-FN, Alexandria, Virginia. This notification is especially important for soldiers who are eligible to be considered by this year's sergeant first class and master sergeant promotion boards.

PLDC EQUIVALENCY

Under the Army's “schools-for-stripes” policy, a soldier may receive credit for previous military training and experience that is considered equivalent to the training offered at resident courses of the NCO education system, including the primary leadership development course (PLDC).

Since 1 October 1989, PLDC has been a requirement for promotion to sergeant and for entering the basic NCO course (BNCOC).

A soldier who wants to request PLDC equivalency should first consult AR 353-1, dated 15 October 1987, paragraph 5-26. His request should include documents that outline his leadership training and experience in as much detail as possible.

The following documents are particularly helpful in determining PLDC equivalency:

- DA Form 2-1 for enlisted soldiers.
- Officer Record Briefs for officers who have reverted to enlisted status.
- DA Forms 2-1 for National Guard and Army Reserve officers who enter on active duty.
- Completion certificates from courses conducted by other services.



OFFICERS CAREER NOTES



TWO-YEAR BRANCH DETAIL

A major change to the Branch Detail Program has been approved. Beginning with Fiscal Year 1990 accessions, lieutenants detailed to another branch from Signal, Quartermaster, Ordnance, Transportation, Finance, and Military Police branches will serve two years with their detail branches. Military Intelligence and Adjutant General officers will continue to serve four-year details.

To reduce the number of permanent changes of station, every effort will be made to assign officers on two-year details to installations where they can serve with both branches. The proponent schools will provide them with the technical training they need—probably short temporary duty courses—before they assume duties with their basic branch.

LETTERS, PHOTOS, AND OERs

Several changes have been made in policies regarding the documents to be placed in an officer's official file:

- Letters or memorandums of appreciation or commendation are no longer authorized for placement in the official file, except for those signed by the President, Vice President, Secretary of Defense, Secretary of the Army, Chairman of the Joint Chiefs of Staff, or the Chief of Staff of the Army.

- A new official photograph must be placed in an officer's official file every five years or when he is promoted, whichever comes first. This change, which was effective 23 October 1989, applies to the officer ranks of first lieutenant to colonel and warrant officer ranks of CW2 to CW4. An officer may still submit photos more frequently, however, to update his files.

- Comments on an officer evaluation

report regarding the officer's family are now prohibited (see Interim Change 101 to Evaluations Update 5).

- In the administrative data on a OER; if a "P" (for promotable) is appended to the rank, the OER will be applied to the senior rater's profile for the next higher grade; for example, an OER for a promotable first lieutenant goes against the captain profile. The "P" is used on the OER, however, only when the officer is serving in a position that calls for the next higher rank. For example, if a promotable first lieutenant is a support platoon leader, his OER would read 1LT, but if he is an S-1, it would read 1LT/P.

FUNCTIONAL AREA DESIGNATION

The results of the Year Group 1984 functional area (FA) designation are as follows:

YEAR GROUP 84 FUNCTIONAL AREAS		
FUNCTIONAL AREA	CODE	# DESIGNATED
PsyOps/Civil Affairs	39	19
Personnel Programs Management	41	101
Comptroller	45	30
Public Affairs	46	12
Foreign Area Officer	48	43
Operations Research/Systems Analysis	49	43
Force Development	50	28
Research and Development	51	25
Nuclear Weapons Systems	52	5
Automation Operations, Plans, and Training	53	26
Procurement	54	167
	97	24

PERSCOM is now preparing to designate functional areas (FAs) for the officers in Year Group 1985. The deadline for submitting preferences was 15 March 1990; the designations will be made in April; and the results will be published in June.

CAS³

Any officer in Year Group 1981 who has not yet completed the nine-week Phase II of the Combined Arms and Services Staff School (CAS³) at Fort Leavenworth must do so by the end of Fiscal Year (FY) 1990. Failure to attend may jeopardize an officer's promotion and staff college selection.

The FY 90 classes are also open to captains in Year Groups 1982 and later who have completed an officer advanced course and Phase I of CAS³.

Reporting dates are available through the Army Training Requirement and Resource System computer network, or by telephone from the CAS³ Operations Office, AUTOVON 522-2113/2602. Other questions can be directed to the senior Infantry representative on the CAS³ faculty, COL John Strange, at AUTOVON 552-3833/4553, Extension 8.

