Infantry
SCHOOL QUARTERLY

the

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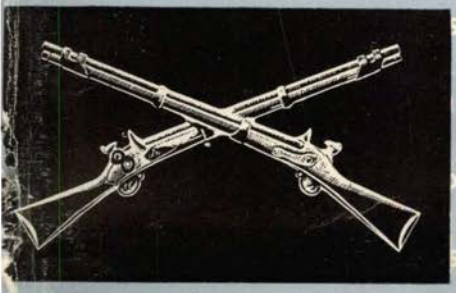
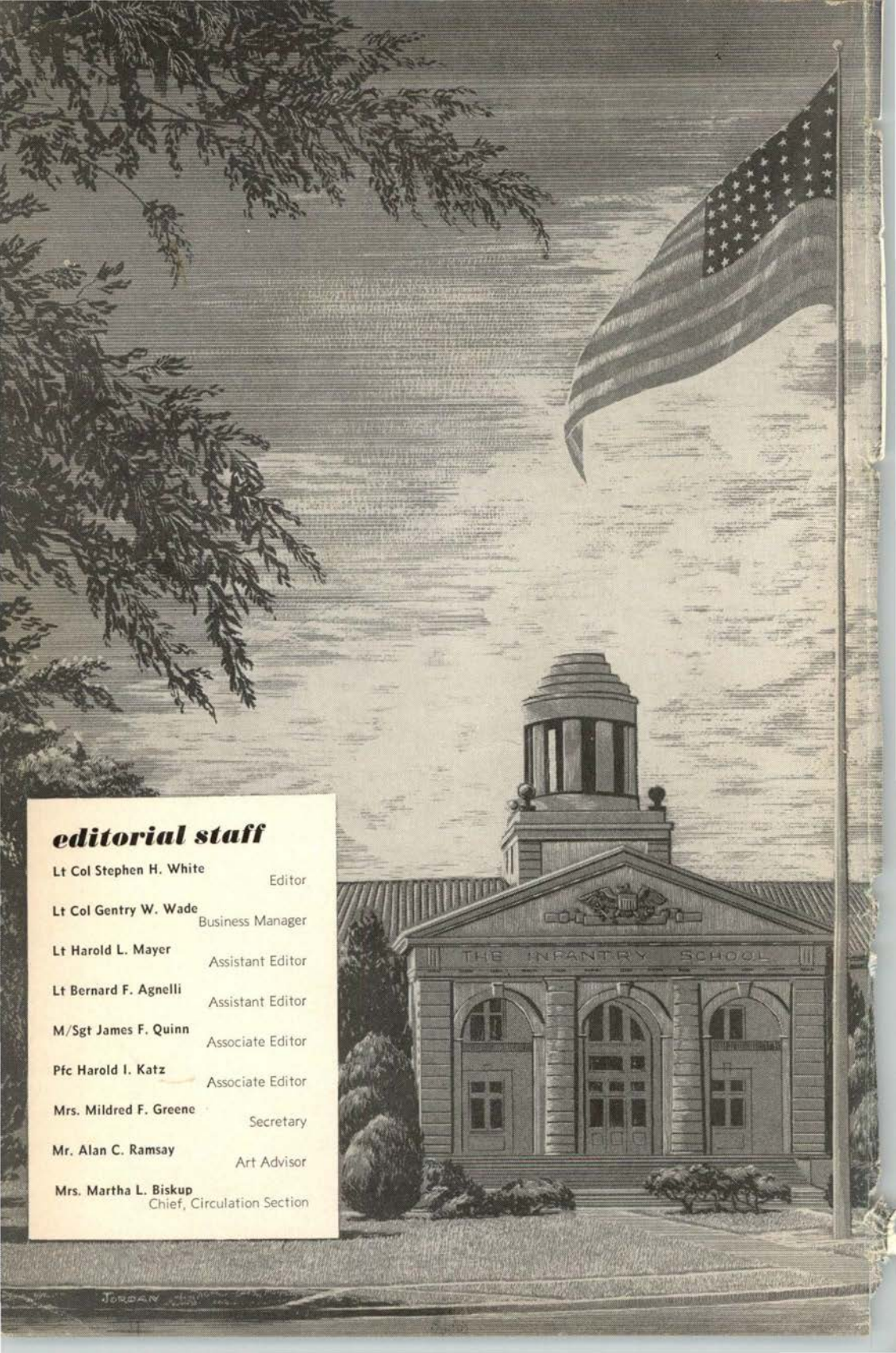
for

infantrymen

january 1957





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EDITOR'S PAGE

Dear Reader:

The impact of nuclear developments on the Army is reflected in recent instructions from Continental Army Command. In a letter on the preparation of training literature, CONARC has directed that our "training literature covering doctrine, organization, tactics, and techniques will be prepared based upon atomic warfare conditions."

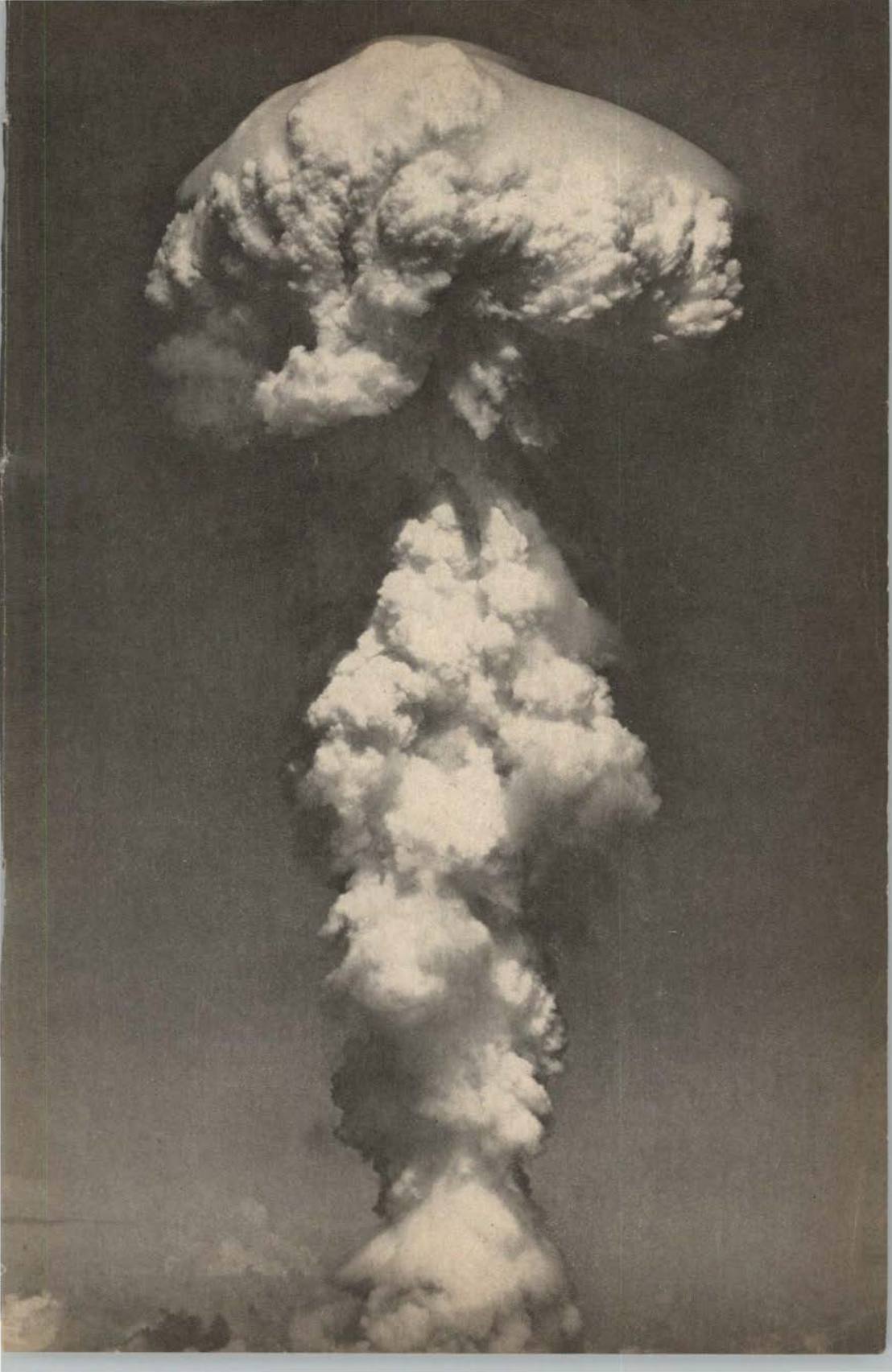
While we will retain necessary instruction for conventional warfare, the emphasis now is placed on training for the atomic battlefield. The magnitude of this directive is apparent. It affects everything we are doing. Here at The Infantry School all Infantry field manuals and other training materials, including resident and nonresident instruction, must be revised or specifically written to reflect this emphasis.

As a result the *Infantry School Quarterly* assumes great importance. In this period of many changes, Infantrymen and those who work with Infantry need a quick, accurate source for information. The *Quarterly* is an extension of Infantry School instruction. It bridges the gap between revisions of manuals and other texts. It is the one place where you will be able to keep up with revisions, changes and new developments as they occur. You will know in advance what manuals and texts are being revised or prepared, what material they cover, and when they may be expected. You will get vital information quickly—as it is developed and approved—in articles and other materials prepared by the same people who are working on the texts.

In the months to come the *Quarterly* will fill an ever increasing need. As a reader, it is important that you bring this source of information to the attention of others throughout the active Army and the reserve components.

The EDITOR

Training for the atomic battlefield is being stressed in all instruction at The Infantry School. To make this training more realistic the School has developed an atomic-burst simulator. The visual effect of this burst (small photo) strongly resembles the real thing (large photo). Memorandum 51, Headquarters CONARC, 10 October 1956 explains how this simulator can be fabricated locally.



LETTERS TO THE EDITOR

Recruit Leaders

Sir:

Your lead article, "Dear Sir," by General Cook in the July 1956 *Quarterly* interested me so much and I disagreed with his approach so strongly, I was moved to write my own thoughts on the subject.

The current Army approach in recruiting college graduates for the professional officer corps is . . . unrealistic and unacceptable. . . . The Army needs leaders. Let's quit selling pensions and get back to recruiting leaders. Let's return to the matter-of-fact approach of our old recruiting posters and tell these young men: "Your Nation Needs *You!*" Let's sell that sense of service which no amount of financial reward can buy. It is this very purpose in life, the sense of accomplishment mentioned only briefly in General Cook's article, that few civilian professions can offer today's youth. As Patton said, "The highest obligation and privilege of citizenship is that of bearing arms for one's country." Leadership grows only from selfless dedication to a cause above oneself. Our present approach of baiting today's college youth with financial incentives will certainly not arouse that dedication. Aren't we recruiting, and encouraging, an undedicated officer corps?

What the Army needs is not a new approach, but its old one, typified by the recruiting poster—now retired—which showed an empty pair of worn, mud-caked combat boots in a deserted battlefield, and which asked simply, "Can *you* fill *these?*"

We must stress the fact that the Army offers plain, hard work. No other job will require more *of* a young man and, therefore, develop more *in* him. Every person yearns for realization of the best in himself, a chance to apply *all* his capabilities.

The responsibilities put on today's officer are enormous. The variety of problems facing him—in supply, mess, maintenance, administration, and in counseling and training the men under him—require far more of an officer than could any civilian profession. Yet these very responsibilities are sure to bring out in him the qualities every man would like most to find in himself.

Hard work! This, more than anything, is what the service offers. Let's admit it, and be proud of it. Let's recruit leaders who will enter the Army prepared to face their responsibilities realistically, and who will accept them as the challenge they are. Let's recruit leaders, and stop inviting an officer corps serving under delusions of a nine to five day, ever-increasing pay checks, and retirement after thirty years of free world travel.

Lastly, let's tell potential officers about the *Army*, and not about its fringe benefits. The Army is men, teamwork. Today's officer will be serving with men whose sole professional purpose is to forge with him a better Army and greater security for the American nation. The fellowship fostered by his association with

others dedicated by that same "sense of service" is the richest reward experienced by any Army officer.

Benjamin F. Schemmer
1st Lt, Infantry
Hq, V Corps
APO 79, New York

We readily agree that your approach is the ideal one. It is one we have used in the past and will always use. However, the hard cold fact is, it alone does not provide officers in sufficient numbers to meet our requirements. Until such time as we do attract sufficient officers—all of whom are dedicated to the Army—we must use the ideal and other *approaches that ultimately will help us to come closer to our goal.*

The ROTC cadet who has achieved the status of distinguished military student has evidenced a degree of interest and aptitude for the military. Many young men from this rather select group will make dedicated officers from the start. Others, when they have learned more about the service, will become the dedicated type we need. Many of our PMS&Ts who have used the ideal approach and failed to reach some of their better prospects apparently feel the same way. We have had a surprising number of requests from PMS&Ts for reprints of General Cook's article for distribution to their cadets. They tell us this approach may help us to get some of their outstanding cadets whom they know from personal observation to be excellent officer material.

Many of our best officers today were not dedicated initially. They would not have entered the service except for the crisis of war. But they became sold on the service and form a vital part of our officer corps.

We must seek out the exceptional young man and cultivate his taste for the service until he becomes the dedicated officer we desire.

We appreciate your interest. Your ideal approach will always be used. But from time to time we will supplement it with others which may give us more applicants to be screened and developed to know the true satisfaction of the service as we do.—Editor.

Squad Leader's Friend

Sir:

I am a squad leader in the 3d Marine Division, stationed in Japan.

I just thought you would like to know that the *Infantry School Quarterly* is being read on this level in the Marine Corps.

Your publication is a little scarce as evidenced by the fact that I have just obtained and read the April 1956 issue.

Sorry I'm late, but I must thank Capt W. F. Strobridge for his article, "Where Are Your Leaders?" It really hit home because it depicted my own position in February of last year. I was a corporal and had been a clerk for two years. My requests for reconnaissance and line companies had been turned down again and again until I finally convinced the "top" that I was being wasted. I hope other first sergeants and unit COs were impressed by the article.

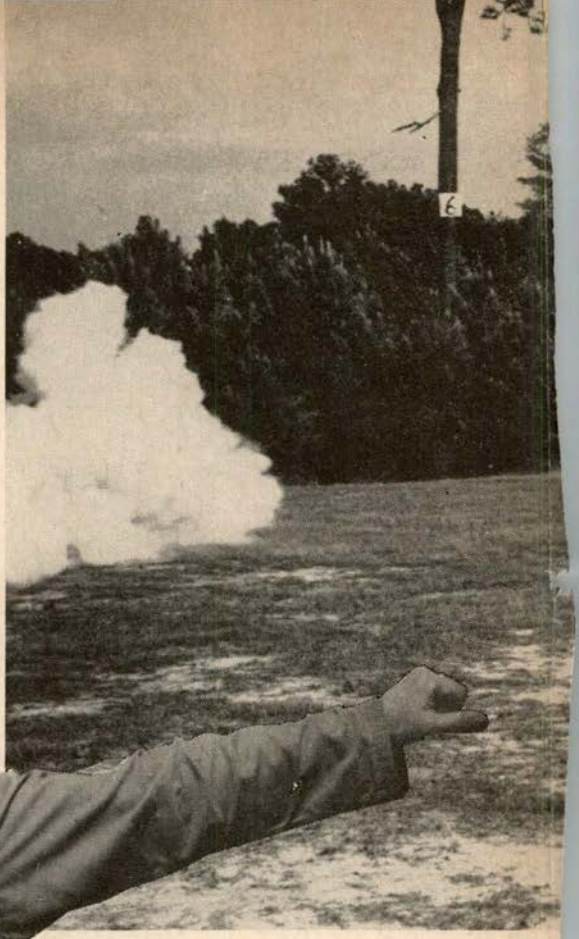
The articles "Shooting in the Dark," "The Long Thin Line" and "Snakepots to Baseballs" have given me a lot of ideas and meat for subsequent instruction. The *Infantry School Quarterly* is a squad leader's friend.

R. F. Endert, Sgt. USMC
3d Marine Division
FPO San Francisco, Calif.

We are especially gratified by the number of comments we are receiving from our fellow Infantrymen in the Marine Corps—particularly those from noncommissioned officers like yourself. The primary purpose of the Infantry School Quarterly *is to help Infantrymen and*

Continued on Page 96

BATTLE DRILL



In the past we somehow have overlooked the training needed by individual soldiers and small units for the final, crucial moment of combat— how to move over those last yards of the assault to seize the objective. Battle drill will provide that training.

We are familiar with the importance of teamwork in the field of athletics. Football teams spend hours in daily drills to perfect their plays — running them over and over again against their opponents' formations. Basketball teams, hockey teams and others achieve the skill and teamwork necessary to win by constantly practicing offensive and defensive plays.

The rifle squad is a team. It is a team that must play and win in the grimmest game of all — the life-and-death struggle of combat. How can this basic combat unit practice and perfect, before the game, the skill and teamwork it must have to be successful when it steps onto the field of battle?

One way to coach this team is through battle drill — a training technique designed to develop the teamwork necessary for the rifle squad[1] to capture an objective after it has been halted during the assault phase of an attack. It trains the squad in the use of fire and maneuver to cover the final yards to the objective. Through repetition and practice battle drill teaches squad members to function aggressively and correctly amid the noise and confusion of battle when detailed orders or instructions cannot be given.

Battle drill is not entirely new. For years we have been teaching small units fire and movement and the use of various combat formations. However, this training usually stops at the assault phase because we have assumed that once the assault begins we take the objective. Com-

[1]Battle drill also can be used by platoons. However, this article considers only squad battle drill.

This article was prepared through the combined efforts of The Infantry School's Tactical Department and the 3d Infantry Division, Fort Benning. Particular assistance was given by Lt Col John A. Rankin, who helped develop battle drill while G3 of Maj Gen J. C. Fry's 2d Infantry Division in Korea and who has worked with it under another strong advocate of battle drill, Maj Gen George E. Lynch, Commanding General, 3d Infantry Division. Lt Jere N. Moore, Public Information Office, 3d Division, also contributed to its development. Much of the material in the article comes from the draft of a training circular on "Combat Formations and Battle Drill" now being prepared by the Tactical Department, The Infantry School.

bat has repeatedly revealed this to be faulty thinking. An assault frequently is bogged down; and unless the squads and platoons know how to advance after being stopped by short-range enemy fire they fail to take the objective and frequently are pushed off the ground they have gained.

Realizing this, some commanders during World War II developed their own versions of what is now called "battle drill" and trained their units to deploy quickly and automatically into proper combat formations and to use fire and maneuver as they attacked and assaulted objectives.

However, this particular concept in which individuals and small units repeatedly run combat *plays* for any type of situation and terrain was not published until December 1952, when Maj Gen James C. Fry, Commander of the 2d Infantry Division in Korea, included his system of battle drill in a division training memorandum. He had used battle drill successfully during the Italian campaign in 1944 while commanding the 350th Infantry Regiment. In Korea he found that many troops were not closing with the enemy in the final phases of the assault. Interviewing a number of outstanding men who had won the DSC or Silver Star by closing with the enemy he found that they had invariably developed some sort of "play" when enemy fire pinned them down. These men complained that their training left them at the assault position. Once they fixed bayonets and moved through that position they were expected to advance as though the enemy didn't exist. Unfortunately, such ideal conditions seldom existed. Advancing units too often were halted by fire during the assault and failed to take their objectives.

Gen Fry's solution to this problem was battle drill — to be used when units were forced to hit the ground in either the attack or the assault. Battle-drill techniques ordinarily would be employed against unexpected resistance that may be encountered between the line of departure and assault position or in the event the assault is stopped by effective enemy fire. In both cases, immediate action is required without lengthy orders. Ordinarily battle drill will not be needed until a unit has advanced to within 200 yards of its objective; in most situations a unit probably could get within 50 or even 20 yards of the objective before being forced into its fire-and-maneuver plays.

The 2d Division employed battle drill successfully and other units in Korea adopted it. The commander of the 1st Battalion of the 5th RCT said his unit never could have retaken Outpost Harry without preliminary training in battle drill. Gen Fry wrote articles on battle drill for the April and May 1953 issues of *Combat Forces Journal*. Since then,

the advantages of battle drill have become more widely recognized.

Gen Fry expanded his 2d Division training memorandum into a book, *Assault Battle Drill,* (Military Service Publishing Company, 1955) to show small units HOW to take an objective with minimum casualties. He maintained that field manuals stop with generalities of WHAT should be done. His methods are not in conflict with current concepts but rather are refinements and further extensions of our present small-unit training.

Late last year CONARC directed The Infantry School to review Gen Fry's book, to comment on the appropriateness of the techniques it discusses and to explore the possibility of including these techniques in FM 7-10 or other training literature. In accordance with this directive The Infantry School prepared a training circular on combat formations and battle drill and will conduct instruction in these subjects when the circular is published. Eventually this material is to be included in FM 7-10.

The 8th Infantry Battalion of the 3d Infantry Division at Fort Benning began practicing battle drill last March. A squad from the battalion demonstrated battle drill before all rifle companies of the division and the training soon became division wide.

This article discusses battle drill formations for both the nine-man rifle squad used in present TOE Infantry divisions and for the 11-man rifle squad (being tested by the 101st Airborne Division) with its two fire teams.[2] The nine-man squad consists of a squad leader (number 1), five riflemen (numbers 2, 3, 4, 7 and 8), two automatic riflemen (numbers 5 and 6) and an assistant squad leader (number 9). The 11-man squad, organized under the ROTAD concept,[3] includes a squad leader (number 1), two team leaders (numbers 2 and 7), six riflemen (numbers 3, 4, 6, 8, 10 and 11), and two automatic riflemen (numbers 5 and 9).

Although designed specifically for squads and platoons, battle drill may be used as a guide for other small units requiring tactical grouping for movement under combat conditions.

Battle drill is taught under two major headings: individual and team. Individual training includes emphasis on marksmanship, combat training, battlefield signals, terrain appreciation, battle actions, elementary fire and maneuver. Team training begins with formations and goes on to terrain appreciation, fire-and-maneuver exercises and, finally, preliminary and advanced squad battle drill.

Initial training stresses the development of fundamental combat skills in the individual soldier. The platoon leader or company commander gives an opening orientation which discusses the importance of battle drill and the part it plays in the over-all success of a unit. The training begins with the squad leader emphasizing the importance of marksmanship. He then instructs his men to recognize and use cover, to conceal themselves while observing or firing on the enemy, to crawl toward the enemy and to fire and move toward an enemy position in a series of rushes from one firing position to another. Each individual must achieve proficiency in all these skills before he can contribute to the coordinated and effective team play of his squad.

Because of the noise, speed and confusion of battle, particularly during the assault phase, battlefield signals for squad maneuvers replace lengthy verbal orders. Consequently, each individual must be

[2]For more about this squad see "Those Who See the Whites of Their Eyes" by Maj Gen A. D. Mead in the July 1956 issue of ISQ.
[3]ROTAD: Reorganization of The Airborne Division.

trained thoroughly in the use of arm-and-hand and whistle signals (Figure 1). Both types are used habitually along with oral commands throughout battle-drill instruction.

Battle drill requires a study of all types of terrain by all members of the squad. Each man must be able to determine quickly the effect of terrain on the squad's courses of action and how to make best use of the advantages it offers. This requirement develops coordinated thinking and results in quick, effective action by all members of the squad. Squad members study the terrain and give their observations to the squad leader who makes an over-all evaluation of the area, including:

1. Probable location of the enemy.
2. Vulnerable points in the enemy's defenses.
3. Routes of approach toward the enemy position which will exploit his weaknesses.
4. Positions from which to establish fire support along the routes of approach.
5. Avenues of maneuver that afford some measure of cover and concealment.

Practical application of terrain evaluation, over every available type of ground that may be met by Infantrymen in combat, continues until the majority of the squad reaches the same decisions instantly and instinctively. The next step is training over a battle-action course.

Before taking his men through this course (Figure 2) the squad leader explains its purpose and discusses local ground rules. The squad then observes a demonstration or goes through a dry run on another course or a smaller piece of terrain.

Individual battle-action exercises train the soldier to select the best cover and avenues of approach, to develop the ability to move forward on the battlefield while presenting a minimum target and to locate enemy positions while rushing. Squad members must select firing positions while moving rapidly; see, but not be seen; and, without unduly delaying their advance, choose the route forward which offers the best cover and concealment.

These exercises, controlled and supervised by the squad leader, are repeated until all members of the squad have displayed proficiency in running through them. The squad leader critiques individuals after each running, covering their

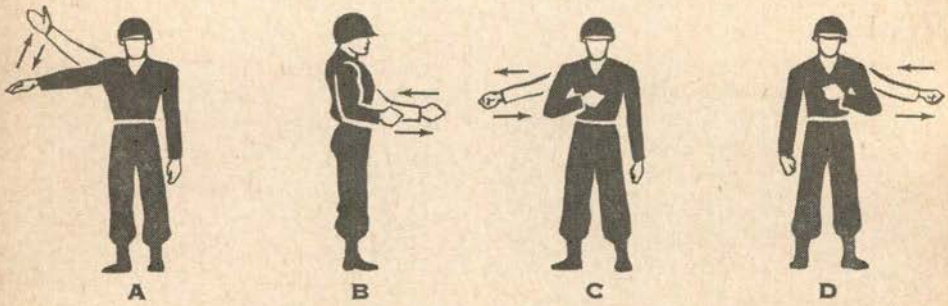


Figure 1. Basic signals: A—Attention. Extend arm sideward and slightly above the horizontal; move toward head repeatedly; whistle: one short blast, repeated if necessary. B—Move forward (frontal attack). Thrust fist repeatedly to the front; whistle: series of short blasts. C—Maneuver right. Thrust fist repeatedly to the right; whistle: two short blasts, repeated if necessary. D—Maneuver left. Thrust fist repeatedly to the left; whistle: three short blasts, repeated if necessary.

method of starting from the firing position, running from one firing position to another, choice of firing position, methods of getting into positions and the use of cover.

From individual battle actions, the squad goes to elementary fire-and-maneuver exercises which teach the beginnings of teamwork. The entire squad does not yet operate as a unit in this transitional phase; instead, the men learn to work together in two- and three-man groups. Repetition of realistic fire-and-maneuver exercises enables squad members to practice the principles of team play in attacking and assaulting enemy positions.

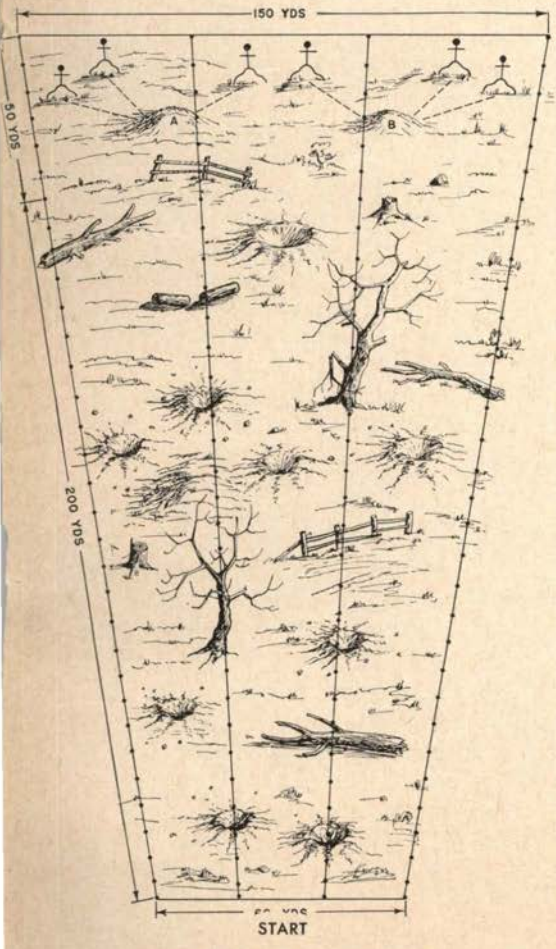


Figure 2. Battle-action course.

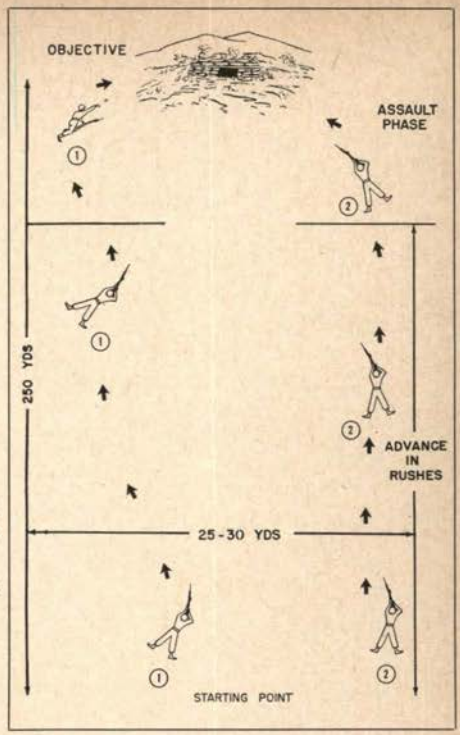


Figure 3. Fire and maneuver—Phase I.

After an orientation similar to that for the battle-action course, training in elementary fire and maneuver begins. This first phase is the same for the nine-man squad and the 11-man squad. It brings the principle of fire and maneuver down to the basic two-man team and is restricted to an area 25 to 30 yards wide, with at least 10 yards between men (Figure 3). One man rushes to a firing position while the other takes up the fire. By alternately firing and moving both men arrive within handgrenade range of the enemy target, where the number 1 man throws a simulated grenade and both men assault the position simultaneously.

The second phase of the fire-and-maneuver exercises takes place in an area

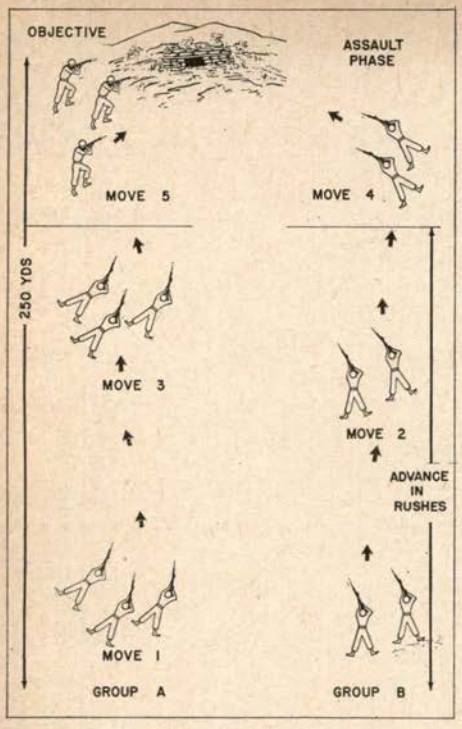


Figure 4. Fire and maneuver—Phase II.

250 yards long and 100 to 120 yards wide (Figure 4).

The nine-man squad in this phase is divided into four groups (A, B, C and D) of two or three men. Two groups participate while the other two observe. With at least 10 yards between men and 20 yards between groups, the two groups move toward a starting position in parallel columns. At a signal indicating they have come under effective fire, they hit the ground and attempt to locate the enemy positions. Numbers 2 and 3 of group A move by rushes until they are generally on line with group B number 1 man. As soon as the enemy is located, the number 1 man of group A starts the advance by rushing a short distance toward the objective, covered by the fire of the other members of groups A and B. When he reaches a new position and takes up the fire, the number 2 man of group A moves up to a new firing position, begins to fire and is followed by the number 3 man. When all members of group A have taken up new firing positions, group B begins its advance. Number 1 man rushes to a new firing position, followed by number 2 man. Each group advances alternately until they reach a position within handgrenade range of the enemy. At the group leader's signal all members of group A throw grenades at the enemy target. When the grenades pop, both groups move toward the position, forming an assault line at a rapid walk and firing well-directed shots from the hip or shoulder.

The 11-man squad goes through the second phase in much the same way. Each five-man team is divided into two groups (A and B). Alfa team, with a minimum of 10 yards between men and 20 yards between the two groups, participates while Bravo team observes. The team leader controls one of the groups while one man in the other group is designated its leader. After hitting the ground at the effective-fire signal the numbers 3 and 4 men (in group A) move by rushes until they are generally on line with number 2 man, the team leader. The number 6 man (who is with group B) moves in a rush to a position generally on line with number 5 man. As soon as the enemy is located the team leader, in group A, starts the advance by rushing a short distance toward the objective. When he reaches a new position and takes up the fire against the enemy, the number 3 man of group A moves up to a firing position, begins to fire and is followed by the number 4 man of group A. When group A has taken up new firing positions group B begins its advance. Number 5 man moves up first; he is followed to a new firing position by number 6 man. Each group alternates in the advance until both reach positions within handgrenade range of the enemy position. At the team leader's signal all mem-

bers of group A throw simulated grenades at the target. Subsequent actions are the same as those for the nine-man squad.

Blank ammunition and an aggressor detail or the use of live ammunition and silhouette targets inject realism into these exercises. Groups and teams are alternated until each member of the squad displays proficiency in every role and in each position within the squad. Most training areas or firing ranges can be used for these elementary fire-and-maneuver exercises.

A critique at the conclusion of each running of the exercise covers timing, teamwork in movement and the assault, selection of firing positions, proper methods of rushing and full utilization of the terrain. Errors by individuals are corrected.

Once the riflemen have learned the rudiments of teamwork they enter the squad phase of battle drill which begins, like other phases, with an orientation on a blackboard or sandtable and a realistic demonstration of what a trained unit can do with battle drill.

For this final phase of the drill the nine-man rifle squad is divided into two interchangeable teams — for fire support and maneuver. The squad leader and numbers 2, 4, 6 and 8 men form team Alfa while the assistant squad leader and numbers 3, 5 and 7 form team Bravo (Figure 5).

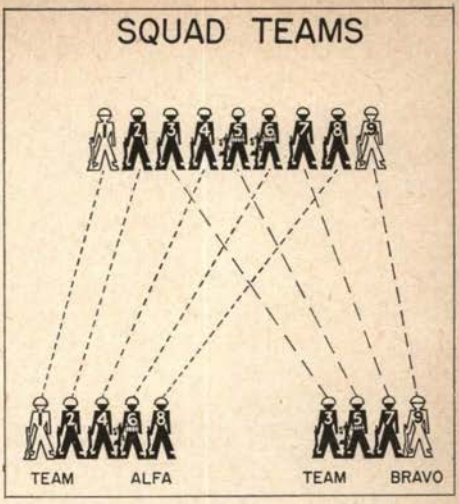
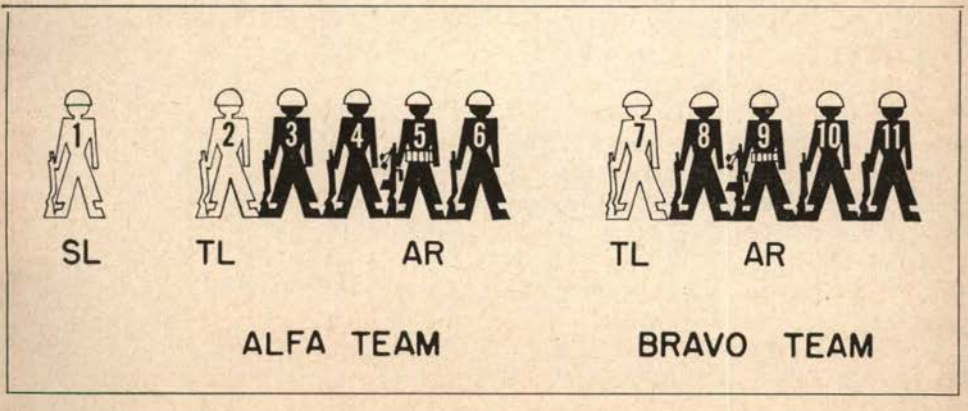


Figure 5. Basic method of dividing the nine-man rifle squad into two teams.

The 11-man rifle squad is organized into two teams (Figure 6), each with a leader to assist the squad leader in control. Team Alfa is made up of numbers 3, 4, 5, 6 and is controlled by number 2. Team Bravo consists of numbers 8, 9, 10, 11 and is controlled by number 7.

Regardless of the size of the squad engaging in battle drill, team Alfa usually acts as the maneuvering group when the action is to the right; fire support is

Figure 6. The teams of the 11-man rifle squad.



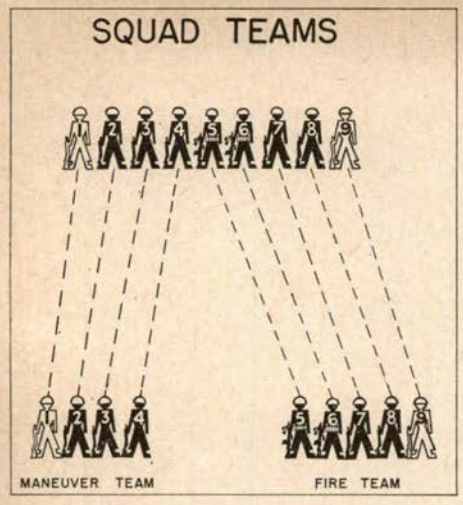


Figure 7. Alternate method of dividing the nine-man rifle squad into two teams. This is the method used by the 3d Infantry Division.

provided by team Bravo. Team roles are reversed when the action is to the left. In a frontal attack, team Alfa maneuvers while fire support comes from team Bravo.

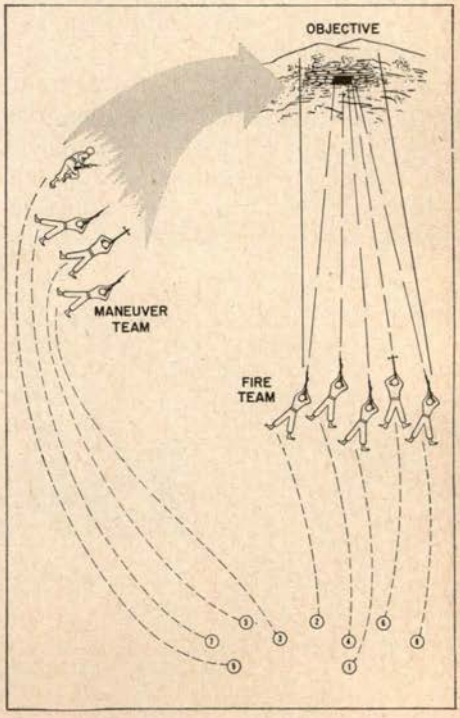
In all actions and maneuvers the fire-support team continues to engage enemy targets until its fires are masked. Then it joins the maneuver team in the assault and consolidation on the objective.

As the roles of the two teams are interchangeable, the maneuver team, when prevented by enemy action or the terrain from overrunning the enemy's position, takes up the fire-support role and covers the advance of the fire-support team which assumes the maneuver role.

An alternate division of the squad may be made when the terrain offers an extremely advantageous fire-support position for increased accurate fire on the enemy. In the alternate plan for the nine-man squad the squad leader and numbers 2, 3 and 4 men form the maneuver team while the assistant squad leader and numbers 5, 6, 7 and 8 furnish fire support. In the alternate organization for the 11-man squad numbers 5, 6, 9, 10 and one of the team leaders (designated by the squad leader) make up the fire-support element, with the rest of the squad acting as the maneuver element. These teams are not interchangeable and can be used only when the enemy situation is clear and there are excellent positions for fire support. The reason for this is obvious: both automatic rifles are placed with the fire-support team.

The 3d Division, organized under the ATFA (Atomic Type Field Army) concept, uses a slightly different system. Its battle drill calls for a maneuver team and a fire team — as in the alternate nine-man-squad plan described above — which are not readily interchangeable (Figure 7). Although battle-drill techniques differ slightly according to the concept under which a unit is organized all versions use similar methods to achieve the same end — squad teamwork.

Figure 8. Nine-man squad executing maneuver left from as skirmishers.[4]



The 3d Division gives proficiency tests to individual riflemen and to the entire squad after the individual and team phases of battle-drill training. Commanders of TOE units can devise their own methods of testing for proficiency.

The rifle squad, now divided into two teams, next learns the three basic maneuvers which apply to almost all combat situations: maneuver left, maneuver right, frontal attack (Figures 8, 9 and 10). The squad leader selects the proper maneuver and starts the team play. The plays can be executed from the various formations in which the squad normally moves in combat.

The rifle squad as a team employs battle-drill maneuvers usually when:

1. The assault has been stalled because effective enemy fire on the assaulting troops has not been silenced or reduced by friendly supporting fires.

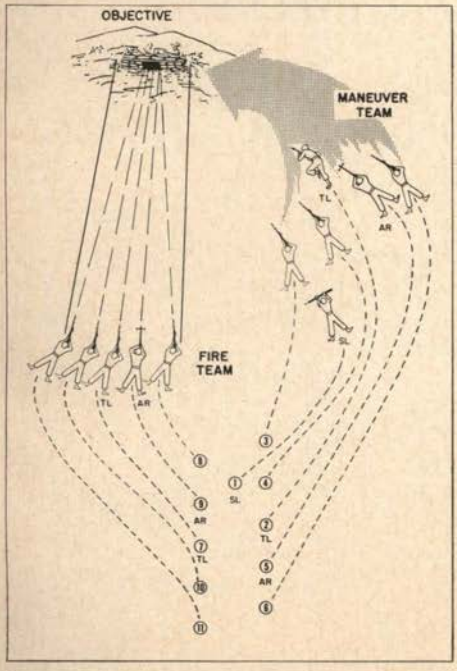


Figure 9. Eleven-man squad maneuvers right from squad column.[4]

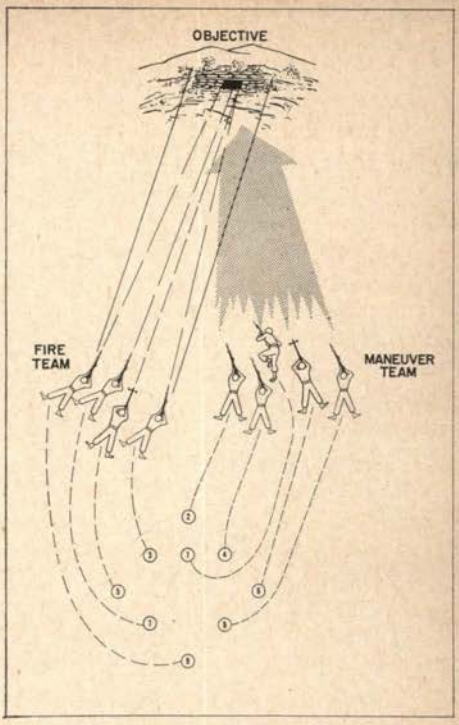


Figure 10. Nine-man squad in frontal attack from squad diamond.[4]

2. Intermediate resistance is met on the way to an assault position.

3. The squad, as the point of the advance guard, meets resistance.

Each member of the team should know at all times what every other member is doing and what action is required on his part to help in the team's task of destroying the enemy. All action is carried out rapidly with as few orders as possible.

Squad maneuver training should begin on level, open terrain such as a parade ground or similar area. Squads are divided into teams and their missions and actions in the various maneuvers are explained in detail to insure that all members understand the requirements and purposes of the drill.

The squad teams are walked through the plays first, using combat formations

[4]Both the nine and 11-man squads execute this maneuver in a similar manner from the other basic squad formations.

(squad column, diamond or as skirmishers) as points of departure in execution. Training on irregular terrain begins once each member of the squad fully understands the part he is to perform in each of the preplanned plays and is able to carry out his actions smoothly and automatically.

Training the full squad includes repeated emphasis on terrain analysis. An enemy position is selected where each man can be seen. The team designated as the maneuver team selects a route from a starting point to the objective. The fire-support team observes the route taken and selects firing positions it would use to lend close support to the maneuver element.

In calling for the "play" which will best accomplish the mission the squad leader will be influenced by the location and disposition of the enemy, the terrain available for maneuver and the location of suitable fire-support positions.

After reaching his decision the squad leader commands and signals his squad: *maneuver left, maneuver right,* or *frontal attack*. The two teams then execute the indicated battle-drill maneuver.

After the squad achieves finesse in its battle drill, it can go on to more advanced training. Here the squad encounters noise, exertion and fatigue as it attacks and assaults enemy positions. Simulated supporting fires, demolitions and smoke provide a certain amount of realism. The squad moves out on the course in an appropriate combat formation and crosses the line of departure. At a point selected by the instructor the unit comes under aggressor fire. The squad leader signals for the desired maneuver and the squad, using blank ammunition and practice handgrenades, executes the battle-drill play to knock out the enemy.

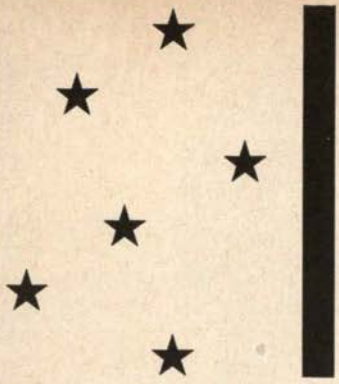
Just before the squad actually reaches the aggressor position, the exercise is halted and a critique is held in the immediate area. Squad, team and individual actions during the exercise are discussed, including:

1. Ability of the squad members to locate or detect the enemy position.
2. Leadership, knowledge and initiative displayed by the team leaders and the individual members of the squad.
3. Correct signals employed by the squad leader to initiate the maneuver.
4. Selection of effective firing positions by the fire-support team.
5. Selection of an advantageous route of advance by the maneuver team.
6. Actions of the automatic riflemen in remaining close to their leaders and effectively covering the target area.
7. Unnecessary bunching or exposure during the movement forward.
8. Timing and teamwork demonstrated by all members of the squad.

This realistic exercise is repeated over every possible type of terrain. Through its repetition the men gain confidence in their own ability and in the coordinated action of the squad in approaching, attacking and assaulting enemy positions. Each individual becomes confident of his own ability to assume any position in the squad — rifleman, AR man, team leader or squad leader. As this teamwork reaches a peak in the final phase of squad drill (live-firing exercises over selected ranges) it takes fewer and shorter orders to control the squad. The squad has become a smoothly functioning team which, almost automatically, does the right thing.

Battle drill molds the individual rifleman into a team member capable of playing any position, including that of the leader, in the event of casualties. It places every man in the right place at the right time, giving the rifle squad all-around security and the ability to place maximum fire in any direction in minimum time.

Constant drill in these combat "plays" will put a winning team on the field of battle.



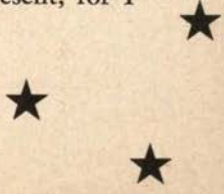
Soldier's Creed

"I am an American soldier. I am a man of the Army of the United States — a protector of the greatest nation on earth. Because I am proud of the uniform I wear, I will always act in ways creditable to the military service and the nation it is sworn to guard.

"I am proud of my organization. I will do all I can to make it the finest unit of the Army. I will be loyal to those under whom I serve. I will do my full part to carry out orders and instructions given me or my unit.

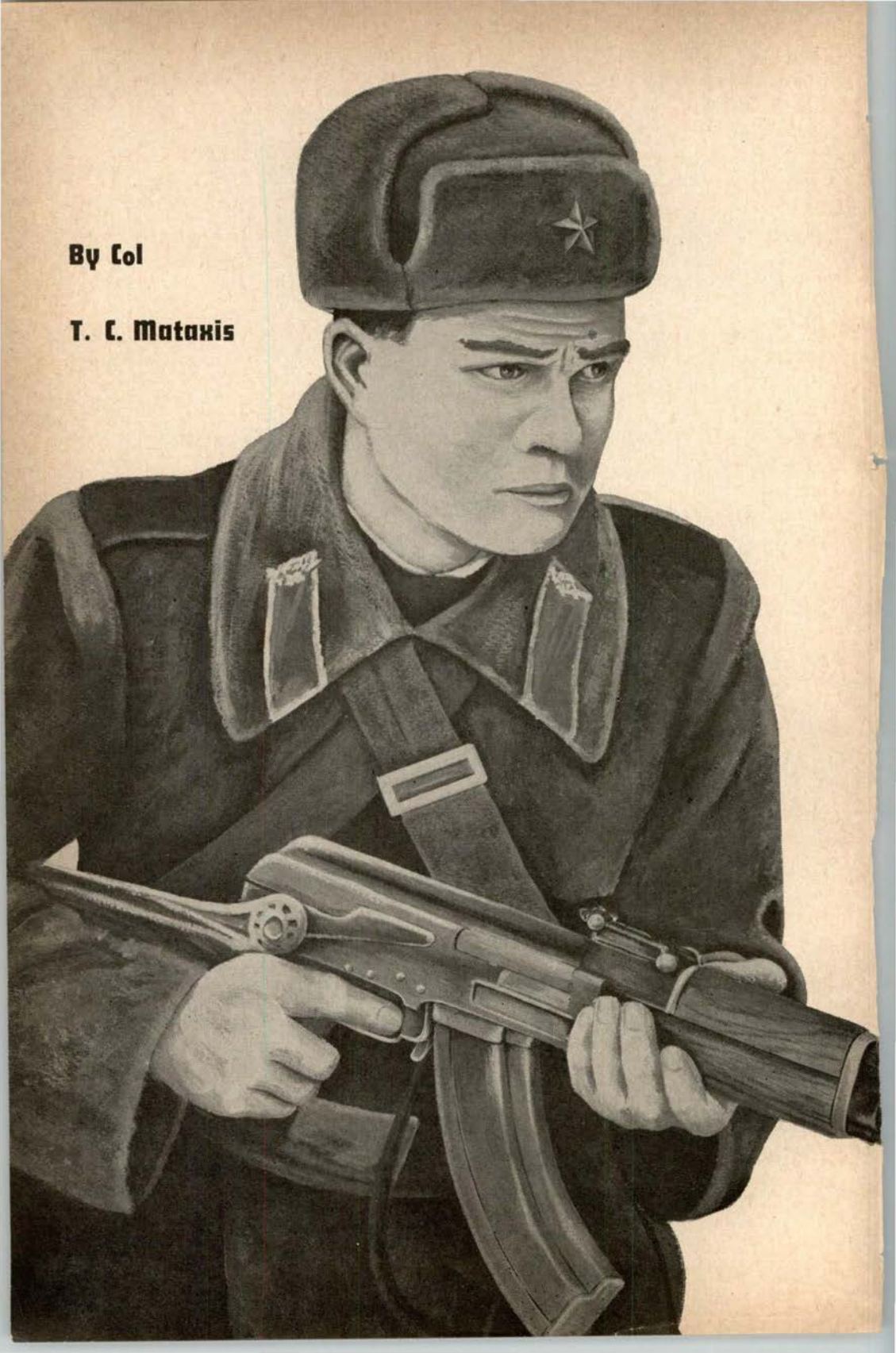
"As a soldier, I realize that I am a member of a time-honored profession—that I am doing my share to perpetuate the principles of freedom for which my country stands. No matter what situation I am in, I will never do anything, for pleasure, profit or personal safety, which will disgrace my uniform, my unit, or my country. I will use every means I have, even beyond the line of duty, to restrain my Army comrades from actions disgraceful to themselves and the uniform.

"I am proud of my country and its flag. I will try to make the people of this nation proud of the service I represent, for I am an American soldier."

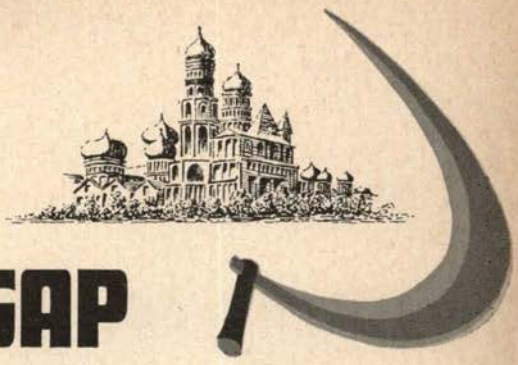


By Col

T. C. Mataxis



THE SOVIETS CLOSE THE GAP



With the final collapse of the Axis powers following World War II our national concern for security suddenly switched to cries of "Get the boys home." In this atmosphere, the rapid dissolution of the world's most powerful armed forces began. Soon all that was left of the great U.S. Army was a corporal's guard of untrained soldiers capable of little more than occupation duties. In the years that followed additional cuts were made which further emasculated our army as an effective combat force. We are familiar with our plight at the outbreak of conflict in Korea.