Captains must report to the Fort Leavenworth billeting office in Hoge Barracks by 1200 on their reporting date, one day before the class starts. They must bring copies of their CAS³ Phase I completion certificate. Any captain who reports for Phase II without this certificate in his possession will not be enrolled. The School of Corresponding Studies (SOCS) no longer accepts hand-delivered Phase I material for scoring.

The Combined Arms Center Commander and Command and General Staff College commandant has initiated two changes that affect planning for CAS³

OFFICERS CAREER NOTES

completion:

First, an officer is now automatically enrolled in Phase I when he graduates from an advanced course. He then has two years to complete Phase I, the non-resident phase.

Second, he must now graduate from CAS³ before enrolling in the Command and General Staff College non-resident course.

These and other changes will appear in DA Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, as mandatory CAS³ attendance becomes institutionalized in officer professional development and selection policies.

NATIONAL DEFENSE UNIVERSITY COURSES

The National Defense University offers two courses that are of particular interest:

The Reserve Component National Security Course (RCNSC). This course is designed to improve an officer's understanding of the concepts, principles and techniques essential to the formulation of national security policy, and the allocation and management of resources in the interest of national security.

The university conducts the course three times a year at various locations, with students and support personnel representing the Reserve and National Guard of all services. The remaining class in FY 90 will be held 16-27 July 1990, at Fort L.J. McNair, Washington,

D.C. (The earlier classes began in October 1989 and February 1990.)

To apply for this course, an officer must meet the following prerequisites:

- Must be in the rank of lieutenant colonel or above. (This requirement may not be waived.)
- Must meet the height and weight standards of AR 600-9.
- Must have at least two years remaining before his mandatory retirement date.
- Must not have attended a previous RCNSC.
- Must not have attended the Army War College resident or nonresident courses or the Reserve Component National Security Issues Seminar.
- Must have a security clearance of Secret.

The National Security Management Course. This is a senior service college level course for qualified Active and Reserve Component officers, as well as for selected civilians from the public and private sectors, including foreign nationals.

The course reflects the curricula of both the National War College and the Industrial College of the Armed Forces, with emphasis on the formulation of defense and foreign policy and the allocation of resources to achieve U.S. strategic objectives.

The instruction vehicle is a series of textbooks known as "Blue Books," which the university publishes on a wide range of subjects, including national security decision making, defense economics and resource requirements, industrial preparedness, manpower,

mobilization planning, regional security, military strategy, and joint operations.

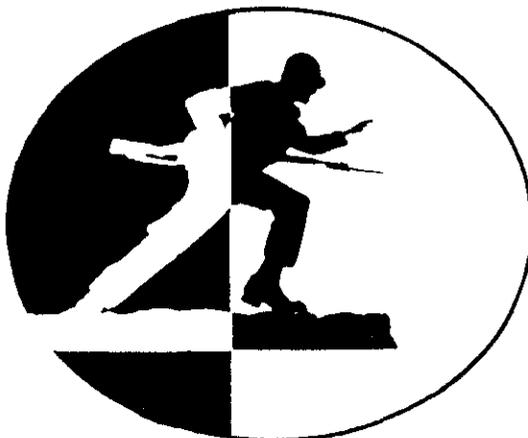
Course options include a program of individual study designed for students to complete in 16 months (or 20 months overseas) and seminar programs of one or two years duration. Students may transfer from one mode of instruction to another upon request, but participation in seminars is strongly encouraged.

Reserve Component officers earn a total of 120 retirement points for successfully completing the course through individual study or 150 points by participating in a seminar.

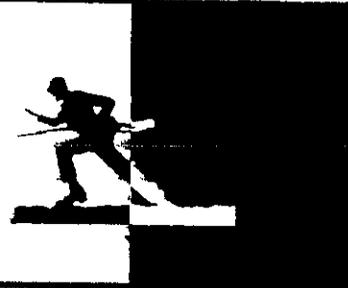
The course is open to officers and civilians who fall into the following categories:

- Officers in the rank of lieutenant colonel or commander and above.
- Majors or lieutenant commanders with baccalaureate degrees and credit for an intermediate service school.
- Employees of the Federal government in the grade of GS-13 and above with baccalaureates, and persons of equivalent status in state and local governments.
- Members of the National Defense Executive Reserve.
- Members of the private sector, academia, and nationals from allied and friendly countries with professional interests related to U.S. national security policy.