This background was not conducive to the support and long-range planning needed for the development of new weapons and organizations. In fact, with the large stores of World War II weapons on hand a research-and-development program for new weapons was looked on by some as an unnecessary luxury which fell into the category of "fat to be cut."

On the other hand, the Soviets did not scrap their armies after the war. Instead they launched a vast modernization program designed to close the gap in the quality of equipment between their armed forces and those of the western allies. This program was designed to overcome deficiencies in weapons and to increase mobility. Only recently have we become fully aware of this program as tangible results have come increasingly to light. The Soviets now have a complete and deadly family of weapons ranging from a new pistol to an 8-inch rocket, 9-inch mortar, and 203mm gun-howitzer, the last three of which can deliver atomic missiles. Their recent advances in developing modern weapons and equipment surpass capabilities originally credited them. Horse carts and obsolescent trucks have been replaced by a modern series of vehicles which approximate and may even surpass the best the West has to offer. They also have recognized the vital role

Current Soviet developments in weapons and tactics surpass capabilities orginally credited them.

Figure 1. Semiautomatic rifle.

which the helicopter will play in future war—especially in atomic war—and have produced a whole family of rotary-wing aircraft. It is apparent that they intend their large army to play a principal role in a possible war against the West whether or not atomic weapons are used.

The possible use of tactical atomic weapons has posed problems for the Soviet Army as it has for the U.S. Army. Undoubtedly it also has caused a reappraisal of their current doctrine and tactics. The broad trend of Soviet thought concerning tactical employment of nuclear weapons on a future battlefield is now easy to discern. A recent issue of *Krasnaya Zvezda* summarizes the Soviet view: "Troops that are well trained for action under conditions when atomic weapons are used can successfully carry on combat action, can attack and can defend themselves and carry out any combat mission assigned." While it is recognized that two-sided atomic warfare would not alter fundamental operational principles and while it is visualized that the essential elements of ground combat will still remain fire and maneuver, the impact of nuclear firepower dictates a need for vastly increased mobility and flexibility in all units. The key to success on the atomic battlefield lies in the ability to disperse widely, to minimize the effect of an enemy nuclear strike, while yet retaining the ability to mass large elements at a critical point.

In the Soviet Army, as in our Army, new organizations will undoubtedly be developed and tested over the next few years in an effort to develop the best organizations for use on the nuclear battlefield. However, as in our own tests of new organizations and weapons in exercises such as Follow Me, Sagebrush and Blue Bolt, many changes will undoubtedly take place before new Soviet organizations or weapons are finally adopted. Consequently, we must be familiar not only with current Soviet organizations and weapons, but also with those under development and test if we are to be prepared to face any combination of weapons or units the Soviets could possibly use against us.

As tactics for use on the atomic battlefield slowly evolve, they bear great resemblance in most instances to the basic doctrines from which they are derived. To better understand future Soviet tactics, it is important that we study and follow closely their current doctrine and developments.

While Soviet military leaders have shown an increasing awareness of possible tactical use of atomic weapons in a future conflict their doctrine does not reduce the role of their Army. A recent issue of *Sovietskaya Armiya* states: "Atomic weapons pose certain problems in warfare but they must not be overestimated. Soviet military art assumes that this new means of combat not only does not reduce but, on the contrary, enhances the part played by the foot soldier

and raises his role to a new level. The outcome of an engagement will still be decided by men strong in spirit, physically hardened, knowing how to employ first-class equipment and possessing high morale-combat qualities. There are means and methods for protection. Soldiers who know and are able to apply them will carry out missions in the face of enemy atomic weapons."

We know that Soviet strategy in World War II was based primarily on massive ground forces supported by air and naval elements. Although this strategy has undergone some modifications since that time, the Soviets continue to maintain large ground forces. And they are constantly improving their capability of overrunning the Eurasian land mass to absorb its industrial, natural and manpower resources. Soviet organizational principles, in accordance with their tactical theories, continue to place tactical air units under the command of the Front (Army Group) Commander to insure maximum effectiveness of close air support to front-line units. Air doctrine has constantly stressed the supporting role of aviation. Major General of Aviation A. Zaitser recently wrote: "It is necessary to remember that combined action is organized in the interests of Infantry troops, which, as is well known, fulfill the main role in battle."

Figure 2. Submachinegun.

In line with this thinking the Soviets have stressed the development of a completely modern series of weapons to increase the effectiveness of their ground forces. Although originality of thinking is rarely found in Soviet weapons, their engineers have demonstrated that they can exploit and improve on the best features of foreign designs and incorporate them into Soviet weapons. An example of this is the new family of small arms, three of which fire a rifle round similar to but slightly shorter than the NATO 7.62mm round. This new family of small arms consists of a semiautomatic rifle, a submachinegun and a machinegun all firing the new cartridge. The development of this new cartridge was undoubtedly influenced by the short 7.92mm cartridge developed by the Germans for a new machine pistol (MP44) during World War II and noted at the time by ordnance experts as being one of the outstanding small-arms developments of the war.

Let's take a look at these weapons.

Rifle. The new semiautomatic rifle (Figure 1), called a carbine by the Soviets, is to replace the Moisin bolt-action rifle they used during World War II. It has a shorter effective range than its predecessor, but is more accurate at the shorter range and has far greater firepower.

Submachinegun. The new gas-operated submachinegun (Figure 2) is a

radical departure from the standard Soviet submachinegun used in World War II and in Korea. The new cartridge gives it longer range and makes it more powerful and more versatile than its predecessor.

Machinegun. The new machinegun, shown along with the rifle and submachinegun in Figure 3, is a squad weapon. It also uses the new rifle cartridge. This increases the amount of ammunition that can be carried in combat by the ammunition bearer and also increases the effective fire which the weapon is able to put out. Note the drum magazine which contains the belt.

In addition to these, other small arms, including a new 9mm pistol, have been developed. The new pistol is equipped with a 20-shot magazine and a wooden shoulder stock that doubles as a holster. It is capable of automatic and semiautomatic fire for short-range firing.

Next, let's take a look at a few of the new developments in field artillery, an arm which the Soviets have traditionally relied upon for saturation fires in support of the Infantry. The Soviets' entire new artillery system includes not only guns of impressive mobility and effectiveness, but a new family of tracked prime movers for rapid emplacement and dispersal. This artillery, like all other newly issued ground force material, can move with speed over modern highways, in contrast to weapons of the World War II era which were designed largely for movement along the dirt and mud roads which interlace the USSR.

122mm gun. The new 122mm gun (Figure 4) has about 10% greater range and can be emplaced and put into action against enemy targets with far greater speed than the 122 of World War II. In modernizing this gun the Soviets borrowed from the best factors of German artillery design.

The 152mm howitzer. The 152mm howitzer which was highly effective in World War II but which was so heavy and cumbersome that it frequently bogged down in the field, has been replaced

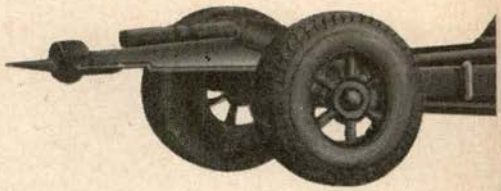


Figure 3. Rifle, submachinegun, machinegun.

Figure 4. 122mm gun.

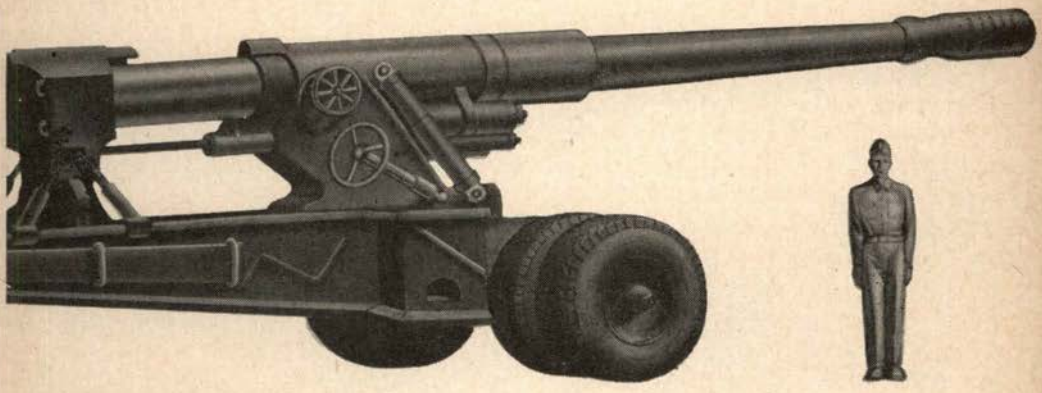


Figure 5. 203mm gun-howitzer.

by a new weapon that is much more mobile as the result of a new carriage mount. The range has been increased nominally, largely through improved ammunition.

203mm gun. One of the most impressive developments, however, is the new Russian 203mm gun-howitzer (Figure 5) which can be emplaced and ready to fire in a matter of minutes. It replaces a World War II version that required hours to make ready for firing. The new gun has a 50% increase over the range of the 203 used by the Soviets during World War II. This gives the Soviet Army an extremely mobile artillery piece with an atomic delivery capability.

240mm mortar. While mortars are normally considered Infantry weapons, providing close support to foot soldiers, the Soviets have used king-size mortars as comparatively inexpensive substitutes for artillery. The 240mm mortar (Figure 6), the largest-caliber weapon of its type in use by any army, is readily transportable by tractors or trucks. The new 240 incorporates design principles which

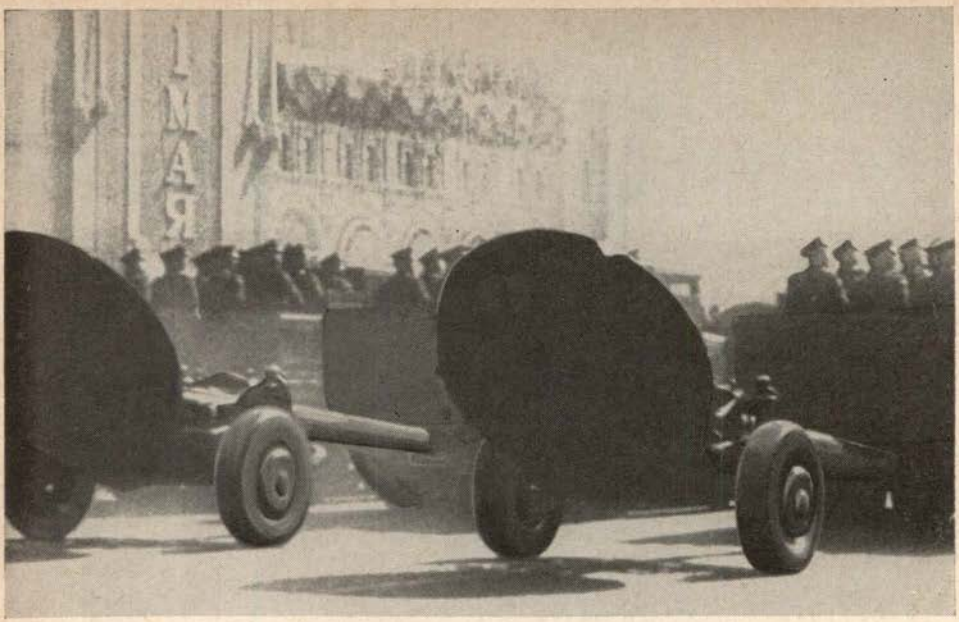


Figure 6. 240mm mortar.

give it far greater range and accuracy than World War II models. It can be employed for close support or long-range fire using conventional or atomic shells.

Rocket launchers. Long-range and highly accurate multiple rocket launchers mounted on trucks for fast movement (Figure 7) also are making their appearance with Soviet Army units. Much improved over earlier Russian launchers and rockets, they include a 12-unit eight-inch rocket launcher for special-type rockets. These weapons are mobile. They can be employed with ease and can deliver a tremendous amount of high explosive on target in a short time. The larger rockets complement and are an adjunct to the normal artillery weapons and their capability for atomic delivery must not be overlooked.

Antiaircraft weapons. Newly added to the Soviet family of antiaircraft guns is a 122mm weapon designed to protect against aircraft flying at high altitudes. It is known to be equipped with fire-control radar. In addition, new 100mm Russian antiaircraft guns (Figure 8) have been placed in the hands of troop units in the field, rather than being limited to the protection of strategic targets such as industrial areas.

The 100mm AA gun is highly mobile and also equipped with radar-directed fire control. It replaces a mediocre World War II 85mm gun with slow and poor fire control. This weapon is extremely versatile and can be depressed for secondary use as an antitank weapon.

For defense against low-flying aircraft, the Reds have produced a fully automatic 57mm gun capable of being fired by either remote-controlled radar or simple optical sights. It has double the rate of fire of the 37mm gun which it replaces.

Also for protection against low-altitude attack the Soviets have developed a 14.5mm AA weapon in two- and four-barrel versions which replace the single-barrel 12.7mm antiaircraft machinegun formerly found in Soviet units.

Tanks. The outstanding armored vehicle developed by the modernization program is a new medium tank which succeeds the T-34, the weapon that proved so effective against the Germans in World War II. The new tank combines the best features of the T-34 with numerous changes which include a lower silhouette, improved slopes and surfaces which tend to deflect enemy fire. A 100-mm gun replaces the 85mm with which the T-34 was armed. This gun will penetrate thicker armor at greater distances and is equipped with an excellent fire-control system for rapid and accurate firing. There are indications that the new tank is also equipped with high-quality night-firing devices. Its speed is at least equal to, and probably far exceeds, that of the T-34. Already produced by the hundreds, this tank is being issued to Red armored divisions as a standard weapon. In conjunction with improved tanks, the

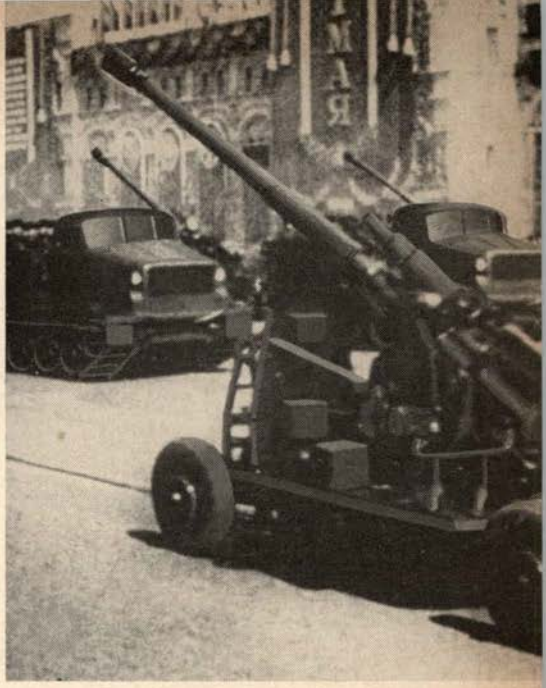


Figure 8. 100mm antiaircraft gun.

Figure 7. Truck-mounted, multiple 8-inch rocket launcher.

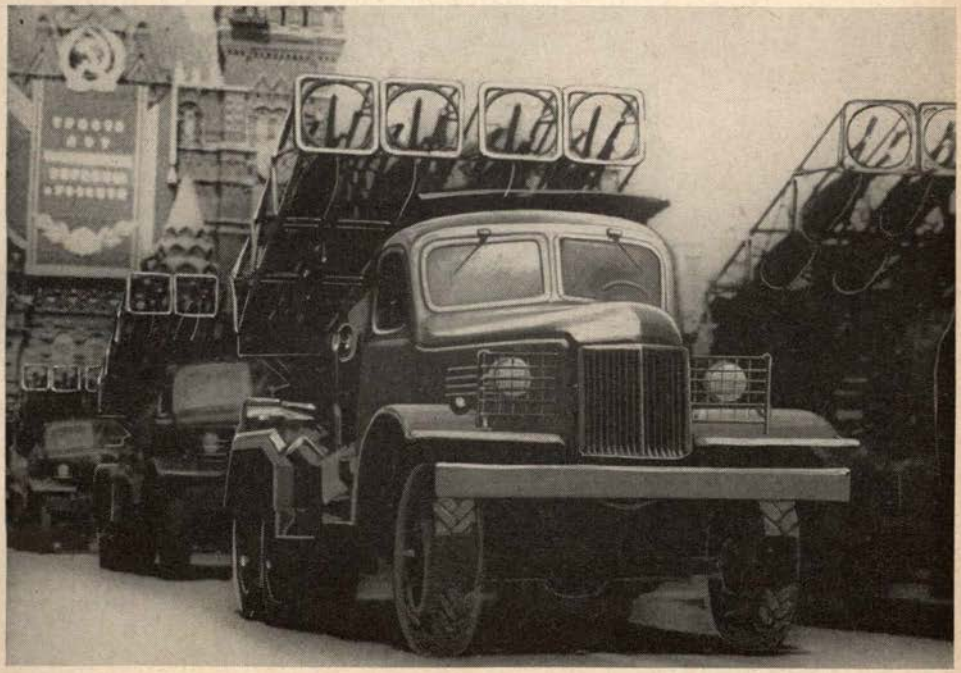


Figure 9. Armored personnel carrier.

Soviets are equipping many of their units with a new 6 x 6 armored personnel carrier (Figure 9) to improve Infantry mobility.

Helicopters. The Soviet modernization program has not overlooked the helicopter as an answer to the need for greater mobility and flexibility. Extensive development of copters has been undertaken. Their rotary-wing aircraft fall into three main categories—a light reconnaissance-utility helicopter, a medium cargo helicopter and a heavy helicopter.

The light reconnaissance-utility helicopter, known as the Hare (Figure 10), is similar to our H-13 and H-23. It is extremely versatile and can be used for command missions, reconnaissance or even limited supply missions in emergencies.

A cargo-type helicopter known as the Hound (Figures 11 and 12) is available in quantity to the Soviets. Similar to our H-19, it is capable of transporting jeeps, field artillery pieces and other items of ground force equipment. It has an estimated pay load of 4000 pounds and has

Figure 10. Hare, reconnaissance-utility helicopter.

clamshell doors at the end of the fuselage for simplified loading and unloading.

A new heavy, twin-rotor helicopter known as the Horse (Figures 13 and 14) has been developed. It has an engine for each rotor, and one engine can take over both rotors if the other engine fails. It is believed to be a combination troop-cargo carrier capable of carrying more than 40 soldiers plus crew, and has a pay load of 10,000 pounds. It has clamshell doors at the end of the fuselage for simplified loading of cargo, which may include a weapons carrier and a fieldpiece.

As can be seen this comprehensive modernization and re-equipment program has given the Soviet ground forces a greatly increased potential for combat on either the atomic or conventional battlefield. Secretary of the Army Wilber M. Brucker has said that the Soviet re-equipment program is an accomplished fact. "These weapons are now at the disposal of Red Army units, not on the drawing board nor in initial stages of production." Their newer and more numerous trucks, improved tanks, armored personnel carriers, light and mobile artillery, and excellent cargo-and-personnel-carrying helicopters, all indicate a high capacity for operations in small self-contained, well-dispersed task forces. Such tactics could well be directed toward reducing the effectiveness of tactical atomic weapons used defensively by any potential enemy.

Figure 11. Hound, cargo helicopter.

Our past experiences have taught us that the policies of the Soviet Union, although sometimes apparently lacking in consistency and in ethics, certainly have not been unrealistic. Soviet leaders have been especially zealous in insuring their military strength.

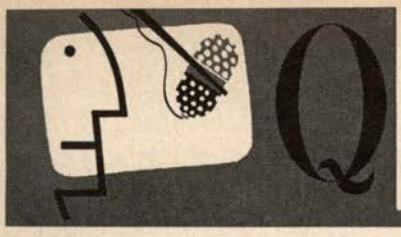
Figure 12. Clamshell doors facilitate loading of equipment into the Hound.

Figure 13. Horse, troop-cargo helicopter.

Today, we and our Western allies remain seriously outclassed in numbers of fighting men and we appear merely to be keeping pace in technological developments. The Soviets are rapidly closing the gap.

Figure 14. Vehicles and artillery pieces can be driven up a ramp into the Horse.

COL THEODORE C. MATAXIS is a frequent contributor to the *Quarterly* and other service publications (see "Defense on the Atomic Battlefield," July 1956, and "Atomic Fire Support," October 1956). He has had a number of assignments which have given him experience in evaluating Soviet developments. He came in contact with the Soviets when his battalion was stationed in Berlin in 1946; a year later, while assigned to the EUCOM Historical Division, he supervised the writing of battle reports by German generals in charge of the 1941-45 operations on the Eastern Front; he attended the Strategic Intelligence School in 1950 and taught Soviet tactics at The Infantry School from 1953 to 1955. Col Mataxis was executive officer and commander of the 17th Infantry Regiment in Korea. He was assigned to the Tactical Department, TIS, from 1953 until July of last year, when he was named Chief, Publications and Visual Aids Office.



QUARTERLY QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. At what level of command may the following types of minefields be authorized: protective, defensive, barrier, nuisance and phony?

2. What personnel, if any, are assigned as crew members for the .50-caliber machineguns in the Infantry regiment?

3. The operator who practices radio-transmission security should use (select one):

   a. high power at all times.
   b. the most efficient antenna.
   c. low power at all times.
   d. the least power necessary to maintain good communication.

4. In a combat operation supported by Army aviation, who is responsible for the conduct of the air movement?

5. The Army's newest logistical-support vehicle is the full-track, amphibious cargo carrier M-76. This vehicle is ideal for operations in the arctic, swamp or jungle because it has a ground pressure per square inch of only (select one):

   a. 1.75 pounds.
   b. 2.08 pounds.
   c. 3.50 pounds.
   d. 5.09 pounds.

6. How can you use arm and hand signals at night?

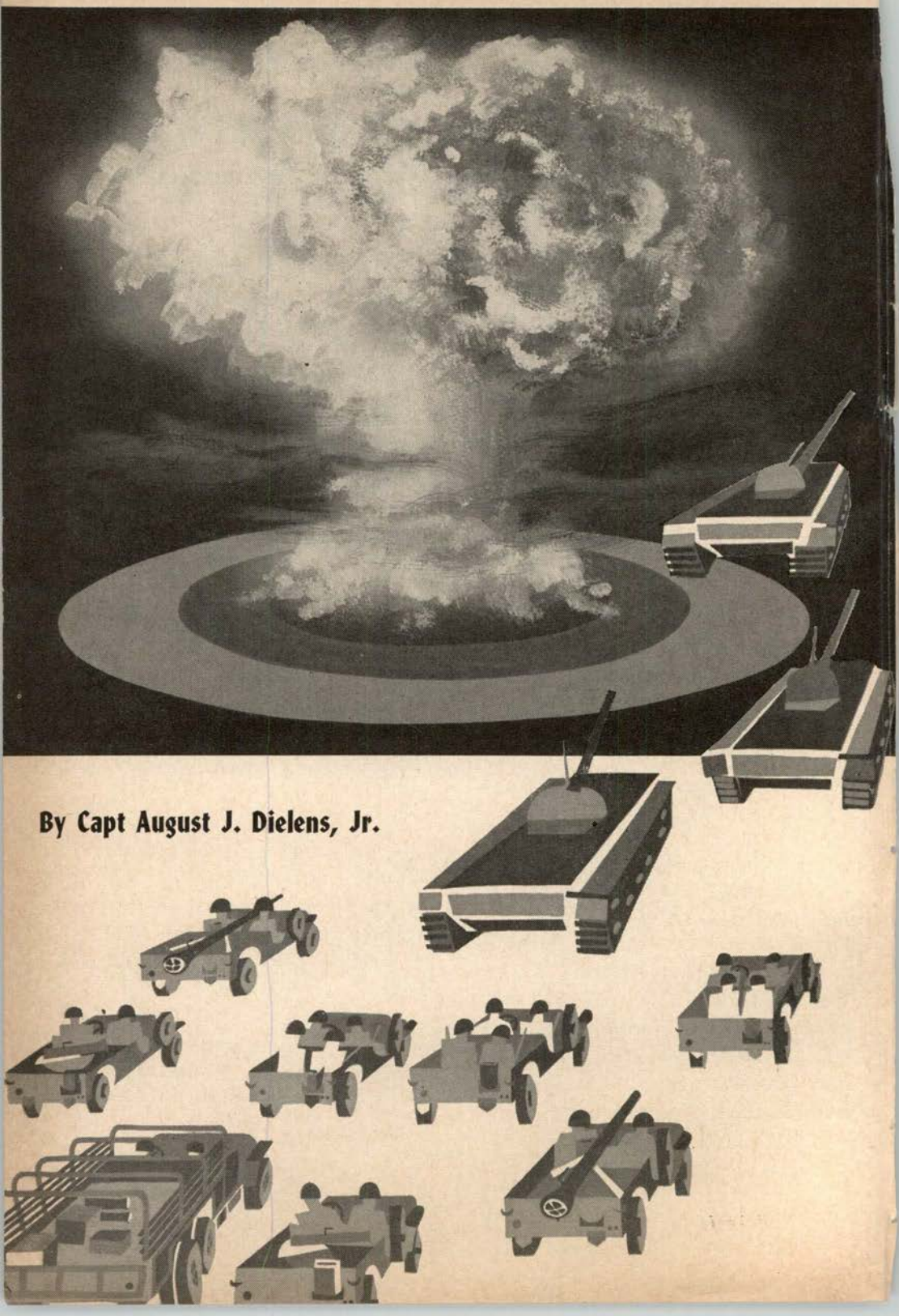
7. When evading behind enemy lines, are you permitted to make yourself less conspicuous by removing insignia and other distinguishing marks from your uniform?

8. The Infantry division has 10 reconnaissance helicopters assigned. How many are organic to each Infantry regiment?

9. In organizing and conducting an effective defense in an atomic conflict, what can a defender do to reduce the probability of receiving heavy casualties from each enemy atomic weapon expended?

10. What form of maneuver will be used more frequently with atomic-weapons support than would be possible without that support? Why?

(For answers turn to page 86.)



By Capt August J. Dielens, Jr.

SMALL UNIT TASK FORCES

Small, combined-arms task forces will be essential and routine elements of our tactics on the battlefield of the future. We must be ready and able to use them.

Our mobile concepts for future combat require great flexibility and strong leadership. We must be able, on short notice, to break conventional units into smaller, semi-independent, mobile task forces and to unite them again just as quickly for massed effort. These capabilities have been emphasized by General Willard G. Wyman, Commanding General, CONARC, who urges that we "get going on new combinations for combat."[1] *The Infantry School is now teaching platoon, company and battalion-size task forces. In the October 1956 issue of the* Quarterly *Capt Thomas H. Jones and Capt Aaron C. Adkins introduced a series of three articles on small-unit task forces with a discussion of the platoon-size force. In this article Capt Dielens discusses the company-size task force. The battalion-size force will follow in the April issue.*
—Editor.

The destructive power of nuclear weapons demands greater dispersion if we are to continue to "live" on the battlefield. In spite of ever-present requirements for the massing of troops, particularly in offensive operations, we are not unfamiliar with the opposing necessity of dispersion. Each major increase in the destructiveness of weapons has extended our combat formations.

Less than 100 years ago we fought with units closely massed. At Spottsylvania in the Civil War 15,000 Federal troops attacked on a 900-yard front against muskets and single-shot rifles. Then the machinegun made such concentrations suicide. During World War I the density of troops was somewhat reduced. When the IX British Corps attacked Messines Ridge each division had a frontage of 2000 yards. Armor, better automatic weapons and aerial bombardment rendered these "increased" frontages unthinkable in World War II. For the concentrated attack at St. Lo U.S. Infantry divisions were given "narrow" frontages of 4000 yards.

The nuclear battlefield will require dispersion far greater than that employed in the past. Our mobile concepts call for battalions to conduct sustained, semi-independent operations. Such operations may extend even to company and platoon level. Under these conditions the use of

[1] *Army*, July 1956.

CAPT AUGUST J. DIELENS, JR., enlisted in the Army Air Corps in 1944. Two years later he entered the United States Military Academy and was commissioned upon graduation in 1950. In Korea he fought as a platoon leader with the 1st Cavalry Division until he was wounded. Returning to this country, Capt Dielens was assistant football coach at West Point. He then completed the associate company officer course at The Infantry School and remained at Fort Benning as a company commander in the 1st OC Regiment. In 1953 he became aide-de-camp to the commanding general, Allied Land Forces, Southeastern Europe, and then served consecutively in the Operations and Training Branch, as aide-de-camp to the chief of staff, as U.S. detachment commander for a year. In September of last year, Capt Dielens began his present assignment as an instructor in the Tactical Department, TIS.

motorized or helicopterborne task forces for reconnaissance, security and even limited attack and defense missions can be expected to become routine. We must be able to form such task forces quickly, on the spot, from conventional units immediately available.

The first article in this series[2] presented some of the general characteristics and principles of task forces. Before we discuss the company-size force we should review briefly a few of these basic considerations.

A task force is a temporary, tailor-made grouping of units under one commander to accomplish a specific mission for which a TOE unit is unsuitable.

Task forces—even more so than the larger TOE units from which they are formed—must have speed, mobility, flexibility, excellent communications and firepower. Commanders will have to show more initiative and ingenuity than ever before. They will have increased responsibilities. Company-grade officers will frequently command combined-arms teams. They may receive only brief fragmentary orders for a task-force mission.

To recommend intelligently what is needed for the accomplishment of a given mission the task-force commander must understand the following factors which influence the organization of such a force:

Mission. Adequate direct and indirect fire support, an adequate maneuver element, appropriate command and control personnel must be included to insure accomplishment of the mission. *Efficient* accomplishment of the mission—by use of the minimum necessary force—will reduce logistical requirements and increase both control and rapid movement.

Terrain. The type of ground over which the task force must move will influence the number and types of vehicles, the ratio of men to weapons and the types of weapons, units and equipment to be included in the task force.

Enemy. The enemy's strength, weapons, mobility and other factors will affect the composition of the task force.

Span of control. Higher commanders must avoid placing an unmanageable number of units under the task-force commander.

Communications. The task force must have adequate communications. If not organic to elements of the force, proper communications equipment must be provided by a higher headquarters.

Tactical integrity. The task force must be so organized that units retain maximum tactical integrity commensurate with other organizational factors.

Forces available. The composition of the task force will depend upon the forces available for it.

Mobility. The task force must be able to move. Weapons, equipment and vehicles assigned to a task force must be considered in light of their effect on mobility.

After the task force is organized vari-

[2] "Small Unit Task Forces," *Infantry School Quarterly*, October 1956.

ous factors must be considered in formulating a loading plan and order of march:

Order of expected use. Elements should be placed front to rear in the column according to the sequence in which the commander expects to use them and to facilitate necessary reorganization for various situations the force is expected to encounter.

Control. The commander must be able to get a desired action from subordinate units or individuals in a minimum amount of time.

Security. Measures must be taken to prevent the task force from being surprised and to enable it to meet any enemy threat which may occur.

Tactical integrity. Elements of the same unit should be kept together, if possible.

When organizing a task force, the advantages of centralized and decentralized control are weighed; balanced combined-arms groups for particular situations are determined. Decentralized control permits each element receiving attachments to be more independent and self-sufficient; however, decentralization reduces the force commander's flexibility and ability to influence the action quickly and decisively. Centralized control permits maximum effort at the critical place (this might be massed fires, an antitank, engineer or other effort), while excessive decentralization fritters away such support.

Ideally, a task force is organized in an assembly area and attachments are made far enough in advance to insure coordination and to avoid unnecessary delays. A provisional organization is established for elements to be left behind and an officer is placed in charge.

Each task force carries necessary rations; full tanks of gasoline and gas cans for wheeled vehicles, full gas tanks plus a reserve for tracked vehicles; and basic loads of ammunition plus additional ammunition required. Since missions for small forces are usually of brief duration, the force will generally carry with it the supplies to complete the mission. Such supplies are estimated carefully to insure that adequate but no unnecessary amounts are carried. Because of possible changes in the situation or mission, prior arrangements for resupply are necessary. Maximum use of aerial logistical support should be considered.

Techniques for employing the various types of task forces vary depending upon their organization and equipment; however, the fundamentals of offensive and defensive action and retrograde movements apply to task forces as they do to TOE units.

Units providing personnel and equipment to form a task force decrease their own capabilities. This must be kept in mind when forming task forces and when assigning missions to units from which task forces have been formed.

The commander keeps his mission uppermost in his mind and resists tempting opportunities for making raids against enemy troops or installations unless such raids will contribute directly to the accomplishment of his mission.

The enemy is often capable of concentrating a larger force at the objective area. To offset this, the task-force commander employs his force aggressively to achieve surprise and takes calculated risks to secure the objective before the enemy can react effectively.

Standard Infantry units must have training in combined-arms task-force operations. This training must encourage progressive thinking, and develop in all units increased capabilities for speed, better communications and more difficult logistical problems. It must accustom unit commanders to greater responsibilities.

These are the principal considerations. We must know how to apply them to a company-size task force in combat: What is this company-size task force?

Where does its equipment come from? What kind of jobs can it perform?

The company-size task force is comparable to a reinforced rifle company, with these important differences: it can shoot harder, move faster and communicate farther than its TOE counterpart. The task force has more-powerful attached weapons, is completely motorized or air-transportable and uses longer range radios. The organization of any company-size task force will include four basic elements: headquarters, maneuver, direct fire support and indirect fire support.

The reinforced Infantry battalion is the main source of a company-size task force. It is possible that more than one company-size force could be formed from a reinforced battalion. In certain situations the regiment may be the source of this combined-arms force.

The battalion or regimental commander when assigning the company-task-force commander a mission will make available to him certain elements from the battalion or regiment. The task-force commander must determine what he needs to accomplish the mission and organize the task force accordingly.

Let us consider some of the shoot-move-communicate elements which a company-task-force commander may use to accomplish his mission.

Since he usually will be one of the battalion's rifle company commanders he can initially consider his rifle platoons for maneuver elements. The 57mm rifle section will provide a portable direct-fire-support element effective against enemy automatic and crew-served weapons, groups of personnel, pillboxes, emplacements and vehicles. The 60mm mortar section may be a source of indirect fire support.

At reinforced-battalion level there are many fire-support weapons which the commander of a company-size task force can consider. He may request 106mm rifles, tanks, machineguns, quad 50s or twin 40s for direct fire support. For indirect fire support he will consider 81mm mortars, 4.2-inch mortars or M-52 105-mm self-propelled howitzers. Weapons not organic or attached to the battalion can be requested from higher headquarters.

It is quite likely that the task-force commander will be authorized to request atomic weapons to support his operation.

Depending upon his mission, the terrain and enemy capabilities, he will consider trucks, tanks, armored-Infantry vehicles with river-crossing characteristics and fixed-wing or rotary-wing army aircraft to move the maneuver element for an assault or vertical envelopment.

Motorization normally is provided by the headquarters two echelons higher than the task unit being formed: for example, regiment normally provides the necessary additional transportation required to move a company-size force. Higher headquarters may augment this transport when required.

Communication requirements vary with each mission according to the distance over which the task force will operate. The commander must consider communications within the task force, with higher headquarters and with adjacent units. The AN/PRC 10 radios from the rifle company and headquarters company may be used for the net within the task force since individual elements seldom will be more than five miles from each other. However, the self-contained company task force may well operate more than five miles from the parent unit and adjacent units. When it does, it must have more-powerful radio sets. Part of the solution to this communication problem lies in the radio sets organic to elements making up the task force: tanks, units of the AAA automatic weapons battalion, artillery, combat engineers.

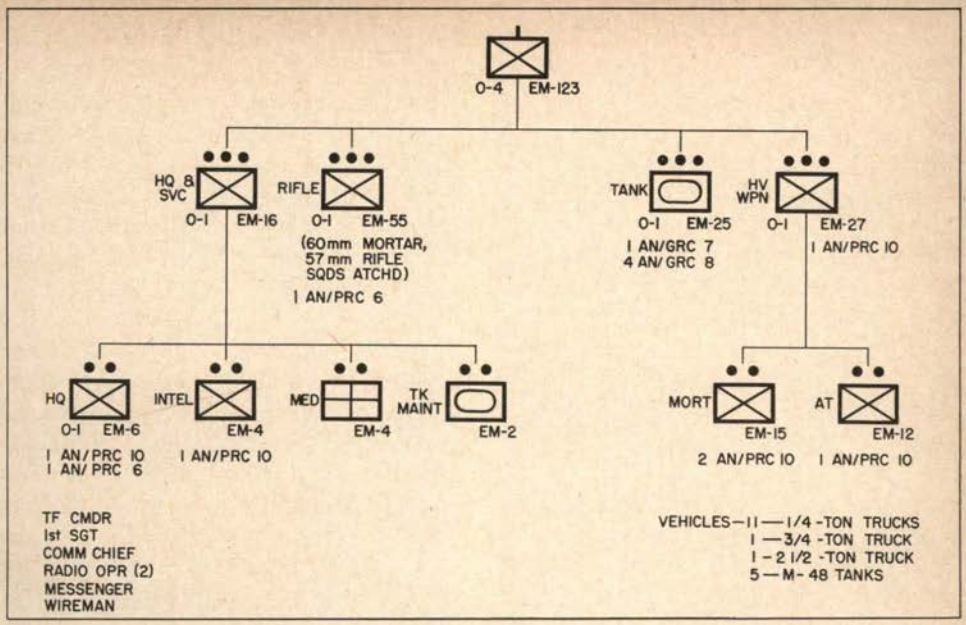


Figure 1. Mobile Force Type B (company-size).

The task-force commander considers the use of combat engineers who can assist in the breaching of barriers; installation of roadblocks, minefields and wire; and the preparation of shelters once the objective is seized. Engineers also can help with surveillance or transportation if needed.

Before we talk about the missions which may be assigned a company task force, look at Figure 1, the Type B (company-size) mobile force.[3] This serves as a point of departure for company-size task forces, particularly with respect to communication, transportation and weapons requirements. However, don't let your thinking be strait-jacketed by the Type B force. It is only a guide for the formation of a company-size task force. Remember that each task force is tailored to accomplish a *particular* mission.

The company-size task force can be assigned any mission previously or normally given to a reinforced rifle company. With its increased fire, movement and communications capabilities, and particularly in conjunction with atomic fire support, it could at times be assigned missions which might now be executed by the Infantry battalion.

These missions include support of advance guard or advance guard for a regiment; flank or rear guard of a larger force (regiment or higher), reconnaissance forward of the battle position; seizing and defending critical terrain; functioning as a delaying force or as part of the general outpost. The company-size task force can be used effectively in exploitation or pursuit.

A company-size task force could establish all or part of the combat outpost for the regiment—a job which previously called for a company forward of each front-line battalion.

Now that we have had a look at the company-size task force let's consider a specific situation in which such a force

[3]The Type B force is discussed by General Wyman in *Army*, July 1956, and is included in CONARC Training Memorandum Number 13, 4 June 1956, "Organization and Training for Mobile Task Force Type Operations" (RCS ATTNG—288).

might be used. Visualize a reinforced battalion moving to contact. Intelligence reveals that in the battalion's zone of action there is a lucrative target for an atomic burst followed by immediate exploitation. Exploitation of this target is an ideal mission for a company-size force.

Imagine you are a rifle company commander. If you were given this mission, how would you accomplish it? As you read the situation consider the factors upon which you will base your request for attachments.

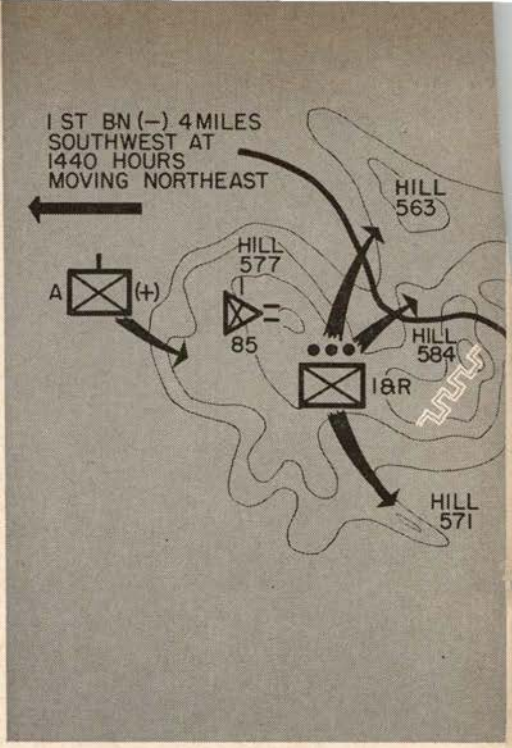
The 85th Regimental Combat Team is moving northeast to contact. All elements have completed three weeks of intensive training in an overseas staging area but have not been in action. Training has included the organization and employment of small, combined-arms task forces. The RCT is at full strength and has all authorized equipment.

Friendly and enemy aircraft have been active. Either side can gain local air superiority at any time. Both sides have used atomic weapons tactically and can deliver such weapons in this area by both air and ground means.

According to the 10th Infantry Division intelligence estimate, there is good cross-country trafficability for wheeled and tracked vehicles, in spite of recent rains. The woods in the area are sparse but offer fair concealment. Trails and fire breaks through the woods give tracked and wheeled vehicles passage in many places not shown on the map.

The 1st Battalion, 85th RCT, is organized as a battalion combat team. It has been reinforced with: two platoons from the regimental tank company; a platoon from the heavy mortar company; the intelligence and reconnaissance platoon; a platoon from the division AAA battalion (this platoon consists of four sections, each having one twin 40mm gun and one quad 50 machinegun).

The 1st BCT has been ordered to



Lauterhofen and is now advancing generally along Highway 2 (Figure 2). Other elements of the RCT are moving northeast on another axis five miles to the south. Contact between these two forces is being maintained by elements of the 2d BCT. There are no friendly ground forces within 10 miles of the regiment.

As shown in Figure 2 the I&R platoon is in front of the 1st BCT. At 1430 hours one squad of this platoon is stopped by machinegun fire from Hills 584 and 601. Company A, with the 1st platoon of the tank company attached, has reached the western slope of Hill 577. The remainder of the BCT is about four miles to the southwest of Company A and is moving northeast. Lieutenant Colonel, 1st BCT, arrives on Hill 577 at 1440 hours to talk with Captain, Company A, and Lieutenant, I&R platoon. Within the past 10 minutes Lieutenant Colonel, 1st BCT, has received the following mes-

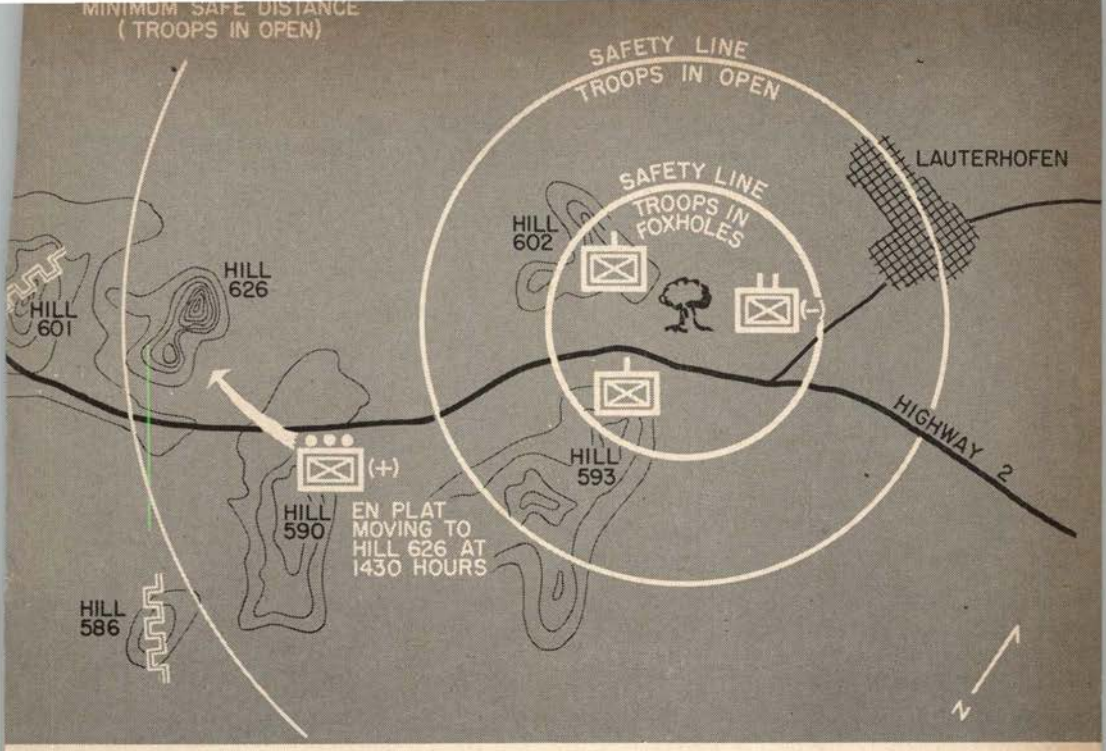


Figure 2.

sage from an observer in an aircraft of the 85th RCT's aviation section:

"An enemy force, estimated to be a reinforced rifle battalion, is now just west of Lauterhofen. I can see several tanks and self-propelled guns. About two companies of this force are arriving on Hills 602 and 593; they are preparing defensive positions.

"Riflemen—estimated to be a platoon—have just been observed one mile east of Hill 626 and apparently are moving to that hill. I can't see anything on Hills 584 and 601—the hills from which you said the I&R platoon received fire. There are no tanks down there and I don't believe there could be more than one or two squads on these two hills."

Lieutenant Colonel, 1st BCT, contacted Colonel, 85th RCT, by radio and requested that an atomic artillery shell be detonated over the Lauterhofen area. At 1445 hours, Lieutenant Colonel, 1st BCT, learned that a 20-kiloton weapon would be detonated at 1520 hours (A-hour).

After receiving this information, Lieutenant Colonel, 1st BCT, completed his plan. He told Captain, Company A:

"I am going to give you some additional attachments to form a task force which we will designate Task Force Alfa. I want this force, which you will command, to attack at 1515 hours to clear the enemy from Hills 584, 601, 626 and 602. You will then seize and defend Hill 593. From Hill 593 stop enemy movement on Highway 2 about 700 yards east of the hill. Cover the movement of the BCT along Highway 2 to Lauterhofen. Do not allow any of your attacking elements to proceed beyond Hill 601 until after A-hour. I plan to start the BCT (—) forward from here about the time your force reaches Hill 626.

"Any elements of your company that cannot be completely motorized will be left in their present location under the

control of one of your officers. These elements will come forward under battalion control and will join you on your objective, Hill 593, later this afternoon."

Basing your decisions on the principles discussed above, what attachments would you request for the organization of your task force? Captain, Company A, planned to accomplish his mission this way:

He requested the two tank platoons, the I&R platoon, the battalion's 81mm mortar platoon, the AAA automatic weapons platoon, a medical detachment of four enlisted men (in addition to the medical personnel now with his company) and two litter jeeps for Task Force Alfa. He planned to take two rifle platoons, his executive officer and a command group from Company A and to leave the remaining elements of his company in their present location, under the command of his weapons platoon leader.

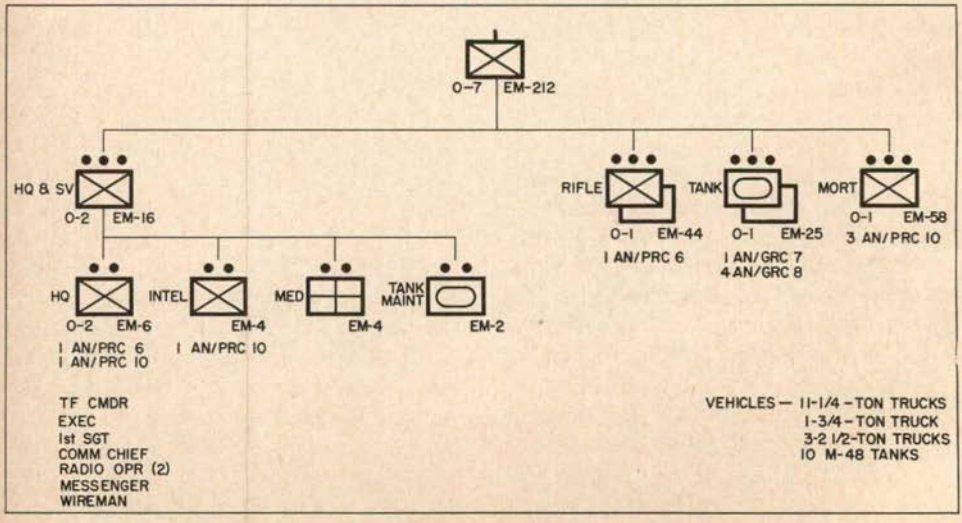
Lieutenant Colonel, 1st BCT, chose to retain the I&R platoon and the AAA automatic weapons platoon under BCT control. He informed Captain, Company A, that the automatic weapons platoon would support the task force's attack by fire through the seizure of Hill 626. After that the platoon would move forward with the BCT (—). He granted the captain's other requests.

Now let's take a look at some of the considerations given to the composition of this task force (Figure 3).

Attached tank platoons should be used to the maximum. Generally they are attached to attacking rifle companies. Task Force Alfa initially was the only attacking element of the BCT and, consequently, attachment of both tank platoons to the force permitted maximum use of their firepower, speed, mobility, shock action and armor protection. To capitalize on the effects of the atomic explosion, an effort should be made to move friendly forces forward as quickly as possible. The tank platoons were the most suitable units available to the BCT commander for this purpose.

The task force's two rifle platoons were able to ride on the 10 attached tanks. Infantry cannot be placed on tanks leading the formation when contact with the enemy is imminent; however, the two rifle platoons in this situation could be transported by the tanks with more cross-

Figure 3. Task Force Alfa.



country mobility and no more vulnerability than by truck. Two rifle platoons provided adequate rifle strength for this force. More riflemen could not have been moved with ease upon the available tanks.

Had armored Infantry vehicles (M-59s) been immediately available they could have been used in this situation. When time permits, the task-force commander can request these vehicles from higher headquarters.

The 81mm mortar platoon was included in the task force because it was making the BCT's initial effort and would be separated from other elements of the battalion by more than its effective range. The BCT included one 4.2-inch mortar platoon and, therefore, was still able to provide indirect fire support for other elements of the BCT if they were committed.