Further information is available from the National Defense University, ATTN: NDU-IH, Fort McNair, Washington, DC 20319-6000; telephone 202-475-1850.



BOOK REVIEWS



In our last issue we brought to your attention several recently published books about World War II. Here are a number of other books about that war we want you to know about:

• **WWII: TIME-LIFE BOOKS HISTORY OF THE SECOND WORLD WAR.** By the Editors of Time-Life Books (Prentice Hall, 1989. 496 Pages. \$39.95). This is an outstanding publication in all respects. Although it is based on the previously published 39-volume Time-Life Books history of the war and contains some material from those volumes, this book does have an all-new text written especially for it. The book itself is divided into five major sections and has hundreds of photographs, numerous maps and charts, a special endpaper chronology, and a useful index.

• **THE TIMES ATLAS OF THE SECOND WORLD WAR.** Edited by John Keegan (Harper and Row, 1989. 254 Pages. \$50.00). This is another outstanding publication, different in make-up and presentation from the one mentioned above, because it is primarily an atlas. The graphics—maps, charts, illustrations—are superb, and the relatively small number of photographs bring to life the events being described. The various war-time theaters of operation are given equal time although the coverage is not exclusively military in nature. For example, the important political and economic factors are touched on, as are the war's human and materiel costs. It, too, has a chronology and an index, plus a glossary and an explanation of the military symbols that are used on the maps.

• **WORLD WAR II: A 50th ANNIVERSARY HISTORY.** By the Writers and Photographers of the Associated Press (Edited by Nate Polowitzky. A Donald Hutter Book. Henry Holt, 1989. 320 Pages). Here is a history of the war as told through the words written and the

photographs taken by the nearly 200 Associated Press correspondents who covered the war at home and abroad. It contains hundreds of black-and-white photographs, but only a few maps and other illustrations. The narrative reads easily, while the numerous boxed inserts add not only interest but also information not found elsewhere.

• **ENCYCLOPEDIA OF THE SECOND WORLD WAR.** By Ian Hogg and Bryan Perrett (Presidio Press, 1989. 450 Pages. \$40.00). The authors of this book, both well-known military historians as well as retired military officers, include some 5,000 items in this well-done reference work. An interesting aspect is the attention they pay to the materiel of war—weapons, vehicles, aircraft, and ships.

• **THE ANGELS: A HISTORY OF THE 11th AIRBORNE DIVISION.** By E.M. Flanagan, Jr. (Presidio Press, 1989. 480 Pages. \$24.95). This is the author's second history of the division he served in as a young field artilleryman in World War II. It is different from his earlier history, which was published in 1946, in that it is much more personalized and is really a combination of history and nostalgia. In addition, in the early chapters of this book, the author gives a good if brief description of the development of the U.S. Army's airborne forces and of the individuals who played such an important role in that effort.

There are several other recently published books we also want you to know about:

• **URGENT FURY: THE BATTLE FOR GRENADA.** By Mark Adkin (Lexington Books. D.C. Heath, 1989. 432 Pages. \$24.95). The author of this book, a retired British Army infantry officer, was serving as the Barbados Defence Force Caribbean operations staff officer at the time the United States invaded Grenada in October 1983. He was therefore closely involved in the operation's

planning and execution and observed most of the events he records. Although he admits the operation "was an overall success politically and militarily," he believes that it "came within a hairsbreadth of being a military disaster" and that its success "was due primarily to incredibly good fortune." If you don't want to read the entire book—and you really should—read at least the last chapter, which is titled "Epilogue." If this doesn't make an infantryman sit up and think, nothing will.

• **THE TWILIGHT OF THE U.S. CAVALRY: LIFE IN THE OLD ARMY, 1917-1942.** By Lucian K. Truscott, Jr. (University Press of Kansas; 1989. 198 Pages. \$22.50). A nostalgic look back through rose-colored glasses at the "brown shoe" Army of the 1920s and 1930s, to the days when the horse cavalymen still considered themselves the Army's elite. But the horse was slowly losing out to armored vehicles even then, and the author could see the end coming. As it turned out, he became one of the Army's outstanding infantry commanders during World War II and eventually earned promotion to full general before retiring.

• **THE DICTIONARY OF WAR QUOTATIONS.** Compiled and edited by Justin Wintle (The Free Press, 1989. 506 Pages. \$29.95). Divided into three sections for easy accessibility, this book has more than 4,000 quotations that run the gamut of emotions. It also has two indexes—an index to the authors who are quoted and a main index to all the items in the book's three sections.

• **U.S. ARMY UNIFORMS OF THE VIETNAM WAR.** By Shelby Stanton (Stackpole Books, 1989. 288 Pages. \$24.95). The author is well known throughout military circles for his outstanding order-of-battle books and for his three other books dealing with the Army and the Vietnam War. This, his latest

book, is divided into 11 chapters and contains more than 400 photographs and illustrations. In these chapters the author shows and describes all types of clothing and individual equipment used by U.S. soldiers throughout the war. He touches only lightly on insignia, feeling that that subject deserves a book of its own. He has also included a map of Vietnam showing the Army uniforms worn in each area, an original chart that describes uniform compositions used in Vietnam, and a glossary of terms. He has done another outstanding job of pulling together a mass of disparate material into a useful reference book.

• **COMBAT SERVICE SUPPORT GUIDE.** First Edition. By John E. Edwards (Stackpole Books, 1989. 288 Pages. \$14.95, Softbound). The author, a serving U.S. Army officer, has prepared an excellent guide to the fundamental aspects of combat service support (CSS) in today's Army. In 12 chapters he explains CSS concepts, the classes of supply and services on the battlefield, brigade support area selection and defense, staff actions and special purpose forms (although the DF is no longer with us), staff duties and responsibilities, and other related subjects. The book serves nicely as a complement to the publisher's *Combat Leader's Field Guide*.

• **THE NCO GUIDE.** Third Edition. By Dan Cragg and Dennis D. Perez (Stackpole Books, 1989. 333 Pages. \$16.95, Softbound). A revised and updated version of what has become a standard and a need-to-have publication, this edition includes the new NCO evaluation system and the usual sections on such subjects as pay and allowances, professional development, and Army protocol. For the first time, this edition includes the 16-page color section of decorations, service medals, and badges that was used in the publisher's 44th Edition of *The Army Officer's Guide*.

Here are a number of our longer reviews:

EL SALVADOR AT WAR: AN ORAL HISTORY OF CONFLICT FROM THE 1979 INSURRECTION TO THE PRESENT. Edited by Max G. Manwaring and Court Prisk (National Defense University Press, 1988.

USGPO S/N 008-020-01145-2. 560 Pages. \$16.00, Softbound). Reviewed by Doctor Joe P. Dunn, Converse College.

This volume draws on more than 2,000 pages of interviews conducted by the BDM Corporation under contract with the Army's Southern Command's Small Wars Operational Research Division (SWORD). The editors attempt to tell the story of U.S. involvement in El Salvador since 1979 and suggest lessons learned through these interviews with U.S. and Salvadorian government and military personnel.

The orientation is quite clear. Ambassador Edwin G. Corr sums it up in the preface when he says: "I am confident that you will concur that the United States is doing the job right in El Salvador . . . In this region we are on the right track, and we must learn further from this experience in order to live securely and successfully in a world that most likely will be plagued by low-intensity conflicts for some years to come."

For a novice on Central America such as myself, the chronology, the editors' notes that precede each section of the book, and the brief identifications of each of the interviewees are most helpful features. Although recognizing the advocacy nature of the volume, I found it most informative and fascinating.

IF IT TAKES ALL SUMMER: THE BATTLE OF SPOTSYLVANIA. By William D. Matter (University of North Carolina Press, 1988. 455 Pages. \$29.95). Reviewed by Major Don Rightmyer, United States Air Force.

It is amazing that a comprehensive account of the two weeks of combat around Spotsylvania Courthouse, Virginia, during May 1864 has not been written until now. The battles there followed closely after the first clash between Grant and Lee in the Wilderness. The Spotsylvania battlefield is the location of the infamous Bloody Angle, which both sides initially called "The Mule Shoe" and the fighting at which cost both sides heavily.