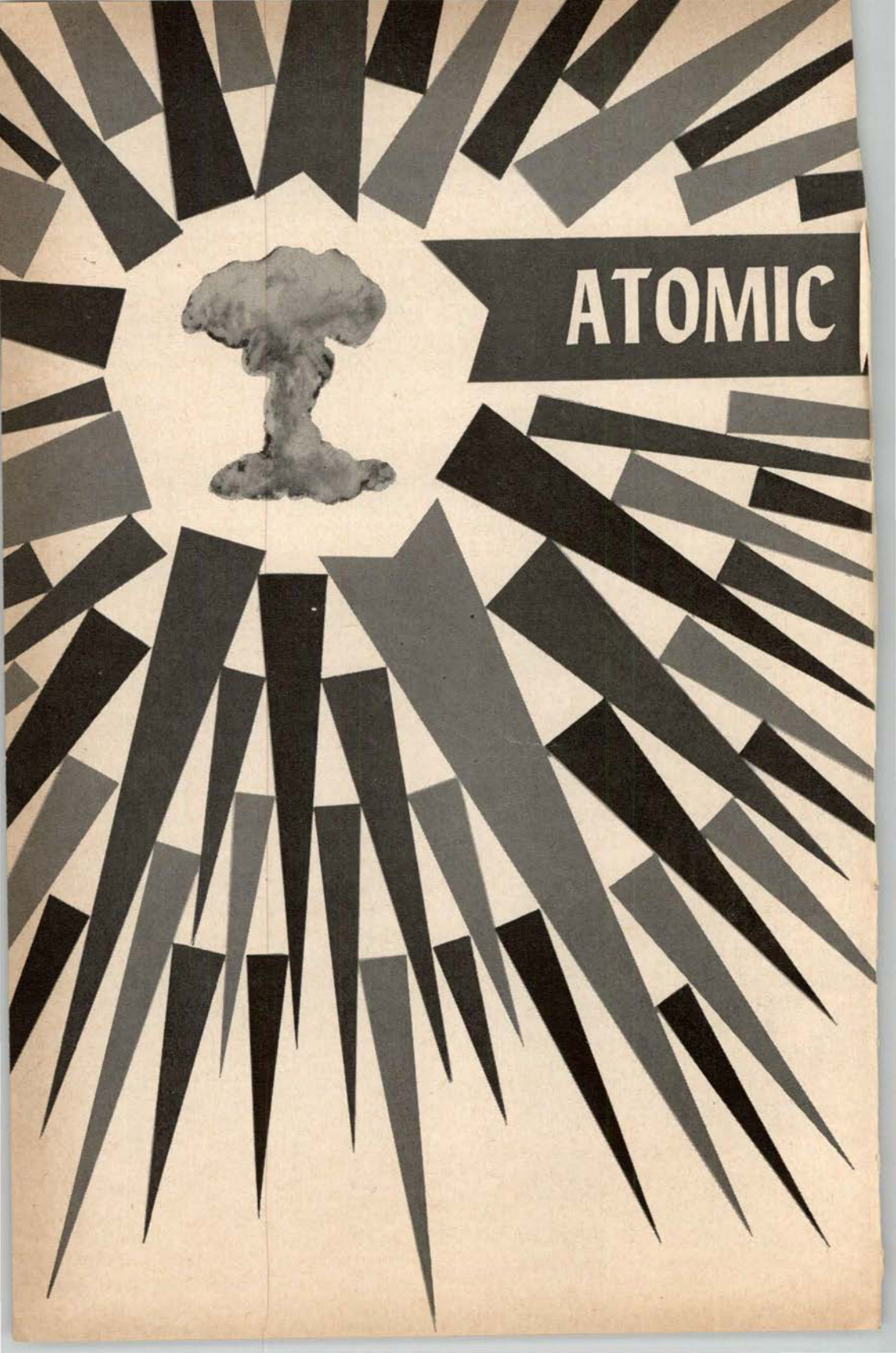
Elements of the machinegun and antitank platoons of the battalion heavy weapons company were not included since the tanks gave the force adequate direct fire capability. Elements not essential to the mission were not desired.

Elements of Company A's weapons platoon were not considered necessary because of the fire capability of the tanks and 81mm mortars. A 60mm mortar squad and 57mm rifle squad could have been attached to each rifle platoon, if Captain, Company A, had felt that his rifle platoons might be separated from his tanks and that 81mm mortar fire would not be immediately available to them. Because of the method in which he planned to employ the platoons of Task Force Alfa he decided not to increase the logistical requirements of his force by taking 57mm rifles and 60mm mortars.

Radios organic to the various elements were used for Task Force Alfa's command net. Better communication will be assured if a task force is provided with two additional AN/PRC 10s (utility sets from the battalion headquarters company) along with authority to use this type of radio for the command net. An additional frequency for such a net will be requested from the RCT communications officer through the battalion communications officer. If this is refused the frequency previously authorized for the rifle company command net will be used. Captain, Company A, realized he would probably be less than five miles from the battalion commander at all times and that they would be able to communicate over the AN/PRC 10 radios of the battalion command net. The tank platoon leaders' AN/GRC 7 radios could have been used as an alternate means of contacting Lieutenant Colonel, 1st BCT.

Although the purpose of this situation was to show you the various factors to be considered in organizing a task force —and not to provide a step-by-step solution of a tactical problem—here,briefly, is how Captain, Company A, accomplished his mission. Because of the small number of enemy troops reported on Hills 584 and 601 he decided to split his force and attack both hills simultaneously. He sent a team made up of a tank platoon and a rifle platoon against each hill. When the enemy had been driven off both hills the force reunited for the assault on Hill 626. The task force remained together to clear the enemy from Hill 602. It then seized Hill 593 and set up positions from which it could stop enemy movement along Highway 2.

A task force as carefully organized as this one could be expected to accomplish any mission within its capabilities. Task forces will play an important role in any future war. They are not new—task forces were used during World War II and the Korean conflict. But current training emphasis on such forces is new. Infantry leaders will be expected to know how to form task forces, how to fight with them, how to win with them.


ATOMIC

could be expected to become casualties.

Of course, there are going to be casualties beyond the R50 radius-of-effects line. These casualties will occur in decreasing percentages. Beyond the R50 line there will be general lines at which you may expect 30%, 20%, 10%, 5% and, finally, 0 casualties. Beyond the zero line—at distances determined by a factor allowing for error in delivery means—friendly troops in foxholes should be safe.

Casualty producers from atomic weapons are radiation, blast and heat (thermal). While our radius-of-effects line consolidates the results from all casualty producers, we should look at each of them separately. Heat is most effective against troops in the open. Its effects cover the widest area, but are the easiest to protect against.

Blast effects are probably the most difficult to avoid; for those who have not had time to protect themselves, except against thermal effects, the blast factor would probably be the greatest cause of casualties.

Nuclear radiation of concern to tactical commanders can be divided into two general types: prompt and residual.

Prompt radiation is emitted from the burst at the time of detonation and lasts about 60 seconds. Personnel receiving enough of such radiation will become casualties in anywhere from a few minutes to a few days. The amount of prompt radiation received can be considerably reduced by proper shielding: for example, a foxhole can cut down the amount received by 90%.

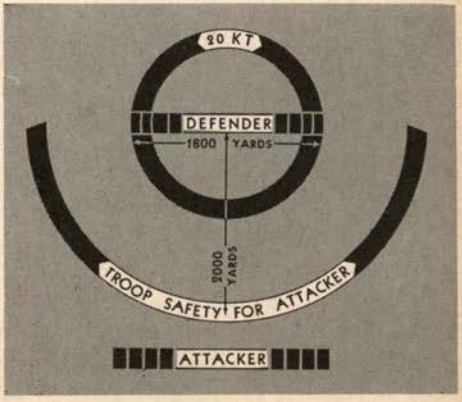
The residual radiation from a nuclear blast is of two kinds:

Induced radiation makes the ground under the burst radioactive. A certain amount of this radioactivity may remain for long periods. However, because the area affected is relatively small, protected troops who move quickly through the area will not suffer casualties. Troops on foot must avoid the higher radiation levels at the center of the contaminated area when passing through.

Radioactive fallout contamination is caused by radioactive particles from a blast falling on an area. Militarily significant fallout is produced by the air burst of a megaton[2] weapon or by the surface or subsurface burst of any size weapon. Fallout should not cause casualties to personnel shielded from the dust. Defending personnel in prepared positions should suffer few casualties from fallout, but it will make a defender comparatively immobile. An attacker would be more subject to casualties from fallout because he must be in the open. Because fallout effects are so difficult to predict, it will usually be disadvantageous to employ fallout-producing weapons tactically, although they may have advantages when used strategically.

In most discussions about atomic weapons we usually notice reference to the 20KT weapon. The 20KT is used as a basis only; therefore, any tactical concepts based *solely* on the 20KT are misleading. We should realize that as we increase the size of the weapon we do not get a proportionately increased blast effect against targets on the ground. Let us look at a defender disposed in an 1800-yard line of foxholes (Figure 2). One

Figure 2. Effect of a 20KT weapon on a 1800-yard line of foxholes.



[2]A megaton (abbreviation MT) has the explosive force of 1,000,000 tons of TNT.

20KT weapon should destroy this unit. But if the defender's line is 3600 yards long, it takes a 160KT weapon (8 times as large) to do the job (Figure 3). It is important to note here that two 20KT weapons would have the same effect on this unit as the 160KT, while permitting attacking units to come closer to ground zero (troops set to exploit the burst of a 160KT weapon must be 2000 yards farther away from ground zero than for a 20KT).

Let us look at these same defending troops disposed in a 3600-yard *perimeter* instead of a line (Figure 4). A 10KT weapon will eliminate this unit as an effective organization—and the attacker can be very close to the defender before the burst.

Thus, for defending troops in contact with the enemy, a linear disposition is least vulnerable. Another important point to remember is that several smaller weapons may frequently be as effective as, and more suitable than, a larger weapon.

Take another look at the question of weapon size (Figure 5). A regiment is

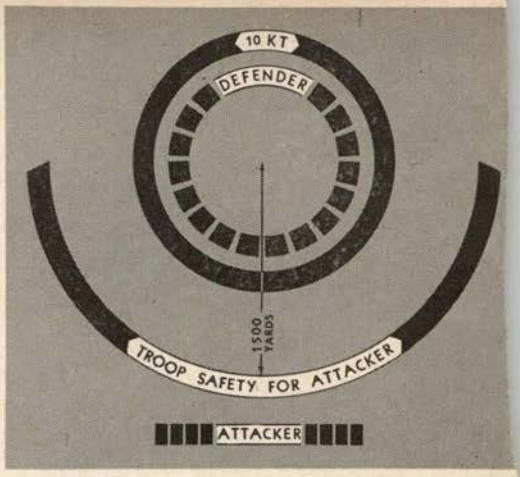
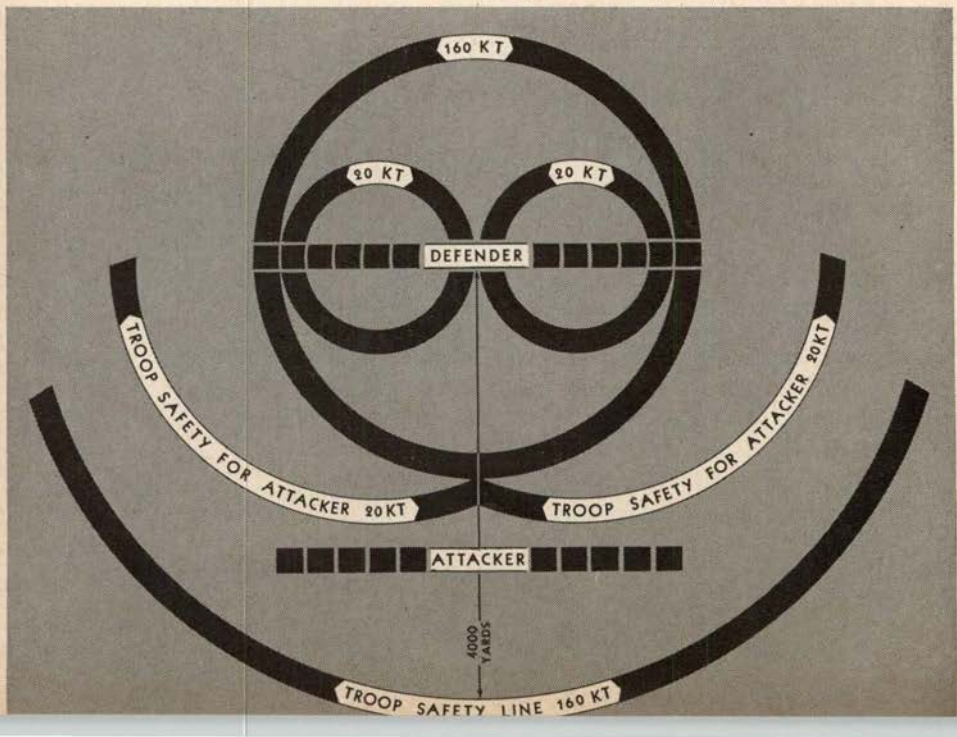


Figure 4. Effect of a 10KT weapon on a 3600-yard *perimeter*.

in a position defense in an area 4000 yards square. The commander, finding that a 400KT weapon will eliminate his regiment, organizes his battalions in perimeters and separates them within an 8000-by-8000-yard area. Noting that a four-megaton (4MT) weapon will destroy his regiment in its new position, he again separates his battalions—still in tight perimeters or "strongpoints"—

Figure 3. Effect of a 160KT weapon on a 3600-yard line.



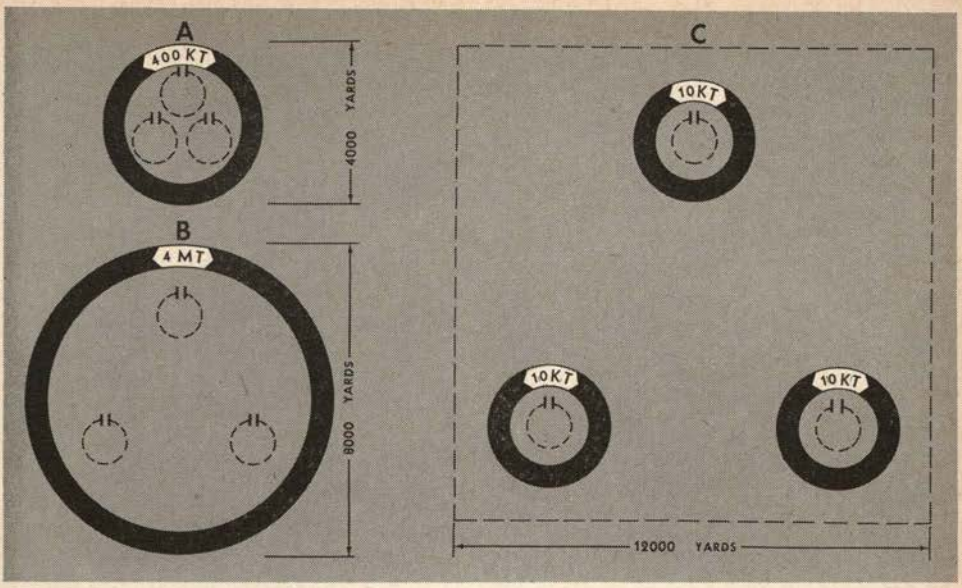


Figure 5. Increased dispersion does not always give adequate defense against a nuclear weapon.

this time in an area 12,000 by 12,000 yards square. Now the enemy comes in with three 10KT weapons—one on each battalion strongpoint—and destroys the regiment anyway. By trying to set up a foolproof defense against larger weapons, the regiment makes itself vulnerable to smaller weapons.

Other factors determining the size of weapons are induced radiation and fallout. As the size of tactical atomic weapons increases there is a probability that the area of induced radiation also increases, placing additional restrictions on the attacker. An even greater handicap to the attacker is fallout. Some fallout may be expected from any weapon. In the case of smaller weapons it can be disregarded. However, when you reach the megaton range, the fallout becomes so great and so unpredictable that an attacker probably will not use megaton weapons.[3] This is not to say that large weapons will not be used, since it is a point in their favor that they reduce the need for accurate delivery. The question of large or small weapons has no specific answer—each situation must be treated individually.

From the foregoing we have developed two important considerations for any practical defense against atomic weapons. First, if you are in contact with the enemy and he can locate your position it is best to adopt a linear formation. Second, dispersion at echelons much lower than battalion is desirable.

Solely from the standpoint of dispersion, the optimum is great dispersion between individuals—which is clearly impractical if the defensive mission is to be accomplished. To achieve dispersion we will need considerable width and depth to our position and we will plan to have only minimum necessary forces in the forward areas where they can be located by the enemy. All of these factors call for a mobile defense, a defense in which the lesser portion of the force is forward to halt or canalize the enemy while the remainder of the force is in reserve for offensive action against enemy penetra-

[3]Recent newspaper accounts of "clean" megaton weapons indicate that the amount of fallout from megaton weapons may be considerably reduced.

tions. Figure 6 shows, schematically, a defense which should answer the problems presented at division level. The division has been assigned a frontage of 30,000 yards and has been given a depth of 40,000 yards. A line of positions has been specified by the corps commander through designation of limiting points. The division commander makes an analysis of his sector and orders the construction of switch and blocking positions shown by the dashed lines. These positions will be occupied to pen the enemy into killing areas where he will be destroyed by offensive actions. Area 1 would probably be eliminated by offensive action by division. Area 2 would probably require corps assistance. Notice that these positions permit a delaying action if the enemy attack is so heavy that he should not be decisively engaged in this particular area. A river is shown on the right boundary to emphasize use of natural obstacles to protect not only the front but the flanks. In the absence of such natural obstacles, blocking and switch positions will have to be closely coordinated with adjacent commanders.

Having made his plan, the division commander organizes his sector. He assigns the forward defensive area to his 1st regiment, attaching to it an additional battalion. This regiment has the mission of defending the forward areas and halting or canalizing the enemy. The depth of this regiment, 10,000 yards, is described by a rear boundary. The 2d regiment is given the mission of organizing the next portion of the position and of being responsible for the occupation and defense of blocking and switch positions within its area on order. The 3d regiment has the division tank battalion attached. It is responsible for the rear portion of the division area, including the construction therein. It also plans to act as the nucleus of the maneuvering force providing the offensive action to defeat the enemy. All battalions participating in the offensive action will be attached to the 3d regiment when such action is ordered.

How are these areas organized? The commander of the 1st regiment divides his area into four sectors, one for each battalion. He has no significant reserve, since his primary mission will be to block or canalize, depending on the situation. He can be given a reserve by the division commander who can attach one or more battalions from other regiments. The battalion areas are described by boundaries, except to the front, where limiting points are used. The forward limiting points indicate the line of security elements, which resemble combat outposts, except that they are farther forward. Their purpose is explained below. Generally, along the line of limiting points describing the position proper, the battalions are expected to organize company positions. Within their areas they also organize company positions along the switch positions specified by division. Other than that they are given consider-

Lt Col Seymour L. Goldberg, chairman of the Battalion Committee, The Infantry School's Tactical Department, received an OC commission in 1942. During the Second World War he served with the 393d Infantry Regiment, 99th Division, in Europe. He returned to this country in 1945 and became a battalion executive officer in the Infantry Replacement Training Center, Fort McClellan. A year later he was executive officer, 47th Infantry Regiment, 9th Division, in Europe and then saw duty as S1 and later assistant S3, Munich Military Post. In Korea, he was assistant G3, X U.S. Corps, and later commanded a battalion of the 32d Infantry Regiment. Lt Col Goldberg began his current tour at The Infantry School in 1953 as a tactics instructor and last year was named chairman of the Battalion Committee.

able flexibility by the regimental commander on how to organize and defend their area. The regimental commander keeps in touch with the situation to insure that units are not concentrating into atomic targets or needlessly exposing the flanks of other battalions.

The commander of the 2d regiment has organized his area like that of the first regiment except, of course, that he has only three battalions.

The 3d regiment's position is organized in much the same way. However, since the commander of this regiment has fewer units with which to cover an area as large as that covered by each of the other two regiments, he will need additional troops to properly defend his blocking positions, if directed to do so. This regiment will also require divisional assistance to prepare all the switch and blocking positions in its area. Note that none of the troops in the areas of the 2d and 3d regiments initially occupy switch or blocking positions. When they are not engaged in construction they are dispersed in small units in concealed assembly areas.

Now let us discuss the organization of a battalion—the right center one of the 1st regiment (Figure 7). This battalion's commander utilizes linear dispositions when his unit is in contact with the enemy and tries for maximum dispersion when out of contact. On reaching the security elements in the forward area, the enemy encounters a line of observation squads, and then a line of platoons. If he drives in the security elements, he comes to the line of companies (the battle position). To break through the battle position the enemy must mass troops. In other words, where the enemy encounters a line of companies he is canalized and forced to mass. A weapon as large as 150KT will eliminate only one company —and, because of troop safety factors, the enemy will find it difficult to exploit

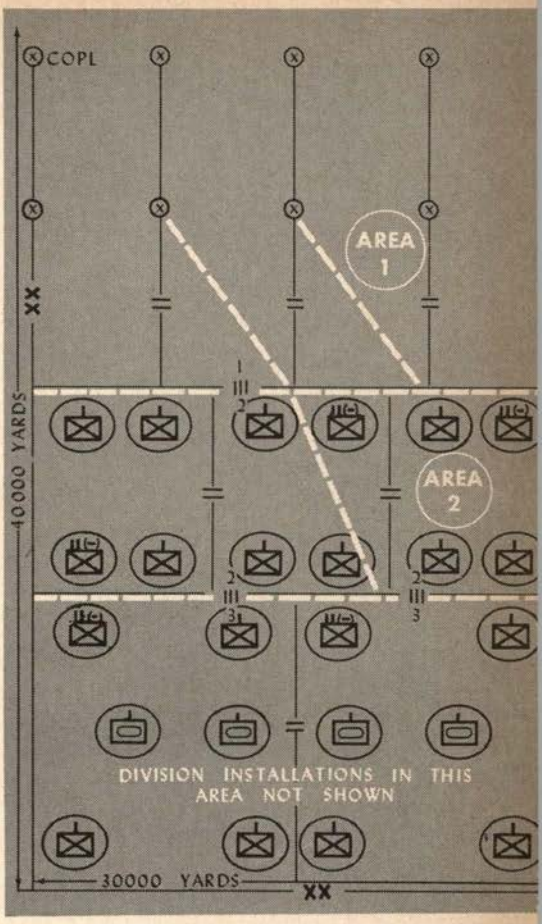


Figure 6. Linear defense at division level.

such a weapon. This is the most dispersed formation of troops which can still accomplish the mission. If the distance between companies is increased they may not be able to force the enemy to mass. The battalion commander has ordered positions prepared along the blocking position specified by division and has had positions prepared on his own for other situations which he envisions. A similar organization would be developed for all battalions, not only of the 1st regiment but also of the 2d and possibly of the 3d regiments.

Assume that the enemy has attacked and has penetrated the east portion of

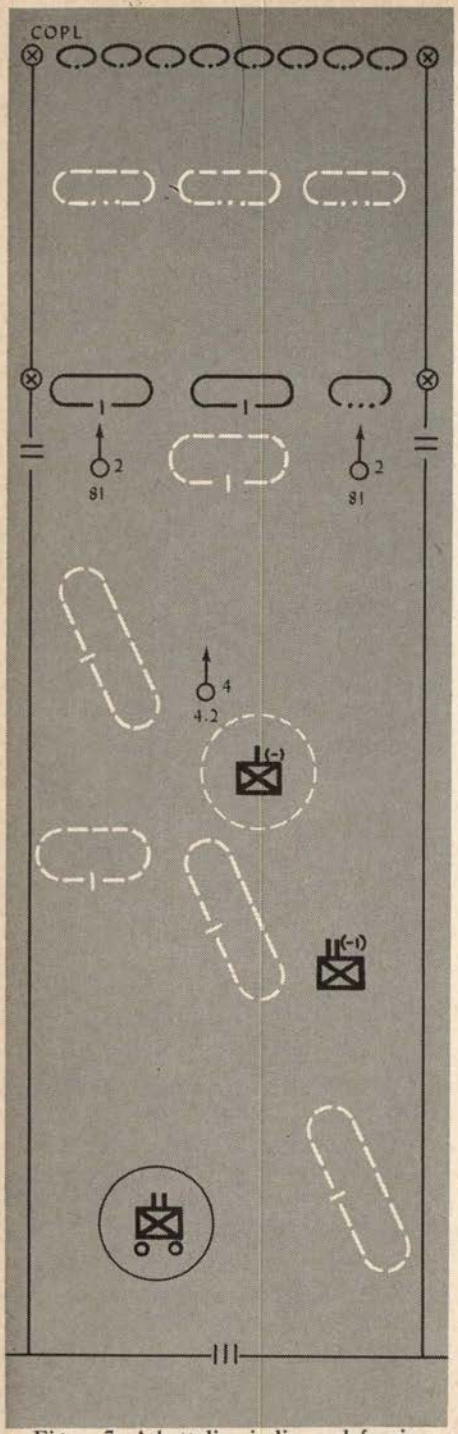


Figure 7. A battalion in linear defensive positions.

the 1st regiment's position (Figure 8). Four of the six companies of the two east battalions have been destroyed. The remaining two companies are occupying a switch position as directed by the commander of the 1st regiment. One of the 2d regiment's battalions, reinforced by one company, is ordered to occupy blocking positions to tie in with the 1st regiment's switch position. The enemy is blocked and penned against the river in Area 1 (Figure 6). The 2d regiment's other two battalions are attached to the 3d regiment which now has four Infantry battalions and a tank battalion. Supported by atomic weapons it counterattacks to destroy the penetration. If the enemy breaks out of Area 1 he can still be penned into Area 2, but in this case the counterattack must be made by corps.

This discussion has been based on the current Infantry division, although it assumes that all personnel are motorized at least in 2½-ton trucks. Armored personnel carriers and an organization which permits more flexible use of battalions will facilitate this type of defense. The above situation emphasizes the need for flexibility—the 1st regiment needs more battalions than the three organic to it, whereas the 3d regiment would probably be able to perform its mission adequately if it had one less Infantry battalion than the example. A battalion having more companies would probably also be of advantage since it would permit greater effort on the switch and blocking positions which the battalions will have to construct.

The discussion has utilized three regiments, one behind the other, to direct each regimental commander's interests towards one field; the forward commander canalizing, the second commander blocking, and the third commander counterattacking. This admittedly places communications problems on the forward regiment. If these problems become too

Linear defensive positions in great depth, with dispersion at all echelons consistent with the mission, is the answer to defense on the atomic battlefield.

DEFENSE RECONSIDERED

In recent issues we have published Infantry School concepts for the employment of Infantry in the offense and defense on an atomic battlefield. Here is another concept for defense against atomic weapons. The thoughts expressed are those of the author and do not necessarily reflect official thought of The Infantry School. This concept is published in the interest of stimulating additional thinking on this important subject.

—Editor

New or radically improved combat weapons are to be expected. Throughout military history there has been a continuous evolution of increasingly destructive tools for war. Yet, major innovations have always brought initial confusion and dismay to those who have had to face them. Every new weapon from the crossbow to the atomic bomb has engendered temporary feelings of futility. But, invariably, means have been found to combat each new instrument of destruction, and tactical concepts have been modified or developed by opposing forces to employ them.

We are now approaching this phase with nuclear weapons. The United States, Great Britain and Soviet Russia possess mass-destruction weapons. Other industrially advanced countries will be able to develop and manufacture them. Both sides in any future conflict will possess a variety of atomic weapons and the means to employ them.

We are familiar with initial reactions to the atomic bomb. Claims were made that no longer was there a necessity for ground combat. It was felt that a few nuclear blasts could destroy all ground forces—that a decision in a future war could be won by strategic air bombing or guided missiles with atomic warheads. This reaction is now giving way to the realization that an atomic bomb is not an absolute weapon. Even within areas most heavily affected by the nuclear bomb there will be survivors, and a defender can do many things to increase his protection against it. The size of atomic

By Lt Col Seymour L. Goldberg

weapons for use on the battlefield cannot be increased indefinitely. There is a limit beyond which they cannot be adequately controlled. It is clear that ground warfare will continue and that tactics can and must be developed to utilize this powerful innovation.

A weapon as novel and radical as the nuclear explosion has a tendency, at least initially, to inspire tactics as novel and radical as the weapon itself. There has been a search for something new and different on the theory that only new and different tactics could counter this tremendous force. At the same time there have been concurrent attempts to make the atomic weapon conform to past tactics. In the defense, which this article will consider, we note that certain concepts have opened 6 to 9-mile gaps between units, destroying mutual support and creating possibilities for the defeat of units in detail. Another concept which disregards the capabilities of atomic weapons is the idea of strongpoints to be held, like conventional defensive positions, to canalize the enemy or deny him specific areas. Besides presenting excellent atomic targets, such strongpoints fail to canalize the enemy—a job which can be done only by a continuous barrier of troops or obstacles against which the enemy must concentrate to get through.

In developing defensive tactics for atomic warfare, we should first analyze those properties of the atomic weapon which possess new or more powerful military effects. A nuclear blast produces casualties through the new military effects of heat and radiation and from a more powerful blast than any previous weapon. These effects should receive appropriate consideration in our planning, but we must not disregard the principles of war. Nor should we abandon without good reason concepts which have proved sound or attempt, in combating one effect, to make ourselves more vulnerable either to other effects or other forms of attack.

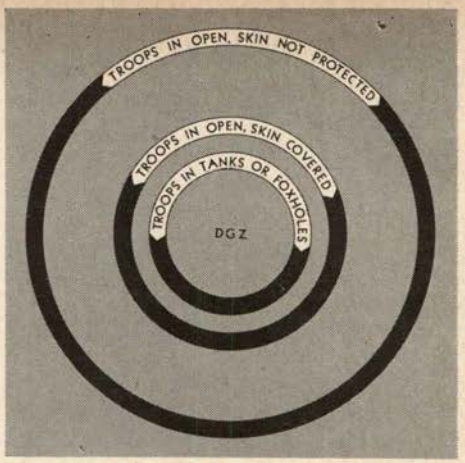


Figure 1. Radii of effects based on R50 line.

The damage caused by an atomic weapon is expressed as a "radius of effects." The radius of effects, however, has no real meaning unless it is related to the nature of the target being attacked. The circles in Figure 1 show the radius of effects to be expected from a 20KT[1], low-air-burst weapon among troops with varying degrees of protection. From the smallest to the largest circle they show radii of effects against troops in tanks or foxholes, troops in the open but with no skin exposed and troops in the open with skin exposed.

We cannot use these circles unless we understand what they represent. Since the purpose of the radius-of-effects circle is usually to show a target area within which troops will be rendered combat ineffective, the radius generally used is the so-called R50 line. At the R50 line 50% of the personnel *probably* will become casualties. Each radius of effects shown in Figure 1 is based on an R50 line. As you go toward ground zero, you expect to get increasingly heavier casualties until in the area around ground zero you would expect 100% casualties. Therefore *within* the circle described by the R50 line, upwards of 50% of the troops

[1]KT stands for kiloton, the explosive equivalent of 1000 tons of TNT.

pressing, an acceptable solution, which would not change the battalion organization and would not change either the concept or the conduct, would be to place two regiments forward, giving each of them the responsibility for half the indicated forward regimental area and the responsibility for half the indicated 2d regimental area.

This form of defense will go a long way toward solving many of the problems which will confront a defender in atomic warfare. We can reduce the vulnerability of units to atomic weapons by adopting linear formations and dispersing units at echelons lower than the battalion. By disposing our forces in linear formation and accepting moderate gaps between platoons and companies, we reduce the necessity for major gaps between battalions, thereby facilitating and simplifying surveillance of the area and making it impractical for large enemy forces to infiltrate the position. This also results in greater protection for artillery and other supporting weapons.

At the same time we retain at least a degree of mutual support between battalion-size units so that major enemy forces attempting to bypass one battalion find it necessary to encounter another battalion or at least go through a zone of fire of that battalion. Units are not required to hold in place. This is a very important element of the concept since a defender who is immobilized by his mission becomes an excellent atomic target. Reserves are assembled in minimum-size units, concentrating when required by the situation. Under present organization, these will probably be company size. However, armored-Infantry vehicles will make it possible to reduce them to platoon-size units. Successive linear blocking and switch positions give depth to the position. A continuous barrier of natural obstacles, troops and fires canalizes the enemy.

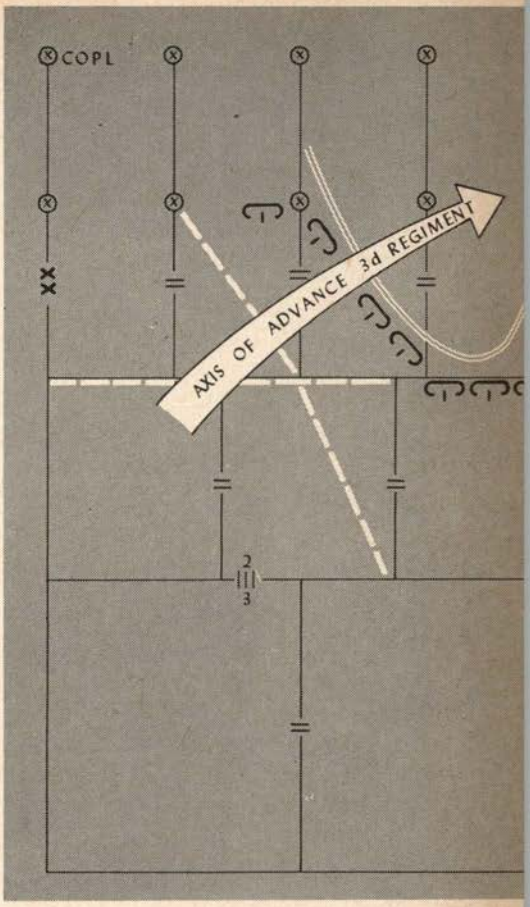
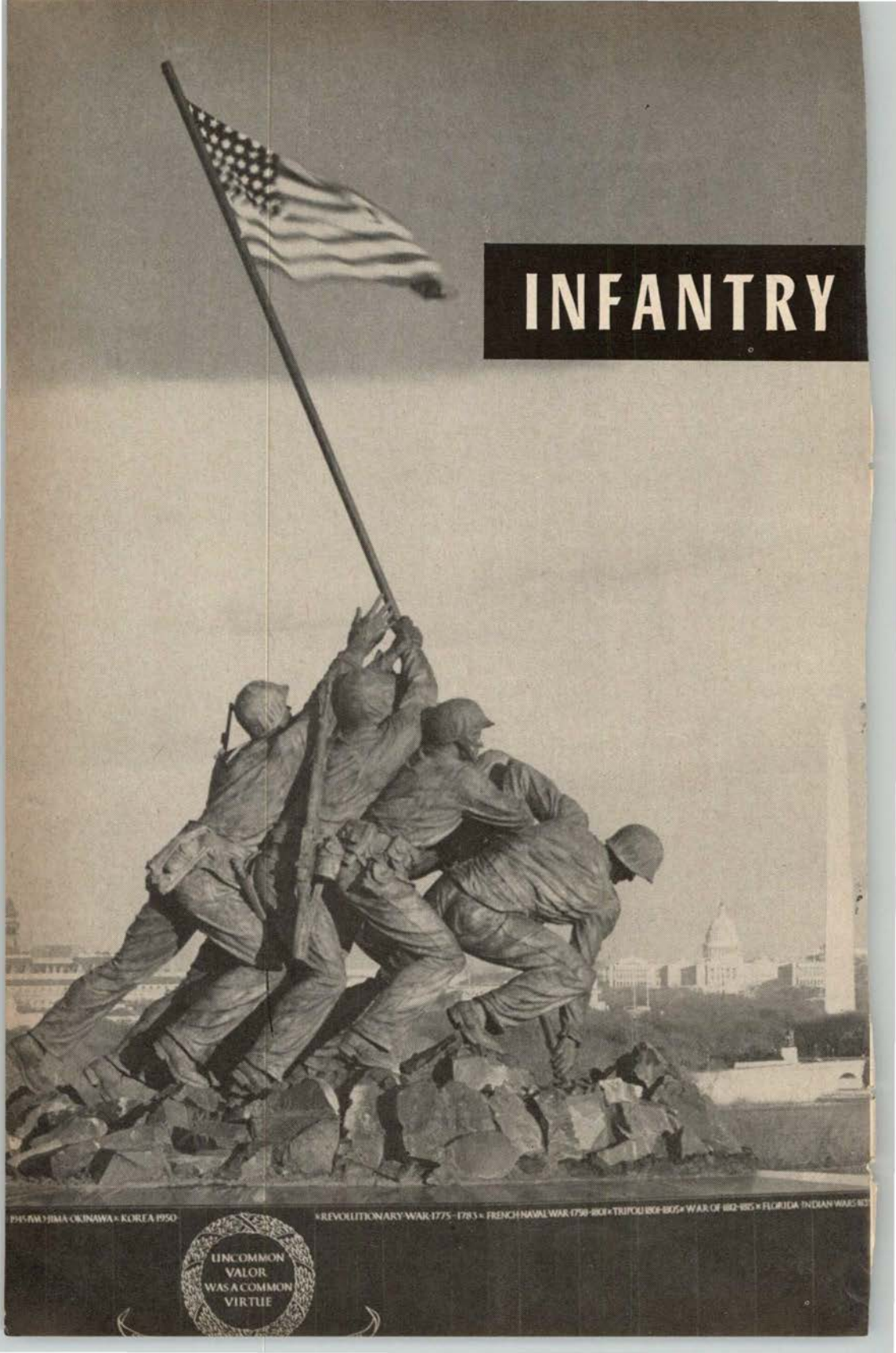


Figure 8. Conduct of linear defense.

This article has outlined one type of defensive operation which could be used on the nuclear battlefield. It is different from the concepts of the past because it is designed for the warfare of the future. Yet, it is not new solely for the sake of being new. Linear defense and dispersion take into account the capabilities and limitations of atomic weapons — which have made obsolete our concepts of strongpoints, fixed positions, reserves assembled in large units and impractical barrier plans. Only by planning for the future can the Infantry prepare itself for victory in the Atomic Age.


INFANTRY
1945 IWO JIMA OKINAWA × KOREA 1950
× REVOLUTIONARY WAR 1775–1783 × FRENCH NAVAL WAR 1798–1801 × TRIPOLI 1801–1805 × WAR OF 1812–1815 × FLORIDA INDIAN WARS 183
UNCOMMON VALOR WAS A COMMON VIRTUE

We should know more about our fellow Infantrymen in the Marines and about our other "Infantry School" at Quantico.

WITHOUT CROSSED RIFLES

By Lt Col Albert H. Smith, Jr.

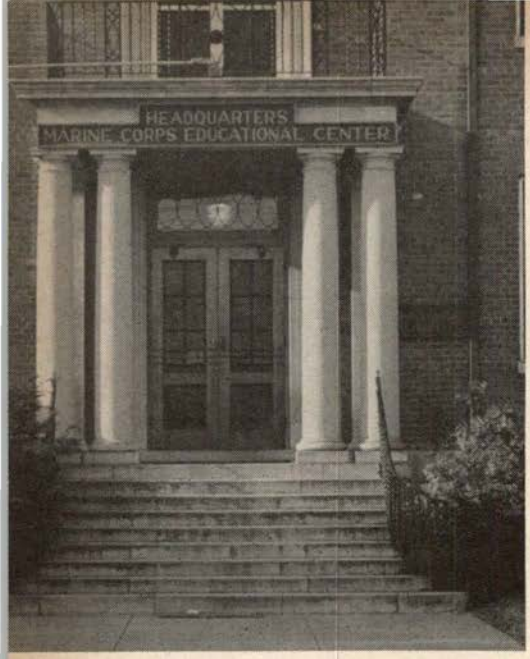
Chances are, when you hear the word "Infantryman" you think of crossed rifles and the doughboy—backbone of the Army. When "Infantry School" is mentioned you probably visualize Fort Benning and The Infantry Center. But to a great many people Infantrymen and Infantry School have a different meaning. There are *other* Infantrymen in our armed forces — the "Leathernecks" of the Marine Corps who also seize and hold ground as foot soldiers. And there is actually another "Infantry School"— at Quantico, Virginia.

If you are an Army officer eligible for attendance at an advanced course or the Command and General Staff College you may be surprised, as I was, to find yourself on orders to this school. Depending upon the level you have reached in your military education you may be specially selected by Career Management to attend either the Marine Corps Junior or Senior School. These are counterparts of our regular advanced courses and the regular C&GSC course at Fort Leavenworth.

Also, like myself, you may have some misgivings about such an assignment, particularly if it will be in lieu of attendance at your own branch school or Leavenworth. I can assure you that you need have no such doubts. You will soon discover you have been given an exceptional privilege. We should know more about our fellow Infantrymen in the Marines and their schooling.

Less than an hour's drive south of the Pentagon along U.S. Route 1 stands a statue of those famous Marines who planted our nation's flag atop Mt. Surabachi on Iwo Jima. This splendid tribute serves a dual purpose. It reminds us of the "Uncommon Valor" of gallant Infantrymen and marks the entrance from the main highway to the Marine Corps' education center. (Another statue of this stirring scene has been placed on the banks of the Potomac in the nation's capital.)

The development of Quantico as an Infantry training area closely parallels that of Fort Benning. It started at the time of World War I when more space was vitally necessary to train rapidly expanding Marine Corps units. A suitable tract of land was selected along the Potomac River, 30 miles south of Washington, and leased early in 1917. By May the first group of Marines had arrived and were living under canvas. During the next year, the lease was replaced by



purchase. Secretary of the Navy Josephus Daniels authorized a permanent base on the site, and a hint of future development was given in the establishment of an air station. The new training area offered every physical advantage. There was room for field training, for ranges and for permanent buildings. There were facilities for rapid embarkation from a pier on the river or for rail shipping if that were necessary.

Early in the 1920s it became apparent to Maj Gen John A. Lejeune, the thirteenth Commandant of the Corps, that existing educational facilities were wholly inadequate to maintain a force in readiness. He believed that each officer and enlisted man should be offered a continuing and scientifically planned and conducted education. It was this enlightened imagination that founded the activity now known as the Marine Corps Schools. In its initial form the education program consisted of three parts: a Basic School for newly commissioned second lieutenants, a Company Officers School for captains and a Field Officers School for majors. To this framework — the basic form of which is still maintained— were added, as need for them emerged, specialized technical courses for enlisted men as well as officers.

The Basic School has a single goal — training students for duty as Infantry platoon leaders, a vital billet to the Marine Corps. It is responsible not only for the training of newly commissioned officers but also for the various officer candidate courses. Programs of instruction strive to produce enthusiastic, competent Marine officers eager to assume the responsibilities of leadership and to carry on the traditions of their predecessors. This school — and for that matter the entire educational system — emphasizes development of deep pride in being part of an organization with a tradition of military excellence dating back 181 years.

At the top of the Marine Corps educational ladder we find the Senior School, comparable to our own Command and General Staff College. Its mission is to provide professional education for colonels and lieutenant colonels in command and staff duties appropriate to the current and next higher grade. More specifically, graduates are qualified for assignment to the general staff of a Marine division or aircraft wing.

At this Senior School, the method of instruction is an informal conference of a relatively small group of students. In this so-called seminar system, groups of 10 students meet under the guidance of an instructor to discuss military problems and principles, solve requirements and examine policy and doctrine. Active discussion of each problem by every member of the class makes full use of the vast amount of experience possessed by each student, stimulates progressive ideas and maintains a high level of interest. The enthusiastic acceptance and initial success of this program may well cause it to

be adapted as a pattern for military education.

Objectives of the Junior School are similar to those of the Senior School, but are designed to equip captains and majors for their future duties.

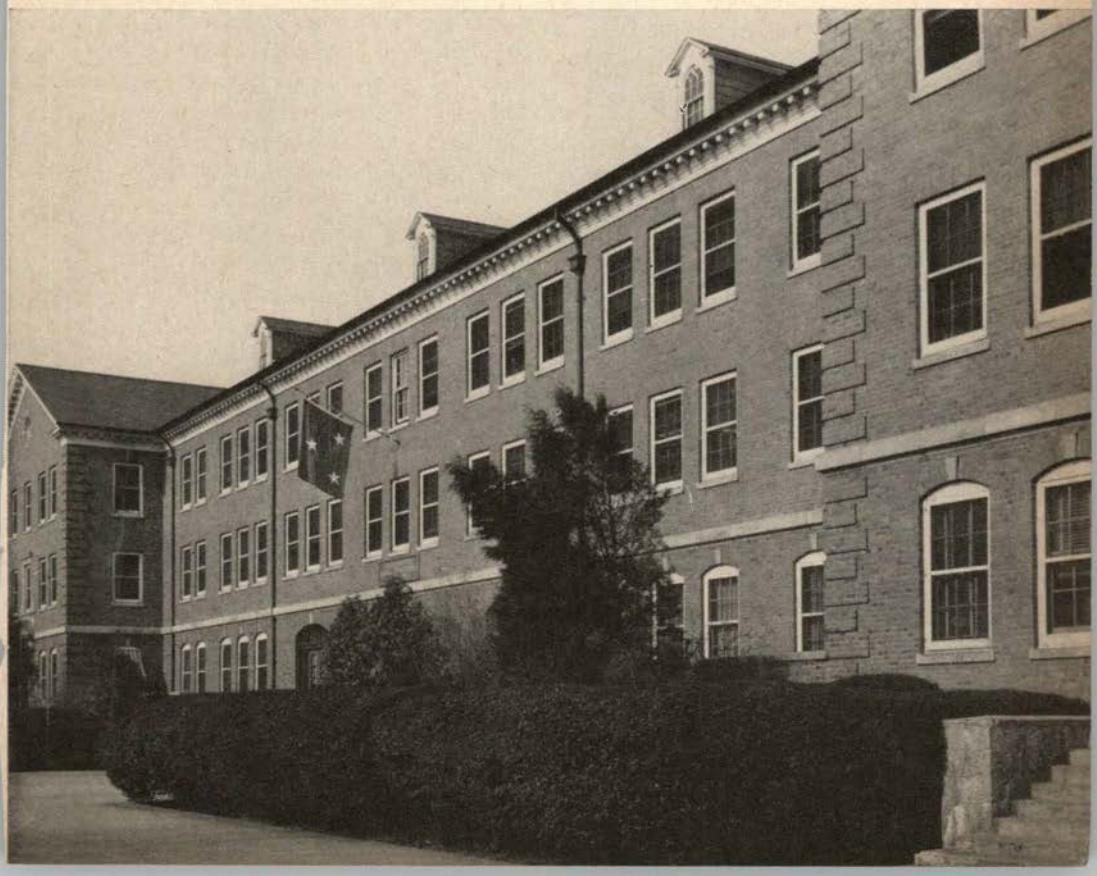
Other resident instructional courses are presented by the Naval Gunfire, Communication Officers, Air Observers and certain technical schools.

The goal of the Marine Corps Schools is to keep the Corps, with its air-ground team, a balanced, highly trained, well-integrated fighting force in readiness. To this end both Marine aviators and ground officers compose the staff and student body, learning each other's tactics and techniques.

The program of instruction at the Senior School provides an interesting, challenging and profitable experience for an officer of any service—but especially for the Infantryman. It begins as would be expected, with the role of the Marine Corps in our national defense structure. Basically, the Corps is organized, trained and equipped to provide forces of combined arms, together with supporting air components, for service with the U.S. Fleet in the seizure or defense of advanced naval bases. Also, included in the National Security Act of 1947 is another mission pertaining to the Marine Corps: ". . . and shall perform such other duties as the President may direct." Not so long ago—you will recall—he did so order. A Marine division fought alongside our units in Korea as part of Eighth Army. This pattern of close association existed in World Wars I and II as well, and can be expected to be repeated in any future conflict especially under emergency conditions of an atomic war.

Similarity between our doctrine and

Headquarters Marine Corps Schools.

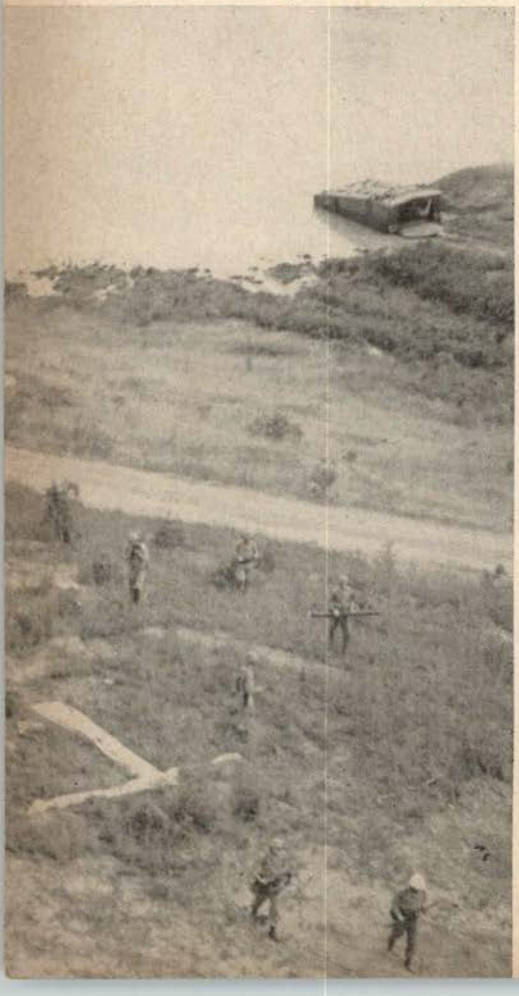


that of the Marines is undeniable. Included among reference texts for the course are a high percentage of familiar army manuals. Once established ashore, Marine Infantrymen normally adhere to our tactics and doctrine, use many of our techniques, fight with the same weapons and are guided by jointly accepted principles and fundamentals.

There are minor differences in organization and equipment between the two services. However, leaders fighting side by side in the future should be able to understand each other as well as their predecessors did in World Wars I and II and Korea.

As the course develops, emphasis is placed on advanced instruction in amphibious warfare to include the large-scale all-helicopter assault and the employment of atomic weapons. Doctrine and techniques of the Marine "vertical envelopment" are not really very different from those of the Army airborne assault taught at our schools. Although the situation and circumstances may vary, certainly we have the same objective as that recently announced by Lt Gen Twining, Schools Commandant, of being able to "strike hard at any square yard on the face of the earth."

Ashore, Marines fight as Infantrymen.



In this regard, students have a maximum opportunity of investigating all ramifications of helicopterborne mobility. Active participation by at least three seasoned aviators in every 10-man group provides for a balanced approach, keeps the Infantry out of confusing clouds and promotes tactically sound over-all solutions. Air-ground teamwork in the Marine Corps is a life and death requirement—not just a favorable situation for combat.

Getting back to fundamentals, Marine Corps Schools teach — as we do — that the advent of the atomic bomb has not eliminated the need for ground forces to seize and hold enemy territory. The Marine Corps believes that the time comes in every battle when we must close with the enemy to defeat him.

Close association, on a daily basis, with Marines brings a fuller understanding of the Corps' pride. Naturally, a small volunteer organization of some 200,000 officers and men fosters such feeling. On the other hand, there are cogent reasons for and policies which strengthen pride in the Corps.

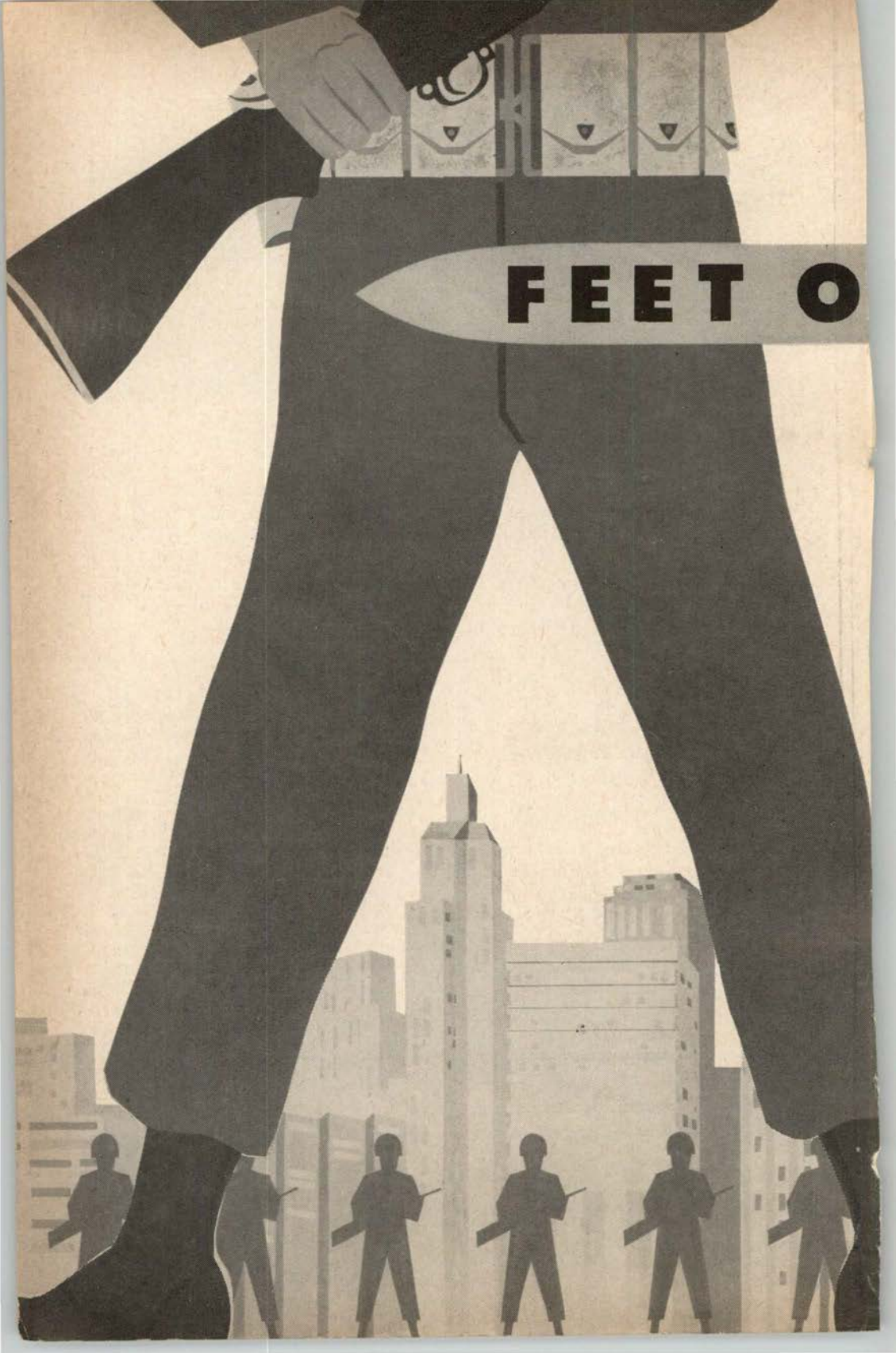
Marines stress uniform appearance. Special insignia do not foster divergent branch loyalties because there are none. The only difference in dress authorized is the wearing of wings by Marine aviators. Parachute badges are not worn. A Marine is either a ground officer or an aviator. Specialists do exist as far as

Marine Infantrymen can hit the beaches from the air.

records, MOS's and assignments are concerned. However, each and every individual is a Marine first and is so presented to the public. Unit loyalty is de-emphasized in favor of over-all loyalty to the Corps and its traditions. So as not to detract from the one Corps theme, the tactical designation of World War II, "Amphibious Corps," was eliminated. Comparable-size units are now called Marine Air-Ground Task Forces. This singular loyalty, in a real sense, exemplifies Secretary Brucker's goal of "One Army."

The exchange of Army and Marine doctrine stimulates progressive ideas and promotes mutual understanding. We look to the Marines for much of our amphibious assault doctrine and have great interest in their new developments and techniques. In turn, the Marine Corps looks to The Infantry Center in particular and the Army in general for ground combat tactics and techniques. Partners in peace, comrades-in-arms during war, we should always be able and ready to work together. The Army officer who is given the opportunity to attend either the Junior or Senior Marine School is indeed fortunate. He will find it a pleasant and profitable experience that will benefit both the service and himself. There is much we can learn from our fellow Infantrymen in the Marines.

Lt Col Albert H. Smith, Jr., was commissioned in the Infantry in 1940. In World War II he served with the 16th Infantry Regiment, 1st Division, rising to the post of regimental S3. He took part in three amphibious assaults —the invasions of North Africa, Sicily and Normandy. Returning to this country in 1945, Lt Col Smith was assigned first as assistant G3, Headquarters, Army Ground Forces, and then served in the same capacity with Headquarters, Second U.S. Army. From 1948 until 1951, he was a management analyst and later, assistant executive, Management Division, Department of the Army. Overseas again in Europe, he was comptroller, Headquarters Base Section, U.S. Army Europe. In 1953, he became a battalion commander in the 18th Infantry Regiment and, a year later, regimental executive officer. His next assignment was as a student at the Senior Marine School, Marine Corps Schools, Quantico, Virginia. In July of last year, Lt Col Smith began his present assignment as an instructor in the Tactical Department's Regimental Committee.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of volunteers as they did in Korea and Indo-China? How would we stop this covert aggression? . . . With wholesale destruction of friend and foe alike?

To bring the problem closer to home, imagine that a strong band of Communists were to seize control of the Panama Canal . . . or your home city for that matter! Without an Army division to fly to the scene, what would be our choice of response? Would we blow up the Canal and your city? Or would we let the intruders keep the spoils?

In a more logical vein, let us consider one of the many situations that could occur in the event of an open declaration of war against the United States by the Communist Bloc. Let us imagine that it would be a *limited* war waged with atomic and conventional weapons against military targets. Under such conditions, we have been told that we could expect immediate and devastating aerial blows against all of our strategic air bases (fixed and floating), against key port facilities, against communication centers, and against vital aircraft production plants.

At the same time, of course, our own splendid Strategic Air Force would be inflicting as much or more damage on the enemy. Considering the effectiveness of the offensive and defensive weapons that could be employed simultaneously in an aerial battle of this scope, it has been conceded that daily losses in aircraft and in the facilities to sustain and replace aircraft would run very high on both sides. Consequently, it is conceivable that airpower on both sides would be reduced to relative impotency in a matter of weeks.

At this point some crystal-ball gazers call the war off! But what if this is precisely the situation that the enemy has been prepared and waiting for? Without combat-ready divisions of our own—already trained and fully equipped—how can we stop the enemy from planting the Hammer and Sickle on the front lawn of every home in the United States?

If such speculation sounds fantastic, please remember it is in response to a fantastic question. As with fire, sometime one must fight fantasy with fantasy.

Returning now to reality, I want to assure you most emphatically that your defense planners have no intention whatsoever of replacing the Army division with anything that razes, radiates, flies, floats, buzzes, booms or bangs. On the contrary, we are continuing to equip your divisions with controllable weapons and machines that can do all of these things and many more.

Until the day when the submarine can take a hill and a B-52 can occupy a city, I predict that the Army division will continue to be the decisive instrument of military force in the arsenal of democracy. I say that with confidence because I believe in the sanity and the morality of the American people. I believe in the sound judgment of the men chosen by democratic processes to lead us.

In the world of reality people, not

weapons, determine national policy. Never can I conceive of a day when the threat of mutual annihilation could be the national policy of the American people for dealing with any and every kind of armed aggression. Nor can I conceive of a day when they would be willing to buy peace at the shameful price of creeping surrender.

I have spoken of the Army division for the sake of rhetoric as if it were a fixed entity. But a division is not a static organization. Like all elements of the armed forces, it has undergone an evolution as profound as that of our twentieth century technology.

This evolutionary process is continuing today throughout the Army. It is the subject of constant study at the Department of the Army, the Continental Army Command, the Command and General Staff College, and at each of the Combat Arms schools. We are projecting our thoughts as far as 20 and 30 years into the future to determine what the Army must have to continue producing decisive combinations of weapons and men.

We approach this problem by thinking in terms of the principles of war which are timeless—not in terms of solutions which are transitory. For us to be governed by a single concept of future warfare in the development of weapons, material, tactics and techniques would be as sterile as in the development of national policy and strategy. Instead of focusing upon "A" battle of the future, we focus our thinking upon the fundamentals which characterize all battlefields: *Firepower* plus *Mobility* plus *Communication,* equals *Critical Force at the Point of Decision.*

So tightly interlocking are these elements that the slightest alteration of one has a chain reaction on the others. This chain reaction has been given great impetus in the evolution of warfare by the introduction of atomic weapons for tactical use. The need for dispersion of units in greater depth in the battle area is already here.

To scatter units over a large battle area without the adequate means to move and control them would be tactical suicide against the Communist masses of armor and men. We must have tools that will give our divisions cross-country and vertical mobility.

Since defense budgeting is under constant scrutiny in light of world trends and developments, we can hope that some of our most compelling requirements (material) may receive earlier emphasis. I am thinking now especially of tactical aviation, and of the airlift which we must have for strategic mobility to fulfill our world-wide mission. I trust that our legitimate needs will never be mistaken for mere ambition.

No matter how many worthy and essential noncombat tasks you may be called upon to perform, no matter how many assignments along the more pleasant paths of duty may be yours, you must guard with jealous care your most priceless possession—your soldier's soul.

You are a fighting man. If all our earnest efforts to preserve the peace should prove futile, if war should finally be thrust upon us, your job would be to fight and lead our troops to victory in battle.

This is the immutable obligation of your profession. When the chips are down, all else is secondary.

SECRETARY OF THE ARMY WILBER M. BRUCKER

TAX TIPS

Here are some tips on income tax deductions for military personnel which may help to save you money

This is the season for filing income tax returns. (April 15 is the deadline, in case you have forgotten.) Our purpose in this brief article is to point out the few special deductions available to service personnel and to explain how military pay and allowances should be treated for income tax purposes. The article was prepared by the Georgia Society of Certified Public Accountants in reply to questions from the Quarterly *and is based on information furnished by the Internal Revenue Service.*

—Editor

In most respects, Internal Revenue laws apply to military personnel in exactly the same manner and to the same extent as they do to other taxpayers. That is, the rules for determining liability for filing and computing income and tax deductions concern all taxpayers, whether they are servicemen or civilians.

However, there are certain items, particularly deductions, which are peculiar to members of the armed forces.

First, let's take the matter of uniforms. Regulations prescribe the specific type of uniform to be worn. If a serviceman is required to purchase his own, it is a necessary expenditure. Yet the uniform may be, and often is, worn off duty. Therefore, it has long been held that Army uniforms take the place of ordinary clothing and that their cost is a personal, *nondeductible* expense. The one exception to this rule is the nurse's white duty uniform.

Since uniforms are personal and not business assets, the cost of cleaning and maintenance is likewise personal, and no deductions for upkeep or depreciation are permitted.

Now suppose that a change in regulations makes a uniform obsolete, as will soon be the case with the officer's pinks and greens. It will lose its value completely as a uniform. But a loss on a personal asset does not give rise to a deduction unless the loss is the result of a casualty or theft. Since abandonment is not a casualty, there is still no deduction.

What tax benefit, then, if any, is available? The law allows a deduction for contributions to certain charitable organizations if the taxpayer files the long form and itemizes his deductions. It is not necessary that a contribution be made in cash. If it is made in property other than cash, a deduction equal to the fair market value of the property at the time of the gift is permitted. This rule would apply, for example, to a gift of an obso-

lete uniform to the Salvation Army. The fair market value is, of course, a question of fact.

However, the reasoning behind the disallowance of uniform cost—that the uniform replaces ordinary clothing—does not apply to other items worn by the serviceman. Cap devices, shoulder insignia, chin-straps, wings, sword, epaulets, braid, etc., do not replace ordinary clothing but are required to indicate rank and branch of service. The cost of these items is deductible.

The Internal Revenue Service has held that where an officer maintains membership in an officers' club on a voluntary basis, even though membership has come to be regarded as customary among officers, it is not so closely related to the performance of his duties as to justify the allowance of his dues as an ordinary and necessary business expense. The same rule applies to dues paid by enlisted personnel to a noncommissioned officers' club.

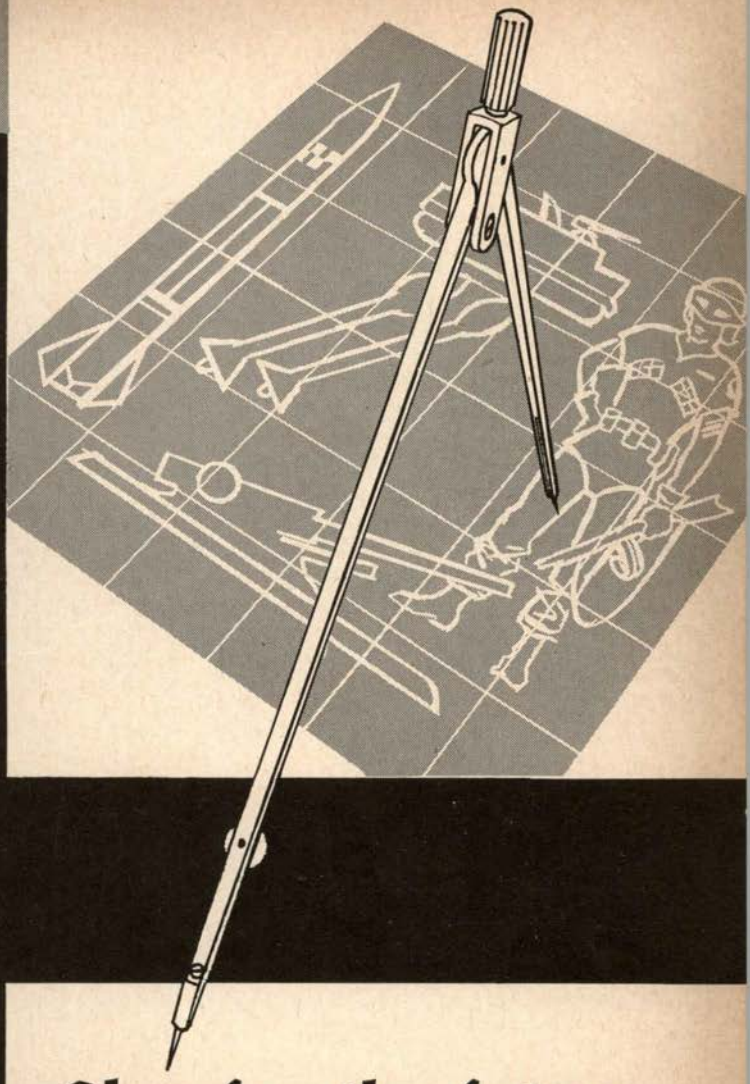
As to all other expenses, which we cannot discuss individually, remember this rule. To be deductible, an expenditure must be directly related to a trade or business (and for tax purposes, a serviceman is held to be engaged in a trade or business) and, in addition, it must be ordinary and necessary. This rule should be applied to determine the deductibility of such items as military books and subscriptions to military publications. Whether such expenses are ordinary and necessary and directly related to a trade or business are questions of fact to be decided in each case, but all the requirements must be satisfied.

Also of interest to military personnel is the matter of how to handle the allowances for subsistence and quarters, mileage allowances, per diem allowances in lieu of subsistence and actual expenses incurred while in travel status on official business.

The subsistence and quarters allowances are excludable from gross income and need *not* be reported on your return. The W-2 Form (statement of tax withheld) furnished by the finance officer already excludes these allowances. The amount shown on this form as your wages for the year represents only your base pay, longevity and hazardous duty pay. This amount, plus per diem and mileage allowances (under a 1955 ruling), dividends, interest and other income is your gross income. Actual expenses incurred in connection with official travel are deductible from gross income—whether they are more or less than the allowances received for such travel. The effect of the 1955 ruling is to eliminate the basic subsistence allowance as a factor in determining the amount deductible for travel expenses. In other words, it is no longer necessary to offset the expenses against the basic allowance.

Let's illustrate. In addition to his base pay, longevity and hazardous duty pay, an officer receives subsistence and quarters allowances of $1800. During the year he was paid $300 per diem allowance in lieu of subsistence and $100 mileage allowance for temporary official duty away from his station. His actual expenses for transportation, meals and lodging were $450. For tax purposes, the $1800 is not considered as income and, therefore, is not entered on the return. But the $300 and $100 are income and must be reported. The full amount of actual travel expenses is allowable and should be deducted from gross income.

If you have any questions or need specific advice or assistance with your income tax return, see your legal assistance officer or your nearest Internal Revenue Service agent. Local Internal Revenue Service offices usually will be glad to send an agent to conduct classes for personnel selected as "tax specialists" for battalion or larger size units.



Plan for the future

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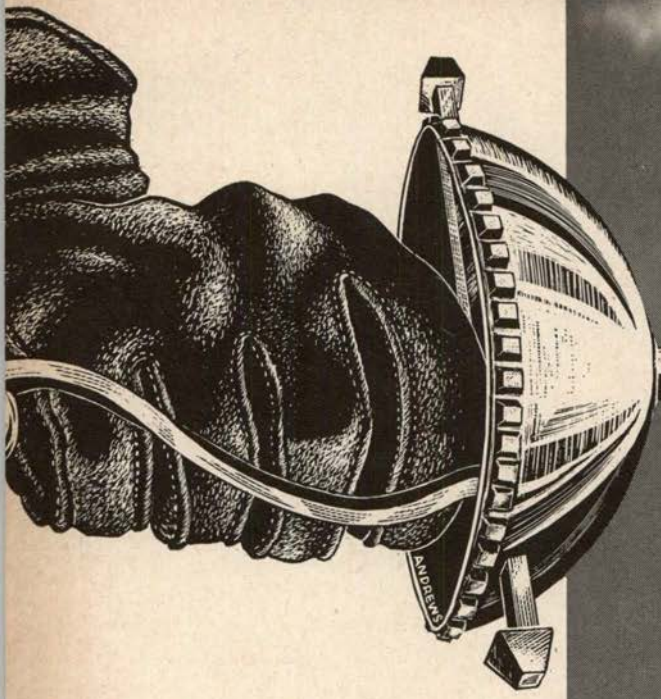


This is the conclusion of a two-part article based on tape-recorded interviews with German airborne general Kurt Student. The Germans were the first to develop and employ strategic airborne warfare but Hitler failed to grasp its significance. We profited from German experiences and soon outstripped them.

By CAPT BOYD T. BASHORE

The United States Army is the most airborne-minded ground fighting force in the world today. This was not always true.

SWORD OF SILK

Generaloberst Kurt Student stood momentarily awed by the airborne spectacle he was watching. It was Sunday, 17 September 1944. Over his head roared Operation Market Garden—flight after flight of Allied troop-carrier planes and gliders, the largest airborne operation in history. Student's chief of staff, Colonel Reinhardt, rushed up and stood silently beside him on the roof of the Dutch manor house that was the headquarters of Student's First German Parachute Army. Together they watched, incredulous, as the tremendous air armada thundered on through the sky toward key bridge objectives over the Maas (Muese), Waal (north arm of the Rhine) and Lek (south arm of the Rhine) Rivers. The 1st British Airborne Division was headed for the vicinity of Arnhem, the 82d Airborne would drop between Grave and Nijmegen and the 101st Airborne between Grave and Eindhoven.

For a moment Student stood lost in unabashed envy of the overwhelming industrial production that the operation represented. Over 2800 troop-carrier planes and 1600 gliders were in action. "If only I could have had an airborne force like that under my command," he muttered to Reinhardt.

Then Student smiled grimly. Obviously the Allies were attempting, in reverse, a mission similar to that of his own earlier airborne operation in Holland. Airborne was attempting to clear a path for massed armored units to strike through the strategic Netherlands. Holland, which had been the doorstep into France on two German invasions, was now the hoped-for "gateway to the Fatherland" for an Allied end run around the West Wall north to the Third Reich.

And as Student stood on that rooftop near Eindhoven watching the First Allied Airborne Army drop around him, he could not help but remember the history, the "rise and fall," of the German airborne effort with which he had been so closely connected. He recalled the first days of experimentation with the parachute and glider battalions around Stendal and Juterbog—days when he fought a continuing battle over the importance

CAPT BOYD T. BASHORE enlisted in the Army in 1943. He took jump training the following year with the 541st Parachute Infantry Regiment and then remained at the Parachute School as an instructor. In 1945 he was commissioned from OCS but later resigned his commission to attend the United States Military Academy. Upon graduation from the Academy in 1950, he was assigned first to the 505th and then to the 508th Airborne Regimental Combat Teams. Two years later, he went to Europe where he served as a company commander and staff officer in the 42d Armored Infantry Battalion of the 2d Armored Division. After completing the advanced course at The Infantry School last May, Capt Bashore began his present assignment as aide-de-camp to Maj Gen Joseph H. Harper, Chief of the Joint U.S. Military Advisory Group to the Philippines.

of airborne with the conservative senior generals of the Army and Luftwaffe. "Parachute and glider troops are only good for 'Zerstorung taktik,' small guerilla tactical action," insisted the old-school Wehrmacht and Luftwaffe leaders. Student countered that airborne would change the scope of all ground warfare. He visualized entire airborne corps and armies being dropped strategically in vertical envelopments. And now, in a sense, he was observing from that rooftop the fulfillment of his dream. Only it was an *Allied* airborne army accomplishing a vertical envelopment against his groundlocked parachute army, now airborne in name only.

At the beginning of World War II the German airborne successes had begun to fulfill Student's prophecies. At the same time they had also convinced the Allies of the strategic value of airborne troops. The peaceful and unpublicized German airborne invasion of Freudenthal in Czechoslovakia and later the shooting-war airborne actions in Norway were harbingers of bigger things to come: Holland, the first true strategic use of airborne; the proof that a large airborne force, an airborne corps, could accomplish a strategic mission.

In Rotterdam, however, during the Dutch capitulation, Student himself was shot in the head by a sniper. This wound took him out of action during the critical days that followed when the opportunities for an airborne invasion of England slowly faded with the rise of overwhelming Allied air superiority. Shortly after his convalescence Student himself had to turn thumbs down on Hitler's imaginative plan for an airborne invasion of Gibraltar because Franco would not permit a ground linkup force to roll over Spain. Next, with the invasion of Greece, came the small tactical success of the Corinth jump, an airborne prelude to Crete.

Then came Crete, a pyrrhic victory won by airborne forces alone unsupported by any appreciable seaborne reinforcements or supplies. Here was the strategic success that galvanized the Allies into more serious airborne efforts; a victory in which approximately 40,000 Allied troops, on an island fortress, were defeated by 18,000 lightly armed German paratroopers who had been expected for days; the astounding accomplishment for which Student had argued and cajoled to get Hitler's approval. Yet, surprisingly, Crete was to be the swansong of German airborne.

Hitler remembered the critical touch-and-go days for the airborne on Crete after the seaborne reinforcements failed to arrive. He remembered the carnage that the British fleet had caused among the inadequately protected troop ships of the floating reserve. Shocked by Crete's heavy losses Hitler had said, "Student, Crete has proved that the day of your

paratroopers is over. Airborne troops are a weapon of surprise. Surprise is now impossible." Student first heard this on the day that he was decorated with the Knight's Cross for his leadership of the battle of Crete. And, perhaps fortunately for the Allies, he was to hear it often from then on until the day the Allies themselves again opened Hitler's eyes to the strategic value of airborne.

From the moment that Hitler uttered those words the German airborne effort began to stagnate. Although for a time airborne training continued and the troop strength increased, the German airborne corps was never again to be used for a strategic airborne mission. Hitler had been so affected by the casualty figures on Crete that he was unable to comprehend the true meaning of this German airborne victory. For the first time in military history lightly armed airborne troops, outnumbered more than two to one, had conquered a distant island that was surrounded by an overwhelmingly powerful fleet. Paradoxically enough, it was this selfsame battle that caused the Allies to seize from the Germans the torch of faith in strategic airborne which a number of years before the Germans had so unceremoniously grasped from the Russians.

As Student himself so aptly phrased it, "The only strategic planners who really profited from our airborne invasion of Crete were the Allies. Intelligence reports gave me the details of your Allied Airborne buildup. In May of 1941, when we Germans had practically a complete airborne corps, 15,000 well-trained jumpers and 12,000 glider troopers, the Allies had nothing but an untried theory. At Benning you Americans had little more than an airborne test company. The British had about a battalion. It appeared that the U.S. War Department felt that parachute troops seldom, if ever, would or could be used in over battalion strength. Your high-level planners obviously were instilled at first with the same lethargic opposition to the strategic use of airborne that a few years before I had found in most of the senior generals in our Luftwaffe and Wehrmacht.

"And then came Crete, the final catalyst. Shortly thereafter, at a time when your Allied parachute training swung into high gear as a result of your detailed evaluation of our operation on Crete, our own airborne effort slowly began to deteriorate. We had a few hopeful ups, such as Malta, and many downs, until in the end there was nothing but the myth of a true airborne capability in our Luftwaffe.

"After Crete I periodically reported to Hitler the frantic Allied activation of airborne elements. I also tried to convince him that the next logical steps were the airborne invasions of Cyprus, and from there the Suez Canal to form an airhead for Rommel's panzer linkup. Prior to Crete Hitler had not been adverse to this plan, but shortly thereafter he seemed uninterested. Of course, he had his hands full in Russia.

"With each new important intelligence summary confirming a further step in the American buildup, I would personally brief the Fuehrer. However, he refused to believe anything I said. And in 1942 when you Americans finally activated your first airborne divisions, Hitler contended that the figures which clearly established your airborne emphasis were lies. At best he argued that they were greatly exaggerated."

Hitler's skepticism of Student's reports was further increased by the lack of any overt use of airborne on the part of the Allies for such a long period after Crete. When airborne failed to participate in the Allied raids at St. Nazaire in March and later Dieppe in July 1942, Hitler became even more critical and impatient

with Student's airborne reports. "See here," shrilled Hitler, "your reports are not true! The Americans and British haven't any airborne. They are not activating such troops. I was right! Now you just go away!"

But in spite of these outbursts Hitler actually showed a brief resurgence of his old faith in airborne. For months the Germans and Italians had glared at that throbbing cancer near the toe of the Italian boot, the Allied-held island of Malta. From Malta Air Vice-Marshal Lloyd's RAF fighters and bombers had made it increasingly difficult for the Germans to supply and communicate with Rommel's Afrika Korps. During March and April the Luftwaffe turned on the island in fury with day and night bombing attacks. It appeared to be devastated but the Axis noted that whenever the attacks slowed or stopped, the island would again begin to take its toll of German and Italian shipping. Malta itself had to be physically captured and occupied.

With the physical conquest of Malta in mind Mussolini had a conference with Hitler at Berchtesgaden at the end of April. The two dictators agreed that Operation Hercules, the conquest of Malta, would be launched in July, immediately after Rommel's planned drive on Tobruk. They felt that the only military instrument capable of cracking the hard outer shell of the Malta nut was airborne. And airborne called for Kurt Student.

So shortly after the Berchtesgaden meeting General Student was ordered to Rome to see Field Marshal Kesselring, the German Commander-in-Chief, South. Kesselring briefed Student on Hercules and gave him command of the airborne portion of the invasion. Student was the highest German commander directly involved in the operation. The over-all command of the joint airborne, seaborne, naval and air operation was assigned to Count Cavallero, the Italian Chief of Staff.

Authorities differ as to exactly what troops were assigned to Hercules. Student contends that Hitler placed at Mussolini's disposal the entire German airborne, which at that time totaled two more German airborne regiments than had been available for the invasion of Crete. In addition Student had under his command the two Italian airborne divisions "Folgore" and "Superba" which had been trained to peak operational readiness by the German airborne specialist, General Ramcke.

Poised, ready to sink its talons into Malta, was Student's force of more than 30,000 airborne troops: approximately 25,000 paratroopers and 5000 glider Infantry.

In addition Hercules was to be supported by more fighter-bomber strength than had been available at the height of the air attacks that had almost crippled the British forces on the island in March and April. And to correct the expensive lesson learned on Crete, seaborne reserves, heavily guarded by the Italian fleet, were to attempt an immediate link-up with the airhead. Some of the best Italian units had been hand-picked and trained for this job. The special Italian naval unit "San Marco," assigned a mission similar to our underwater demolition teams, was to clear the way into the difficult beachhead. Next would come the Alpini division, Italian mountain troops, whose mission was to scale and secure the precipitous cliffs around the landing areas. Once the beachhead, or more properly the cliffhead, had been secured, it was to be reinforced over the sea by up to seven assault divisions. Supporting the land forces would be gunfire from ships of the Italian fleet, including the Duce's four new battleships which, up to this time, had been coddled like babies.

Malta posed entirely different strategic and tactical problems from Crete. The island was heavily fortified. "And in spite of the density of the fortifications," said Student, "it was imperative to achieve surprise. I decided to do this in two ways: First, I wanted to drop my paratroopers right at midday when the Mediterranean sun would be burning hot, when most of the British would be resting. Secondly, I wanted to have my major drop where the British would least expect me. Running across the isle of Malta was the Victoria fortification line. I considered the critical terrain to be the southwestern heights in the vicinity of this Victoria line. For this reason I planned to jump directly on this line as a major objective. From there, in conjunction with the seaborne assault divisions and the heavy aerial bombardment, we could assault the airfields and the harbor of La Valetta."

All of the Italian-German troops had been specifically trained and briefed. The troop-carrier aircraft, the gliders and all the necessary ships and boats for the heavy equipment, which included an ample number of tanks, had been assembled. Everything was ready. Student hoped to carry out Hercules not later than August. All he needed was good weather.

Then in June Student suddenly was summoned to the General Headquarters at Rastenburg to brief Hitler on Hercules. Evidently Hitler considered the airborne action to be the key to success. Apparently, Student was to be the senior German commander in the invasion, since Kesselring was not invited to this meeting.

"For several hours I briefed Hitler in detail," explained Student. "He sat and listened to me quietly and patiently. When the briefing was finished, however, he looked at me and said, 'Student, the

General Kurt Student plans the airborne assault on Malta, June 1942.

operation of your paratroopers certainly would be a success. But soon the British fleet would arrive out of Alexandria and Gibraltar. Then, Student, you would see the Italian Naval Forces fly in fright back to the Italian harbors. Your paratroopers would be left alone, unsupported on the island!'

"Even after that meeting Hitler still wavered in his decision to attack Malta," continued Student, "but after Rommel's surprise capture of Tobruk it was canceled. Today, of course, with the advantage of hindsight, I am certain the operation would have been a great success. Malta had been besieged for months, the target of frequent and devastating air attacks. The troops on the island were very badly off. They were starving and lacked antiaircraft ammunition and the reserves to repel us. The British could not have supported Malta garrisons with any sizable concentration of troops and

supply ships. Only small patrol craft had been able to get in.

"I considered Malta to be a frightened and cowed rabbit just waiting to be swallowed by a boa constrictor. And I was that snake. Only a final blow was needed. Unfortunately we failed to strike that blow, and our shortsightedness later affected our ability to operate in the Mediterranean."

Again, with the postponement of Hercules, the German airborne effort settled into inactivity. When Rommel's offensive in Africa finally came to a standstill his frantic cries for replacements were fulfilled by rushing the air force and one division of the airborne strength that had been ticketed for Malta. As the need for the German conquest of Malta again soared with the frantic need to resupply the defeated Afrika Korps, the ability to accomplish this mission had been frittered away in reinforcing Rommel so that in the end Malta could not have been conquered. As Rommel himself wrote, "It never proved possible to get an attack organized and mounted on Malta. I had offered to carry out this enterprise myself and am convinced that, given the number of troops for which I asked and proper support from the sea and air, I would have succeeded in taking the island fortress. With Malta in our hands, the British would have had little chance of exercising any further control over convoy traffic in the central Mediterranean. Malta has the lives of many thousands of German and Italian soldiers on its conscience."

During the months that intervened Student continued to brief a still disbelieving Hitler concerning the buildup and training of Allied airborne forces. During these interviews Student also pressed for action—on either front—for his potent airborne force. Finally in the early spring of 1943 Student *almost* had his wish fulfilled.

Hitler had been trying fruitlessly to overrun the besieged Russian fortress city of Leningrad ever since it was first surrounded by the German attack in the fall of 1941. Although the city had been subjected to incessant attacks and observed artillery fire by the German Eighteenth Army, after almost two years it still held.

In desperation Hitler finally ordered Kurt Student to plan for an invasion of Leningrad with his airborne corps. To better plan the operation Student flew to Russia to observe personally the defenses of the city. But before his plans had progressed very far, the reorganized Russian Army attacked successfully on the Eastern front in the 1943 summer offensive, and the Allies defeated the remnants of the African Army under General von Arnim at Tunis.

Because of these decisive defeats the fortunes of war changed and Hitler canceled the Leningrad jump. He decided instead to hoard the airborne corps as an air-mobile strategic reserve.

"In the summer of 1943, for the first time since the battle of Crete," said Student, "I finally succeeded in reassembling all the paratrooper units again under one unified command. The entire 11th Air Corps was poised in southern France as the high command's strategic reserve primarily for the Mediterranean theater. Our headquarters was at Nimes. The troops were accommodated in the valley of the Rhone and to the west of there, from Avignon up into the hills of Valence and down to the shores of the Mediterranean. On the immense plain of Istres was a mighty armada of carrier gliders, more than 500 planes, amongst which were the 'Gothic' and 'Giant' gliders."

At this time Student's manpower reached its peak of airborne-qualified personnel, swelling to over 40,000 trained paratroopers. Except for minor opera-

General Student criticizes an exercise at the Atlantic Wall in May 1943.

tions, however, the German airborne, as such, had not been committed on an airborne mission since Crete.

"Meanwhile," continued Student, "the western powers had taken possession of North Africa. They were expected to strike next against Sardinia or Greece. Sardinia was within direct operating range of my paratrooper corps. For that reason I proposed that an immediate airborne counterattack be conducted against any enemy beachhead there. Hitler, Goering, Jeschonnek and Jodl, the high command of the Wehrmacht and Luftwaffe, agreed to that."

Contrary to the German expectation, however, on the 10th of July 1943 the Allied Fifteenth Army Group invaded Sicily. And this invasion was spearheaded by the 82d Airborne Division, commanded by General Matthew B. Ridgway, a division that Hitler did not believe existed!

Student's parachute corps was alerted immediately. The German Army high command, however, did not believe that Sicily was the main landing. They expected further landings either in Sardinia or even on the shores of southern France. So initially only the First Parachute Division, commanded by General Heidrich, was air-transported to Sicily, with stops at Rome and Naples. The headquarters of the Airborne Corps and General Ramcke's 2d Division remained in southern France.

Partially because of Sicily's extreme range and confused combat situation, but mainly because Field Marshal Kesselring thought a single parachute division too meager a force for any decisive effect, the First Parachute Division did not jump directly into the Sicilian beachhead fighting. ". . . the tactical principle that one's forces must be reasonably matched with those of the enemy holds good even for

parachutists," wrote Kesselring. The paratroopers attempted instead to jump and seize critical areas on the plain of Catania, just behind the established German defensive line. Regimental combat teams made the jump.

But in one case Student's principle of jumping directly into an airhead was accidently, although inconclusively, tested by the British. On 13 July in the afternoon a German parachute regiment jumped and assembled behind the German lines with the mission of securing the critical terrain around Ponte di Primosole. Towards evening, British airborne troops suddenly dropped directly into the established German airhead. The British, of course, had no idea that they were jumping into such a hornets' nest. Fierce close-in fighting followed during the night. A small British force reached the Primosole bridge, their objective, as well as the Germans', but lost it the next morning. The British airborne finally was defeated, although on the 15th the bridge was captured by the 50th Division in a conventional ground attack.

On the other hand the entire German First Parachute Regiment was almost defeated when it jumped to secure a critical gap in the German lines. Immediately after assembly, the regiment was unable to make contact with the other German units on its flanks. The advancing British quickly outflanked and encircled the regiment. The German Sixth Army gave up hope for the paratroopers. And it was only after considerable fighting that Colonel Heilmann, the regimental commander, was able to maneuver his troops back into the German lines.

Although Student was never really able to test his airborne counterattack theory in combat, an analysis of these tactics by the historical section of the Army reached these conclusions: "An air landing into an enemy airhead will always result in confusion on both sides. It will, of necessity, lead to chaotic hand-to-hand fighting, similar to the cavalry battles fought centuries ago, in which ultimately the tougher and more tenacious fighter will be victorious. The initial advantage is definitely gained by the opponent who is aware of the situation and jumps into the enemy airhead deliberately. If, in addition, he is supported from the outside by a concentrated thrust on the ground, it is quite likely that he will succeed in achieving a complete victory."

Commenting further on the Sicily jump, Student said, "Your 82d Airborne was dropped into Sicily as an independent unit. It was your first important airborne operation, and you experienced the same growing pains that we had experienced on Crete.

"Your drops were all mixed up and scattered, in some cases up to ten kilometers from the intended drop zones. But in spite of this unfortunate drop, the 82d captured bridges and set up strongpoints of resistance. This was splendid fighting on the part of the American paratroopers. Except for the ability of your paratroopers the Herman Goering panzer division would have pushed to the sea."

On the afternoon of 26 July General Student again received an order to report immediately to the Fuehrer. He knew that something important must have happened. Student made the five-hour flight from Nimes to Rastenburg, Hitler's secret headquarters in East Prussia, and arrived just at dusk. "I was taken without delay to Hitler," Student wrote of the meeting. "He received me alone in the briefing room, a plain room in the wooden barracks, furnished in Prussian simplicity. Hitler declared, 'I have chosen you and your paratroopers for a very important task. Yesterday the Italian king relieved the Duce from office

and arrested him. Undoubtedly Italy is on the brink of deserting us and means to change over to the enemy camp.' Hitler added, 'As quickly as possible move all available paratroopers to Rome. You will be responsible to me personally that Rome is held.' "

Within a few days Kurt Student air-transported the remaining units of the 11th Air Corps to Rome. Approximately 18,000 paratroopers were flown into the Frascati di Mare airdrome and quickly deployed into the Pontine Marshes. The swift deployment of Student's airborne reserve quite naturally incensed the surprised Italian high command, since the Germans had conveniently neglected to inform them of the impending maneuver. As a matter of fact Hitler also neglected to inform his Commander-in-Chief, South, Marshal Kesselring, of this move. Kesselring had no inkling of the 2d Parachute Division's shift until General Ramcke and his entire division suddenly landed at Kesselring's airfield headquarters.

German and Italian tempers flared. The wavering Italians took every opportunity to make life miserable for this unwelcome force, from the use of high-level protests to Field Marshal Kesselring down to making an affair of state out of every arrest of a German paratrooper by the carabinieri for picking berries in the king's game preserve.

To counter the presence of this German threat the Italian high command in a gigantic game of chess immediately began moving handpicked divisions into Rome. Seven divisions in all were finally positioned to checkmate Student's force, which consisted of little more than his reinforced 2d Airborne Division plus the Third Panzer Grenadier Division which was poised about 80 kilometers to the northwest of Rome. The Italians situated their troops in bivouacs that dominated or hemmed in the German camp areas. It was, of course, during this period, starting on 3 August, that the first Italian peace feelers clandestinely were sent out to the Allies through the Italian Legation in Lisbon.

On the 7th of September 1943 General Maxwell D. Taylor secretly slipped into Rome right under Student's nose. This mission was to arrange with Badoglio and the Italian General Staff for the Italian seizure of the airfields around Rome. The Italians were to turn against the Germans on the night of the 9th to facilitate the drop of the American 82d Airborne Division on Rome, part of the over-all Allied plan for the conquest of Italy. At the same time Italy was to renounce the Axis and begin its own fight for freedom.

Of Taylor's conference Churchill writes, "Divided counsels seethed round Badoglio. Taylor demanded to see him. Everything hung in the balance. The Italian leaders now feared that any announcement of the surrender, which had already been signed, would lead to the immediate German occupation of Rome and the end of the Badoglio Government. At two o'clock in the morning of September 8, General Taylor saw Badoglio, who, since the airfields were lost, begged for delay in broadcasting the armistice terms. He had in fact already telegraphed to Algiers that the security of the Rome airfields could not be guaranteed. The air descent was therefore canceled."

Concerning this proposed Rome jump of the 82d Airborne, Student commented, "Badoglio and Carboni purposely gave Taylor a deceptive picture of the state of the Italian and German troops around Rome and the defenses of the airfields. I was the German commander in Rome. Carboni was my counterpart on the Italian side. Carboni had seven divisions. I had but two divisions.

"I still shudder when I think about it. I, an old airborne commander, had not

even considered the possibility of an airborne attack. Contrary to the Italian reports, most of the airfields had no adequate defenses. The drop of the 82d Airborne on the 9th of September would have been a total surprise to me. I believe that this proposed landing would have been a success. About a year later I personally fought against this 82d Airborne when they were dropped in Holland. They were splendid troops. If they had been dropped at Rome their superb combat ability combined with the action of any Italian units in that area, would have caused me much trouble.

"The first I even knew about this landing, of course, was one year later when Churchill spoke about it. I next got the details from General Gavin's book [*Airborne Warfare*]. If the Americans had landed at that time I believe I would have lost. If I had fallen at Rome the German troops at Salerno might have been cut off. The presence of Allied airborne near the Italian capital perhaps would have influenced the war in Italy decisively. You Americans were too cautious. The ripe fruit would have fallen into the hands of the Allies."

Around noon on the 8th of September the Allies devastated the command posts of Kesselring and von Richtofen at Frascati and Grottaferata. The accuracy of this bombing raid was greatly aided by the Italians' pinpointing of the key buildings for the Allied crews. And later that afternoon, shortly after radio broadcasts announced the capitulation of Italy, the U.S. Fifth Army landed at Salerno.

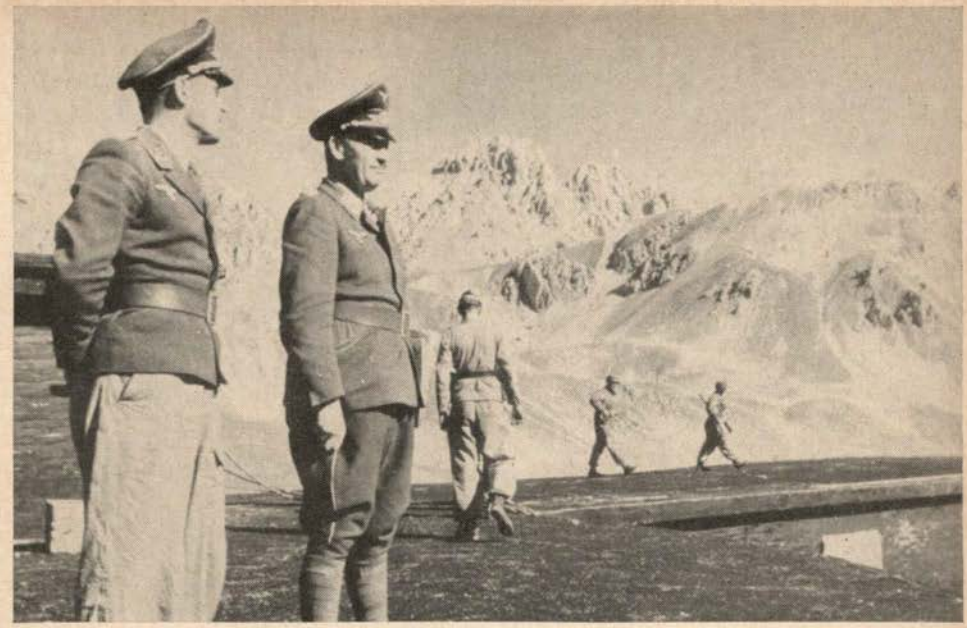
Student's paratroopers, unhampered by either the physical or psychological battle they would have fought if an American airborne division had been landed, instantly followed their alert plan and began disarming the Italian Army units in the Pontine Marsh area. After spotty resistance, and some serious fighting, they were successful.

Student on 9 September ordered Major Gericke's parachute battalion, which was securing the Foggia airfield, to jump northeast of Rome on Monte Rotondo, the hilltop fortress headquarters of the Italian high command. Although half of the battalion was dropped in the wrong area, Gericke seized the fortress and the command radio which controlled the entire Italian Army. The Italians counterattacked furiously with tanks later in the afternoon, but an armistice was arranged on the 10th.

At the same time the 2d Parachute Division fought its way up to the southern suburbs of Rome, only to be beaten back by the Sardinian Grenidire Division. By noon on the 10th of September a German counterattack had driven to the Colosseum. To the northwest of the capital the German 3d Panzer Division was fighting its way toward Rome. Finally, on the 11th of September, without ever really resisting within their capability (the Italian armored division "Contauro" near Rome with 40 brand new German Mark IV tanks never even moved) all Italian troops in Rome surrendered, thus preserving the critical German supply route to the south.

During this critical period at Frascati Student also was given by Hitler the additional mission of rescuing Mussolini from his Italian captors. The Duce was held prisoner in the resort Hotel Gran Sasso high in the Abruzzi mountain area. Student studied the problem of a rescue in such difficult terrain and finally decided on an audacious and imaginative glider attack and light plane rescue.

Resentful of the international publicity Otto Skorzeny later received for his minor part in the rescue of Mussolini, Student said, "This liberation of Mussolini was actually an interservice victory accomplished by the paratroopers and glider pilots of the 11th Air Corps. I planned the action myself and person-



After the liberation of Mussolini in September 1943 General Student and a member of his personal staff stand on the flat roof of the Hotel Gran Sasso, where the Duce was held prisoner.

ally briefed the glider pilots and the paratrooper company. I appointed Major Mors the task-force commander. Naturally, I wanted to accompany the troops personally, but the fighting around Rome at this time necessitated my presence at headquarters. The parachute company was commanded by Lieutenant Freiherr von Berlepsch. Because of the fluid situation in Italy at that time no one else knew of my plan, not even Hitler, Goering or Kesselring.

"The rescue occurred on the 12th of September. The company of paratroopers was assigned 10 gliders. They took off at 1300 hours and flew to this mighty mass of the Gran Sasso d'Italia. Around 1400 they were cut loose and made their precarious landings around the hotel. The Italians were so surprised by the attack that not a shot was fired. In a short while Mussolini was flown out from the Gran Sasso by Captain Gerlack in his Flieseler Storch.

"So you see that, historically, it is not true that Skorzeny was Mussolini's liberator. The glider pilots and paratroopers of my Parachute Corps deserve the credit. This Skorzeny was just a little wheel in the machinery of the liberation."

The Allies had again convinced Hitler of the value of airborne forces by their use of the 82d Airborne on Sicily. The Fuehrer gave the green light for the hurried activation of more airborne divisions. The 4th Parachute Division under Trettner, the 6th under Plocher, the 7th commanded by Erdmann, the 9th led by Braeuer and other airborne divisions were activated. But by now, of course, it was too late. Germany had lost the initiative. Essential air superiority was no longer a capability of the Luftwaffe. Transport aircraft were not available. So with a worsening situation on every front Hitler was forced to commit more and more of his airborne divisions in conventional ground operations until, at the

end, nothing but the name of airborne remained to perpetuate the myth of an airborne capability in the Luftwaffe. By 1944 six parachute divisions existed. By the end of the war 10 or 11 airborne divisions had been activated. These organizations, of course, were airborne or parachute in name only. At the most a small cadre, less than 10% or 20%, in these divisions received any sort of airborne training. What little training they did receive was generally inadequate, lacking heavy equipment and tactical problems. Although these later German airborne units fought tenaciously and well in many battles from Monte Cassino to the Ardennes, a study of these battles is not properly a portion of the history of the German airborne because they were primarily conventional ground actions. Periodically, small units, generally of battalion size or less, were transported in the role of mobile reserves and either parachuted or air-landed into critical areas, such as the air reinforcement of surrounded Breslau by an understrength battalion. But once Hitler began to fritter away his airborne troops in a conventional ground combat role they were incapable of many of the strategic missions that Student had hoped for, such as in Russia in conjunction with Thoma's panzers, or against the Normandy landings.

And so it was that on the 17th of September 1944, Student stood on that roof in Holland and watched the First Allied Airborne Army drop around him. He could not help but professionally admire and envy the growth of the Allied airborne. In his own indirect way he had most certainly played a catalytic role in its formation.

The last German airborne operation of World War II was in the Ardennes toward the end of December 1944. General Student decorates the troopers who took part in that action.

CHECKLISTS for Infantry leaders

This is the fourth in The Infantry School's series of checklists for small-unit leaders. We repeat our word of caution on checklists. They are not inflexible rules but guides that should be modified to fit the situation. Use them to check your thinking and free your mind for other considerations.—Editor.

WEAPONS UNITS IN ATTACK

Weapons Platoon Leader

1. On receipt of the attack warning order from the company commander—
   a. Issues the necessary instructions to his platoon sergeant to prepare the platoon for the attack.
   b. Arranges for personnel to accompany him to receive the order.
   c. Goes with the company commander to where the battalion attack order will be issued.
2. After receiving the attack order from the battalion commander—
   Assists the company commander in the development of the company plan of attack—
   (1) Making recommendations on the employment of the weapons platoon while the company commander is developing his preliminary plan of attack.
   (2) Assisting the company commander in organizing coordination with supporting units.
   (3) Going with the company commander on his reconnaissance or making a separate reconnaissance of all or a portion of the company zone of action.
   (4) Making additional recommendations based upon his reconnaissance.
3. After receiving the company attack order sends a warning order to his platoon by messenger and orders the platoon to move to position areas for designated squads to be attached to designated rifle platoons.

4. Initiates his own troop-leading steps as follows—

a. Begins planning—

(1) Determines the time for issuing the platoon attack order, basing this decision on the time available.

(2) Makes a quick estimate of the situation and a preliminary plan based upon his reconnaissance with the company commander.

b. Arranges for—

(1) Section leaders to receive the attack order by announcing when and where it will be issued.

(2) A detailed reconnaissance to select observation posts, targets, concentrations, subsequent position areas and routes of displacement forward if time permits.

(3) The selection of initial position areas if he failed to select them while with the company commander.

(4) Coordination with the rifle platoon leaders and other supporting units such as the 81mm mortar platoon, the heavy mortar platoon and the artillery.

c. Makes a detailed reconnaissance—changes preliminary plan if necessary.

d. Completes his plan by deciding—

(1) Method of tactical employment of the sections.

(2) Initial position areas for the weapons.

(3) Location of observation posts.

(4) Targets and concentrations.

(5) Method of communicating with section leaders and forward observers.

(6) Subsequent position areas designed to support the attack before it reaches the objective.

(7) Plan of displacement forward including routes.

(8) Plan for reorganization and consolidation.

e. Completes his final coordination.

f. Issues the platoon attack order preceded by a terrain orientation.

g. Supervises the preparations for the attack, the troop-leading steps of the section leaders, and the conduct of the attack.

5. Takes the following steps to supervise actions of weapons in general support during conduct of the attack—

a. Prior to H-hour—

(1) Goes with the company commander to the company observation post.

(2) Supervises the work of his own mortar observers while they are registering on concentrations and firing on targets.

b. While the rifle platoons are moving between the line of departure and the assault positions—

(1) Assists company commander in coordinating available fire support.

(2) Gives target designations to the 60mm mortar observer and 57-mm rifle gunners and informs them of targets designated by the company commander.

(3) Insures that the platoon sergeant is keeping the ammunition supply adequate.

(4) Assists the company commander in phasing out, lifting and shifting all fire support as the rifle platoons begin their assault.

c. During the assault—

(1) Assists the company commander in coordinating all available fire support.

(2) Anticipates the masking of the fires of his own platoon and issues timely orders concerning displacement to subsequent position areas.

(3) Moves forward with the company commander as the observation post is displaced.

d. During reorganization and consolidation—

Until a B-52 can occupy a city or

a submarine can take a hill, we need

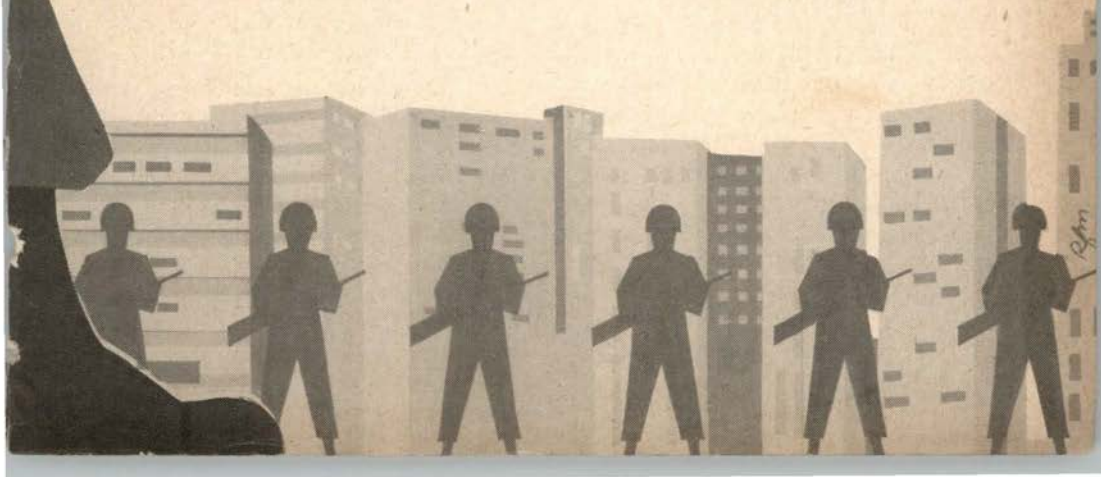
N THE GROUND

There is literally no military task on earth consistent with our national policy for which *THE* instrument (fighting men with their feet on terra firma) is not necessary. Such an instrument can take a base or defend one. It can invade and possess an enemy heartland. Only with feet on the ground can we enforce terms of peace and accomplish our national objectives. Nothing invented by man has ever neutralized the effectiveness of this instrument.