The author spent 10 years researching this work and that effort is reflected by

his detailed coverage of the tactical operations and his thorough bibliography. He not only has done an outstanding job of providing a clear and easily understood narrative, his inclusion of a number of well-drawn maps is most helpful to the reader.

The fighting near Spotsylvania raged from 8-21 May 1864, but at the end of it Grant had not delivered a fatal blow to Lee's Army of Northern Virginia. The fighting between the two armies would continue as Grant again slipped around the Confederate Army on his move toward Richmond. The next major action between the two armies would take place at the North Anna River.

The Spotsylvania campaign has been much neglected until now, but it can never be described that way again.

GREEN BERETS: UNCONVENTIONAL WARRIORS. By Hans Halberstadt (Presidio Press, 1988. 134 Pages. \$12.95). Reviewed by Captain F.R. Hayse, United States Army.

This is the third and latest book by this author in the publisher's Power Series, a series that is designed to give its readers a graphic profile of all aspects of the modern military services.

It is extremely difficult for an outsider to tell the story of a unit like the Army's Special Forces. There are many reasons why this is so—security, myth, suspicion, philosophy, and the like. It is to the author's credit that he has been able to overcome most of these problem areas and produce what is, overall, a good book.

The book, divided into seven chapters, is well written and organized. It gives the reader an intimate and candid insight into the "core" philosophy of the Special Forces, something that is lacking in most of the other books about this organization.

It does have one flaw that should be recognized—the numerous photographs tend more to detract from the book's fine text than to support it. It gave me the impression that the publisher felt that only a liberal use of photographs would appeal to the target audience. Many of them could have been omitted without harming the book in any way and would have

made it—at least to me—more visually palatable than it is.

As a Special Forces advocate, I recommend this book to anyone who wants to understand what Special Forces truly means to its practitioners.

GORDON OF KHARTOUM: THE SAGA OF A VICTORIAN HERO. By John H. Waller (Atheneum, 1988. 504 Pages. \$29.95). reviewed by Major Harold E. Raugh, Jr., United States Army.

The recent centennial of the 1885 death of Charles George Gordon revived great popular interest in the life and “martyrdom” of this Victorian hero.

Gordon’s life epitomized the virtues and patriotism that were prevalent at the apex of the Victorian Empire. Born in 1833, he was commissioned in the British Army in 1852. He distinguished himself in the Crimean War, and in the 1860s was in China as commander of the “Ever Victorious Army” during the Taiping Rebellion. It was here that he earned the sobriquet “Chinese” Gordon.

A religious zealot, Gordon was recklessly courageous and fatalistic, believing he would die only if God had foreordained it. After a number of years of service in such diverse places as Africa, Ireland, Mauritius, and the Holy Land, Gordon was persuaded to become Governor-General of the Sudan, which was then dominated by the fanatic Moslem hordes of the Mahdi. Eventually, Gordon was surrounded in Khartoum; the city fell and he was killed in January 1885.

The author has scrupulously researched Gordon’s life and times. As a result, his subject emerges as a human being rather than a two-dimensional object. He has used a number of hitherto unexplored primary sources, including Gordon’s newly discovered childhood journal. His excellent text is nicely complemented by 16 pages of photographs, 6 maps, 29 pages of notes and references, and 10 pages of bibliography.

This book would make a welcome addition to any Infantryman’s bookshelf, and it may, in time, be called the authori-

tative biography of this enigmatic soldier of the Queen.

THE FRENCH REVOLUTION AND NAPOLEON: AN EYEWITNESS HISTORY. By Joe H. Kirchner (Facts on File, 1989. 375 Pages. \$35.00). Reviewed by Colonel John C. Spence III, United States Army Reserve.

There has been a vast outpouring of literature on this subject during the past year, the bicentennial of the French Revolution. Both the lay student and the serious scholar may be overwhelmed by such a mass of writing.

Yet this book, although voluminous in detail, is an excellent starting point for anyone studying the period from 1789 to 1815. It is primarily a reference work that provides the reader a comprehensive view of one of the most tumultuous periods in history. Europe would never be the same again.