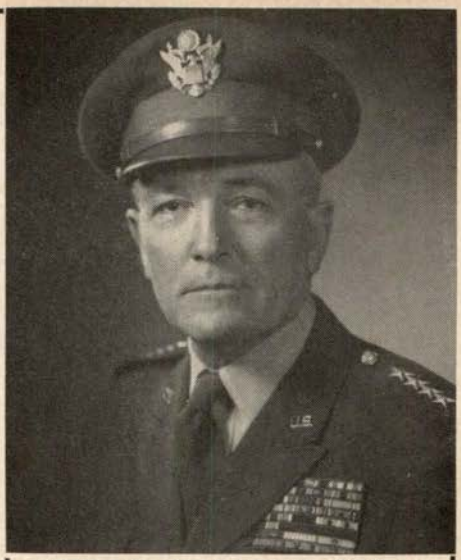
Although a modern Army division employs machines as marvelous as any envisioned by "men from Mars," this instrument of military force is still *controllable and selective.* It need not annihilate in order to liberate. It need not invite mutual extermination in order to defend. It can halt at a national boundary or at a city limit if necessary. It can distinguish friend from foe—the enemy soldier from his innocent child. It can heed the warning of a prophetic genius—Stephen Vincent Benet; it can cut down the weeds, yet "leave the grain standing in the field!"

Here in our country, a dangerous thought about Army divisions is being inferred these days. However obliquely worded by those who express the thought the implication is not "How many?" but "How few?"

"I can buy it cheaper for you wholesale," is a misconception of national security that has always had an insidious appeal to business-minded America. Dazzled by the potential of chemical agents for wholesale destruction revealed in World War I, the country was unprepared with sufficient combat-ready divisions to prevent the tragedy of World War II. Dazzled by the potential of the atomic bomb for wholesale destruction



This article has been extracted from a speech by General Willard G. Wyman, Commanding General, Continental Army Command, to the 1st Infantry Division reunion in Boston. While this subject is somewhat beyond the scope of that normally published in the *Quarterly*, it is felt that the thoughts expressed by General Wyman are especially important to all of us and should be of great interest to *Quarterly* readers.—Editor



GENERAL WILLARD G. WYMAN

revealed in 1945, our country was unprepared with sufficient combat-ready divisions to prevent the limited warfare of Korea. Today, some writers are so awed by the potential of thermonuclear weapons for wholesale destruction that they suggest we make the same mistake again. Other observers fear that the holocaust of unlimited nuclear warfare is just around the corner.

In response, I say it is true that this is possible. It is true that *unlimited* warfare is just around the corner. That is precisely where it has always been since time began—*just around the corner from man's sanity*. Without the sanity of moral law even in war, mankind would have been reduced to nonentity long ago. It could have been done just as surely with stones, clubs or swords. And more quickly, just as cheaply, with chemicals or germs.

The unalterable truth is that all man's wars are "limited"—not by weapons but by *man*. In fact, the history of warfare during the last 6000 years reveals that the social destructiveness of wars has been in *inverse ratio* to the destructiveness of the weapons available to man. For example, Germany lost one-third of her population during the seventeenth century in a war waged with flintlocks and pikes—compared with less than 10 percent lost in World Wars I and II. In our country, compare the casualty lists of the Civil War with those of Korea. Historically, the more powerful the weapons that man has discovered, the more selective he has been in their use. Is this an absurdity as some have said of the conflict in Korea? Or is it simply *sanity?*

Let us consider for a moment some of the ridiculous but dangerous situations that our nation might face in the future if we had no instruments of selective force in our armament.

Imagine what the reaction among our allies would be if this country announced that it would contribute no divisions at all to the defense of the free world! How long would they dare remain our allies? How long would it be before Communist troops would be on the march under the pretext of civil war or in the guise

(1) Confirms prior instructions on the placement of weapons and observation posts.

(2) Receives reports from the section leaders on the status of the men and equipment.

(3) Consolidates the status reports and makes a simliar report to the company commander.

(4) Checks all weapons positions and observation posts.

(5) Makes preparations to continue the attack including—

(a) Observing to the front in an effort to learn more of the terrain and enemy situation.

(b) Issuing warning orders.

(c) Requesting additional ammunition and equipment from the company commander.

Weapons Squad Leader

1. After receiving the attack warning order from the platoon leader—

a. Inspects weapons for cleanliness, functioning, headspace adjustment, proper functioning of sights and completeness of accessories.

b. Inspects equipment including web equipment, aid packet and canteen.

c. Insures that ammunition for crew-served and individual weapons is clean and that crew-served ammunition is properly boxed.

d. Checks the physical well-being of his men, bringing to the platoon leader's attention any man he thinks physically unable to make the attack.

2. After receiving platoon attack order—

a. Asks questions on the terrain orientation if necessary.

b. Takes notes of the platoon's mission and how his squad is to be employed in accomplishing that mission.

c. Asks questions to insure that he fully understands the platoon order.

d. Completes the following troop-leading steps—

(1) Determines the amount of time available to plan his reconnaissance and to prepare and issue his order.

(2) Makes his reconnaissance, during which he—

(a) Observes the ground to be used by the maneuver element.

(b) Notes prominent landmarks.

(c) Selects firing positions on or near the LD if platoon attack order specifies.

(d) Selects tentative firing-position areas along the route.

(e) Selects routes into position and forward during displacement.

(f) Notes possible danger areas.

(g) Decides on actions to cross danger areas.

(3) Coordinates with other squad leaders.

(4) Prepares his order.

(5) Issues the squad attack order—

(a) Precedes the order with a terrain orientation using a sketch or map.

(b) Makes certain each man understands the order and the plan by asking questions.

(6) Supervises the squad's preparations for the attack.

3. Conduct of the attack—

a. From the assembly area to the attack position—

(1) Makes sure squad members are in their specified position in the order of march or, if they ride, on the proper vehicle.

(2) Checks to see that the squad retains equipment and ammunition.

b. In the attack position—

(1) Makes last-minute coordination with platoon leader.

(2) Performs last-minute check with members of squad.

(3) Looks to the platoon leader to receive signal to move out.
(4) If the LMGs are going along with maneuver element, makes sure they are in the proper formation and proper place within the platoon formation.
(5) If the LMGs are going to support initially from LD or near LD—supervises the placing of LMGs into predetermined positions.

c. From LD to the assault position—
(1) If the LMGs accompany the maneuver element makes sure they are ready to go into action if the platoon leader asks for them.
(2) Picks out firing positions along route and sets up the LMGs to provide close fire support.
(3) Supervises the displacement of the LMGs.
(4) If they are used on or near the LD supervises their going into position, displacement and routes forward.

d. During the assault—
(1) Makes certain that both guns are in position to provide close fire support for the platoons during the assault.
(2) Displaces the guns forward by team echelon.
(3) Goes with the first gun to locate its position and the position of the second gun when it gets on the objective.

4. During the reorganization and consolidation—
a. Informs the platoon of any need for modification in the original plan.
b. Gives each gun a sector of fire.
c. Submits a status report to the platoon leader containing the following information—
(1) Ammunition needs.
(2) Casualties.
(3) Weapons and equipment needs.
d. Supervises the improvement of the defenses according to work priorities.

Antitank Platoon Leader

1. When notified to meet company commander to receive the reconnaissance order—
a. Notifies personnel to accompany him on reconnaissance.
b. Alerts the platoon to begin preparing for the attack.

2. After receiving the reconnaissance order—
a. Plans the time available for reconnaissance.
b. Plans his reconnaissance by—
(1) Studying the terrain from a map, sketch or aerial photo, looking for—
(a) Section firing-position areas.
(b) Routes for displacement.
(c) Avenues of enemy armor approach.
(d) Method of utilization.
(2) Making an estimate of the situation.
c. Arranges to move his unit (where, when, how).
d. Makes his reconnaissance (selects route, time schedule, persons to take along, and decides how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander considering the following factors:
a. Method of utilization—
(1) Does an armored threat exist?
(2) Can the platoon cover the armored approaches into the battalion zone of action?
(3) Can the platoon mass fires on the initial objective and on critical terrain within the battalion zone of action?

(4) Can the battalion commander control the fires of the platoon?
(5) Is decentralization of control desired to the point of requiring direct support or attachment?

b. Selection of firing-position areas for each section—
(1) Fields of fire.
(2) Observation.
(3) Cover and concealment.
(4) Routes into position and routes forward for displacement.
(5) Room for dispersion.
(6) Security.
(7) Alternate and supplementary positions.
(8) Routes of ammunition resupply.

c. Plan for displacement—
(1) How?
(a) The entire platoon? (rarely)
(b) Two sections followed by one?
(c) One section followed by two?
(d) One section at a time?
(e) Squad echelon?
(2) When?
(a) Fires are masked?
(b) The supported unit moves beyond effective supporting range?
(c) There is incoming enemy fire? (to alternate positions)
(d) Smoke or dust obscure observation?
(3) Where? (Positions on or near the objective?)
(4) What is the condition of the routes forward?
(5) Will the platoon leader accompany the lead echelon?

4. After his reconnaissance arranges for—
a. Issuing the platoon attack order (when, where, to whom).
b. Coordination with leaders of other supporting and supported units.

5. After receiving the heavy weapons company attack order—
a. Completes his plan for supporting the attack.
b. Completes his reconnaissance.
c. Prepares his order.
d. Issues the platoon attack order to key personnel and includes the—
(1) Method of utilization for each section.
(2) Section firing-position areas.
(3) Principal direction of fire for each section.
(4) Fire-control instructions—
(a) Scheduled fires.
(b) Priority of targets.
(5) Displacement instructions (how, when, and where).
(6) Plan for ammunition supply.
(7) Limitations imposed by ammunition supply.

6. During the conduct of the attack—
a. Locates himself where he can best control his platoon.
b. Maintains contact with the heavy weapons company commander.
c. Supervises the platoon's—
(1) Conduct of fire.
(2) Ammunition resupply.
(3) Displacement.

7. After the attack—
a. Supports the rifle companies in consolidating the objective.
b. Reorganizes the platoon as necessary.
c. Prepares to support the continuation of the attack or to defend the objective area.
d. Reports his actions to the heavy weapons company commander.

81mm Mortar Platoon Leader

1. When notified to meet the company commander to receive the reconnaissance order—
a. Notifies personnel to accompany him on reconnaissance.
b. Alerts the platoon to begin preparing for the attack.

2. After receiving reconnaissance order—

a. Plans the time available for reconnaissance.

b. Plans his reconnaissance by—

(1) Studying the terrain from a map, sketch or aerial photo, looking for—

(a) Firing-position areas.
(b) Routes for displacement.
(c) Method of utilization.
(d) Platoon observation post.

(2) Making an estimate of the situation.

c. Arranges to move the unit (where, when, how).

d. Makes his reconnaissance (selects routes, time schedules, persons to take along, and decides how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander considering the following factors—

a. Method of utilization—

(1) Can the platoon mass fires on the major portion of the initial objective(s) and critical terrain in its zone?
(2) Can the battalion commander effectively control the fires of the platoon?
(3) Can the platoon mass its fires on only a portion of the initial objective(s) and critical terrain in the zone?
(4) Can the mortar-unit leader best control the fires?
(5) Is decentralization of control desired to the point of requiring attachment?

b. Selection of firing positions—

(1) Defilade.
(2) Located near the center of the zone.
(3) Within effective close supporting range of the initial objective.
(4) At or beyond the minimum range from the line of departure.
(5) Mask and overhead clearance.
(6) Good routes into and forward of the position.
(7) Room for dispersion.
(8) Security.
(9) Alternate and supplementary positions.
(10) Routes of ammunition resupply.

c. Plan for displacement—

(1) How?

(a) The entire platoon? (rarely)
(b) Two sections followed by one?
(c) One section followed by two?
(d) One section at a time?
(e) Vehicle or hand carry?

(2) When?

(a) The supported units move beyond or are nearing maximum effective close-supporting range?
(b) After rifle companies complete the reorganization and consolidation of objectives?

(3) Where? (Previously selected position areas?)
(4) What is the condition of the routes forward?
(5) Will the platoon leader accompany the lead echelon?

d. Platoon OP location—

(1) Is there good observation of the battalion zone?
(2) Is there cover and concealment?
(3) Is it near the battalion OP?
(4) Does it supplement the observation of the forward observers?

4. After his reconnaissance arranges for—

a. Issuing the platoon attack order (when, where, to whom).
b. Coordination with leaders of other supporting and supported units.

5. After receiving the heavy weapons company attack order—

a. Completes his plan for supporting the attack.
b. Assigns final forward observation parties to the rifle companies.
c. Completes his reconnaissance.
d. Prepares his order.

e. Issues his platoon attack order to key personnel and includes the—
(1) Method of utilization for each section.
(2) Firing-position areas.
(3) Targets.
(4) Fire-control instructions—
(a) Base-point registration.
(b) Location of the platoon fire direction center.
(c) Registration of concentrations.
(d) Scheduled and on-call fires.
(5) Displacement instructions (how, when, where).
(6) Plan for ammunition resupply.
(7) Limitations imposed by ammunition supply.

6. During the conduct of the attack—
a. Locates himself where he can best control his platoon.
b. Maintains contact with the heavy weapons company commander.
c. Supervises the platoon's—
(1) Conduct of fire.
(2) Ammunition resupply.
(3) Displacement.

7. After the attack—
a. Assists the rifle companies in consolidating the objective.
b. Reorganizes the platoon as necessary.
c. Prepares to support the continuation of the attack or defense of objective areas.
d. Reports his actions to the heavy weapons company commander.

Machinegun Platoon Leader

1. When notified to meet the company commander to receive the reconnaissance order—
a. Notifies personnel to accompany him on reconnaissance.
b. Alerts the platoon to begin preparing for the attack.

2. After receiving reconnaissance order—
a. Plans the time available for reconnaissance.
b. Plans his reconnaissance by—
(1) Studying the terrain from a map, sketch or aerial photo, looking for—
(a) Section firing-position areas.
(b) Routes for displacement.
(c) Methods of utilization.
(2) Making an estimate of the situation.
c. Arranges to move the unit (where, when, how).
d. Makes his reconnaissance (selects route, time schedule, persons to take along, and decides on how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander including the following considerations—
a. Method of utilization—
(1) Can the platoon mass fires on the major portion of initial objective(s) and critical terrain in its zone?
(2) Can the battalion commander effectively control the fires of the platoon?
(3) Can the platoon mass fires on only a portion of the battalion zone?
(4) Can the machinegun-unit leader best control the fires?
(5) Is decentralization of control desired to the point of requiring attachments?
b. Selection of firing-position areas for each section—
(1) Fields of fire.
(2) Observation.
(3) Cover and concealment.
(4) Routes into position and routes forward for displacement.
(5) Room for dispersion.
(6) Security.
(7) Alternate and supplementary positions.
(8) Routes of ammunition resupply.

c. Plan for displacement—
(1) How?
(a) The entire platoon? (rarely)
(b) Section or squad echelon?
(c) Vehicle or hand carry?
(2) When?
(a) Fires are masked?
(b) The supported unit moves beyond supporting range?
(c) There is incoming enemy fire? (For displacement to alternate positions only.)
(d) Smoke and dust obscure observation?
(3) Where? (Position on or near the objective?)
(4) What is the condition of the routes forward?
(5) Will the platoon leader accompany the lead echelon?

4. After reconnaissance arranges for—
a. Issuing the platoon attack order.
b. Coordinating with leaders of other supporting and supported units.

5. After receiving the heavy weapons company attack order—
a. Completes the plan for supporting the attack.
b. Completes his reconnaissance.
c. Prepares his order.
d. Issues the platoon attack order to key personnel and includes the—
(1) Method of utilization for each section.
(2) Section firing-position areas.
(3) Target designations.
(4) Fire-control instructions—
(a) Scheduled fires.
(b) Targets of opportunity.
(5) Displacement instructions (how, when, where).
(6) Plan for ammunition resupply.
(7) Limitations imposed by ammunition supply.

6. During the conduct of the attack—
a. Locates himself where he can best control his platoon.
b. Maintains contact with the heavy weapons company commander.
c. Supervises the platoon's—
(1) Conduct of fire.
(2) Ammunition resupply.
(3) Displacement.

7. After the attack—
a. Supports the rifle companies in consolidating the objective.
b. Reorganizes the platoon as necessary.
c. Prepares either to support the continuation of the attack or to defend the objective area.
d. Reports his actions to the heavy weapons company commander.

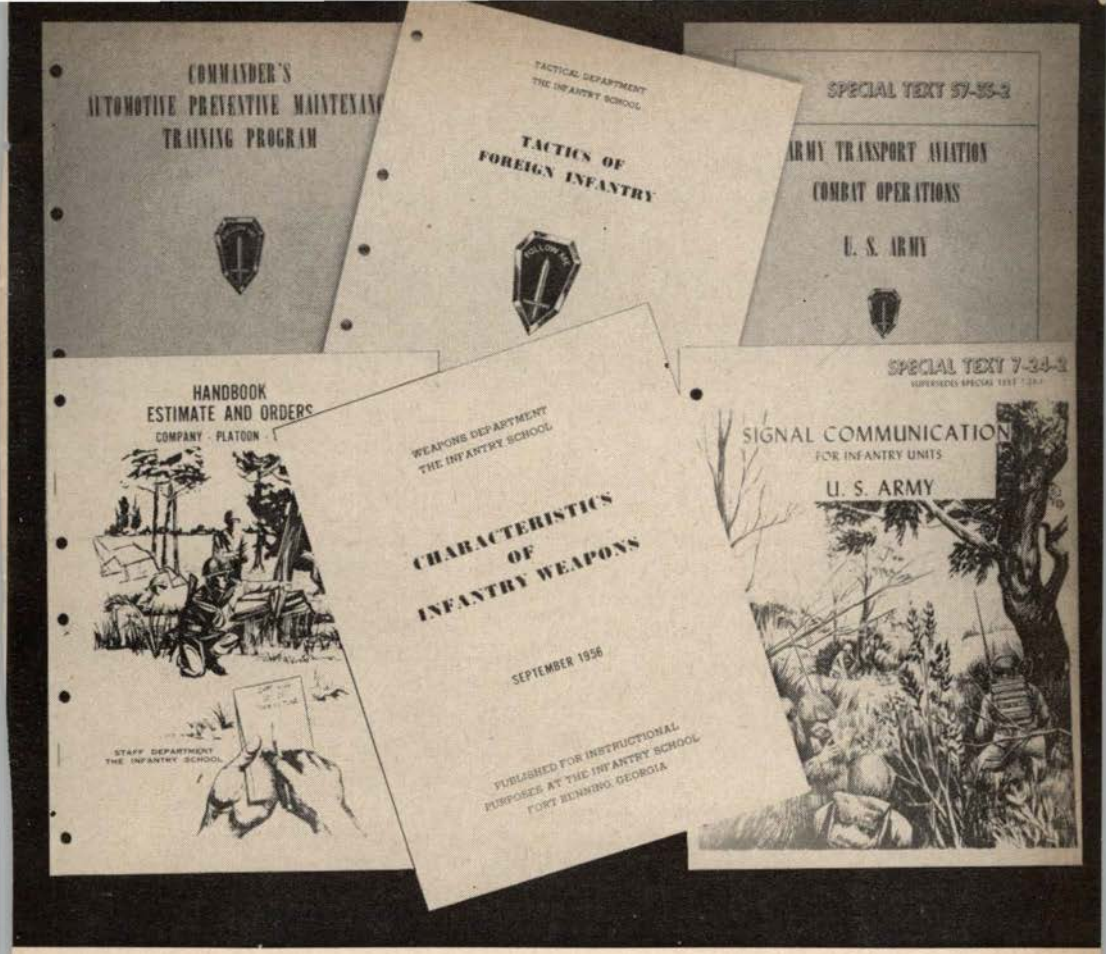
Why a Rifleman in the Atomic Age?

The age of atomic warfare is here; it cannot be ignored; it must admittedly govern both the design of our equipment and the development of our tactics.

Even accepting the possibility of mass atomic exchanges in war, we must still return to basic principles if we hope to win the war. There will come a time after such exchanges when someone will surely conclude that the only way to end the destruction will be to seize the source of the enemy's atomic strength.

There is where the Infantryman comes back on the scene, together with his weapons and the science of transport and supply. In the Marine Corps we recognize the inevitability of this cycle, this ever-constant return to basic principles. . . .

GENERAL LEMUEL C. SHEPHERD, JR.,
FORMER COMMANDANT OF THE MARINE CORPS



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The Book Department, The Infantry School, Fort Benning, Georgia

ANSWERS TO QUARTERLY QUIZ

Possible score 100 points, expert 90-100, sharpshooter 70-80, marksman 50-60, recruit 30-40 and bolo 0-20. For detailed discussion of the answers check the references listed.

1. Battalion commanders and commanders of higher echelons have authority to employ protective minefields. This authority may be delegated not lower than to a company commander.

Regimental commanders and commanders of higher echelons have the authority to employ defensive minefields. This authority may be delegated not lower than battalion commanders.

Division commanders and commanders of higher echelons have authority to employ barrier minefields.

Army and higher commanders have the authority to employ nuisance minefields. This authority may be delegated not lower than division commanders.

A phony minefield may be employed by any commander who has the authority to employ the type of minefield simulated. (Chap. 10, Par. 90c, 91c, 92c, 93c, 94c, FM 20-32, July 1955. For a detailed discussion of minefields, see "Barriers," page ....)

2. Those personnel whose primary duties are in kitchens, supply, maintenance and headquarters are near the weapons and are assigned additional duties as crew members for all .50-caliber machineguns in the Infantry regiment. (For a complete list of these personnel, see Change 1, FM 23-65, May 1956.)

3. **d.** The enemy can intercept any radio message and locate any radio transmitter. Even when messages are encrypted, the enemy gets useful information from traffic analysis of amount of traffic, length of messages, precedence of messages, and routing and relay instructions. To limit enemy interception—use the least power necessary to maintain good communication. To prevent accurate direction finding—make your transmission short. (Chap. 4, Sec. VI, Par. 78, FM 24-18, December 1949.)

4. The commander of an air-landed force is responsible for the conduct of the air movement of his forces. He uses a movement control center, pathfinders when available, and the personnel and facilities of the supporting transport aviation unit to help control the movement. The commander of the supporting transport aviation unit advises and assists him, maintaining communication with the movement column (serials and flights) and transmitting movement instructions as required. (Chap. 5, Sec. III, Par. 93, Infantry School Special Text 57-35-2, October 1956.) This information has been incorporated in FM 57-35, a new manual which has been approved by CONARC and forwarded to the Government Printing Office for printing.

5. **b.** Tabulated data, Chap. 1, Sec. II, Par. 6a, TM 9-772A, April 1952.

6. Place luminous tape on the palm of the hand or use the luminous dial of a compass. Individuals whose eyes are accustomed to the darkness can see the adhesive tape at distances up to 100 yards, the compass up to 75 yards. The exact distance depends on the darkness of the night and how much illumination has been absorbed. If the compass or tape are exposed to any light source for several hours they will remain luminous all night. A piece of tape can be used for

months and retains its luminosity even after being soaked repeatedly in water. (Tip taught by the Ranger Department, TIS, during its patrolling instruction.)

7. Yes. Remove insignia, shoulder patches and distinguishing marks from your uniform. You must be as inconspicuous as possible but it is important to keep some form of military identification to prove that you are a combat soldier and not a spy—your dogtags or identification card will do. (Sec. 1, Par. 9e(4), DA Pamphlet 21-46, "Behind Enemy Lines," October 1951.)

8. One reconnaissance helicopter is organic to each Infantry regiment. Three are assigned to division headquarters, two to division signal company, one to division artillery and one to division engineer battalion. (TOE 7R, February 1955.)

9. In an atomic conflict, passive defensive measures assume increased importance. Dispersion, barriers, camouflage, concealment, and construction of dummy positions are of value in slowing the enemy. Such measures also can lead the enemy into expending atomic weapons or using other offensive measures against positions which are not occupied or are occupied by light forces. All positions are dug in as deeply as the terrain permits. Underground shelters are provided whenever possible. All emplacements provide, as a minimum, overhead cover for protection against thermal and nuclear radiation. (Chap. 2, Sec. I, Par. 6b, Infantry School Reference Material, Tactics, Infantry Regiment, April 1956.)[1]

10. The penetration. Because of the wide area of damage caused by atomic explosions, the penetration will be a more desirable form of maneuver than heretofore. (Chap. 1, Sec. IX, Par. 3i, Infantry School Reference Material, Tactics, Infantry Regiment, April 1956.)

[1]This material has not yet been incorporated in field manuals. The Infantry School reference may be obtained from the Book Department, Ft. Benning, Ga.

IN A STEW . . .

because you haven't received your *Infantry School Quarterly?* We try to keep up with you anywhere in the world. At times you are hard to follow. It boils down to this. When you make a move send us a change of address. Write: Infantry School Quarterly, Book Dept., TIS, Ft. Benning, Ga.

A misguided vehicle is a lethal weapon. We must select our drivers carefully and teach them to operate the 346 wheeled vehicles in the Infantry regiment more efficiently and with fewer accidents.

The truck driver signalled for a left turn. The sergeant in the jeep jammed his foot down on the accelerator, trying to pass the truck before it reached the intersection some distance down the road. But as he started around, the truck began to move to the left side of the road. In the crash that followed, the jeep driver was seriously injured. His passenger was killed. The radiator, engine and right side of his vehicle were damaged beyond repair and the left side of the truck was so badly smashed that it was deadlined for a week.

MISGUIDED MISSILE

A brand new M-series 2½-ton truck was travelling north along an open road in Korea. Ahead was one of the numerous one-way bridges that dot the highway between Seoul and Uijongbu. A ¾-ton truck was headed south. Each driver tried to beat the other to the bridge. It was a draw. The truck driver, to avoid a head-on collision, cut his wheels toward a rice paddie. He hit the bridge abutment and rolled over. Result: death and the loss of an important truck — a truck that had travelled from a factory half way around the world to come to this senseless and untimely end.

By Maj

James H. Noonan

In these two incidents all drivers were at fault. Their poor driving converted their vehicles into lethal weapons.

Too many of our vehicle operators have similar accidents every day. Most of these could be avoided if our drivers were carefully selected and had the comprehensive training needed to operate army vehicles.

Automotive mishaps cause death or injury to personnel, damage to vehicles and, most important, deprive a unit of the transportation it needs to accomplish its mission. In combat, an accident caused by driver ignorance or carelessness could mean the difference between a unit's success or failure.

At the present time, our combat units, the Infantry regiments, have no standard combat-driver-training programs. Such training — covering situations which a driver may meet in a combat zone — is especially important now that our tactics are stressing dispersion and mobility. Vehicles must be kept operative at all times.

Another important reason for having such a program is this: Many of the 250 truck drivers in the regiment do not have a driver's MOS. Although these drivers have been trained for some other job, they are serving as full- or part-time vehicle operators in connection with primary duties. True, these men are considered qualified under current regulations if they have passed the mental and physical evaluations and road tests outlined in AR 600-55. Some of them will turn out to be proficient highway — or even combat — drivers. Many will not. Only a well-planned training program such as that outlined below, will *insure* a unit of consistently good performance from its drivers.

Before considering the driver-training program, however, let's look at the driver. How is he chosen? What qualifications should he have? Even the best training will not transform a fundamentally poor prospect into a good vehicle operator. Some commanders view the motor officer's request for drivers as an open invitation to unload all the misfits in the unit — especially if they've had the slightest driving experience. Under such conditions, the probability of accidents is increased at the very outset. Usually a look at a man's records will tell a commander whether the soldier is suited for this type of work.

If the man's background indicates he is capable of becoming a good driver, he should be interviewed with an eye to discovering the following traits:

1. Proper mental attitude and excellent physical condition.
2. Ability to read and interpret signs, signals and road markers.
3. Alertness.
4. Stability.

After determining a prospect's basic qualifications the commander can get further guidance by consulting AR 600-55, "Motor Vehicle Driver Selection,

BATTERY I TESTS

Driver Know-How Test: DA PRT 2609

Attention to Detail Test: DA PRT 2613

Army Self-Description Test: DA PRT 2612

BATTERY II TESTS

Emergency Judgment Test: DA PRT 2623

Visual Judgment Test: DA PRT 2610

Two-Hand Coordination Test: DA PRT 2617

SUPPLEMENTARY PHYSICAL TEST

Visual Acuity • Depth Perception

Field of Vision • Color Perception

Visual-Reaction Time • Hearing

Figure 1.

Highway signs are good drivers' guides for safe travel.

Testing and Licensing"; TM 21-300, "Driver Selection and Training"; TM 21-305, "Driver's Manual" and AR 385-55, "Safety." Let's take a brief look at how these directives provide the information needed for driver selection.

First of all the individual's attitudes and capabilities are determined long before he comes under your consideration. At the induction center, each man is given Battery I and Battery II tests, (see Figure 1) the scores of which are included in his service records. On the basis of these recorded scores, plus an interview guided by the information you have found in the manuals listed above you can fully evaluate the man's potentials.

Battery I tests are indicative only of the capability to learn to drive, just as the Armed Forces Qualification Test is indicative of an inductee's capability to adapt himself to learning situations.

Battery II tests help detect persons prone to poor driving because of mental or physical flaws. A driver's physical condition and mental attitude largely determine his susceptability to accidents. Statistics of law-enforcement agencies and insurance companies show that faulty drivers — and not faulty vehicles — cause 95% of all accidents. Ten percent of all fatal accidents are caused by drivers with some physical defect, while more than 50% involve violations of traffic regulations.

These tests, required by AR 600-55 and found in their complete form in DA PRT 2676, will point out unsuitable individuals before a unit wastes time and effort in training them as drivers and before they show their lack of ability by damaging valuable equipment.

When the tactical unit has picked good potential drivers, the next step is training them to be good *combat* drivers. Vehicle operators in a combat unit must be experts in safe convoy operations, night driving, driving over difficult roads and cross-country movement into bivouac areas, blackout driving beyond light lines

Training must develop the coordination needed for stopping and starting on steep hills.

in combat areas and field-expedient methods of repairing disabled equipment. The program outlined below was developed by the Automotive Department, The Infantry School, to carry out the recommendations of TM 21-300, which contains additional information on combat-driver training.

Since success or failure in battle may depend heavily on capable drivers, they must be able to do more than just start, steer and stop their vehicles. Knowledge of maintenance, map reading, vehicle-recovery techniques, loading and lashing of cargo also contribute to a driver's over-all ability to keep his truck moving.

Because specific course material and hours should be flexible enough to suit a unit's needs, a 70-to-130-hour program is suggested. In implementing this program, it may be necessary to put drivers on part-time training and part-time duty. Under ideal conditions, a unit may be able to carry out full-time training for a number of drivers. Regardless of modifications, the program should be all-inclusive; all recommended subjects should be covered and all new drivers should take the training. Experienced drivers should go through the entire program or an abbreviated version of it for refresher training.

While many factors will influence any program, driver training should be carried out in five phases. If time permits, miscellaneous subjects and an examination (in addition to continual observation and evaluation during instruction) can be given at the end of the course. Subjects should be covered, as far as possible, in the following logical sequence:

1. Preliminary nonmechanical training (8 to 15 hours) teaches the basic subjects an army driver needs as background knowledge for his assignment. Some of these are basic rules and regulations, safety precautions, signals, method of completing driver records, elementary map reading, and an introduction to the standard procedures governing the dispatch, control and maintenance of motor vehicles. This phase may profitably be used as a review for experienced drivers.

2. Preliminary mechanical training (30 to 59 hours) develops general knowledge of nomenclature, vehicle characteristics and functioning of component parts. In the 130-hour program certain subjects of this phase are presented in greater detail, on the theory that fuller understanding of equipment promotes better driver care and maintenance of his vehicle. This instruction stresses repair of

faulty equipment, effects of malpractices and proper methods of operation. Operation under unusual conditions and special precautionary measures also are included.

3. Basic driving (10 to 16 hours) teaches new drivers how to operate army vehicles over relatively easy driving terrain. Practical work involves starting, driving on a level area, stopping, backing and parking. Day and night driving are included in this phase. While developing good practices in new drivers, this part of the program also may be used as refresher training to detect and eliminate bad driving habits of other drivers.

4. Road and convoy driving (12 to 24 hours) stresses the importance and characteristics of proper convoy operations. Students learn about organization, control and types of convoy movements. They drive over courses which present situations requiring a wide variety of decisions and actions. Day and night movements demand a knowledge of vehicle-performance characteristics and general safety practices.

5. Cross-country driving (10 to 16 hours) acquaints the driver with various situations and hazards encountered in driving off the highway. A series of difficult problems over different courses requires the driver to use initiative and ingenuity for successful safe transit.

If time is available, drivers may receive instruction in a sixth phase. This additional training would cover miscellaneous subjects such as amphibious landings, river crossings, desert operations, operations in extreme cold, etc. Instruction in this phase would be limited to the special driving conditions likely to be met by the particular unit. This would be a good time to review difficult matter covered during the regular five-phase program.

As an additional check on a driver's ability and the knowledge he has gained during training, an all-inclusive exami-

Movable narrow-lane markers are used to test driving ability.

nation can be scheduled at the end of the course. No specific time is allotted in the subject schedule for formal examinations — continuous testing of driver performance is built into the course.

Copies of the detailed schedule for this driver training program can be obtained from the Publications Section, Publications and Visual Aids Office, The Infantry School, Fort Benning, Georgia. The schedule lists each hour of the course, tells what material should be covered in each lesson, lists training aids for each hour and gives specific references to pertinent manuals and regulations. The schedule also is included in the Commander's Automotive Preventive Maintenance Training Program, available from The Book Department, The Infantry School.

Had the drivers been carefully selected and the above program used by the units dispatching the vehicles mentioned at the beginning of this article, the accidents probably would not have happened. Units without such a program might profitably undertake one in accordance with the above outline.

By now, many of you are asking who will conduct such training or when a unit can squeeze it in? Normally, daily driving and maintenance commitments require all the working time of all personnel in the motor pool. How can a unit set up a training program in addition to these other activities?

Any training program for unit drivers can be sustained only by constant command effort. Such a program requires concessions of one type or another — an individual cannot be training and driving on a dispatched job at the same time.

After qualifying under the provisions of AR 600-55, a newly assigned driver may spend part of his weekly time in training to develop the professional knowledge and skill needed for efficient combat driving. A typical program may call for devoting half a day each week (for instance, Wednesday afternoons) to driver training. Only essential transportation, approved specifically by the regimental S4, would be dispatched during that period. More experienced drivers can perform the minimum dispatch missions while all others report for training. Experienced drivers can be rotated on the essential missions on Wednesday afternoons. If such drivers have gained their experience through actual field work with little classroom instruction, maximum participation would prove worthwhile for them.

With this half-day schedule, instruction would last 18 to 33 weeks, depending on the amount of time (70 to 130

Training combat drivers to cross trenches and deep ditches on log field expedients.

Practice is required to develop skill in maneuvering and parking trailers.

hours) the unit decides to devote to the program. Instruction could be speeded up by setting aside a full training day each week, if possible.

Instructors might come from motor-pool personnel who have considerable motor-vehicle operational experience. In some cases personnel with transportation operating experience may be available within the regiment to assist for short periods in the driver-training program. However, unit motor personnel can rightly expect to shoulder a good share of the instructional burden. A solution to the problem is to rotate instructional assignments among the maintenance force, section chiefs and experienced drivers under the direction of the assistant regimental motor officer. This will avoid placing an undue burden on any one person or interfering with everyday work schedules. A four-hour period requires at most four principal instructors, each carrying one hour of teaching.

Whatever the arrangement, it will unquestionably require careful planning and coordination. The unit will profit from its driver-training program in direct proportion to the vigorous efforts made by instructors and students. And remember, without proper command support and supervision the entire program will be a fruitless undertaking.

In the long run, adequate selection and training will save many trucks and personnel. The "accidents that didn't happen" will pay large dividends when the efficiency of a unit's transportation means the difference between success or failure in a combat situation.

MAJ JAMES H. NOONAN, JR. received an OC commission at Camp Davis, North Carolina, and in 1943 completed the basic course at The Infantry School before embarking for Europe in World War II. He served with a training depot in Italy for one year and then was assigned as executive officer, Headquarters and Headquarters Company, U.S. Forces Austria. Returning to the United States in 1947, Maj Noonan was a motor transportation officer at Fort Lawton and later commanded a military police detachment at that post. During the same period he also completed the highway transportation officer's course at Fort Eustis. After a tour as an ROTC instructor at the University of Washington, Maj Noonan went to Korea where he was S1, 27th Infantry Regiment, and helped in planning nine regimental motor marches ranging in distance from 15 to 82 miles. He began his present assignment as an instructor in the Automotive Department, The Infantry School in 1954.

LETTERS *(continued from page 5)*

those who work with Infantry at the regimental level and below. When noncommissioned officers in the smaller units tell us they find Quarterly *material useful we are reassured that the* Quarterly *in on the right track.—Editor*

Unique Service

Sir:

I am a writer in the Tactical Division, The Signal Corps Publications Agency, Fort Monmouth, New Jersey. The July 1956 issue of the *Infantry School Quarterly* has just crossed my desk in routine circulation.

For some time, I have felt I should subscribe to the *Quarterly*. As a civilian and a woman, I have no military background, and the *Quarterly* is an invaluable source of all phases of military science. If I had my own copy to read on my own time, I am sure I could absorb much more of its information on current concepts and implications for future developments. Thus, I would be more qualified in my profession of preparing literature for the training of our armed forces.

Since your note at the end of Mrs. Hall's letter in the July issue stated that you receive few letters "from a feminine reader" I am tempted to mention one more value to be derived from the *Quarterly*. As a woman and a civilian with a vote, I feel I have an unusual privilege in being associated with the military establishment and able to become aware of the defense needs of our great nation. In this respect, the *Quarterly* will be a unique extracurricular activity. It is a pity that more civilians and more women do not know about your valuable service.

I am enclosing $2.50 for one year's subscription.

Miss Anne M. Stommel
Rumson, New Jersey

We were pleased to learn of this additional area in which the Quarterly *can be helpful. It is reassuring to know that among the many civilian women who work with us in the defense of our country there are those, like yourself, who seek every possible means of improving their professional ability to serve—even at their own expense.—Editor*

Trainfire Reconsidered

Sir:

As a professional Marine, I have followed the subject of rifle marksmanship with interest for a good many years. I feel some protest should be made in view of the article "Trainfire," January 1956 *Infantry School Quarterly,* which bore a form of official command approval, and a similar article which appeared the following March in the *American Rifleman*. It is my opinion that these articles do not state the case in a true light.

The Quarterly article began: "experience has shown . . . that the rifle—the basic weapon of the U.S. Army—has been used with lessening effectiveness in combat. As late as the Korean conflict, many of our Infantrymen lacked sufficient skill in the delivery of accurate aimed rifle fire."

I take this statement to mean that because our men were not trained to shoot their weapons more accurately, they were found wanting. However, S.L.A. Marshall has given us overwhelming proof of the real reason for our ineffectiveness with rifle fire in combat. In *Men Against Fire,* Marshall tells us: "When he engages the enemy not more than one quarter of his men will ever strike a real blow unless compelled by almost overwhelming circumstances . . . The 25% estimate stands even for well-trained and campaign-seasoned troops."

Now even the most doubtful *cannot* say that *75%* of our men in Korea

lacked "sufficient skill" to deliver accurate fire. The truth is, I feel, that many of our men simply *did not fire* their weapons—regardless of whether or not they could have been accurate.

Marshall has not changed his mind since Korea about our hesitancy to fire in combat. In *The River and the Gauntlet,* he shows that our problem *is not* one of *lack of skill* but *failure to instill willingness to fire.*

Combat training courses for Infantry are not new. I am certain that during the Korean conflict the Army had such courses. I know the Marines had them. The objections to the conventional courses are the belief that excessive safety concerns result in a loss of realism which detracts from training in requisite combat skills and risk developing in the trainee a fearful attitude regarding his weapon. As a former rifle coach, I feel that conventional training methods do no such thing. No one will turn men loose on the new Trainfire ranges and tell them to load up and shoot whenever they happen to see a target.

Advocates of the new methods claim that confidence is lost on conventional ranges because the men are taught positions which cause strain and discomfort. But almost any activity of this nature—throwing a handgrenade or crawling on your stomach—causes body discomfort. To say that shooting should be more comfortable and natural than these activities is nonsense. This type of activity demands something extra of a man's body. Expert riflemen over a long period have determined that the conventional positions give a shooter his best chance to hit his target. The positions were not dreamed up by a sadist to annoy people.

We realize that, in combat, men are not always going to assume a perfect firing position but they will use a position almost like a perfect one if they have been taught a good position to begin with. And if experience is any criterion, the men in combat will hit their target more frequently when using the conventional positions.

My objection against Trainfire is not the course but the *need* for the course. I feel that getting men to fire at sudden or fleeting targets is not the answer to our problem. What is required is that we train men to take control of others and *make them fire.*

Another of my objections against Trainfire is the cost and complexity of operating it. A range of electrically powered, remote-controlled targets will, I believe, cost a lot and will demand an additional group of technicians we now lack badly. If we do use such ranges, they will of necessity be few in number or else so infrequently available that they won't keep our riflemen at a peak of proficiency. That there is a need for such ranges I don't deny but let's be realistic and admit that they will not solve the problem of getting men to fire and that because of their cost and complexity they will be secondary to conventional ranges.

One solution might be to give riflemen an opportunity to fire for record on a Trainfire range at least once a year.

I also was surprised by the number of rounds allotted to training each man in Trainfire. It seems inadequate. According to the *American Rifleman* article, 74 hours and 343 rounds are allotted to training a rifleman in his primary job. Our riflemen need more time and more ammunition.

The average combat Infantryman seldom gets a good shot at anything until he is very close and even then he mainly fires at an area or object rather than some clearly defined enemy. What is essential in combat is that a volume of fire be placed in an area which the enemy holds. By this method we keep him pinned down and we are able to move up and close with him at less expense to ourselves. I do not believe Trainfire will get us this volume of fire. What is

important is for us to determine how to get our men to shoot.

German Field Marshal Rommel recognized this problem. In his book *Infantrie Greift An* he states, ". . . some of the soldiers will often lose their nerve and break for cover. The commander must take vigorous action, using his personal weapons if necessary."

We cannot go on believing that "All our men will do their job" even if we teach them how to do it. Look at the number of men in Korea who suffered from frostbite because so many commanders "knew" that their men would take care of themselves. Commanders soon found out that they had to personally make sure that their men took off their shoes and socks and massaged their feet to prevent frostbite. We had better try the same method in getting men to fire.

Trainfire is an expensive but a good idea. However, I do not believe it is the answer to *why* the fire in recent combat was not effective. It appears to me that the men trained and armed to fire *did not fire.*

I suggest that it might be wise to look to Trainfire for effective training for combat Infantry. As long as we, the Infantry, must capture real estate in combat, our front lines will have to pit Marshall's *Men Against Fire.* The only answer is to get our men to fire . . . and then we can worry about the relative accuracy of it.

Paul E. Wilson, Capt, USMC
U.S.S. Intrepid
En route to Europe

Your thoughts were brought to the attention of the Weapons Department, The Infantry School, and Continental Army Command's Human Research Unit #3 which has been working with Trainfire. Both feel that you have been somewhat misled by two brief and incomplete articles based on early research conducted on this subject. We hope to help remedy this situation in the near future by publishing in the Quarterly *additional material on Trainfire which should answer many, if not all, of your objections. Meanwhile, these comments are offered for your consideration.*

As you so aptly point out, accuracy is not all that is required for effective fire in combat. Willingness to fire is equally vital. Trainfire is based on this concept. From the very beginning the trainee is impressed with the fact that his job is to hit enemy personnel. All of the basic skills taught are those which he can use in combat: *target detection, hitting detected targets while assuming combat positions and firing under time pressure. Of course, the will to fire can only be* started *during a recruit's marksmanship training. It must be progressively developed during the soldier's career. Such factors as morale, fighting spirit, pride in unit and confidence in leaders which are important in developing the will to fire must be ingrained throughout his individual and unit training.*

De-emphasis of the prone position is designed to encourage aggressiveness. Overuse of this position has hurt our combat marksmanship. Prone, the combat soldier can see little. Even on a parade ground a prone man can detect another prone man only as far away as 275 yards. All unsupported positions taught in Trainfire are the same as those taught in the present course except the sling is not used.

Your objection to cost and upkeep of Trainfire I ranges is not borne out by troop tests. The cost of the Trainfire range is approximately half that of the conventional KD range. Savings are even more apparent when you consider the added cost of transition ranges. Improvements made in pop-up targets have reduced cost and time of upkeep. Ranges have been no serious problems at either Fort Jackson or Fort Carson where

troop testing has been conducted during the past year.

The short training time and low ammunition allowances indicated in the articles you read were imposed as minimum requirements during the early research stages of Trainfire I. They were not intended to be ultimate requirements. Currently, Trainfire I requires 78 training hours and 557 rounds. In Trainfire II (squad technique of fire) the rifleman is given greater increases in ammunition.

Trainfire does provide for volume or area fire. The trainee is first taught to fire accurately. He then engages indistinct or invisible targets on the basis of fleeting indications or likely areas. It must be pointed out, however, that the doctrine of wild fire is the concept of the untrained beginner. There is no claim Trainfire creates a new "push button" marksmanship. The present basic fundamentals of shooting are utilized and re-emphasized. All instruction integrates well-established learning principles. While there is nothing new in principle within Trainfire I, there is considerable change in emphasis and procedure.

—Editor

Army Extension Courses

Sir:

I am on the I&I staff of the 51st Special Infantry Company here in Flint, Michigan, and will be for the next 30 months. Since I will be away from a division for so long, where the new things are being taught. I have a request to make. Would it be possible for me to take Army Extension Courses?

While reading the January 1956 issue of the *Infantry School Quarterly*, I came across an article on page 42 that interested me. It was about the Army Extension Courses. I am not sure if these are meant for the Army only or for all services. I would like very much to enroll if there is any way possible. I would greatly appreciate it very much if you would do whatever you can for me in this matter.

In closing, I would like to tell you that you have my vote for the best all-around military magazine. As an instructor here on the I&I staff, I have used your magazine in preparing my classes more than any other training aid.

Richard A. Davis, Sgt, USMC
51st Special Inf Co, USMCR
Flint Michigan

Members of any *component of* any service may enroll *in Army Extension Courses. In your case, you must apply for AEC through the Marine Corps Institute, Quantico, Virginia. The Marine Corps Institute then will forward your request to The Infantry School's Department of Non-Resident Instruction for enrollment. Once you begin Army Extension Courses, you will deal directly with the Department of Non-Resident Instruction, The Infantry School.*

—Editor.

Best Buys

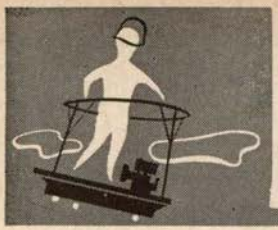
Sir:

I have subscribed to *The Infantry School Quarterly* since 1950 as an Infantry officer and, more recently, as an Armored officer. I found early that this magazine is the *best* buy that people concerned with training in any way can find. Every company grade officer of all components certainly should include this magazine as a *must* for his own professional development. National Guard training also can be improved by adapting many of your informative articles to its needs.

Every officer and noncommissioned officer responsible for training troops should join your list of satisfied readers.

William D. Moak, Capt Armor
205th Tank Bn., NYNG
State Armory, Troy, N. Y.

There's nothing like a word of encouragement to add spark to an editorial staff. *—Editor*



WHAT'S NEW FOR INFANTRYMEN

APPROVED

Infantry School To Graduate Special-weapons Officers

Officers who attend regular and associate advanced courses at The Infantry School now receive instruction and training which enable them to serve as qualified special-weapons officers at division and corps level.

The new program, made possible by the adoption of a simplified method of atomic-weapons target analysis, consists of approximately 140 hours of instruction for regular advanced classes and 100 hours for associate advanced classes. Shared by the Staff and Tactical Departments, the instruction includes detailed coverage of the characteristics and capabilities of atomic weapons and delivery means. It includes both means and capabilities currently available and those under development. Army, Air Force and Navy means for atomic support of ground forces are covered as well as the techniques of target analysis. In general, Staff Department instruction is classified, while the applicatory problems presented by the Tactical Department are mostly unclassified. This has been made possible by the provision of unclassified damage and safety radii as well as other data which may be employed in conjunction with standard procedures in applicatory problems. This data is outlined in a new atomic-information handbook published by The Infantry School in August 1956.

The importance of this instruction has been emphasized by CONARC Memorandum 47, 6 September 1956, which sets forth the minimum requirements for special-weapons-trained officers at division and corps headquarters. The memorandum specifies that the minimum special-weapons training required is graduation from one of the following: special-weapons course, Command and General Staff College; special - weapons - employment course at Sandia Base; special-weapons phase of the advanced Artillery officer course in fiscal year 1956 and subsequent classes; regular and associate advanced officer courses of combat branch, technical service or Provost Marshal General's schools in classes beginning after 1 July 1956. (For the associate Infantry officer course the date was changed to after 6 September 1956.)

OER Form Modified

After a two-year study of its officer-efficiency-report system, the Army implemented a modification of the Officer Efficiency Report form on 31 December 1956.

By changing certain sections of the form, the Army hopes to obtain a more adequate evaluation of officers. Principal changes include: a statement about the officer's physical ability to perform the duties of his grade and branch; an indication of the level at which the rated officer can be expected to perform; and an indication of the most pronounced attributes of the rated officer.

The report will now be reviewed by the echelon which rates the indorsing officer to insure that proper rater-indorser channels have been followed. In addition, this procedure will assure that re-

ports of an unusual, adverse or controversial nature are thoroughly examined before being sent to Department of the Army.

The over-all efficiency index (OEI) base is being extended from five to seven years. The current base is from 1951 to 1956 and the seven-year yardstick goes into effect at the end of the 1957 fiscal year. This has been done to lessen the impact of extreme reports and to predict an officer's true efficiency—as reflected by the most current seven-year base—more clearly.

Another important feature of the new OER form is that it spells out in more detail some of the information needed by career branches and selection boards for officer ratings.

The Dart

DEVELOPED

General Purpose Machinegun

The Army's newest squad and platoon automatic weapon is the T-161E3, general purpose machinegun, which has been designed (under present plans) to replace, in the ground role, three crew-served machineguns now organic to Infantry small units. The new weapon, weighing only 23 pounds, or half as much as the M1919A4 and M1919A6, and far less than the M1917A1 water-cooled machinegun, uses the 7.62mm NATO cartridge. Fed by a disintegrating metallic-link belt, the gas-operated weapon has a rate of fire of 600 rounds per minute. It can be fired from the shoulder, hip or from the ground with a folding bipod or a new aluminum tripod.

Antitank Rocket

A simple but effective guided missile, the Dart (XSSM-A-23), has been developed for use against tanks. Department of the Army is now negotiating a $16,500,000 contract for its production. The Dart is powered by a rocket motor using a smokeless propellant. According to its designers the shaped charge in the five-foot missile probably would destroy a heavily armored tank with a single hit. During demonstration the Dart has scored a bull's-eye on a moving target at what was described as "extreme range." The new weapon is intended for use by Infantry and Armor units.