Each chapter begins with a survey of the historical context of the period under discussion. Then there is a detailed chronicle of events, which consists primarily of quotations from eyewitness accounts. The appendix is also a valuable reference source, for it contains reprints of all of the important documents of the revolutionary period. It is interesting to note the advances and retreats the revolutionary regime made with respect to the development of fundamental human rights and civil liberties.

This is a comprehensive resource work that cannot easily be digested in a few short readings. It is valuable to use in understanding one of the great eras of modern history.

PREVENTING WORLD WAR III: A REALISTIC GRAND STRATEGY. By David M. Abshire (Harper and Row, 1988. 331 Pages. \$19.95). Reviewed by Captain Stephen A. Johnson, United States Army.

The author, a former U.S. ambassador to the North Atlantic Treaty Organization (NATO), is the founder and president of Washington’s Center for Strategic and International Studies. In this book, he

offers a coordinated, far-reaching, and strategic approach to the future conduct of our country’s foreign affairs.

He strongly advocates continued U.S. support of its alliances, particularly NATO. He believes the greatest threat to world peace is a World War I type miscalculation. To accomplish the goals of his grand strategy, he proposes eight integrated strategies—political, public, deterrence, negotiation, resources, technology, Third World, and economic. He believes the development of these strategies will send the “right” signal and avoid another such miscalculation.

Although the author’s NATO experiences are readily apparent, they do not detract from his recommendations. His book is informative and interesting and is highly recommended to students of national security and foreign policy.

THE EXPERIENCE OF WORLD WAR I. By J.M. Winter (Oxford University Press, 1989. 256 Pages. \$29.95). Reviewed by Colonel David A. Rolston, United States Army.

This exceptionally well done history of the Great War contains a surprising amount of information in a book of modest size. It is uniquely and sensibly organized into six sections, four of which treat the same subject but from different viewpoints. These four are titled the Politician’s War, the General’s War, the Soldier’s War, and the Civilian’s War. The final two sections deal with global power and political effects in the war’s aftermath, and with the treatment of the war in literature, film, and art.

Numerous special features are spread throughout the book. They address a variety of subjects that range from weapons to casualty figures. A generous number of photographs, maps, charts, and illustrations are spread throughout.

There are several good reasons to add this book to your personal collection. First, it is an excellent history of the war, concisely written and covering a wide range of subjects. I can think of no other book that provides such a solid foundation of World War I knowledge. Second, this is a fine reference book. It is well organized and indexed and contains much

BOOK REVIEWS

information that is not easily found elsewhere.

I enthusiastically recommend this fine work to all readers.

CONTEMPORARY ISSUES IN LEADERSHIP. Second Edition. Edited by William E. Rosenbach and Robert L. Taylor (Westview Press, 1989. 248 Pages. \$49.00). Reviewed by Colonel George G. Eddy, United States Army Retired.

The publisher claims that this edition is a lively anthology of leadership, trenchant and provocative. It is not. Divided into four parts, each with four to six essays, the book struggles fruitlessly in its attempts to meet these claims.

Reasonably knowledgeable readers will be much disappointed, and should be distressed, to see contentions that emphasize "collective" leadership, the blatant assertion that "Should women have to choose between motherhood and career?" is the wrong question, and the claims that we should embrace Hagel and accept post haste that we have created a better-educated and more sophisticated populace. The relatively uninformed reader will be greatly confused by a book that lacks a consistent, recognizable central theme.

To those who are filled with anxiety that we have created a country without enduring values, except for personal aggrandizement at the expense of others—where drug and alcohol abuse abound and where the family has all but disintegrated—a more useful and pertinent book on the kind of effective leadership needed today clearly is in order.

WARS OF THE THIRD KIND: CONFLICT IN UNDERDEVELOPED COUNTRIES. By Edward E. Rice (University of California Press, 1988. 186 Pages. \$18.95). Reviewed by Captain Rick Ugino, United States Army National Guard.

The author, a retired U.S. Foreign Service officer, served many years in the Far East as well as in various other areas of the world during his career.

In this book, he presents a short and lively but scholarly approach to the prob-

lems inherent in facing up to and countering so-called "national liberation/guerrilla wars."