Lightweight Radar

A new radar device, designed for use by two-man observation teams, has been tested and approved for use by Army ground forces to replace the heavier and more fragile field radar equipment now in use.

Without a conventional radarscope, or screen, the new radar employs an "eye" that spots the enemy and relays the information by sound into headphones worn by one member of the team. Much lighter because the radarscope has been eliminated, the new device is composed of two units: a 25-pound drum-shaped metal case housing the detector, and a motor-generator pack, light enough to be car-

ried by one man. It can distinguish between fixed and moving targets at varying ranges up to three miles.

The equipment was developed and produced by Sperry Gyroscope Co. in collaboration with the Army Signal Corps Engineering Laboratory, Fort Monmouth, N. J., and the Army Electronics Proving Grounds, Fort Huachuca, Arizona.

Some of the new sets will be parachuted with other special gear of the reactivated 101st Airborne Division during tests scheduled to continue through March. Other sets have been made available to the Marines for evaluation and testing.

One-shot Flame Thrower

A one-shot, lightweight flame thrower, designed for use in close-combat situations, is in the final stages of development by the Army Chemical Corps. The unit weighs 26½ pounds combat loaded, about one-third the weight of the present multishot model. It was designed for use against bunkers and other emplaced positions where high explosives are ineffective. The weapon can be set with a remote control device for defensive flank emplacement or used as a booby trap.

Because of its compact size, the flame thrower could be jumped with a paratrooper as part of his combat gear.

Waterproof and comfortable to carry, the unit has a two-gallon capacity compared to 4½ in the larger model. Thickened or unthickened fuel can be fired from almost any position.

Gas Detectors

A new automatic nerve-gas detector-alarm has been developed by the Army Chemical Corps and the RCA Laboratories at Camden, N. J. The detector for the colorless, odorless gases weighs about 25 pounds and is contained in a metal carrying case about the size of a portable typewriter. It will run continuously for 12 hours on a 110-volt AC or 24-volt power source. When the alarm detects very small traces of nerve gas a red warning light goes on and a loud buzzer sounds. It will work under dust or heavy smoke conditions.

The Army Chemical Center has developed chemical crayons that make lethal poison gases flash their own warnings in color. Various supersensitive crayons can reveal hydrogen cyanide, lewisite and cyanogen chloride gases in sufficient time for taking rapid preventive measures. The detector crayon for phosgene will expose as little as eight parts of gas in a billion parts of air — far below the danger point — by turning a vivid red within a minute.

Twin-engine Helicopter

The Army's newest chopper, the H-37A, can carry 36 fully equipped soldiers, or 24 litter patients, or equipment as big as a 105mm howitzer. Its five-bladed rotor is powered by two 18-cylinder radial engines mounted in nacelles at the tips of the aircraft's short high wings. Clamshell doors in the nose permit easy loading or unloading. Besides an electric hoist which can raise 2000 pounds the H-37A carries a sling which can lift five tons.

Jeep-mounted Mine Detector

A jeep-mounted detector which automatically stops the vehicle when it locates a land mine has been developed by the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Virginia.

Capable of finding all types of metallic mines buried at normal depths in and along roadways, the detector covers a path six feet wide directly in front of the jeep and can be moved to either side of the vehicle with ease. Operating controls, located on the dashboard of the

jeep, can be manipulated by the driver or his assistant.

The search coil, protected by an immersionproof, rubber-coated plywood box, is kept at a constant height above the ground by three skid-caster wheels which support its plastic carriage assembly.

When the search coil passes over a mine, the vehicle is stopped instantly by the brake actuator — a spring-loaded, hydraulically operated piston which disengages the clutch and sets the brakes.

A meter on the indicator panel shows the presence of the mine. A system of lights, also located on the panel, changes from green to red and the driver receives an audible signal through earphones.

The detector and its carriage assembly weigh about 700 pounds. When not in operation, the apparatus is transported in carrying racks on the rear and on one side of the jeep.

REVISED

Changes In Class Schedules

The following changes in class scheduling have been necessitated by reallocation of quotas and needs of field units:

Basic Infantry officer class 4A was added to the original schedule of classes. It reported 29 October and graduates 23 March 1957.

Infantry counterfire supervision classes 1, 3 and 4 have been canceled.

Infantry advanced NCO course: Reporting dates of 4 February 57 and 6 May 57 for classes 3 and 4 have been changed to 3 February and 5 May. Opening and closing dates remain unchanged.

FIELD MANUALS

CONARC has approved the instructor's guide for Trainfire I as a Department of the Army pamphlet. Trainfire I is being recommended as a replacement for the basic-marksmanship course of the Army. Phase I, Active Army Pilot Course Implementation, is planned for fiscal year 1957; Phase II, Active Army World-Wide Implementation, for fiscal year 1958; and Phase III, Reserve Component Implementation, for fiscal year 1959.

The following field manuals have been approved by CONARC and forwarded to the Government Printing Office:

Change 3 to FM 23-35, 60mm Mortar, M-19. This is a fairly extensive change which includes the current fire commands, military signs and symbols, and the correction of technical errors.

FM 57-35, Army Transport Aviation —Combat Operations. This new manual provides interim guidance for commanders, staff officers and other interested personnel for planning and executing tactical operations employing Army transport aircraft (fixed-wing and helicopter) in support of ground units.

TM 57-210, Air Movement of Troops and Equipment. This is a complete revision of the old manual. The scope has been increased to include new techniques and the characteristics, capabilities and limitations of new aircraft.

TRAINING FILMS AND FILM STRIPS

The following training films and film strips are available to instructors through Army film and equipment exchanges in CONUS and overseas commands. They are not listed in the last change to DA Pamphlet 108-1 (Change 3, May 1956). All films and strips are black and white except TF 45-8575 which is in color.

Training Films

TF 7-1431, The Intelligence and Reconnaissance Platoon, Tactical Employment, 40 minutes.

TF 7-2204, Barrel Packing, .30-caliber Machinegun M1917A1, 6 minutes.

TF 7-2205, Cooling System, Browning Machinegun .30-caliber M1917A1, 5 minutes.

TF 7-2223, Technique of Machinegun Fire—Part I—characteristics of fire, classes of fire, target designation, 37 minutes.

TF 7-2224, Technique of Machinegun Fire—Part II—fire distribution, fire control, fire commands, 38 minutes.

TF 7-2225, Technique of Machinegun Fire—Part III—direct laying, 41 minutes.

TF 7-2226, Technique of Machinegun Fire—Part IV—preparation of range cards, 28 minutes.

TF 7-2227, Technique of Machinegun Fire—Part V—expedients for predetermined fire, 21 minutes.

TF 7-2228, Technique of Machinegun Fire—Part VI—overhead fire, 19 minutes.

TF 7-2229, Technique of Machinegun Fire—Part VII—position defilade, 40 minutes.

TF 7-2230, Technique of Machinegun Fire—Part VIII—Field zeroing the light machinegun M1919A6 on bipod mount, 6 minutes.

TF 7-2231, Technique of Machinegun Fire—Part IX—measuring angles, .30-caliber light machinegun M1919A6 on M2 mount, 8 minutes.

TF 7-2232, Technique of Machinegun Fire—Part X—zeroing the light machinegun M1919A6 on M2 tripod, 5 minutes.

TF 7-2233, Technique of Machinegun Fire — Part XI — auxiliary aiming point, 6 minutes.

TF 7-2239, 81mm Mortar (M-29), Mechanical Training and Crew Drill, 14 minutes.

TF 31-2126, The Airborne Soldier, 33 minutes.

TF 31-2127, Assembly Problem after Fifth Novice Jump, 10 minutes.

TF 31-2128, Personnel Parachute Malfunctions and Activation of Reserve Parachute, 9 minutes.

TF 31-2129, Personnel Parachute Entanglements and Recovery From Twists, 6 minutes.

TF 31-2130, Parachute Landing Falls, 12 minutes.

TF 31-2131, Parachute Training on the 34-Foot Mock Tower, 12 minutes.

TF 31-2132, Conduct of a Parachutist in the Aircraft, 9 minutes.

TF 31-2133, The Swing-Landing Trainer, 7 minutes.

TF 21-2301, Military Instruction — Part I — principles of learning, 23 minutes.

TF 21-2302, Military Instruction — Part II — the stages of instruction — preparation, 12 minutes.

TF 21-2303, Military Instruction — Part II — the stages of instruction — presentation, 12 minutes.

TF 21-2304, Military Instruction — Part II — the stages of instruction — application, examination, and review or critique, 20 minutes.

TF 21-2305, Military Instruction — Part III — training aids, 23 minutes.

TF 21-2306, Military Instruction — Part IV — speech techniques, 11 minutes.

TF 45-8575, Field Training for ROTC, 48 minutes.

Film Strips

FS 7-164, 57mm Rifle, M-18A1—Part I—mechanical training, 64 frames.

FS 7-167, 57mm Rifle, M-18A1—Part II—functioning, stoppages, immediate action, and restoration of balance, 57 frames.

FS 7-168, 57mm Rifle, M-18A1—Part III—ammunition, mounts, fire-control instruments, subcaliber device and boresighting, 46 frames.

FS 7-169, 57mm Rifle, M-18A1—Part IV—marksmanship and technique of fire, 62 frames.

QUARTERLY INDEX

This index includes all articles that have appeared in the Quarterly during the past four years. The articles are listed chronologically under headings and sub-headings according to their major area of interest.

AIRBORNE-ARMY AVIATION

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NEW LOOK IN RADIOS JUL 1953
By Maj Quinten L. Gates
Characteristics of the Infantry division's radio equipment.

WIRE DISPENSER REFILL KIT APR 1955
By CWO Benjamin L. Leslie
How to construct a refill kit which may be used to recover wire.

COMMUNICATIONS—PATROL LIFELINE OCT 1955
By Capt Walter L. Frankland, Jr.
How to avoid communication errors which have hampered patrols.

LONGER RANGE FOR INFANTRY RADIOS JUL 1956
By Maj Richard H. Ward
How to get longer range with current Infantry field radios.

RANGER

RUGGED AND READY JAN 1953
By Lt John Windsor
Purpose, prerequisites and training program for Rangers.

EPIC OF THE RANGERS JAN 1956
A brief history of the Rangers and current Ranger training course conducted at TIS.

RANGER-TYPE TRAINING FOR INFANTRY UNITS APR 1956
By Maj Gen Armistead D. Mead
Experiments conducted with Ranger-type training for small Infantry units.

STAFF

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THE JAUNDICED EYE OCT 1953
By Maj Kenneth G. Groom
Supply economy is the correction of wasteful practices.

HELP FOR THE S1 JAN 1954
By Capt Delmar A. Pugh
A checklist for the S1 permits comparison of performance with desired standards.

PAPER BLOCKADE APR 1954
By Capt Douglas A. Huff
Too much unnecessary paper work at company level affects company training.

IS YOUR COMPANY RUNNING IN THE RED? JUL 1954
By Lt B. T. Bashore
The importance of economy in the administration of military funds.

DON'T FUMBLE YOUR FUNDS OCT 1954
By Capt Delmar A. Pugh
Clarifies the administration of the unit fund.

NEVER SIGN UNTIL YOU'RE SURE JUL 1955
By Capt Joseph H. Rapp
Practical suggestions to help the commander keep out of unit supply difficulties.

PREPARE FOR INSPECTION OCT 1955
Checklists for inspecting barracks, mail room, unit administration and day room.

CAPITALIZE ON INSPECTIONS JUL 1956
By Lt Col W. M. Boyce
Inspections need not harass us if we make them work for units instead of against them.

Escape and Evasion

THE DESERT IS NO OBSTACLE JUL 1953
By Capt Lawrence J. Evans
How "dead reckoning" can be used to maintain direction across uncharted or featureless terrain.

EVASION JAN 1954
By Maj George Tassey
Advice for the soldier who finds himself in hostile territory.

SURVIVAL AND THE SOLDIER JAN 1956
By Capt David E. Grange, Jr.
How to survive when cut off from friendly sources of supply.

Intelligence

THAT YOU MAY LIVE JAN 1953
By Capt Ralph Tierno
Discusses the value of counterintelligence, and emphasizes precautions against revealing valuable information to the enemy.

HELP FOR THE S2 JAN 1955
By Lt Col Cecil C. Helena
A checklist which helps a battalion S2 to ascertain that he is performing his duties properly.

INTELLIGENCE TRAINING TEST OCT 1955
By Maj Joseph Hranicka
Offers an intelligence-performance course designed to train as it tests.

Leadership

LESSONS FOR LEADERS OCT 1953
By Capt John Hughes
Some practical suggestions for inexperienced Infantry leaders.

GENERAL RIDGWAY SPEAKS JAN 1954
General Ridgway's remarks to the Army staff before becoming Chief of Staff.

WHAT MAKES A LEADER JUL 1954
By Maj Gen W. F. Dean
Why every leader must possess integrity, loyalty and enthusiasm.

AN INFANTRYMAN SPEAKS OCT 1954
Excerpts from the Stilwell papers regarding the characteristics of a good commander.

LEADERSHIP IN THE BALANCE JAN 1955
By Capt Marion D. Joyce
Selection of leaders through the NCO-specialist rating plan.

YOUR RELATIONSHIP WITH YOUR MEN OCT 1955
How the officer can improve his relationship with his men.

WHERE ARE YOUR LEADERS? APR 1956
By Capt W. F. Strobridge
Too many potential leaders are sitting behind desks. How to find them in your unit.
ARE YOU PREPARED TO COMMAND? JUL 1956
By Col Robert E. Holman
A program to insure that Infantry officers are better prepared for the many management responsibilities of command.
LEADERSHIP FOR INFANTRY OCT 1956
By Col O. Z. Tyler
Leadership through application of leadership rather than theory.

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THOSE WHO SEE THE WHITES OF THEIR EYES JUL 1956
By Maj Gen Armistead D. Mead
Gen Mead describes the new 11-man rifle squad.

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KEEP IT SIMPLE JAN 1953
By Col N. J. Wiley, Jr.
The use of simple ideas and aids to illustrate main points in teaching.
REALISM JAN 1953
By Maj Frank J. Spettel
A close-combat course which can be employed to train Infantrymen to react quickly and aggressively.
WILL I GO TO SCHOOL? APR 1953
By Lt Col Emil V. B. Edmond
Outlines the Army's education system for officers.
THE NEW COUNTERFIRE PLATOON APR 1953
By Maj Quinten L. Gates
Mission, organization, equipment and training of the counterfire platoon.
COLOR CONTOUR JAN 1954
By M/Sgt Henry R. Sheridan
Refers to color contour maps.
IT TAKES IMAGINATION APR 1954
By Lt Col Edward J. Barta
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DRESSED TO KILL APR 1954
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COLD-WEATHER FIGHTERS APR 1954
By Maj Candler R. Wiselogle
A discussion of the problems of living, training and fighting in cold climates.
IT'S PLAINER IN PLASTIC JUL 1954
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Why working models of weapons and equipment, projected on a vu-graph, are easier to use and carry than larger, wooden working models.
SMALL ARMS MOVIE JUL 1954
By Capt Miles C. Vaughan
Describes how a training film can be made with a home movie camera.
SCHOOL FOR NCO'S JUL 1954
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How units can provide training for NCO's.
THE ARCTIC—A NEW LOOK AT AN OLD BUGABOO OCT 1954
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Life in the Arctic and how Army equipment enables soldiers to live and train with comparative ease and comfort in cold climates.
THE G-M ANGLE—PROBLEM OF THE PAST OCT 1954
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A simple "false line of sight" method designed to clarify the problem of converting the G-M angle.
SO YOU HAVE TO PREPARE A FIELD EXERCISE JAN 1955
By Capt Charles L. Butler
Shortcuts and techniques for preparing a field exercise.
FIND THE FIGHTER JUL 1955
By Lt Paul B. Malone III
A course designed to help commanders determine those men who will prove most effective in combat.
GET THAT FIRE JAN 1956
By Lt Col G. H. Russel & Maj C. P. Murray
A conference-demonstration problem which shows how fire support works.
FIRECRACKER BOARD APR 1956
By Capt Barney K. Neal, Jr.
How to construct a training aid which approximates the characteristics of small-arms fire.
TODAY'S EXPERIENCE—TOMORROW'S VICTORY APR 1956
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Suggests a program to give officers more troop-leading experience.
TEACHING OR TALKING? JUL 1956
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PROFILE OF A FIGHTER OCT 1954
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WILL THE MISSION BE COMPLETED? OCT 1954
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Pensions and benefits to which the dependents of a deceased soldier are entitled.
CAN WE ELIMINATE AWOL? JUL 1955
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An analysis of the AWOL problem.
KNOW THYSELF APR 1956
By Capt Boyd T. Bashore
How an officer or his representative can check his personnel records at the Pentagon with a minimum of time and effort.

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FIRE—AS MANEUVER! — JUL 1953
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An analysis of the possibility of using firepower as a maneuvering element or in place of a maneuvering force.

LET'S ATTACK AT NIGHT — OCT 1953
By Maj Stephen E. Cavanaugh, Jr.
Our techniques and principles are sound, but our Army needs increased training in night-fighting principles.

INFANTRY AND TANKS, INC. — OCT 1953
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The Infantry-tank team in the attack.

THE FIGHT FOR HILL 148 — JAN 1954
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Successful attack of an enemy-held hill from the viewpoint of a squad leader.

BACK DOOR ATTACK — APR 1954
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INFILTRATION — JUL 1954
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NEAR PERFECT ATTACK — JUL 1954
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TANKS IN NIGHT COMBAT — JAN 1956
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APPROACH MARCH — JAN 1956
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HOLD THAT HILL — APR 1953
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PERIMETER DEFENSE — JUL 1953
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DEFENSE ON AN EXTENDED FRONT — OCT 1953
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FIGHTING BACKWARDS — JAN 1954
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MOBILE DEFENSE — JAN 1955
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SURPRISE PACKAGE — APR 1955
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REVERSE SLOPE DEFENSE — JAN 1956
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THE LONG THIN LINE — APR 1956
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Adequate fire support helps a combat patrol to succeed in Korea.

SECURITY AT NIGHT — JUL 1954
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Mission and activities of the security patrol during a night attack.

MORE ON PATROL SUPPORT — JUL 1954
By Capt Gustave G. Toth
Leapfrogging, fire planning and briefing will increase the efficiency of our patrols.

GET THERE . . . GET IT . . . GET BACK! — JUL 1955
By Lt Col Harry M. Kemp
Corrects a popular misconception that our patrols disregarded formal training doctrine during combat in Korea.

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FIGHTING IN FORESTS — JAN 1954
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AMBUSH — OCT 1954
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ROAD BLOCK — OCT 1955
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FIRE SUPPORT PLANNING APR 1954
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The need for detailed coordination in fire-support planning.

MACHINEGUN MISSION APR 1954
By Capt Alfred Phillips & Lt Fred A. Pieper
Involves the captain of a heavy weapons company about to be relieved because his machinegun platoon has not fulfilled its mission.

USE YOUR FIRE SUPPORT JUL 1955
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DUAL MISSION JAN 1956
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WHAT HAS KOREA TAUGHT US? OCT 1953
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KEEP 'EM GUESSING JUL 1954
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STAY FLEXIBLE OCT 1954
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The modern Infantryman must be ready to change his tactical thinking each time he encounters a new situation.

TERRAIN—A KEY TO VICTORY APR 1955
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The importance of terrain analysis as a key to victory.

SHOULD WE HAVE A SCOUT PLATOON? JUL 1955
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TEACHING POINTS IN TACTICS OCT 1955
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Recommends improving small-unit tactical training, gives a demonstration of the rifle platoon in the attack.

WAS IT AN AMBUSH? OCT 1955
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SOVIET TACTICS OCT 1955
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RECONNAISSANCE AND SECURITY WITHIN THE BATTALION APR 1956
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THE DAY THE SKY FELL JUL 1955
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The action at Anzio as it might have been had atomic weapons been used at the time.

HOW TO SURVIVE AN ATOMIC BLAST OCT 1955
By Lt Col Robert F. Bell, MD
Misconceptions about the effects of nuclear radiation.

FIRE POWER AND SPEED WILL BEAT THE ODDS APR 1956
By Maj R. A. Stamey, Jr.
Mutual atomic capability will force both ourselves and our enemy into dispersed formations.

DEFENSE ON THE ATOMIC BATTLEFIELD JUL 1956
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A look at how Infantry might employ nuclear weapons in defense.

A PATTERN OF ACTION JUL 1956
By Lt Col G. H. Russel & Maj. C. P. Murray
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ATOMIC FIRE SUPPORT OCT 1956
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Some of the planning and coordination we will need if we ever use atomic weapons in the attack.

SMALL UNIT TASK FORCES OCT 1956
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Small, mobile task forces are a key to tactics on the atomic battlefield.

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How a rifle platoon leader might attack a hill. Discusses use of available cover, weapons displacement, choice of assault point.

HOW WOULD YOU DO IT? APR 1954
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How an Infantry company and attached tank platoon might maneuver to take a primary objective and two intermediate objectives.

HOW WOULD YOU DO IT? JUL 1954
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How a rifle platoon might set up a road block.

HOW WOULD YOU DO IT? OCT 1954
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Factors for a company commander to consider in ordering a counterattack when one of his platoons is overrun.

HOW WOULD YOU DO IT? JAN 1955
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HOW WOULD YOU DO IT? APR 1955
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HOW WOULD YOU DO IT? JUL 1955
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How a BCT might organize delaying positions under nuclear warfare conditions.

HOW WOULD YOU DO IT? OCT 1955
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How a small night combat patrol might destroy an enemy ammunition distribution point and how it might solve some of the problems connected with the accomplishment of its mission.

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HOW WOULD YOU DO IT? JUL 1956
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How a battalion commander might conduct a breakthrough when his unit has been encircled.

HOW WOULD YOU DO IT? OCT 1956
By Capt Richard S. Sweet
Organization of a platoon-size task force. How the task force will reconnoiter the route to be followed by battalion and regiment.

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What to look for in inspecting a barracks, unit mailroom, day room, unit administration.

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An analysis of the NATO 7.62mm cartridge.

FROM BALL TO BOATTAIL JUL 1955
By Capt Arthur R. Underwood, Jr.
Evolution of the small-arms missile.

POWDERS AND PRIMERS APR 1956
By Capt Arthur R. Underwood, Jr.
A brief history of gunpowder and primers.

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GOING TO KOREA JUL 1953
By Col Edward L. Rowny
Familiarity with the bayonet breeds confidence.

BAYONET OCT 1954
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A realistic bayonet-assault course.

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FLAME IN A PACKAGE JAN 1956
By Maj Kenneth F. Carter
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SNAKEPOTS TO BASEBALLS APR 1956
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Brings us up to date on the new grenades, pyrotechnics, safety regulations and training notes which have been developed since 1949.

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FIRE BLANKS WITH THE LIGHT MACHINEGUN OCT 1953
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A blank-firing device for the light machinegun.

FIRE POWER PLUS OCT 1953
By Cpl Norman S. Poser
History of the machinegun.

ACCURACY WITH THE LMG OCT 1956
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How to improve LMG firing by proper zeroing.

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FORGOTTEN KILLERS JUL 1953
By Capt E. R. Hindman
The clearing of unrecorded minefields.

WHO ARE WE FOOLING? JUL 1955
By Maj F. M. Watson and Lt B. R. Bridges
The importance of marking minefields. Marking devices that can be improvised in the field.

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THE NEW 81MM MORTAR JAN 1953
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The new 81mm mortar M29, and how it

compares to the older M1 mortar.

THEY CALLED IT INGENUITY JAN 1953
By Lt M. J. Killingsworth
The construction and employment of an inexpensive training aid which can be used to teach laying of the mortar when there is a limited supply of weapons.

A SERGEANT REPORTS APR 1953
By SFC Acreman
A new method of employing the M10 plotting board, permitting firing of the 4.2-inch mortar directly from map data.

GET THE MOST FROM YOUR MORTARS JUL 1953
By Capt Lyman H. Clark
Recommends use of the 60mm mortar in support of a company in the attack rather than in direct support of, or attached to, an assault rifle platoon.

SUNDAY PUNCH JAN 1954
By Cpl Norman S. Poser
The development of the mortar and its wartime use.

A PANORAMIC SIGHT FOR THE 81MM MORTAR JAN 1955
By Lts W. R. Richardson & W. S. Goodwin
Advantages of the M34 mortar sight.

SIGHTING MADE SIMPLE APR 1955
By Lt John R. Goodwin
The construction and use of a training aid for teaching men to obtain an accurate sight picture with the 81mm and the 4.2-inch mortars.

THE HEAVY MORTAR:
PARADE OF PROGRESS OCT 1955
By Capt K. D. Mertel
New developments in heavy mortars including ammunition, firing procedures, forward observation and a gunnery officer's course.

TWO-MAN PUNCH APR 1956
By Capt L. H. Bulawsky
The mission of the 60mm mortar should be changed to that of a true light mortar. Two men can replace the five-man crew.

Recoilless Weapons

THE INFANTRY'S PERSONAL ARTILLERY JUL 1954
By Capt G. J. Duquemin
Organization of the recoilless rifle platoon and employment of the recoilless rifle.

Rifle Marksmanship

MARKSMANSHIP JUL 1953
By Maj Kenneth G. Groom
Answers to the most frequently asked questions concerning rifle marksmanship.

A REAL CONVINCER APR 1954
By Maj Ellis Lea
The Lea Trigger Squeeze Convincer teaches the value of proper trigger squeeze.

COMMAND THE TRIGGER APR 1954
By Lt Arthur R. Underwood, Jr.
Our present system of marksmanship training is the best.

THE CASE OF THE U.S. SNIPER APR 1954
By CWO William F. Odom
A program to produce snipers.

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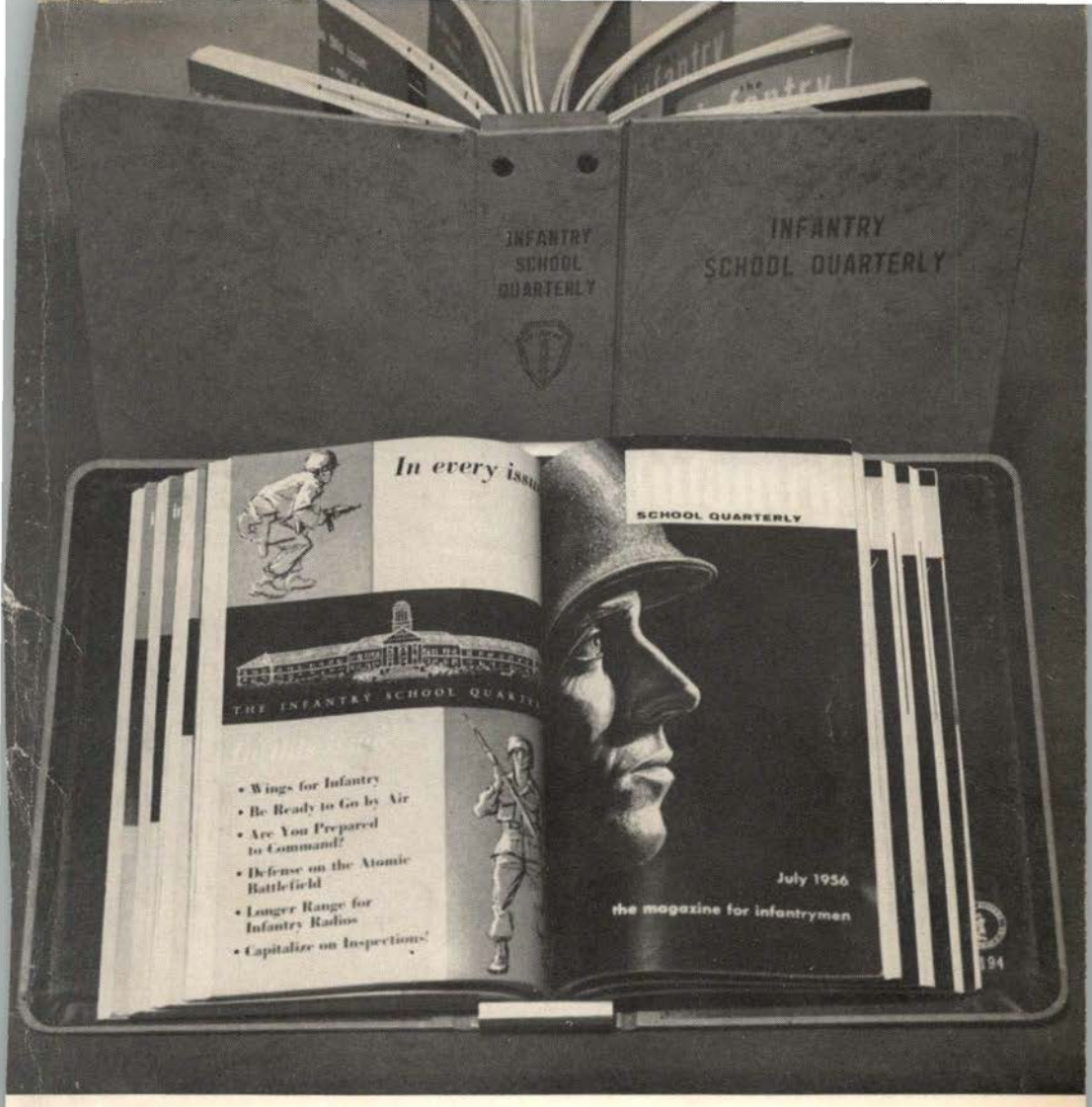

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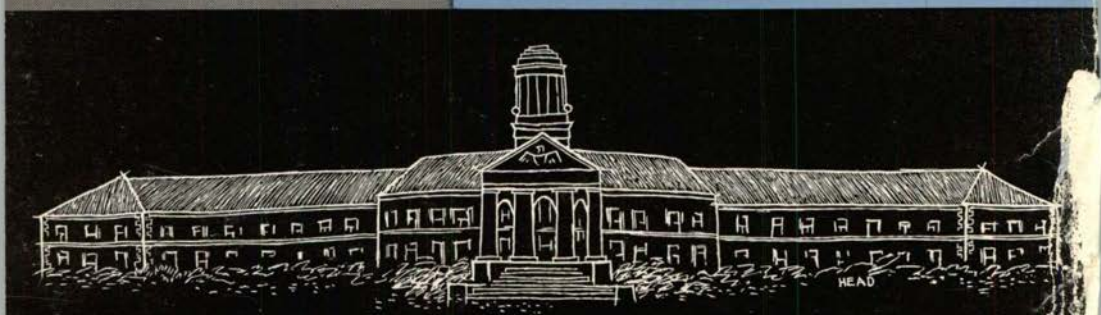

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- ***The Soviets Close the Gap***
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- ***Infantry without Crossed Rifles***
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LWAYS THE ULTIMATE WEAPON—MAN WITH HIS FEET ON THE GROUND. THE INFANTRYMAN

AN WITH HIS FEET ON THE GROUND.

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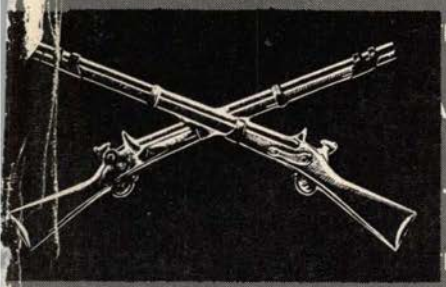

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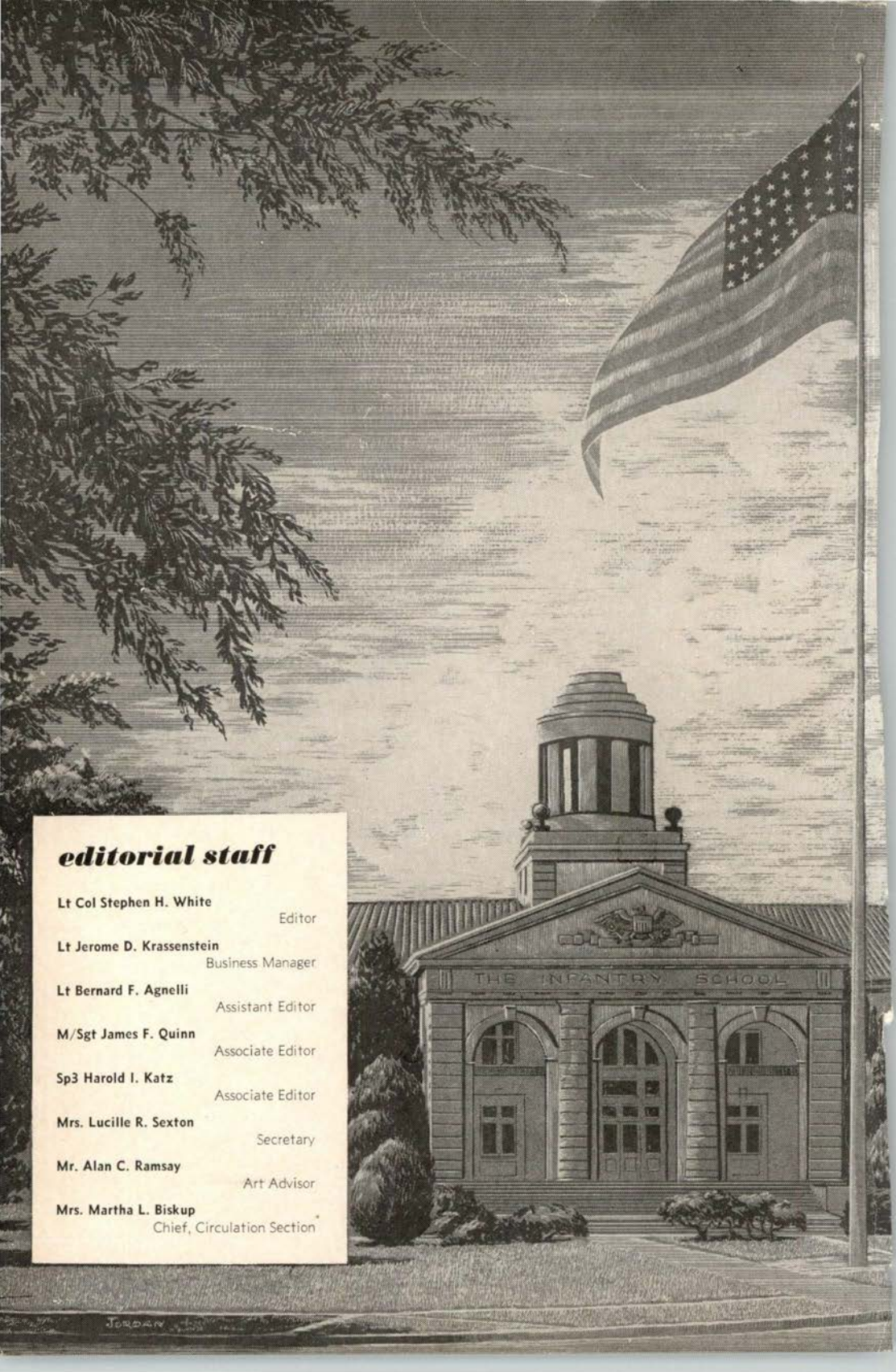

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Infantry

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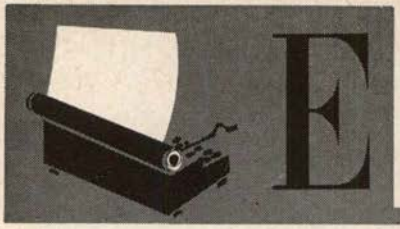


EDITOR'S PAGE

Dear Reader:

The name of the magazine is now *Infantry*. We have dropped "School Quarterly" from the official title. This has not been done on impulse or merely to save printers ink. It is a step that is in keeping with modern magazine technique and one that has been considered for some time. The decision to shorten the title at this time was influenced by the redesignation of The Infantry School as the United States Army Infantry School which would have further lengthened an already wordy title. To clearly identify the source of *Infantry*, the statement "Official quarterly publication of United States Army Infantry School" is printed beneath the title block on page 1. While the name has been shortened, the mission and contents remain unchanged. *Infantry* will continue to publish the latest information and thinking on concepts, doctrine and techniques to assist Infantrymen and those who work with Infantry.

Also new is a permanent subscription plan. Permanent subscribers will be billed $2.25 each year until termination of the subscription is requested. This, of course, can be done at any time. The new plan eliminates renewal action, assures continuous delivery and saves money. Present subscribers who wish to convert to the permanent plan may do so at any time. The first bill under the new plan would be sent upon the expiration of the subscription now in effect.

THE EDITOR

Lacrosse, capable of being fired from a 2½-ton truck, is the latest announced addition to the Army's growing family of surface-to-surface guided missiles. For more about this new close-support weapon turn to page 111.

LETTERS TO THE EDITOR

Couldn't Put It Down

Sir:

I am a newly appointed second lieutenant, Infantry, in the 38th Infantry Division, Indiana National Guard.

The platoon sergeant in my platoon not long ago passed on to me the January 1957 issue of the *Quarterly* and, I must confess, I couldn't put it down until I had read every bit of the information in it. It is, indeed, a shame that more Guardsmen have not been exposed to the helpful articles in the *Quarterly*.

In regard to the Quarterly Index [January 1957 issue], are the articles listed available in individual copies?

Enclosed is my check to cover a two year subscription to the *Quarterly* and the *Quarterly* Book Binder.

Robert F. Huntington
2d Lt, Infantry
Hq & Hq Co, 38th Infantry Division

In the near future other National Guardsmen will be given an opportunity to become better acquainted with INFANTRY. *We will write to National Guard division commanders with a request that* INFANTRY *be brought to the attention of the officers and noncommissioned officers in their units. It is hoped that many Guardsmen will come to Lt Huntington's conclusion about the value of this official Infantry School publication. About the* QUARTERLY *Index: We have no facilities to furnish reprints of all* QUARTERLY *articles. However, the Book Department has copies of most back issues which are available at $.50 each. Write: Book Department, U.S. Army Infantry School, Ft. Benning, Ga.*
—Editor.

Sword of Silk

Sir:

I have read with great interest Capt Bashore's story of German General Kurt Student, "Sword of Silk" [October 1956, January 1957]. My only objection to the article is that it just wasn't long enough!

Can you possibly tell me where I can obtain biographical material on Gen Student? I would like to get as much as possible.

George H. Rhodes
Capt, Inf, USAR
Atlanta, Georgia

We too regret that "Sword of Silk" could not have been longer. Capt Bashore had to do considerable compressing to cover German airborne activities in the space that could be devoted to this subject. The only practical source we know of for biographical material on Gen Student which might be available in this country is the Office of the Chief of History, Department of the Army, Washington 25, D. C. We understand this office maintains such data.—Editor.

Don't Focus on Big Picture?

Sir:

. . . do not let big-picture material crowd out your valuable nuts-and-bolts coverage. *Armor* magazine, in an editorial some months ago, said you fulfill the need of the foot soldier, vacated by

Combat Forces Journal (now *Army*) when it took to big-picture material and policies. Keep your articles on the *troop* level for Infantrymen like me and the sergeants who read my copy of the *Quarterly*. Publish more on small unit tactics, troop leading, hardware, training, down-to-earth administration and logistics, and material to keep the intelligence trade alive at unit level. Don't argue Infantry primacy; leave it to *Army*.

Louis R. Jones
Capt
Fort Monmouth, N. J.

The sole purpose of the QUARTERLY *is to help Infantrymen and those who work with Infantry at regimental (now battle group) level and below with emphasis on "below." Each item published is evaluated with this purpose in mind. We strive constantly to provide the "nuts-and-bolts" coverage which readers expect of* INFANTRY.

Of course, space limitations do not permit us to repeat or rehash material previously covered in the QUARTERLY, *training literature or other publications. We must concentrate on changes and new material—particularly new thinking and new developments in Infantry doctrine and techniques.*

At times we publish articles which, at the first glance, may appear to be "big picture." But close analysis invariably reveals that the subject matter is basic and has definite value for most, if not all, Infantrymen. Articles such as "Invitation to Think" (October 1956), "Feet on the Ground" (January 1957) and "Cracking the Thought Barrier" (page 46 of this issue) are examples. This type of material can be helpful both to the individual and to the Infantry as a whole. In fact, it can be just as important as more specific items on organization, tactics, weapons, administration, logistics, etc., because it stimulates thinking and motivates actions that will produce better Infantrymen and a better Infantry.

However, as you point out, this type of material must not "crowd out" other essential information. We do not permit this to happen. All valid material which we receive or which we can generate that will help Infantrymen at troop level is published. You and others can help us to do a better job in this respect by passing on to us information or new techniques which have been developed in your units and which will assist all Infantrymen.

—Editor.

Permission Granted

Sir:

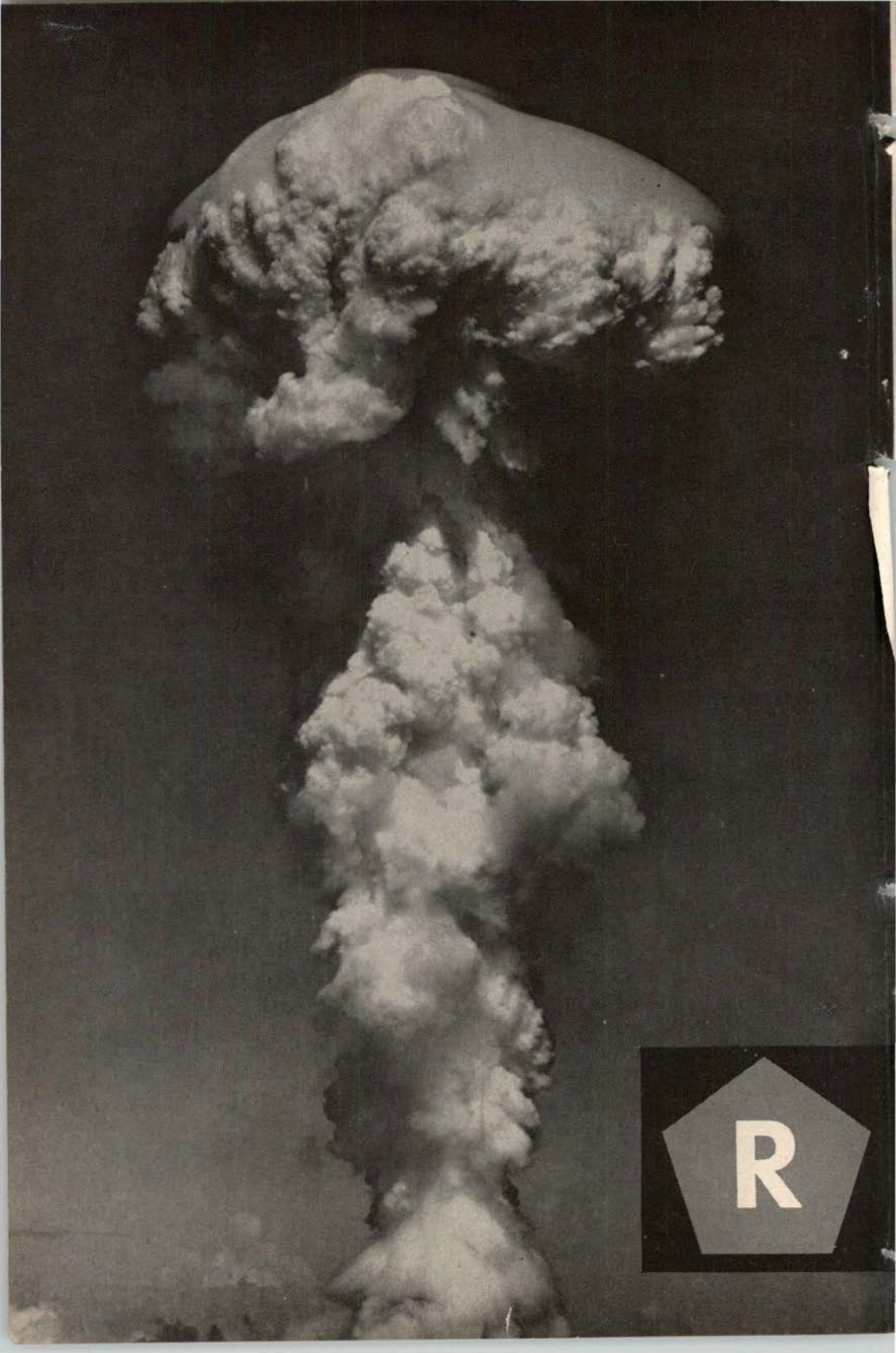
Permission is requested to extract the article "Infantrymen Without Crossed Rifles" from your January 1957 issue for publication in our *Information Bulletin*. This bulletin is published locally for the members of our reserve unit. . . .

The *Infantry School Quarterly* is considered by the officers and senior noncommissioned officers of this command to be among the top of the military publications.

Winston D. Chapman
42d Special Infantry Co, USMCR
Pittsfield, Mass.

We are happy to have QUARTERLY *articles reproduced. It is our desire that all material which will help Infantrymen be widely circulated. Anything appearing in this publication may be reprinted with or without credit unless permission is specifically denied by a statement accompanying an article. We are particularly pleased when we hear that* INFANTRY *is helpful to members of reserve units. One of our major purposes is to keep reserve Infantrymen up to date on changes and new developments.*

—Editor.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AN IMPORTANT *INFANTRY* FIRST

why five?

Here is the new Infantry division — an atomic age unit with a pentagonal structure which will be of great importance to all Infantrymen.

One of the most dramatic and significant changes in the long evolution of the Army is now taking place. The division as we have known it since the days of World War II is being reorganized. Department of the Army has announced that all of our divisions—Airborne, Infantry and Armored—will be revamped.

This development has come after much study, experimentation and testing. It is designed to exploit new weapons, equipment and techniques resulting from the tremendous technological advances of the atomic age and to give us the organizations needed for combat on the modern battlefield. These new organizations implement what is known as the PENTOMIC concept. PENTOMIC is a coined word which describes the two principle features of the concept—a five-sided organizational structure and emphasis on capabilities for atomic warfare.

This concept visualizes that the combat zone in future warfare, particularly in an atomic war, will be greatly extended in depth. Combat action will be very fluid. Units will disperse to avoid detection and destruction by atomic weapons and converge to fight. The decisive margin of strength will lie in mobility and fast reaction time so that units will be able to live on the atomic battlefield and exploit the shock and devastation of atomic weapons. Tactical units must be small, independent groups capable of operating for limited periods on the battlefield. PENTOMIC in its most simple form is an organizational

structure which will exploit the latest technological advances in firepower, mobility and communications.

The first truly atomic-age unit organized under this concept is the 101st Airborne Division which was reactivated at Fort Campbell last September. The program under which this division was reorganized is known as ROTAD (Reorganization of the Airborne Division). The first real test of the PENTOMIC concept with a division-size unit was undertaken when the 101st embarked upon a four-month exercise, Jump Light. This test was completed in February. While results of the test are not yet available for publication it is expected that our other airborne divisions will be reorganized under the ROTAD program.

Following quickly on the heels of the reorganization of this first airborne division, Department of the Army has announced that our Infantry and Armored divisions also will be reconstituted under the PENTOMIC concept. The program under which Infantry divisions will be reorganized is called ROCID (Reorganization of the Current Infantry Division). The program for Armored divisions is ROCAD (Reorganization of the Current Armored Division).

To further test the PENTOMIC concept, more than 20,000 troops from the 1st Infantry, 1st Armored and 101st Airborne Divisions, along with personnel from other units including the 3d Infantry and 82d Airborne Divisions and the III Corps and XVIII Airborne Corps are now participating in Exercise King Cole in Louisiana.

As Infantrymen we are especially interested in the ROCID program. Ever since the PENTOMIC concept first became known, and particularly since announcement of a new organization for the Infantry division, there has been much curiosity and speculation about the five-sided structure. The questions that are being asked are reminiscent of the days when the old World War I "square" division gave way to the "triangular" division. Many Infantrymen accustomed to "squad right" of the "old Army" and faced with "column right" of the new organization wondered "Why?" But they saw the triangular organization take shape and prove itself in combat during World War II and again in Korea. Today, Infantrymen are again asking "Why?", particularly, "Why five?"

The answers to this and many other questions lie in a consideration of what an Infantry division will require and what it must be able to do to survive and to fight on the atomic-age battlefield. By combining past experiences in warfare with the results of study, experimentation and testing (under simulated atomic conditions) the Army developed criteria for an Infantry division that would meet the requirements of modern combat. It was determined that the Infantry division must be smaller, but have increased foxhole strength. It must have increased flexibility and be able to live and fight under atomic and nonatomic conditions. The combat elements of the division must have the necessary weapons and equipment to accomplish their normal missions. Balanced support must be provided. This support should include pools, at appropriate echelons, for equipment which may be needed only intermittently by the combat elements. Each headquarters should have as many subordinate units as it can effectively control, consistent with its needs. Maximum use must be made of technological advances. And, efforts must be made to increase air transportability.

As this basic guidance was translated into organizational plans, it was determined that a pentagonal structure

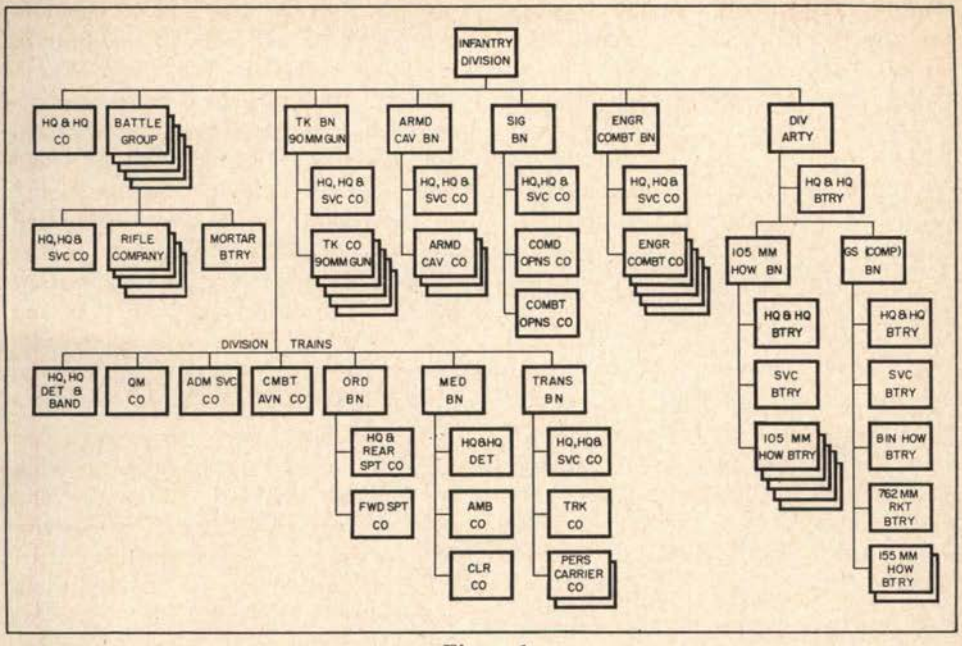


Figure 1.

would best provide the characteristics desired. A number of factors influenced the change from the triangular to a pentagonal structure. The five-sided organization permits an increase in Infantry foxhole strength while reducing the size of the principal tactical elements. It better utilizes the division's control facilities. The five-unit grouping eliminates one command level (the battalion), making the principal tactical elements more responsive to the division commander's control. It increases the division's flexibility and, finally, by virtue of increased firepower, mobility, and communications it enables the division to operate with greater dispersion between battle groups.

Now let's take a look at this new pentagonal Infantry division (Figure 1). Although the division's manpower has been reduced from 17,460 to 13,748, its mission and capabilities remain essentially the same as those of the current organization which it replaces. It is capable of sustained ground combat. It has greater firepower, increased battlefield mobility and good communications. While it is not designed to have the air mobility of the new airborne division, it does have better air transportability than the current Infantry division.

The major organizational changes incorporated into this new division are apparent at first glance. There are five battle groups,[1] each with four rifle companies and a mortar battery—there are no Infantry battalions. Logistical and administrative support units are grouped under a new division trains headquarters. The division artillery has an atomic capability. There is no organic antiaircraft unit. A brigade headquarters and a transportation battalion have been

[1]Since the term "battle group" replaces the term "Infantry regiment" in this new division, steps are being taken to preserve the names and traditions of the Infantry's historic regiments. From information available at the time this article went to press, it appears that the regiment is to be a parent unit from which battle groups will be drawn to form the Infantry commands of the new division. The regiment may consist of one or more battle groups in peacetime to as many as twelve or more battle groups in wartime. Each battle group will wear the insignia and carry the traditions of the parent regiment.

added. Some units have been reduced in size and incorporated into other units. Units which normally provide direct support for the battle group such as the tank battalion, engineer battalion, 105mm howitzer battalion, combat operations company of the division signal battalion, ordnance forward support company, etc., also are organized pentagonally.

Closer examination of the new division reveals the source of its increased firepower and mobility. Organic to the composite general support battalion of division artillery are atomic-capable weapons formerly available only from corps or higher headquarters. For example, the Honest John 762mm free-flight rocket has the range of medium- to long-range artillery. The launcher has considerably more battlefield mobility than conventional heavy artillery and it can fire a nonatomic missile or deliver an atomic warhead night or day in any kind of weather. Additional firepower is also found in the assault gun platoon of the battle group headquarters, headquarters and service company. This platoon provides the battle group with a hard-hitting antitank weapon. Initially, it will be equipped with the 106mm rifle but eventually it is expected to have the M-56, a 90mm self-propelled gun popularly known as SPAT, and later an extremely accurate missile, the DART.[2] Other increases in firepower result from the greater number of riflemen, machine-guns and mortars. It should be pointed out that the organic antiaircraft capability formerly in the Infantry division has been pooled at corps.

The new organization achieves greater mobility in a number of ways. The first is through leanness in its basic structure. Many encumbering nonessentials have been stripped away. Much equipment and some units have been removed and pooled at higher command levels. The equipment of the new battle group is light and, except for two light tanks and two armored personnel carriers in the reconnaissance platoon, is completely air transportable by medium transport aircraft. Other elements of the division also have improved air transportability.

A major factor in the division's increased ground mobility is the new transportation battalion with two transportation personnel carrier companies and a transportation light truck company. The carrier companies are equipped with the M-59 APC.[3] Each has 57 of these armored vehicles. The two companies have a rated capacity of lifting one of the basic tactical elements of the division, the battle group. These tracked vehicles will permit the battle group to employ Infantry-tank teams to a much greater degree than ever before. The light truck company is provided to haul division cargo, removing this function from the division quartermaster company. The quartermaster trucks will haul only class III supplies (POL). The 28 1200-gallon and five 5000-gallon tank trucks assigned to this unit give it an impressive capacity for this job.

The only significant change that has been made in the tank battalion is the addition of one tank company. This gives the battalion a pentagonal structure of five 17-tank companies which permits one company of tanks to support each of the five battle groups. It also provides considerable flexibility in the employment of Infantry-tank teams. While the strength of the battalion is slightly larger than the current tank battalion, the over-all medium tank strength of the division is somewhat less.

Reconnaissance capabilities of the new division have been expanded by replacing the recon company with a new armored cavalry battalion. This battalion

[2]See "What's New For Infantrymen," January 1957 *Infantry School Quarterly.*
[3]See "Chariot for the Queen," October 1956 *Infantry School Quarterly.*

has television, radar, infrared and photographic equipment, all capable of being utilized from aircraft organic to the division. In addition to its normal reconnaissance functions, this 100% mobile battalion, if reinforced, can become an armored task force or perform other combat missions as an economy force unit.

There are several changes in the engineer combat battalion. The number of platoons in the engineer combat company has been reduced from three to two and an additional company has been added to give the battalion a pentagonal organization. The medical detachment is now a section of the headquarters, headquarters and service company. These changes have reduced the over-all strength of the battalion by 52 men. While the pioneer and ammunition platoon of the present Infantry battalion no longer exists, each of the new battle groups has an organic platoon of combat engineers.

In keeping with the criteria laid down for the division and to meet the requirements of the new organization for better communications, signal support has been increased. The division signal company has been replaced by a signal battalion. This is a new organization. It is entirely different from anything seen in the division heretofore. The battalion contains three companies: a headquarters, headquarters and service company, a command operations company and a combat operations company. The command operations company provides the communications required by division headquarters, brigade headquarters, division trains headquarters and the division administration center. The combat operations company, with five battle group area support platoons, installs and operates five forward signal centers to furnish communications for all units in the division forward area. With more men and more and better equipment, the communications capabilities of the division match its increased firepower and mobility.

This article was prepared through the combined efforts of Lt Col Grat B. Hankins and Capt Joseph H. Rapp, Staff Department, and Capt Lorin P. Chapman, Training Literature Editing Section, Editorial and Pictorial Office, United States Army Infantry School.

The most important development in the new division artillery was discussed earlier — the adding of an atomic capability. However, in addition to the Honest John battery, the composite general support battalion has two batteries of 155mm howitzers and an 8-inch howitzer battery. Also included in the division artillery is a 105mm howitzer battalion with five firing batteries. Manpower of the new DivArty is about half that of the present artillery but potential firepower is considerably greater.

A combat aviation company has been included in the division trains. The 50 fixed- and rotary-wing aircraft in the new division (about twice as many as in the current Infantry division) are brought together in this unit. The aircraft are organized into two platoons: a direct support platoon and a general support platoon. The direct support unit has five combat support flights, an artillery flight and a target acquisition section. The general support unit has three sections: command support, tactical support and utility. The aircraft of this new company perform a multitude of missions: observation, reconnaissance, artillery adjustment, aerial photography, aerial illumination, aeromedical evacuation, wire laying, etc. They also have the mission of moving troops, supplies and equipment within the combat zone.

There are only minor changes in the medical battalion. A neuropsychiatric section has been added and the number of dentists has been reduced to three for the entire division. Only emergency dental care will be given at this level.

There is no longer a military police company or a replacement company. The military police unit of the division is now a detachment in the division headquarters company. Replacements are handled by a section in the administrative services company.

Some of the most important changes in the new pentagonal organization occur in the division's primary fighting element—the Infantry battle group. It is here that increases in foxhole strength have been achieved while at the same time the size has been reduced. This accomplishment gives the division a smaller self-sufficient combat unit (somewhat larger than the battalion but smaller than the present regiment) which is a less lucrative target on the atomic battlefield than the regiment it replaces. The strength of the new battle group is only 1427 men; yet there are 453 more men in rifle squads in the new Infantry division than there are in the current Infantry division. Some of the factors which contribute to the reduction in the former regiment's size are: elimination of the tank company and the battalion headquarters company, reduction of the medical company to a platoon, combining of the headquarters company and service company into one unit, etc. The increase in riflemen is obtained by adding a fourth rifle platoon to each of the rifle companies and by increasing the rifle squad from nine men to 11 men.[4] The weapons squads of the rifle platoons also have 11 men.

Indirect fire support for the new battle group comes from the mortar battery which is an Artillery, not an Infantry, unit. Initially this battery will be equipped with 4.2-inch mortars but these will be replaced with the new 105mm mortars when they become available.

Other support elements habitually required by the regiment are provided by the headquarters, headquarters and service company. This new unit has a battle group headquarters section, personnel section, counterfire squad, reconnaissance platoon, engineer platoon, medical platoon, supply and maintenance platoon, assault gun platoon and communications platoon. The reconnaissance platoon is composed of Armor personnel and is organized along Armor lines. It has jeeps, light tanks and armored personnel carriers.

Aside from the addition of the fourth rifle platoon, the big difference in the rifle company is in the weapons platoon. This unit now has two antitank squads equipped with jeep-mounted 106mm rifles and three 81mm mortar squads. There are no 60mm mortars or 57mm rifles.

No attempt has been made in this article to discuss every unit of the new division. To understand all of the specific changes in personnel and equipment will require detailed study of the TOEs.[5] Attention here has been confined to some of those areas in which there have been significant or interesting changes.

This new Infantry division is an atomic-age unit designed to fight and survive on the modern battlefield. It has been brought into existence by the onslaught of new capabilities. If not satisfactorily answered here, it is believed that the future and more experience with this new organization will answer the question, "Why five?"

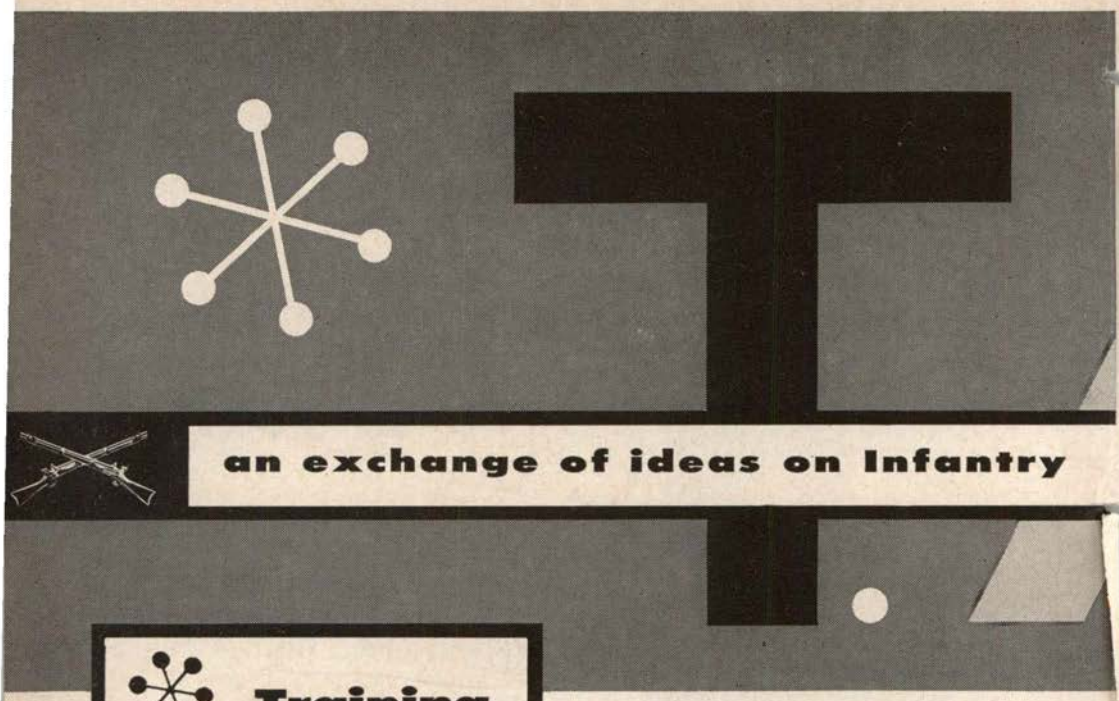
[4]For additional information on the 11-man squad see "Those Who See the Whites of Their Eyes" by Maj Gen A. D. Mead, July 1956 *Infantry School Quarterly.*

[5]Tentative TOEs have been prepared, but these will be available in limited quantities only to units as they are to be reorganized. Finalized TOEs are not expected until early in 1958.

Take a close look at yourself

Perhaps self-examination will reveal gaps in your professional knowledge. You can plug those gaps with Army Extension Courses. Use these free, study-at-home courses to keep current on tactics and techniques in this period of many changes and new developments. They will help prepare you for more-responsible assignments and promotion.

WRITE: COMMANDANT, U. S. ARMY INFANTRY SCHOOL, FT BENNING, GEORGIA, ATTENTION: DEPUTY DIRECTOR FOR EXTENSION COURSES.



T. an exchange of ideas on Infantry

Training Ability Money

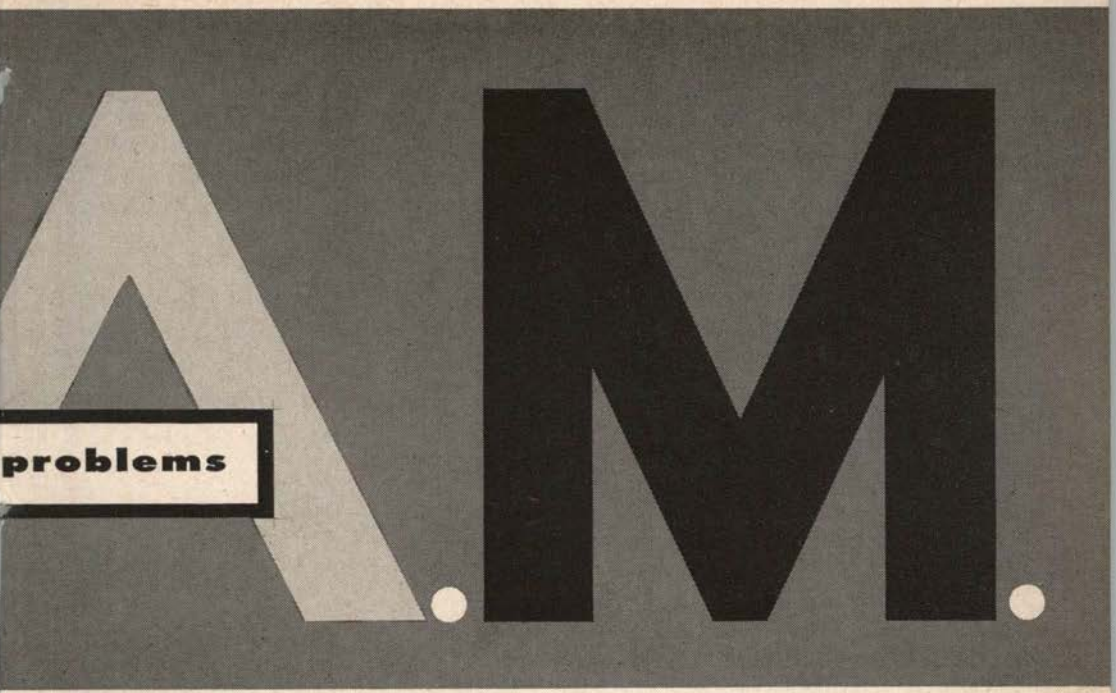
The ideas expressed in this exchange of letters between 1st Lt David E. Reeves, USAR, and Maj Gen Herbert B. Powell, Commandant, United States Army Infantry School, provide considerable food for thought. They also emphasize areas in which all Infantrymen — Regulars, National Guardsmen and Reservists — can help to improve the Infantry. Of special importance is the job we can and must do to keep the American public informed of the undiminished requirements for and of the Infantry.—Editor.

142 Crothers Hall
Stanford University
Stanford, California

Major General Herbert B. Powell,
Commandant, The Infantry School
Fort Benning, Georgia

Dear General Powell:

The October 1956 *Infantry School Quarterly* contains a short note by you. Your last paragraph invites ideas concerning the Infantry. As a Distinguished Military Graduate who served his obligated tour of duty in the Infantry, and then decided to get out, I feel qualified



to answer your invitation. I have given the problems of the Infantry great thought and shall pass my "words of wisdom" on to you.

As I see it, the Infantry today has three severe limitations. I call these limitations "T-A-M"—TRAINING, ABILITY, MONEY. The solution of "T-A-M" and more officers with your willingness to look at ideas would possibly have retained me and other capable officers in the Infantry.

TRAINING: *The problem* is one of realism and sincere desire to have the best trained Infantry in the world. At Fort Ord, I repeatedly had the feeling that our goal was not to train Infantrymen; rather our goal was to keep the mothers on the home front happy with the manner in which we treated their boys. The officers had long since given up the fight to say to hell with the mothers, let's keep the men from getting killed in combat. A feeling of "Don't fight the system — you will just get a low efficiency report" usually prevailed. *The solution:* General officers in your position get up on your two feet and demand good training. This is your Infantry. A firm policy is appreciated, even by the mothers. They will understand. The officers junior to you cannot help but pick up your enthusiasm for good Infantry training.

ABILITY: *The problem* of natural ability for Infantry-type tasks is often joked about, but it is a real problem. Officers like me with a permanent "C" profile (a 3 in the physical capacity position) do not belong in the Infantry if we are doing desk jobs. My profile restricts me to office work, yet I am still an Infantryman according to Department of the Army (despite many requests for a branch change). Officers who do not come up to the high standards required

for the Infantry should be placed in "Branch General" or some other pool of not-up-to-snuff officers. *The solution:* Get officers and enlisted men out of the Infantry who obviously do not belong there. Get officers and EM from other branches who are qualified into the Infantry. To carry this out, a body higher than the present branches at the Pentagon is needed. This body should be able to overrule the branches on their retention or acceptance of a man. At Fort Ord I had a professional football player for a clerk — this man belonged in the Infantry. There is no excuse for this sort of thing.

MONEY: *The problem:* Give the Infantry the same break dollarwise as other services are given. To make a living wage I was forced to get out of the Army or go up into the air. I chose the former as I believe in the Infantry. Equipment-wise, who is at the end of the line?—the Infantry, of course. The Air Force goes to Washington, lobbies, and gets the necessary money for expensive aircraft. The Infantry seems happy to take the scraps left over from Congress. The Infantryman should *never* want for transportation; but you just try to round up enough 2½-ton trucks to move even a company! The Infantry is just getting around to obtaining enough new and much-needed field telephones. It will probably be the year 2000 before we get a new rifle lighter than the M-1 (greatly needed), a BAR that weighs considerably less than 20 pounds, and a new 30-caliber machinegun that doesn't have continual stoppages! *The solution:* Put an extra shirt in your VIP case and go to Congress for a week next time money is discussed. Explain the position of the Infantryman so vividly that we cannot help but get what we need. Take a BAR with you, give it to a senator and ask him how he would like to carry it around all day long. You will get your new weapon!

In short, General Powell, we will have a strong, efficient Infantry when, and only when, you, me and all the other officers in the Infantry realize that what we want is this. The Air Force has been fighting for thirty years for that in which they believe. It is time we did some fighting. If I did not believe this, I would not be taking valuable time away from my study of law to write you. The fight is worthwhile. Let's start now, General Powell.

Sincerely yours,
DAVID E. REEVES
1st Lt Infantry
USAR 04027637

* * *

Headquarters
U.S. Army Infantry School
Fort Benning, Georgia

1st Lt David E. Reeves
142 Crothers Hall
Stanford University
Stanford, California

Dear Lt Reeves:

Since my interim reply to your recent letter I have given considerable thought to your remarks. I shall comment on each of the three "severe limitations" faced by the Infantry in the same sequence as you presented them.

TRAINING: While I frequently find deficiencies in individual periods or phases of our training, these are usually instructor or local faults and not weaknesses in our training programs. Anyone who conducts or observes the training of troops will always find room for improvement. This is as it should be. But I am confident our training today is better than it has ever been in peacetime in our military history.

We learned much about the training of Infantrymen for combat during World War II and more recently during the Korean conflict. Our instruction has been constantly improved and toughened since 1950. Today, much of our training is being conducted in the field and at night — in some overseas areas as much as 40 to 60 percent of it. Our newly commissioned officers are required to complete either the airborne or ranger courses and rugged ranger type training is being incorporated into the instruction of all our Infantry units. Physical conditioning is being stressed. I am sure I have support from both our own Army and the Allied forces we have been helping to train around the globe when I say that, over-all, our Infantry training today *is* the best in the world.

We have no reason for complacency. We must strive continuously to raise our standards. That is why I welcome suggestions from any source that can help us to do a better job.

I agree with you that realism is one of our big problems. We particularly seek ways of making improvements in this area. It is very difficult to duplicate the conditions of actual combat without disregarding the value which we in this country put on the life of the individual. It is true that some, perhaps many, lives could be saved in combat by accepting higher casualties during our training. But we cannot ignore the will of the American people to whom the Army is responsible, including mothers on the home front, who prefer that their sons live to reach the battlefield. To do so would destroy the very principles for which we fight.

Like you, I do not believe that Americans want a soft Infantry. So long as we are scrupulously fair in the treatment of our men, look out for their welfare, avoid carelessness and recklessness, and value human life, we can be tough in our training for combat. In fact, that is exactly what we are doing. Throughout history the American Infantryman has always given a good account of himself. The men we are training today will do the same.

ABILITY: The problem of getting the right man in the right slot is one that is as old as the Army itself. Probably more surveys and studies by experts at every level of our defense structure have been made in personnel than in any other field. Honest efforts have been made to provide for the best possible distribution of military manpower.

We in the Infantry have always sought —and continue to seek—rugged young men with stamina and determination. We naturally desire an elite corps of the best men available. However, we must admit that some of the other services and combat arms (for example, Combat Engineers, Armor, etc.) need the same type of men. The hard cold fact is there is not enough of this select type to go around. The Infantry is the largest single user of manpower in our Army. Even if we got all of the best men available we would still have some who would not completely measure up to our desires.

Our personnel problems are indeed complex. In addition to having brawn and stamina, the men we need must have intelligence and they must have, or be capable of being trained in, highly technical skills. There are many slots where the physical requirement usually associated with the Infantry is not as important as other capabilities. Experience on the battlefield reveals that the most unlikely looking individual frequently proves to be the outstanding leader or the most effective combat soldier — far exceeding men, who, on the basis of physique and statistics, might have been handpicked for the Infantry. Also, to be absolutely realistic, there are some assignments in the Infantry where we can

I have had this exchange of letters published because I feel they may stimulate and encourage constructive activities which could benefit the Infantry and our defense efforts. There is much we Infantrymen can do—in the active Army, the National Guard and the Reserve—to maintain high standards and to acquaint the American public with the increasing importance of the Army and the Infantry in *down to earth defense* of our country.

Maj Gen Herbert B. Powell

use personnel with less than the highest physical profile.

The problem, I believe, boils down to close personal attention at *every* echelon in the Infantry to insure proper utilization of our manpower. We must see that every man is properly assigned. To do this we must know our men and their capabilities. We must seek out all isolated individual instances of misassignment or improper utilization and rectify such errors. We must develop our men physically and mentally to meet our standards and we must weed out those who cannot measure up. And, of course, at the highest level, we must always fight for our fair share of the best men available. I have always endeavored to follow these procedures personally and have insisted that they be followed throughout my command. We stress them in our instruction to all officers attending the United States Army Infantry School.

MONEY: Believe me, I am willing to pack my brief case and do as you suggest. During assignments in Washington I have gone many times before the Congress to plead the Infantryman's case, but my experience does not permit me to share your belief that this, *per se,* gets the new weapons we need. The impact that I as an individual—or any individual for that matter—can make in directly influencing appropriations for the Army and the Infantry is limited. The money and support we need will be forthcoming, when, and only when, the American people are convinced of our need and demand that our requirements be met.

I am not passing the buck when I say this. Nor do I mean to imply that there is little I can do. There is much I can do and am doing.

It is apparent that the American people and their representatives in the Congress have been sold on strategic airpower. But this job of selling was not accomplished by any one individual and it was not accomplished overnight. It is a job that has been worked at intelligently and actively over a period of years by many people. It has been a combined effort by *all* proponents of airpower, military and civilian, including

those who develop and produce aircraft. They have been most successful.

We in the Army and the Infantry must do a similar job. In fact, we have a serious responsibility to do so, not merely in our own interest, but in the interest of a sound, balanced defense force capable of winning "brush fire" wars or general war — with or without atomics.

The American public seems to have bought the idea of an easy "push button" defense for our country with planes, missiles and nuclear weapons. We all know there is great danger in this idea. We can see the catastrophe that could happen if our people are misled or oversold in one direction and fail to provide a proper balance of land, sea and air forces. Even in this atomic age, the absolute weapon is still man — with his feet on the ground and with the mobility and equipment needed to apply the proper amount of force at the right place. Without such a selective force how would we cope with the situation if an enemy should take over a small friendly area or possibly the Panama Canal? Would we destroy our friends or the canal with a nuclear weapon in order to oust the foe?

We must sell our requirements and those of the Army by using all possible media and means. We must work at it day and night.

Here, at the United States Army Infantry Center, our target is not so much the legislator as the people in our neighboring communities and those with whom we come into daily contact both collectively and as individuals. I can assure you that I personally make our needs known at every opportunity and I seek out opportunities. By demonstration and expression we sell Infantry to all civilians who visit this Center including those who attend our Joint Civilian Orientation Conferences. In our *Infantry* magazine, on our radio programs and in all of our public relations activities we sell the historic and continuing importance of the Infantry in our national defense. We go before civic organizations and other community groups. We appeal to all students who come to the United States Army Infantry School from our reserve components for help in their home communities. Increasingly, in everything we do and say, we seek to convince the public of our requirements.

There is much that you and your friends can do to help. You are familiar with the Infantry — you know its value and its problems and you have daily contact with many people in your community. We need your assistance.

It will take time and hard work by all of us to keep the American people fully informed but if we work at it constantly and energetically we will get results. I have great faith in the judgment of the American people once they have the facts. When they are shown and understand what is needed, we will get the appropriations and support we require.

I found your thoughts on our limitations stimulating and hope that my comments may be of some value to you. The facts that you are still following our activities through *Infantry* and that you would take time from your law studies to write are sincerely appreciated.

If we can ever be of assistance to you please let us know.

Sincerely yours,

HERBERT B. POWELL
Major General, U.S. Army
Commandant

HELICOPTERBORNE OPERATIONS

By Capt Joseph O. Wintersteen, Jr.

There can be no doubts about the Infantry's need today for increased mobility on the battlefield. To exploit fully the tremendous firepower of nuclear weapons and at the same time to minimize the effectiveness of similar enemy firepower we must be able to move. We must be able to do it quickly and over considerable distances.

Outstanding among the means available to provide this sort of battlefield mobility particularly for small units is the helicopter. In an article, "Wings for Infantry" (July 1956 *Infantry School Quarterly*), the importance of the helicopter to the Infantry was discussed by Col John J. Tolson, who was then director of the United States Army Infan-

try School's Airborne-Army Aviation Department (now the Airborne-Air Mobility Department). This article also covered the types and quantities of rotary-wing aircraft that are now available or being procured by the Army, how they are organized and where they are located.

With the helicopter very definitely a part of the Army's plans for increased mobility and flexibility in any future war, we in the Infantry must know how to use it in our combat operations. Every Infantry commander down to and including the platoon leader should be able to plan for and utilize this type of aircraft to move his unit into an objective area for ground combat.

If you were suddenly given the task of incorporating helicopters into a combat situation or a training exercise could you do it? Would you know where to start? If not some of the following information may be helpful.

One of the important things for any commander to know is where to turn for the information he will need when he is called on to use helicopters in a tactical

Infantry commanders down to and including platoon leaders must know how to plan for and employ helicopters in combat.

situation. Much of the needed information can be found in The Infantry School Special Text 57-35-2, Army Transport Aviation Combat Operations, and TM 57-210, Air Movement of Troops and Equipment, a revision of which is being worked on and should soon be available. Additional information can be obtained by contacting the helicopter unit furnishing the aircraft and requesting a liaison officer who will maintain close coordination throughout the planning and execution of the operation. The liaison officer will be indispensable to furnish information on the number of aircraft available, the status of training of the helicopter unit and other current data and guidance.

Planning for a helicopter operation is very similar to the planning for a parachute operation. The usual type of operation is one in which there will be an early linkup with other forces such as a situation in which the helicopterborne force is used to seize critical terrain within enemy territory along the planned route of a main ground effort. Such an operation is designed not only to assist the forward progress of the ground attack but also to disrupt the enemy's line of communications.

It is necessary to analyze carefully the mission and to study the terrain and enemy situation before undertaking the planning required for a helicopterborne operation. This planning is actually a series of plans: plan of maneuver, landing plan, air movement plan, fire support plan, linkup plan and loading plan.

Plan of Maneuver

The plan of maneuver is developed to accomplish the mission of seizing that terrain which will prevent enemy reinforcement, thus assisting the main ground attack. At battalion level, company objectives are selected within the area designated by the regimental commander.[1] The considerations in selecting these objectives are the same as in any other operation except that in this type of operation the proposed defense of the area must also be considered. In enemy territory the perimeter defense is required in order to defend in all directions simultaneously. The proposed defense is outlined by an airhead line of generally circular shape which includes the objectives. The size of the airhead should provide room for maneuver and adequate depth for the defense. The airhead line includes all of the terrain which the commander plans to seize from and deny to the enemy.

The security echelon is outside the airhead line and consists of roadblocks, outposts and observation posts so placed as to prevent enemy ground reconnaissance and close observation of the airhead. This line (reconnaissance & security line) provides early warning of any enemy advance, delays enemy advance and deceives the enemy as to the location of the friendly forces within the airhead, by being organized completely around the airhead and on those terrain features forward of the airhead line. This line should be within supporting distance of the weapons within the airhead, i.e., mortars should be able to support these positions.

After the objectives and airhead line have been selected, sectors of responsibility are assigned to units by designating boundaries. In selecting boundaries, care must be taken not to split the responsibility for a major avenue of enemy approach. Also, if at all possible, a unit, upon landing, should not be required to attack in divergent directions simultaneously. Whenever feasible, sectors should remain the same in the defensive phase as they were in the assault so that

[1]Some modification will be required for the new Infantry division since there are no battalions and since companies are under direct control of the battle group commander.

only a minimum change of troop dispositions will be necessary.

During the assault to seize objectives, greater distances between units may develop as they simultaneously conduct individual attacks to accomplish their missions. Centralized control is difficult to maintain. Decentralization is achieved by the attachment of supporting elements to each unit as needed, so that commanders are not unnecessarily restricted in accomplishing their respective missions.

A reserve is provided in the airhead from one of the assault units. Because of the many assault tasks to be performed, it is characteristic for the reserve in this type of operation to be small. Seldom will the reserve for a battalion be more than one rifle platoon. This reserve is taken from the rifle unit having the least critical assault mission. During the defensive phase, the reserve normally is placed in a prepared position in depth. When needed during the conduct of the defense, troops in a sector not engaged with the enemy may be withdrawn from their position on the airhead line to be employed in another sector which is under heavy enemy pressure.

Landing Plan

The second major consideration in this type of operation is the development of the landing plan: The landing plan is based on the plan of maneuver. It indicates the sequence, time, and place of arrival of troops in the airhead and the control measures to be used. If adequate landing zones are available, (on average terrain they normally can be found) it is desirable to move and land assault elements simultaneously. This not only enhances control and facilitates the ground plan of maneuver but, also, achieves maximum speed and surprise.

The commander and staff of helicopter units are relied upon to furnish technical advice as to the suitability of landing areas within the objective area.

Landing sites (areas within a landing zone where one or more helicopters can land and take off) are selected in preference to the use of one large area for all aircraft. Chosen to implement the tactical plan, landing sites permit the aircraft to land directly on or adjacent to ob-

Helicopterborne troops leave the aircraft quickly, get into action fast.

jectives. This reduces the time required for assembly and reorganization after landing. Only time for the orientation of leaders is necessary. Maximum surprise and speed are gained by landing the helicopters at various sites to allow simultaneous seizure of objectives. This may not be possible in night operations. In such cases, landing may be made some distance from the objective areas to permit reorganization and regrouping of the forces, thus attaining a higher degree of control and a coordinated attack.

Under certain conditions of weather and terrain, or at night, it is imperative to employ Pathfinders in the objective area. However, Pathfinders will not be discussed here in detail as this would require a lengthy presentation. It is sufficient to point out that they are personnel specially trained in the terminal guidance of aircraft and in aerial delivery. It also must be mentioned that their entry into an objective area prior to the arrival of assaulting troops could possibly compromise the operation. While deceptive measures may be employed to maintain secrecy the commander of the helicopter-borne operation must weigh the advantages and disadvantages of employing Pathfinders when developing his tactical plan.

Air Movement Plan

The amount of detailed planning required for air movement will depend upon the size of the force and the scope of the operation. The plan is developed by the ground unit commander assisted by the helicopter liaison officer. It prescribes the approach and return routes, the formation, altitude, speed and means of flight control. Air control points (ACPs) which will assist in keeping the flight oriented are selected at easily identified points along the route. The first and last points are designated as the initial point (IP) and release point (RP) respectively.

In working out the details of the plan a route must be selected for the helicopters to follow to and from the objective area. When studying terrain, maps or photos, numerous possible routes may seem feasible. To determine the best route several factors are considered. The first of these is the ability of the enemy to detect our movement. Enemy detection can best be avoided by flying at low altitudes and by taking advantage of defilade and concealment in flight. Fog or mist may be an aid or smoke screens may be laid to reduce the enemy's ability to

After crossing the release point the aircraft go directly to landing sites within designated landing zones.

sidered and weighed and deceptive measures taken to maintain secrecy.

Once the battalion has landed within the objective area, fire support will be provided from two sources, within the airhead and from outside the airhead. The fires originating from within the airhead present no particular problem but some means must be used to coordinate the fires delivered near or in support of the airhead but which originate from artillery or supporting units located within other friendly areas. All of the outside fires can be coordinated by placing a no-fire line completely around the airhead position which in turn requires that all supporting fires be coordinated through the FDC of the direct support artillery battalion of the helicopterborne unit.

By the use of the measures described above artillery fires can be coordinated from the line of contact to and including the airhead. All of these fires will be coordinated through one agency, the FDC of the direct support artillery battalion. These measures should be considered in light of the coordination and support they provide rather than in terms of a burdensome restriction.

Army aviation plays another role in fire support planning. An aerial observer may prove of invaluable assistance in keeping the helicopter column correctly oriented in flight, and in adjusting supporting fires.

Linkup Plan

This plan includes all measures taken to facilitate the meeting of advancing friendly forces with the unit in the airhead.

The major items to be considered in the linkup plan are: the assumption of command, command and staff liaison, a system of mutual recognition, coordination of communication, fire and maneuver plans and any action not covered above that can be accomplished by the forces within the airhead to assist advancing friendly ground forces.

Assumption of command refers to a change in command relationship upon linkup between the helicopterborne unit and the next higher headquarters. If the unit is a battalion, operating under division control, it may revert to regimental control after linkup. Such a change in command then must be specifically outlined as to the manner in which it will be accomplished. No assumption-of-command problem exists if, for example, a regiment employs a battalion in a helicopterborne operation to assist the regiment's attack and then links up with that battalion.

Equally important in linkup planning is the establishing of liaison between the two concerned headquarters. This liaison is most effective if an officer of one headquarters is always present and available at the other headquarters. The early exchange of experienced officers will facilitate all planning phases as well as the linkup planning. The liaison officers should be equipped with radios that are in contact with their parent headquarters thus providing a direct channel of communication at all times during the planning and execution of the operation.

Information as to communications should be exchanged between both friendly forces. Radio frequencies and call signs are obviously of importance and, if necessary, complete radio sets may be exchanged.

A system of mutual recognition, such as pyrotechnic signals, panels, vehicle markings and identifying arm bands are practical solutions which help to prevent needless fire fights and casualties between friendly forces.

Each headquarters must be familiar with the tactical plan of the other unit.

The two forces should agree upon points of meeting (linkup points) to assist the juncture of the two fighting forces. These linkup points may be located on the R&S line where contact is expected.

The coordination of fire plans is of particular significance to the linkup. Each force should be informed of the other's fire control procedures, such as location of the bomb lines and no-fire line and be continually apprised of changes in these lines during the conduct of the operations.

Any action which will assist the linkup should be accomplished by the airhead forces. Since the airhead force is controlling a vital piece of terrain prior to linkup, it may have information which will assist the combined effort of the two forces in subsequent operations. Obstacles intended to impede the enemy along the expected avenues of approach should be rapidly removed by the airhead forces as linkup becomes imminent.

Helicopters come to the transported unit.

Loading Plan

The loading plan will include the administrative details which are to be accomplished prior to beginning the air movement to the objective area. The exact sites at which troops will load on the aircraft are selected. Troop and aircraft control measures are planned. While at the loading area, which may be the unit rear assembly area, the troops are organized into plane groups bearing in mind the following principles: maintain small unit integrity whenever possible, i.e. rifle squads; divide commmand personnel among several aircraft so that the loss of one aircraft will not wipe out the command group of a unit; divide crew-served weapons among aircraft, so all mortars, for example, will not be lost through the loss of any single aircraft.

Prior to enplaning, final checks are made of the manifests (forms upon which personnel and equipment have been listed as the specific cargo or load for each aircraft). The issue of ammunition and rations is also checked and other last minute details are taken care of.

An important factor in helicopter loading is the ability of this aircraft to go directly to the ground unit assembly area. This differs from past airborne operations wherein troops must go to the aircraft — usually at a prepared airfield.

To accomplish the over-all planning for the helicopterborne operation, much of which is accomplished simultaneously, the S3 of the unit will require the full cooperation of many staff officers: the Fire Support Coordinator, the S2, and the helicopter liaison officer, to mention only a few of those who are principally concerned in the planning.

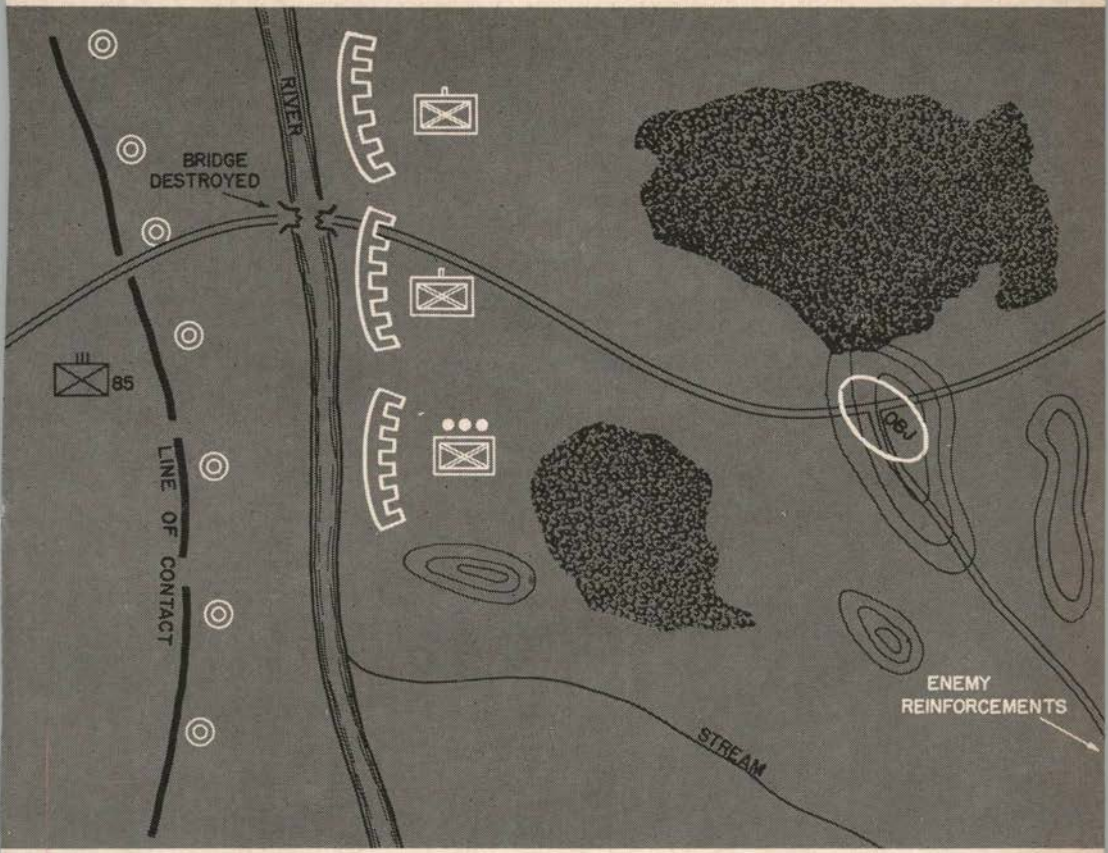


Figure 1. Schematic situation map.

Sample Operation

Now that the basic considerations for planning a helicopterborne operation have been discussed, let's look at a sample operation.

The advance of the 85th Infantry has been opposed by scattered enemy resistance. Intelligence reports indicate that the enemy position presently opposing the regiment is only lightly held. However, the bridges which give access to this position have been destroyed. The regimental commander decides to send a helicopterborne battalion to block the enemy routes of reinforcement to the positions on the opposite river bank. The planned objective area for the helicopterborne force is not occupied by the enemy. The regiment minus will make a river crossing while the helicopterborne battalion prevents enemy reinforcements from reaching the river crossing site. The regiment minus will link up with the helicopterborne battalion by H+4 hours (Figure 1).

Acting as Bn S3, we will develop the tactical plan for this helicopterborne battalion.

Since our unit has never before worked with helicopters, there is much information that we do not know; i.e., lift capability of the helicopter, how much space is required for landing, etc.

First, we contact the helicopter unit

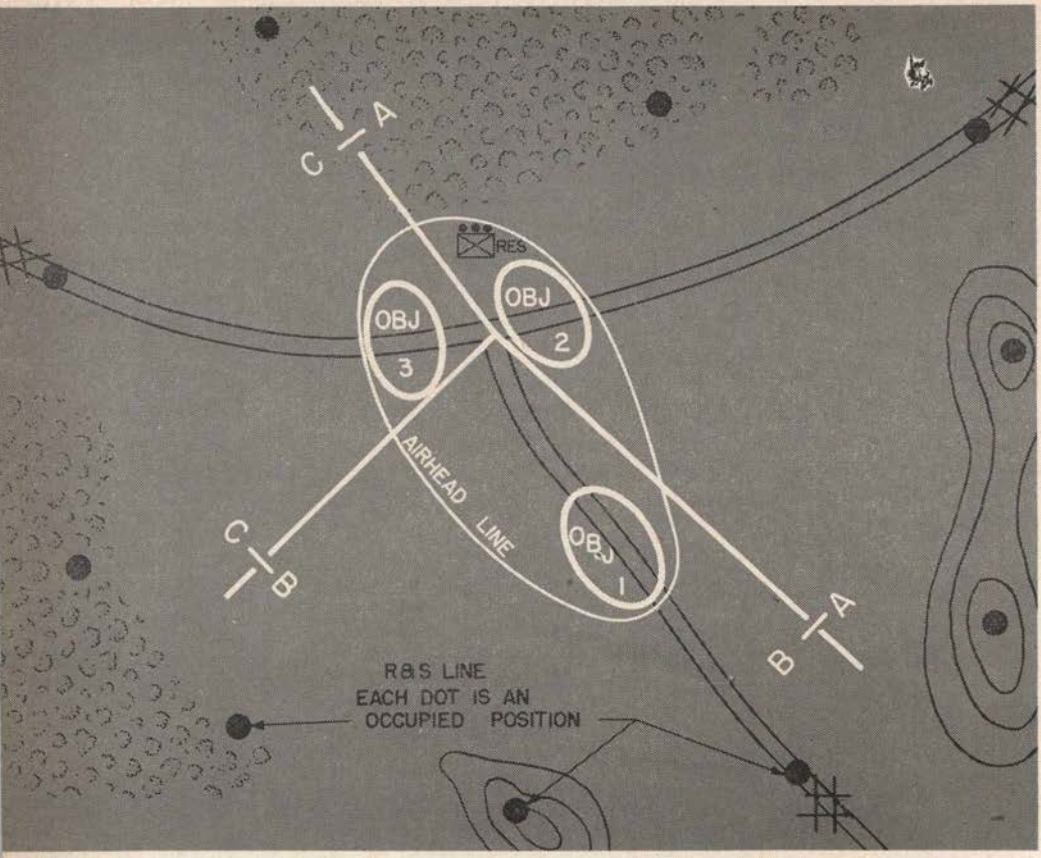


Figure 2. Maneuver plan.

to request that a liaison officer be furnished to our headquarters. This will provide us with the technical assistance we will need during our planning. The liaison officer arrives and tells us that the H-21 helicopter which is organic to his unit will carry 16 combat-equipped soldiers based upon a short-range mission. He also states that there will be 50 helicopters available for our use. We select our objectives (the most critical terrain) and assign the different companies their missions by drawing boundaries (Figure 2). The airhead line encompasses all of the terrain which we intend to seize from and deny to the enemy. The positions on the R&S line are selected so as to prevent enemy close-in observation of the airhead and to give early warning to the airhead defense in the event of an enemy attack. Since the company boundaries terminate short of the R&S line, this indicates that the responsibility for this line will be battalion's. To man this line the battalion has designated the P&A platoon, the Bn Intelligence Section and the I&R platoon which has been attached to the battalion for this operation. If later required, the R&S forces can be reinforced by rifle company elements.

A section of machineguns and a section of antitank guns are attached to Companies B and C since they face the great-

est enemy threat. Company B is to defend in the direction facing toward known enemy reinforcements while the planned defensive position of Company C is facing toward the possible withdrawal route of the enemy located along the river. The battalion reserve — one rifle platoon — is from Company A since it has the least critical mission.

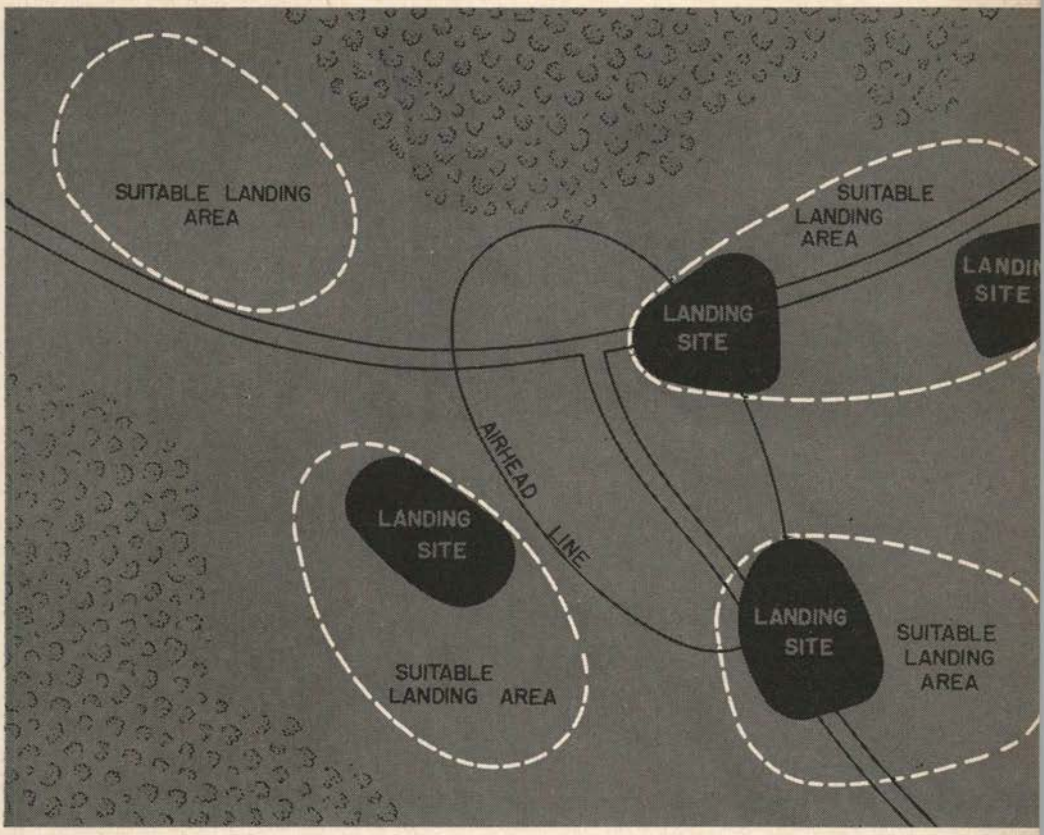
That covers the important considerations in our plan of maneuver and is used as a basis for our landing plan which we will develop next. Our own S2 and the helicopter liaison officer coordinate on selecting landing areas which will accommodate the H-21 helicopter.

The liaison officer tells us that each helicopter needs a 50-yard square of terrain on which to land. This figure allows the helicopter a slight ground roll, if needed. He then studies the available maps and aerial photos and indicates the areas suitable for landing helicopters. (Figure 3.)

When we study the selected landing areas we find that we won't need them all to support our operation. We pick only those areas which are best suited to our tactical plan previously discussed. We plan to land our units on or as close to their objectives as possible. Actual landing sites are the solid areas in Figure 3.

In our air movement plan we decide to fly over an easily identified route and also avoid the strongest enemy positions.

Figure 3. Landing plan.



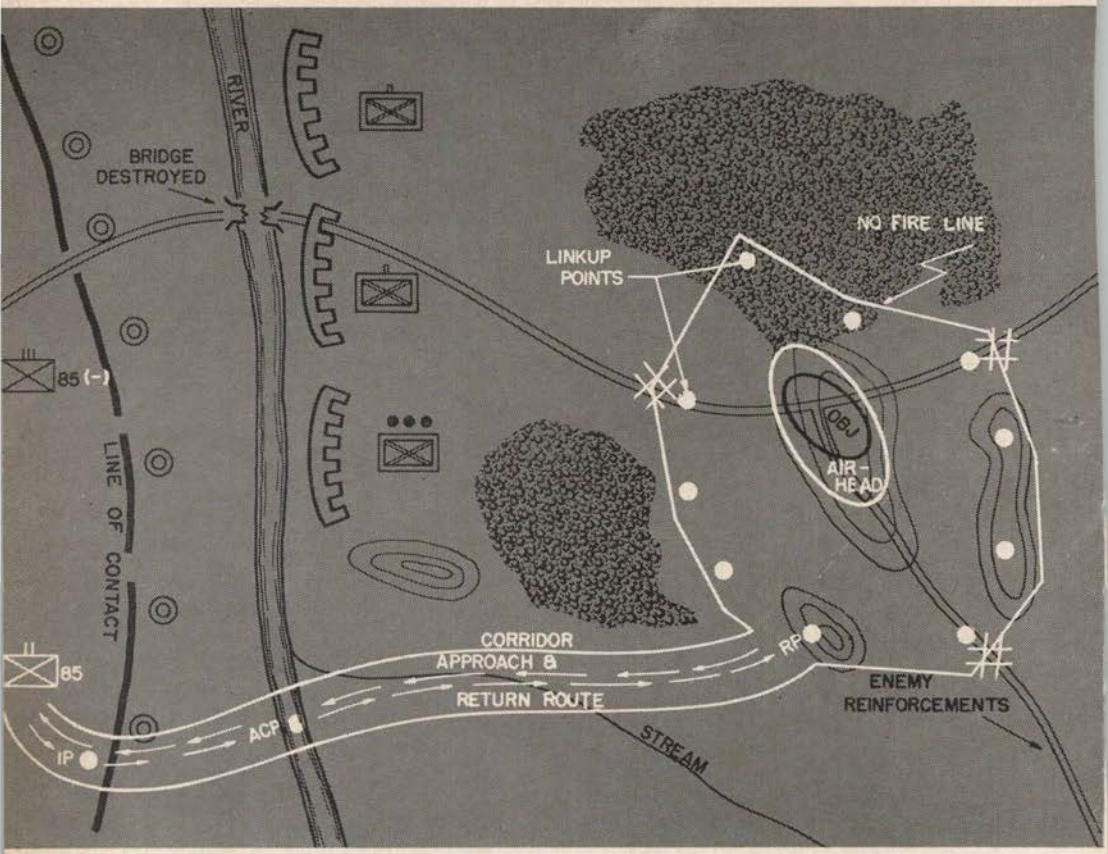


Figure 4. Air movement and fire support plans. Formation for aircraft: echelon right, three aircraft. Altitude: 25 - 100 feet. Speed: 100 mph.

The other details of air movement are shown in Figure 4. We have enough helicopters to carry all the assault elements of our battalion in one lift. Within the air column, helicopters are allocated to the companies of the battalion by a priority based upon the missions assigned within the objective area. Our priority is: assault troops, security troops (R&S line), supporting weapons and finally headquarters and support personnel. Meanwhile the fire support coordinator (FSC) has been working on the fire support plan. We have asked that a 1000-yard corridor be placed on the flight route. All fires within this corridor are to be coordinated through our direct support artillery battalion. We plan for artillery fires to be placed on known and suspected enemy positions both along the flight route and in the objective area. An airborne coordinator will be available to direct close support aircraft. The FSC tells us that we will have division artillery support all around our airhead. Therefore we need only take our 81mm mortars with us. If we were not so fortunate and lacked adequate artillery support we would also use 4.2" mortars as a substitute for needed artillery support within the airhead and would request their attachment from regiment. A no-fire line is placed around our R&S line, with all fires to be co-

ordinated through our direct support artillery FDC.