Although he covers ground that has been covered before, he does add interesting items on conflicts that have not been significantly addressed before. Specifically, he looks at the circumstances surrounding the Huk insurrection in the Philippines, the Algerian officer "OAS" revolt of the early 1960s, and, most important, the interplay of U.S. politics with United Fruit Company activities in Nicaragua.

He concludes his narrative by offering his recommendations for future courses of action that our political leaders might consider and by analyzing the strategic principles of these conflicts. He does not believe our political leaders have really learned the lessons of the past. His book is a good overview of an important topic and is recommended as an excellent primer on the subject.

RECENT AND RECOMMENDED

FEATHERSTONE'S COMPLETE WARGAMING. By Donald Featherstone. Sterling, 1989. 208 Pages. \$29.95.

THE DARK SUMMER: AN INTIMATE HISTORY OF THE EVENTS THAT LED TO WORLD WAR II. By Gene Smith. A Reprint of the 1987 Edition. A Collier Book. Macmillan, 1989. 314 Pages. \$9.95, Softbound.

"PECOS BILL": A MILITARY BIOGRAPHY OF WILLIAM R. SHAFTER. By Paul H. Carlson. Texas A&M University Press, 1989. 225 Pages. \$34.95.

TEN COMMANDO: 1942-1945. By Ian Dear. St. Martin's, 1989. 208 Pages. \$17.95.

A SHORT HISTORY OF THE KOREAN WAR. By James L. Stokesbury. A Reprint of the 1988 Edition. A Quill Book. William Morrow, 1990. 276 Pages. \$8.95, Softbound.

ROOSEVELT AND MARSHALL: PARTNERS IN POLITICS AND WAR. By Thomas Parrish. William Morrow, 1989. 608 Pages. \$25.00.

EUROPEAN ARMS CONTROL: PROBLEMS AND PROSPECTS. Edited by Ronald L. Hatchett. Texas A&M University Press, 1990. 224 Pages. \$29.50.

SOMME. By Lyn Macdonald. Originally published in 1983. Atheneum, 1989. 366 Pages. \$14.95, Softbound.

THEY CALLED IT PASSCHENDAELE. By Lyn Macdonald. Originally published in 1978. Atheneum, 1989. 253 Pages. \$12.95, Softbound.

THE ROSES OF NO MAN'S LAND. By Lyn Macdonald. Originally published in 1980. Atheneum, 1989. 318 Pages. \$13.95.

ULTRA AT SEA: HOW BREAKING THE

NAZI CODE AFFECTED ALLIED NAVAL STRATEGY DURING WORLD WAR II. By John Winton. William Morrow, 1989. 207 Pages. \$18.95.

THE MEXICAN-AMERICAN WAR, 1846-1848. By Philip R.N. Katcher. Color plates by G.A. Embleton. Men-at-Arms Series 56. Originally published in 1976. Osprey, 1989. 40 Pages, Softbound.

THE SAMURAI. By Anthony J. Bryant. Color plates by Angus McBride. Elite Series 23. Osprey, 1989. 64 Pages, Softbound.

THE BRITISH ARMY IN NORTH AMERICA, 1775-1783. By Robin May. Color plates by G.A. Embleton. Men-at-Arms Series 39. Originally published in 1974. Osprey, 1989. 40 Pages, Softbound.

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NTC: A PRIMER OF MODERN LAND COMBAT. By Hans Halberstadt. Landpower Series Number 3004. Presidio Press, 1989. 134 Pages. \$12.95, Softbound.



From The Editor

SWAP SHOP

In our January-February 1986 issue, we reinstated our Swap Shop department and published two Swap Shop items in that issue. Since then, we have received a number of such items and have published all of them.

At the moment, we need more Swap Shop items. This department is designed to allow infantrymen everywhere to share practical ideas they have used successfully in doing their jobs. These are short items that we use as fillers whenever we have room for them — or occasionally we will make room for one.

So if you have an idea you want to share with your fellow infantrymen, send it in. Remember this is your department, and it won't work without your help.

SCHEDULES

During the past several months we have received a number of requests for information about the various classes that are taught at the Infantry School — start dates, for example, and end dates for such courses as OCS, ANCOG, IOBC, and IOAC.

We will be happy to furnish, on request, schedule information on particular courses. Call or write us and we'll get the information to you as fast as we can.

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