To facilitate linkup with the advancing friendly forces we plan on an exchange of radio frequencies. Arm bands will be worn by all personnel within the airhead as an aid to identification. Linkup points have been agreed upon as shown in Figure 4. All information on fire plans and maneuver plans will be exchanged between our battalion and regiment. An observer will remain aloft in an L-19 aircraft to provide continuous coordination and observation throughout the conduct of the operation.

Now that we have completed our tactical plans for the operation we can turn our attention to the loading plan of our units. We provide for the issuance of ammunition and individual rations to the troops within the assembly area. Aircraft loads are basically developed by attaching a crew-served weapons crew or other personnel such as radio operators, aid men, or forward observers to each rifle squad. Loading sites are selected and the number of aircraft to be loaded at each site is determined. Telephone communication is installed between all loading sites and the loading area control group (at the Battalion CP).

To capitalize on the flexible landing capability of the helicopters, loading sites are selected close to the battalion assembly area, thus requiring minimum displacement of our troops.

The helicopterborne operation as briefly described here is one solution for mobility on the battlefield which will be vital to successful ground operation in future warfare.

We can use Army helicopters as tactical battlefield transport provided we intelligently analyze our tactical mission and over-all situation. The solution lies in combining the helicopter's capabilities, friendly firepower and intelligence of the enemy's strength and dispositions within the planning procedures outlined. We must learn how to do it.

Capt Joseph O. Wintersteen, Jr., began his military career as an enlisted man with 103d Infantry Division in Europe during World War II. After the war he attended Pennsylvania State College. Upon graduation in 1949 he was commissioned a second lieutenant in the Regular Army and took jump training. He was then assigned to the 511th Airborne Infantry Regiment as a platoon leader. He next served in Korea with the 7th Infantry Division as a company commander, and in the G3 Section. Returning to the States he became a company commander and then a battalion S3 in the 505th Airborne Infantry Regiment. Capt Wintersteen graduated from the Infantry officer advanced course in 1954 and remained at Fort Benning as an instructor on air mobility.

All of the Services are deeply aware of the need for versatility so that we can apply military force appropriately, according to the circumstance. For this reason, the Army will always require so-called conventional weapons in quantity because there will be many situations for which an atomic weapon, even if available, is not the appropriate response. . . . The Army must have weapons which will destroy the sniper in the church steeple without destroying the bishop and the entire diocese.

General Maxwell D. Taylor

we should know

detect the movement. The longer it takes the helicopters to pass a given point, the greater is the possibility of their being detected by the enemy. A shuttle movement, or an extremely large formation, may be very vulnerable to enemy detection.

Another factor to be considered in route selection is the location of enemy forces. Obviously, it is unwise to fly over or near enemy antiaircraft weapons and troop concentrations. Intelligence agencies must be relied upon to furnish this information so the enemy can be avoided or neutralized.

A third consideration is the capability of supporting weapons to suppress enemy fire against the helicopter movement. In addition to the usual considerations of supporting artillery and close air support guided missiles must now be recognized and incorporated into fire support planning to assist air movement. Every available supporting weapon should be used to reduce or destroy the enemy's ability to interfere with the movement.

Still another factor, closely allied to the one just discussed, is the extent of the restriction on friendly fire support created by the air movement. Supporting fires must be controlled to keep them from inflicting damage on the aircraft. At the same time there must not be unnecessary interference with fires which will support either the air movement or the main ground effort.

One other important consideration is the ease of navigation over unfamiliar terrain. The easier it is for pilots to identify passing terrain and to follow the planned route the more likely will the air-landed force reach its destination on time and in the formation prescribed.

Multiple routes may be used to reduce the length of time required for the transported force to pass over enemy territory. This will increase the enemy's difficulties in concentrating fires against our aircraft. But the problems of flight control, navigation and coordination of friendly fires will be increased.

Pathfinders mark landing sites.

After selecting a route, air movement planning continues by assigning unit positions within the aircraft column based upon priority of their mission in the objective area. The actual formation (echelon, vees or trail) is based upon both technical and tactical considerations.

Fire support "escorts" the helicopter formation to and from the objective area.

Tactically, it must tie in with the landing plan in the objective area and must be considered from the standpoint of protection from enemy detection and fires, and coordination with friendly fires. Technically, the type of helicopter provided, its capabilities and the effects of weather and terrain on its performance must be taken into account.

The altitude that the formation should use requires the weighing of two conflicting considerations: necessary height to avoid small-arms fire from enemy troops, and the lowest possible altitude for protection from long-range detection and antiaircraft fire. Low contour-flying helicopters appear to offer the best chance of obtaining local surprise and passing beyond enemy troops and antiaircraft weapons before they can react with effective fire. The speed planned should be the fastest possible, compatible with the altitude considerations.

Fire Support Plan

The problem of fire support has been mentioned in the plans just discussed. Now attention must be given to details of the fire support plan.

Fire support planning must take into consideration the provision of fires to assist the air movement of the aircraft to the objective area. If the depth of the operation is beyond that of the range of the direct support artillery battalion, longer range artillery support may be needed.

The planning (assisted by the Fire Support Coordinator) must insure that, starting from the line of contact, fires will "escort" the aircraft formation as it moves all the way to and from the airhead. As necessary, assistance at successively greater ranges is planned by use of very heavy artillery, close air support and missiles.

All artillery and supporting fires in support of the air movement are coordinated by prescribing a flight corridor astride the planned flight route. This also provides the aircraft with a limited measure of freedom of maneuver therein. Any fires to be placed within the limits of the corridor must be coordinated through the FDC of the direct support artillery battalion. It should be pointed out that premature or unusual firing may alert the enemy and give away the operation. This possibility must be con-

MORE ABOUT TRAINFIRE I

Troop tests show that this method of marksmanship training should produce more effective combat riflemen.

Known-distance rifle marksmanship as we have taught it for more than three decades has not proved to be the best method of producing a combat rifleman. In its place we expect very soon to have the Trainfire I method of basic marksmanship training.

When Trainfire I was first discussed in the *Quarterly*[1] a little over a year ago, it was still in the developmental stage. The training course was not fully developed; the hours required for training, the number of rounds to be fired and other factors were not firm; and the course had yet to be troop tested.

The *Quarterly* article and subsequent information in other publications brought immediate comment from individuals throughout the Army and from other services, including Infantrymen in the Marine Corps.[2] Much of this comment was favorable—some of it was not. Upon analysis it was apparent that many of the criticisms could be attributed to misunderstanding. Many points of the program had not been made clear and others were misleading. For example, the training hours and ammunition allowances mentioned in those articles were minimum requirements used for economy's sake during experimentation. They were not intended to represent final requirements which only experience and further testing could provide. Some objections undoubtedly were the usual reaction to change.

Now, most of the experimentation has been completed and troop tests have been conducted at Fort Carson and Fort Jackson. These tests indicate a definite improvement over present rifle marksmanship instruction and the known-distance range. Convinced of its superiority over our present training, the US Army Infantry School and USCONARC have recommended adoption of Trainfire I. Final approval by Department of the Army is needed to put it into effect.

Before discussing the troop-test results it may be useful to review briefly some of

[1] See "Trainfire," *Infantry School Quarterly*, January 1956.
[2] See "Letters to the Editor," *Infantry School Quarterly*, January 1957, page 96.

the background and basic concepts of Trainfire I. The *Quarterly* published this information in January 1956 but some of it is repeated here to provide a better understanding of Trainfire developments to date.

Trainfire I is the result of detailed studies on the effectiveness of rifle fire during World War II and Korea. These studies, initiated and sponsored by the Department of Defense, determined that our Infantrymen lacked sufficient skill and confidence in the delivery of aimed fire on the battlefield. They further determined that the transfer value[3] of known-distance range training to combat was questionable. To determine the fault, and correct it, a research project was begun early in 1954 with the mission of uncovering means, not necessarily within conventional marksmanship methods, for improving rifle marksmanship training. The job was specifically given to CONARC Human Research Unit Number 3 (now United States Army Infantry Human Research Unit) at Fort Benning, in cooperation with the Weapons Department of the United States Army Infantry School. It was stipulated that this training had to be incorporated generally within the number of hours presently allotted for marksmanship training and had to be well within the capability of a rapid mobilization program. For identification purposes the project was given the name Trainfire I. The research board first determined what combat skills are required of a rifleman in placing effective fire on the enemy. Next, those skills had to be reduced to fundamentals of shooting which training must stress. To do this, careful study of battle reports and other current military literature was necessary as well as extensive interviewing of combat-experienced Infantrymen. Future developments in weapons also had to be considered. The basic principles of the Trainfire I concept of rifle marksmanship training are founded on these and other studies. The principles are not entirely new. Rather, they re-emphasize conventional marksmanship principles and provide a more realistic approach to the problems the rifleman faces on the battlefield. The fundamentals or premises on which combat marksmanship must be based are:

1. Enemy personnel targets are rarely visible except in a close assault.
2. Most combat targets consist of a number of men or objects irregularly lined and using cover such as ground folds, hedges, ditches and borders of woods.
3. These targets, detected by smoke, flash, dust, noise or movement are usually seen only fleetingly.
4. These targets can be engaged by using a nearby object as a reference and aiming point.
5. The range of battle targets will rarely exceed 300 yards.
6. The nature of the target, the terrain on which it appears, and the "digging in" requirement of the defensive often preclude the use of the prone position. These conditions do, however, favor supported positions.
7. Selecting an accurate aiming point in elevation is difficult because of low

Figure 1. Trainfire I training program.

TRAINING PROGRAM

SUBJECT	HOURS
Orientation & Operation M-1 Rifle	2
Mechanical Training	4
Preparatory Marksmanship (1000-in. range)	26
Battlesight Zeroing (75-yd. range)	4
Field Firing	18
Target Detection	16
Record Course	8
Total	78

[3]The ability to learn skills in one situation and use them in another situation.

outline and obscurity of battlefield targets.

8. The problem of proper elevation is complicated by present zeroing instructions—that is, using a six o'clock hold at the bottom of the bull's-eye to achieve a center hit.[4]

9. The conditions of rifle fire in battle rarely require or permit the use of a windage adjustment.

Once the various elements of the problem were determined the objective of Trainfire I became clear: to train the soldier to use his rifle effectively in combat. The course is therefore based on the fundamental principles that the combat rifleman's targets consist of enemy personnel and that his effectiveness as a rifleman depends upon his ability to neutralize individual targets. To achieve effectiveness the rifleman must be skilled in detecting targets, aiming his rifle at the detected targets and firing upon the targets without disarranging his aim.

The present Trainfire I course requires 78 hours of instruction (Figure 1). Two hours are set aside for orientation, four hours for formal mechanical training, 16 hours for target detection, 30 hours for preparatory marksmanship instruction on the 1000-inch and zeroing ranges and 26 hours for field and record firing. Record firing consists of two qualification periods of four hours each.

Preparatory Training

Trainfire I does not neglect basic shooting principles. Changes have been made only in *emphasis* and *procedure*. For example: The known-distance method of marksmanship training requires the firer to complete 24 hours of preliminary rifle marksmanship instruction (PRI) before going on the range to fire. As shown in Figure 1, the Trainfire I concept requires

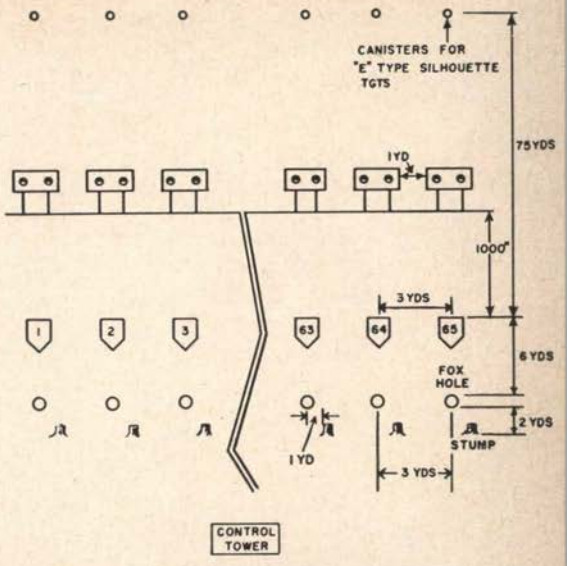


Figure 2. Trainfire 1000-inch range.

26 hours of this training, but all of it is done on the 1000-inch range (Figure 2) where both the firer and instructor can more readily determine the results of the firing. At the same time the firer will be motivated by frequent intervals of firing.

In Trainfire I the soldier actually fires at a target during his second period of instruction. The 1000-inch target used in this first firing, and all other subsequent 1000-inch targets, are kept in the trainee's progress envelope to enable instructor and student to find errors and correct them before they become habit. This early firing assists the basic trainee in a number of ways. He is not as likely to become bored or kept in suspense through many hours of preliminary rifle instruction before firing. He gets the chance to fire on a 1000-inch target which may subsequently be compared to others he fires and to those of a trained demonstrator—thus giving the trainee a gauge of his progress and the vivid realization that he has a great deal to learn.

[4]This procedure introduces an error in zeroing which is half the diameter of the bull's-eye. The error is then increased if the soldier is required to aim at center of mass of a field target rather than at its lowest visible edge. Since only part of the actual mass of bulk of the target is usually seen in combat the center of "seen" mass will normally be above the actual center.

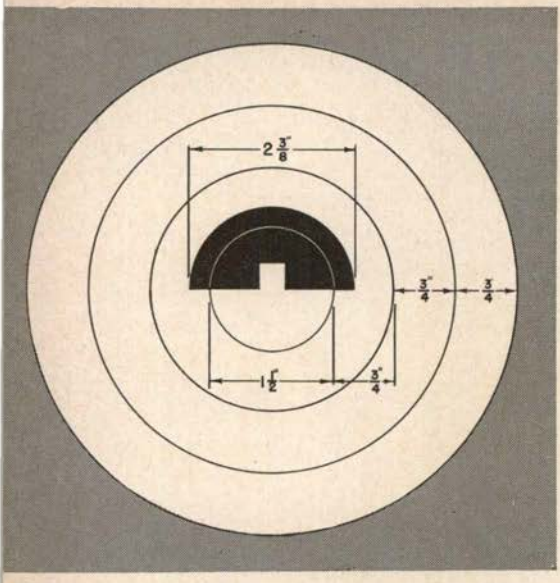


Figure 3. Half bull's-eye target.

He learns quickly, especially if he is firing the rifle for the first time, that the weapon will not harm him (this initial firing is preceded by a rifle-will-not-hurt-you demonstration).

Aiming and steady hold are taught as the two most important elements in marksmanship instruction. The trainee learns to focus his eye and mind on the front sight when he fires, thus helping to insure correct alinement. He takes part in an aiming exercise similar to the third sighting-and-aiming exercise described in FM 23-5. During this exercise, and for all preparatory marksmanship training and 1000-inch firing, a half bull's-eye target is used. This target (Figure 3) presents the firer with a clearly defined aiming point and permits him to become accustomed to aiming where he intends the bullet to strike.

Trainfire I teaches the type of trigger control now used in sustained fire rather than the exaggerated trigger squeeze encouraged in slow fire which tends to detract from concentration upon correct aim. The importance of the trigger is not overlooked but observation has shown that present training tends to make the soldier overly conscious of his trigger action during firing. To overcome this fault, Trainfire I stresses shooting as an integrated act consisting of obtaining the correct sight picture and holding the rifle steady while pressing the trigger to the rear. Steady hold consists of eight factors: position of left arm and hand, butt in pocket of shoulder, grip of right hand, position of right elbow, spot weld, breathing, relaxation and, as mentioned, trigger control. The steady-hold factors imply position which, of course, goes hand in hand with good shooting.

As in conventional training, the soldier learns that all features of a good position should contribute to holding the rifle steady so that it may be fired without disturbing the firer's aim. The use of the sling, however, is not taught in Trainfire I because the sling is rarely used in combat except to carry the rifle. Naturally, should the firer eventually graduate to competitive firing he probably would want to learn the use of the sling. The objective of Trainfire I, however, is to teach accurate fire with methods most practical to combat.

To further duplicate the conditions under which he will fire in combat the trainee wears the steel helmet and stripped pack for all Trainfire I firing.

Also in line with the realistic approach of Trainfire I, the supported position is generally used, with about 60% of the firing in the Trainfire I course being done from a supported position. The soldier learns to use such supports as may be available to obtain a more accurate sight picture and, consequently, deliver a more effective shot. The technique of using support for firing consists of resting the hand, wrist or arm on the support, such as a tree, stump, edge of foxhole, wall or rubble, and placing the rifle firmly in the supported palm. The rifle does not rest on the support itself. Since much of

the rifle fire in combat is delivered from supported positions, the high transfer value of this training is readily apparent.

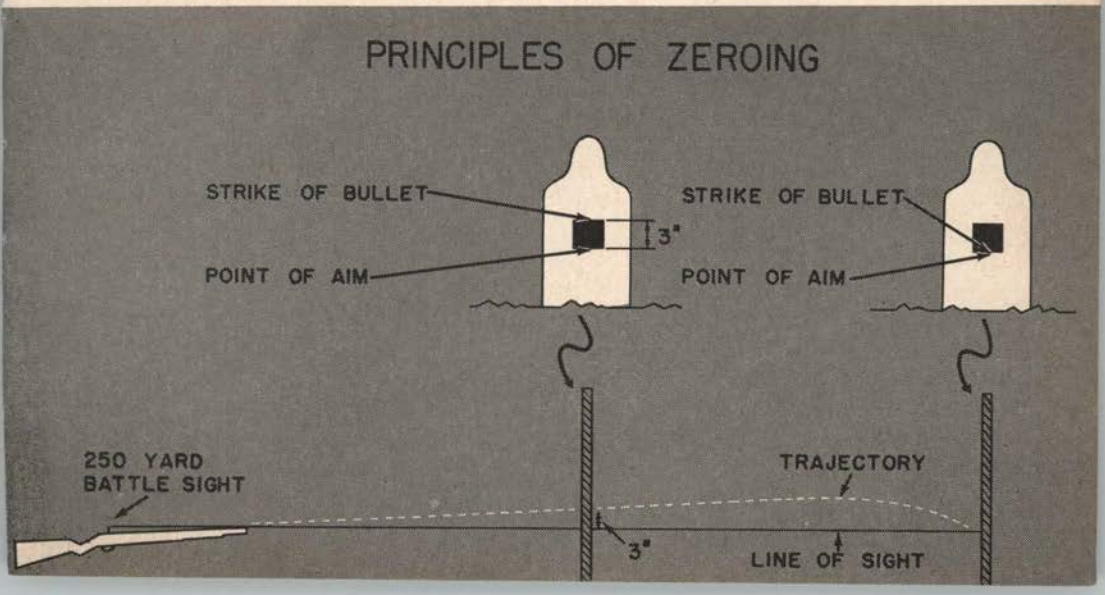
This emphasis on supported positions does not mean that Trainfire I trains the recruit primarily in defensive firing. The trainee learns to use supported positions in the defense and, whenever practicable, in the offense. For instance, if he is advancing and sees a target 50 or 75 yards away he probably would stop, take a well-aimed shot from the shoulder and continue his advance. If he had to engage a target 200 or 300 yards away he might get down quickly into a kneeling or squatting position, fire, and advance.

A corrective platoon provides additional training for the firer who fails to measure up to the standards of the group. He receives instruction to correct his deficiencies and is returned to group training only when the corrective-platoon leader is satisfied that the deficiencies have been overcome. As in any marksmanship course, there will always be those who fall far behind the group or fail to qualify under any circumstances. However, test results show a marked reduction in the percentage of bolos in the Trainfire I courses and a marked increase in the percentage of experts. These results will be discussed more fully later on.

Field Firing

In Trainfire I, 18 hours are devoted to firing at field-type targets. Before taking up this phase of training the soldier must determine his battlesight zero, that is, the sight setting for 250 yards. Experience and tests have shown that this is the best zero for a rifleman in combat. To determine his battlesight zero the trainee fires at a target 75 yards away. The 75-yard range is used for two reasons: it facilitates zeroing by giving firers a shorter distance to walk to examine their targets and provides transfer value. In combat a soldier will rarely have 250 yards of open ground on which to determine his zero, but he probably can find 75 yards of terrain suitable for zeroing. When the rifle is zeroed for 250 yards the bullets will strike three inches above the line of sight at 75 yards. Thus, for battlesight zeroing the trainee fires at a three-inch-square black paster on an E-type silhouette. He aims at the bottom of the paster and adjusts his sight until the center of his three-round shot group is at the top center of the paster. His group is now hitting three inches above his line of sight at 75 yards and the sight setting used for the final shot group is his 250-yard, or battlesight, zero (Figure 4).

Figure 4. Battlesight zero.



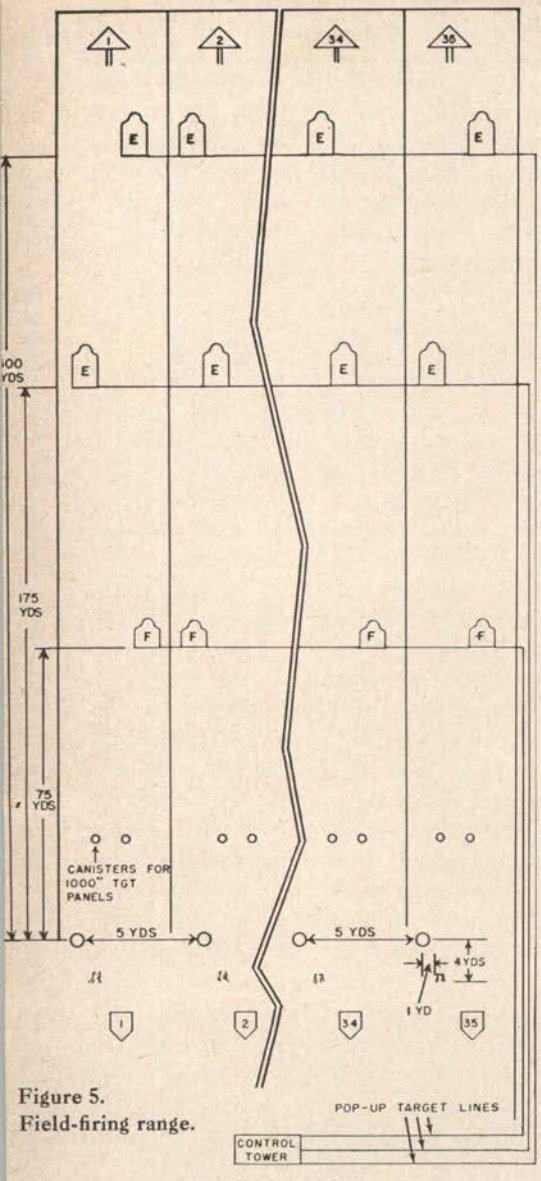


Figure 5.
Field-firing range.

This setting enables him to hit his *point of aim* at 250 yards.

After zeroing, and adjusting or calibrating the sights to the zero, there should be no necessity for further sight adjustments in elevation or windage. The firer will, however, confirm his zero at a later period, before record firing. Holdoff, better known as "Kentucky windage," is taught in Trainfire I to compensate for the effect of the wind in field and record firing because it is the technique used by most riflemen in combat. The trainee receives instruction, during zeroing and 1000-inch firing, on how to adjust his sight. Once he has found his battlesight zero, however, he no longer adjusts his sight but uses holdoff. More emphasis is placed on sight adjustment if the trainee graduates to sniper training. The sniper normally will have more time to consider his shots before firing.

The 18 hours of field firing are conducted on an uncamouflaged range where the firer engages pop-up targets which appear at set ranges of 75, 175 and 300 yards (Figure 5).

The firer's introduction to this range is practice in engaging the pop-up targets from supported and unsupported positions. No time limit is placed on this introductory firing and emphasis is, of course, placed on accurate fire using the methods taught in previous instruction. Particular attention is placed on aiming: selection of proper aiming points and the proper application of steady-hold factors in all positions. The firer learns to aim at the lowest edge of visible mass, a technique which reduces the possibility of shooting over the target and increases the possibility of hits or short misses which may result in a killing ricochet. It is here that the soldier begins his training in agility, as far as engaging targets is concerned, because he does not know which target will pop up next or at what range. Trainfire I thus gives the recruit training in reacting to a target, i.e., assuming a proper position for the target presented to him.

As the soldier progresses in his field-firing training he fires on simulated approaching targets and surprise targets, advances on and engages surprise targets with a loaded weapon, fires on distant stationary targets, engages multiple surprise targets from a stationary position,

and engages multiple surprise targets while advancing. All of this firing is done under strict supervision but in many cases the firer, after being shown the position, is allowed to select his own position when engaging the target.

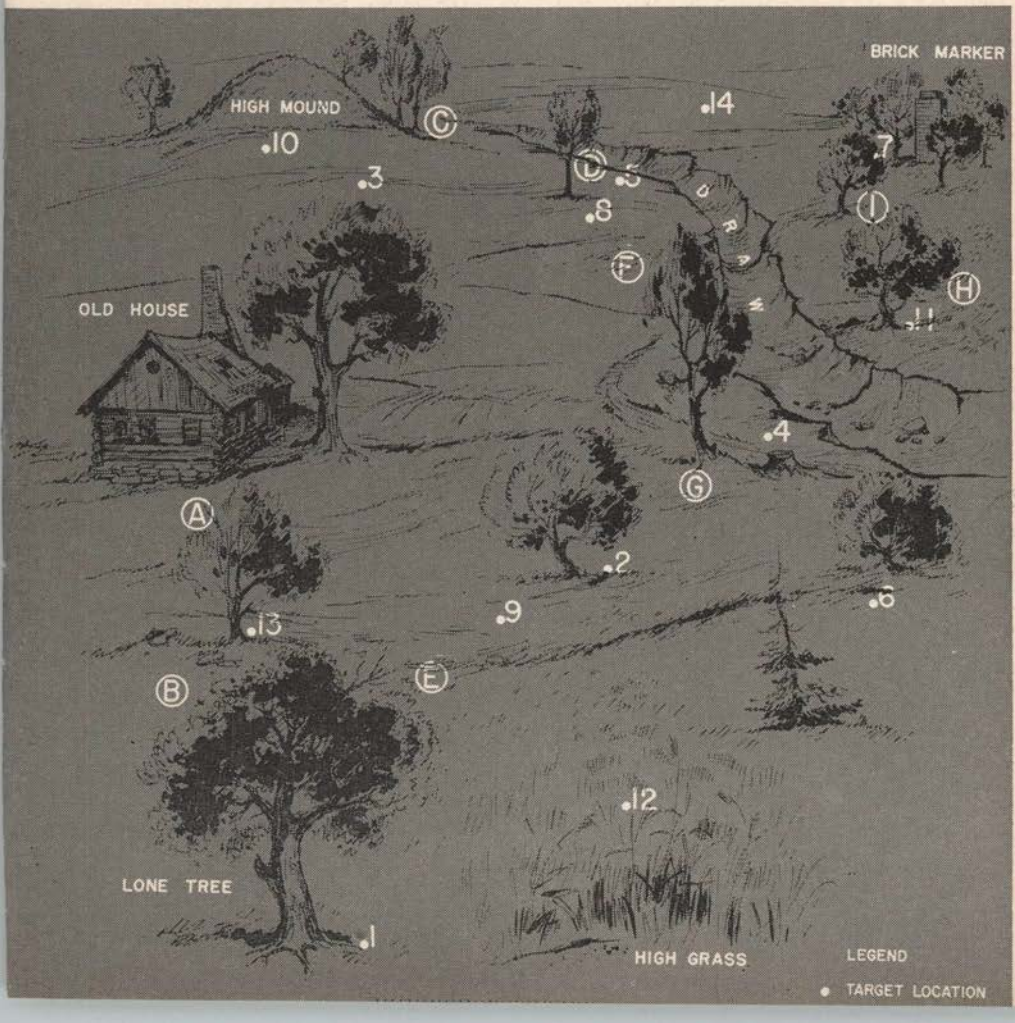
While speaking of position, it must be mentioned that the use of the prone position is played down in Trainfire I because of its limited observation. This does not mean that the soldier is taught to ignore this position but he is shown that his ability to detect targets usually is hampered by its use. This fact is brought out rather forcibly to the student in a demonstration during his initial work in target detection.

Practice in clearing stoppages also is included in field firing by the introduction of a dummy round into certain clips. Since, in the latter stages of field-firing training, the targets are exposed for a limited length of time it becomes important that any stoppages be cleared immediately. This method, although not new, permits transfer of skills from the field-firing range to the battlefield.

Target Detection

Target-detection training is concurrent with field firing. Training is conducted on a range which gives the firer practice in detecting hidden and partially hidden targets in their natural surroundings. Figure 6 shows how a piece of terrain can

Figure 6. Target-detection range.



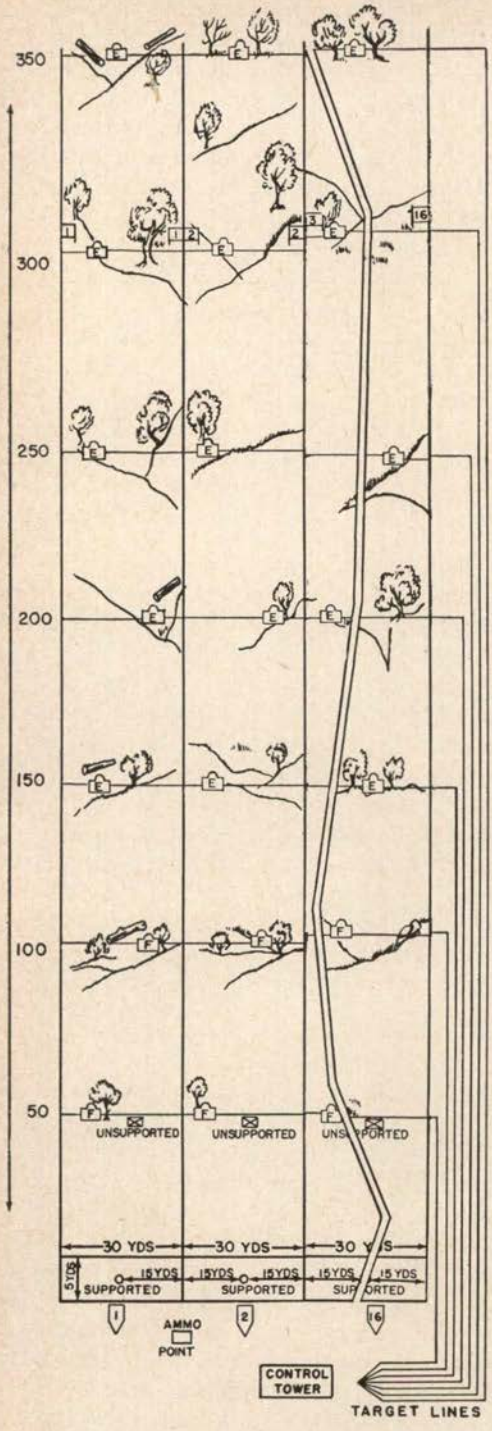


Figure 7. Record-firing range.

be set up for a target-detection range. The trainee is first shown how targets are picked up on the battlefield and then is required to find actual targets on the range. Realism is introduced by the use of smoke, flash, dust, noise, or movement by camouflaged or partially camouflaged human targets. Through this training the soldier learns the principles of scanning terrain and picking up indications of stationary targets. After learning to detect stationary targets, the trainee advances to the detection of single and multiple moving targets and to locating targets by sound (blanks fired from target areas). He then marks the location of a target or targets by referring them to an identifiable object nearby and estimates the range. The next step would be to fire on the target by applying aiming-point and holdoff principles. As mentioned before, a target-detection test is given as part of record firing, helping to stress the importance of target detection in relation to firing.

Some of the principles taught in the detection portion of Trainfire I are much the same as those described in FM 23-5 and FM 21-75. However, the close relation of detection to field and record firing adds new importance to this training and, as shown by test scores, greatly improves individual marksmanship.

Record Firing

Record firing takes place on a range specially suited for the realism of the Trainfire concept. The range should be about 400 yards long, on terrain which slopes downward for about 200 yards and then rises for another 200 yards. The terrain is left in its natural state except for trees, bushes or tall grass that prevent safe firing or prevent a reasonable portion of an upright target from being seen at the firing line. A range of 16 lanes is recommended for most efficient use of training time, although 12 lanes can be

considered adequate if the terrain will not support more. The 16-lane range will handle about 220 firers in an 8-hour day, while the 12-lane range will enable about 192 men to fire. About 24 men can fire in one hour on 12 lanes. Each lane contains seven targets at 50-yard intervals up to 350 yards, and a sandbagged foxhole at the firing point (Figure 7).

The primary advantages of Trainfire I record firing are its high transfer value and the improved accuracy and confidence which the firer gains through successful completion of a firing course which realistically tests his ability to engage an enemy. Every effort should be made to make the record-firing range as realistic as possible and still provide for safety. This calls for proper maintenance and constant evaluation of the range to be certain that target positions blend with surrounding vegetation at different seasons and fit in with changes caused by active use of the area.

Record firing tests the soldier's ability to detect and hit single combat-type targets at unknown ranges and in natural surroundings. The course achieves its realism by the use of camouflage to represent enemy cover and concealment; leaving natural cover and terrain as undisturbed as possible; and using olive drab, pop-up silhouette targets. The targets are exposed briefly, at unknown ranges and at irregular intervals according to a firing table established for the seventeenth period of Trainfire I instruction. The trainee is required to engage all the targets he locates but only one round can be fired at each target and only hits count—no credit is given for unexpended rounds. The firer must be alert to the constantly changing situation in front of him and must be able to handle stoppages quickly and efficiently.

During each of the two record-firing periods 56 pop-up targets can be engaged. Of these, 32 (eight in each of four lanes) are engaged at all ranges from the foxhole position. The remaining 24 targets are engaged from unsupported positions of the firer's choice, with the firer required to engage these targets while advancing slowly from the 50-yard line, which is the new firing line. The course is fired twice for record, once during the morning, once during the afternoon on alternate days. Since the total score of both firings is the soldier's qualification score, the following minimum qualification has been established:

Expert	68
Sharpshooter	54
Marksman	36.

One of the major improvements on the Trainfire I range is the development of "Punchy Pete," the new electric pop-up target. "Punchy" is "killed" immediately upon being hit, his reaction being to flop directly on his back. "Punchy" has the added advantage of rising directly forward, instead of to the side, and is compact, rugged and completely automatic. Once the target returns to the downward position, whether hit or lowered by the target control board, it is ready to go again. An improved pop-up target is being tested. The range officer or assistants control all targets from a master board.

Troop Tests

A troop test of Trainfire I was conducted from 1 August 1955 to 31 October 1956 with more than 4200 trainees of the 8th Infantry Division at Fort Carson and more than 6700 trainees of the United States Army Training Center, Infantry, at Fort Jackson. The purpose of the test was to determine if the Trainfire I course of rifle marksmanship better prepared the rifleman to employ his rifle accurately in combat than did conventional marksmanship training. If

it did, then it would be necessary to determine whether the Trainfire I concept was sufficiently superior to the present course of known-distance firing to warrant its adoption as training doctrine.

Troop-test units were broken down into control companies and test companies. The control companies received all conventional basic training, including PRI, KD and transition firing. The test companies received all conventional basic training except for rifle marksmanship—which was taught according to the Trainfire I concept.

Upon completion of marksmanship instruction the trainees of both groups were tested on a record-firing range which they had not seen previously. This range was specially designed to test the individual's ability to detect targets and engage them effectively. All practical precautions were taken to insure equality of testing conditions and the validity of each test, including a comparison of intelligence levels in control and test companies. Scores indicated a significant superiority in the ability of Trainfire-trained personnel to detect targets, estimate ranges and hit targets. They averaged more hits per individual over control companies. It should be pointed out, however, that the average number of hits of test company trainees was still only about 40% of the targets presented.

As a further comparison it was established that the qualification scores of conventionally trained basics when tested on the Trainfire I course were essentially the same as their scores on the KD range. Although not part of the troop test, further study has determined that Trainfire I trained personnel do as well, or better, than conventionally trained personnel when firing on the KD range. Subsequent firing of test personnel, in later stages of training, further confirmed the improved marksmanship ability of these trainees over control personnel.

In line with quick-mobilization requirements, it was determined that the relative cost of building a Trainfire I range was less than the cost of a conventional range. In addition, the Trainfire I range was found to be more economical in overhead and maintenance costs. And it eliminated personnel for pit details—a further saving in training time. Now that Trainfire I appears successful, the path is cleared for the testing and probable adoption of Trainfire II which concerns technique of fire and tactics of the rifle squad. Trainfire III and IV, still in the planning stages, will deal with advanced marksmanship and the specialized art of sniping.

The Trainfire I method of rifle instruction can be used with almost any type of weapon and could work well with the automatic rifle or with a new rifle having the characteristics of those presently under consideration.

The United States Army Infantry School has prepared detailed instructors guides on Trainfire for use at the School. The guide for Trainfire I has been published as an interim text and forwarded by USCONARC to Department of the Army with a recommendation that it be published as a DA pamphlet. This text may be available within the next few months.

When the Trainfire I program goes into effect our riflemen will receive practical, realistic training that should improve the effectiveness of our rifle fire in combat.

This article was prepared through the combined efforts of the Weapons Department and the Combat Developments Office, United States Army Infantry School, and Col Henry E. Kelly (Ret.), United States Army Infantry Human Research Unit.

QUARTERLY QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. What defensive measures should be taken against possible enemy employment of mass-destruction weapons?

2. You, as an Army officer, are sued in the civil courts of a state for one of your official acts. Must your case be tried in the state court in which the action is first brought?

3. What are integrated training and concurrent training?

4. If a map has a GM angle of 10 degrees west, and you measure a grid azimuth on the map of 354 degrees from the OP to the objective, what azimuth would you follow on your compass from the OP to the objective?

5. What range is recommended for zeroing the 106mm rifle and the spotting rifle during weapons alinement?

6. The most important factor in obtaining maximum operating efficiency from radio sets is:

a. Increasing the power of the radio.
b. proper siting of the radio.
c. using relay or retransmission.
d. using special antennas.

7. The amphibious cargo carrier M-76 has a total carrying capacity of:

a. 10 men or 3000 pounds.
b. 6 men or 2000 pounds.
c. 12 men or 5000 pounds.
d. 4 men or 1000 pounds.

8. In the mobile defense how will enemy activity in the gaps between strongpoints of the battle position be detected?

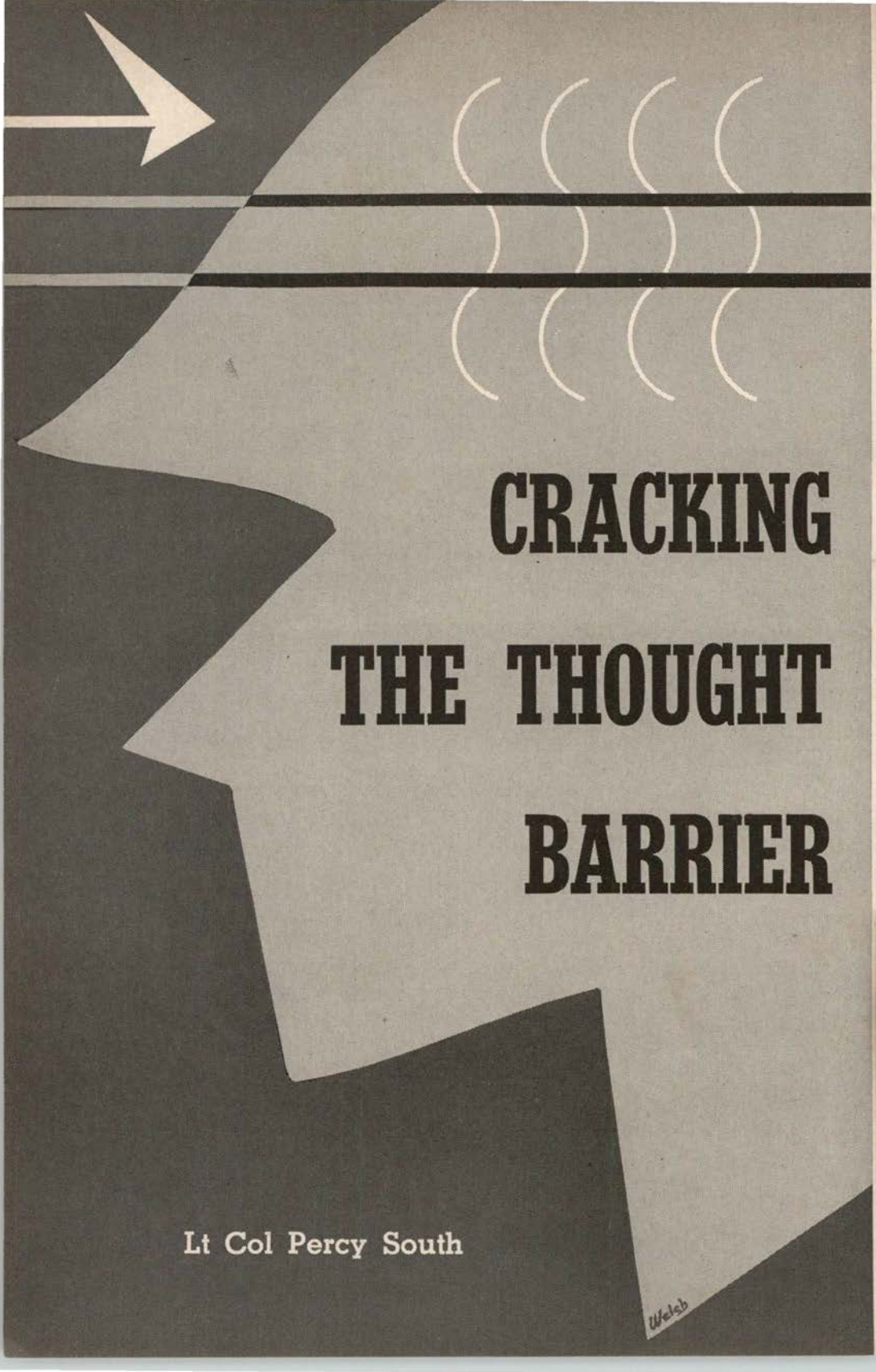
9. What does the term "basic load" mean in relation to a particular type of ammunition?

10. What is the primary difference between the new Trainfire I system of rifle marksmanship instruction and the instruction we are now using?

(For answers turn to page 95)

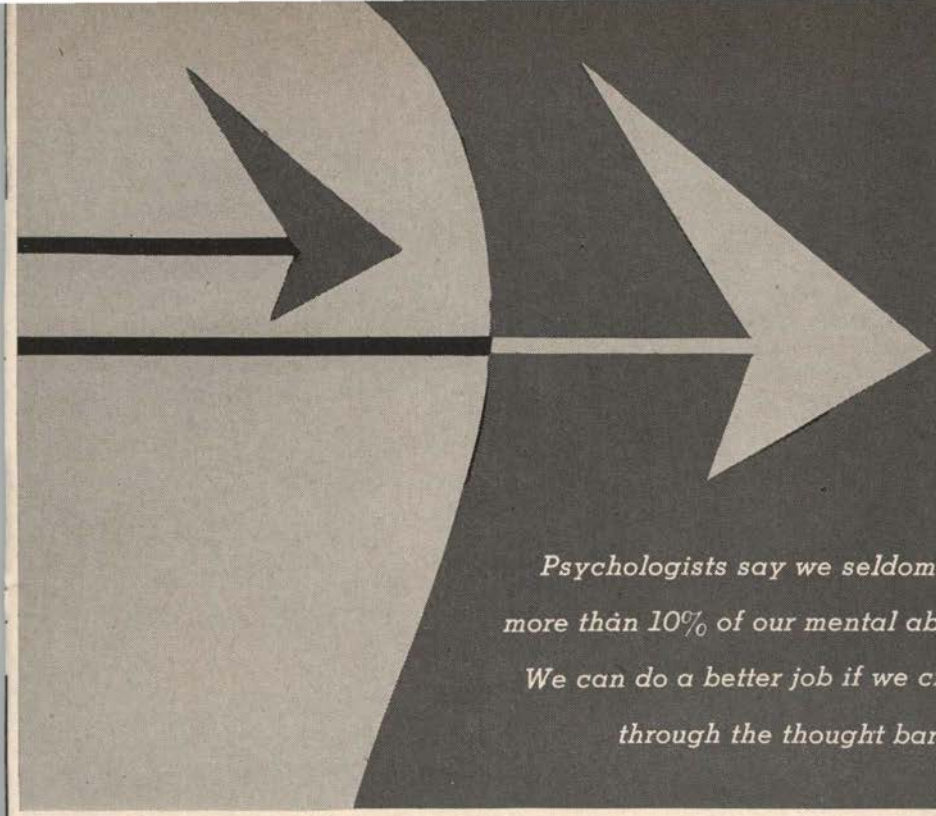
While we are reaching out to explore fully every possible avenue of approach to the better weapon or piece of equipment in every category, and to examine every idea, we are at the same time determined to keep our feet firmly on the ground of practicality.

SECRETARY OF THE ARMY WILBER M. BRUCKER



CRACKING THE THOUGHT BARRIER

Lt Col Percy South



Psychologists say we seldom use more than 10% of our mental ability We can do a better job if we crack through the thought barrier.

Several years ago a young Italian immigrant came to the United States and found employment in a granite quarry. A few months after he joined the quarry crew a premature dynamite explosion damaged both his eyes. He was left sightless. To prepare himself for other work he went to a home for the blind. Here he became known to other blind people and to visitors for his unfailing good humor and cheerfulness. One day a visitor asked the young man how he could be so enthusiastic and happy when he had suffered such a grievous loss. The lad replied, "The day I lost my sight was the birthday of my mind!"

According to psychologists most of us never have such a birthday because we seldom use more than 10% of our mental ability. The reason is not hard to find. James Bryce put his finger on it when he said, "To most people nothing is more troublesome than the effort of thinking." Yet, if General Willard G. Wyman's "Invitation to Think" (*Infantry School Quarterly,* October 1956) is to be accepted, this situation must be changed. *More* than 10% of our brain power must be used.

What is the answer?

The answer is that we must devote more effort to training people to think and to creating in the Army the conditions that encourage thinking. Men excel in thinking, as they do in other forms of endeavor, by practicing.

Ideally this practice comes with education. Actually, this is seldom the case. One reason is that schools have paid too little attention to the thinking process. This means that many graduates must learn how to think after they get on the job. The task is easier if the on-the-job atmosphere is such that people feel impelled to think.

Lt Col Percy South began his military career when he was commissioned in the Officers Reserve Corps upon graduation from Alabama Polytechnic Institute (Auburn) in 1939. He was called to active duty at Fort Bragg, three years later. After serving in the 82d (then Infantry) Division he was assigned to the 101st Airborne Division. He remained with the Screaming Eagles for the rest of World War II, serving as assistant communication officer of the 907th Glider Field Artillery Battalion, liaison officer in the division G3 Section and, finally, as division information and education officer. After the war Lt Col South taught history at Auburn and transferred to the Air Force Reserve. He became a research assistant at the Air University, Maxwell Field, and last year was named professor of recent American history. He has written several books on such varied topics as arctic survival, escape and evasion, communism in China, problem-solving techniques and medical support in a combat air force.

In the Army we have for years stressed that we want men with initiative. And we have pointed with pride to the fact that American soldiers have been successful in battle because they exercised initiative. But we have not, as Brigadier General S.L.A. Marshall points out in *Men Against Fire,* defined initiative nor agreed as to when and where it can be used.

Initiative—which involves thinking—cannot be taught as a subject, rather it must be taught as a procedure. To be sure we do not have the final answer as to all the procedures involved in exercising initiative and thinking, but we do know enough to warrant considerable instruction.

The object of such instruction is to keep the Army in tune with the times. In war the enemy keeps the Army from continuing to use outmoded and outdated equipment and tactics. In peace the good sense of those in the higher ranks keeps the Army up to date. Unfortunately, in the past, this good sense has often been lacking or thwarted. There is much truth in General George S. Patton Jr.'s observation that the enemy's stupidity, not our brilliance, has often given us success in battle.

The newcomer to military service, now as in the past, is usually much more concerned with those regulations and procedures requiring conformity than he is with any "Invitation to Think." In fact, he may serve for years without being particularly challenged to think or exercise initiative. For this reason if thinking is to be encouraged it must start with creating in the Army those conditions that encourage thinking and the use of initiative.

What are these conditions and how does one create them? Who can help create them? If they can get support, company-grade officers can do more to establish conditions conducive to thinking than anyone else because they are in closest contact with the greatest number of men.

Now, what is the beginning step for the company officer? He must first take a look at himself. Unless he is really willing to think he cannot hope to encourage others to think. Few things are more frustrating to men than to be told, either by word or implication, "Do as I say, not as I do."

Self-examination should be quite exhaustive and the sooner undertaken the better. It should reveal, among other things, what the company officer's goals are, for these will dictate how much and

what type of thinking he will do. Does he, for instance, really want to be a leader or is he primarily interested in security, regular promotions and 20-year retirement?

This may seem a silly question, but it has relevance. The person receiving a commission automatically receives certain privileges and rights. And if an officer keeps his nose clean, stays healthy and doesn't lose any classified documents, he can look forward to regular pay increases, promotions and to 20- or 30-year retirement. The leader, on the other hand, gets all these and much more. He gets the trust and respect of those above and below him, and his subordinates, superiors and associates are loyal to him. This does not mean that officers do not receive trust, respect and loyalty, but rather suggests that the degree and manner in which these are bestowed is quite different.

Col A. R. Gill, USAF, tells of visiting an Army friend several months before the Normandy invasion. During the visit Colonel Gill asked his friend what he was doing. "I," said the officer, "am working for that S.O.B. Patton." Several times during the conversation General Patton was referred to in less than glowing terms.

Two or three months after General Patton landed in France, Colonel Gill happened across his friend again. "How are you and Patton getting along?" he asked. The Army officer drew himself up, stared coldly at Colonel Gill and asked: "Are you referring to *General* Patton?"

Changes of attitude such as this express respect, admiration and loyalty. They come only for officers who are leaders, who work hard to *earn* and *be* deserving of the trust reposed in them. General Patton worked hard all his life to insure that he would lead troops to the best of his ability.

As General Patton did, young officers must ask themselves, "Do I have courage?" "Am I willing to risk my career for what I think is right?" A thorough study of any American military leader will show, I believe, that there were numerous instances when they had to chance their future on action they believed necessary. Men who do not want to be leaders, deep down, will not take such chances.

The willingness to take chances and to sacrifice usually is displayed early in an officer's career when he reveals to himself, his men and his associates that he is willing to study and prepare himself for leadership. By taking a bold step he shows whether he is willing to sacrifice his own time to improvement or to waste it through indolence.

A young lieutenant indicated that he understood the personal choices involved when he said that many newly commissioned officers ". . . fail to realize that the demands placed on an individual by the service in any job or training capacity are far less stringent than those demands which must be self-imposed—specifically, mental and physical discipline. And if this thought could be realized, that these disciplines are simply a part of maturity in a man, then these same people wouldn't feel that the service was placing some sort of extraordinary restriction on their lives."

One division commander under whom I served always took time each day, except when in the heat of battle, to condition his mind and body. Even when we were on the line he continued this practice if fighting was light. Later I learned that this officer had started the habit of reading and exercising when he was first commissioned. He is now the Army Chief of Staff, General Maxwell D. Taylor.

Someone has written that "leading is synonomous with reading." This I be-

lieve to be true because reading reveals how other men solved their leadership problems. We hear often that a leader must be firm, fair, loyal and thoughtful of his men. These platitudes sound fine in a speech but they are sometimes difficult to apply. There may come a situation in which we would be disloyal to our men or even to our superiors by accepting a directive or an assigned duty without question. It may take courage to challenge the "old man's" decision but if we are aware of factors or circumstances which may be unknown to him and which could affect the decision we have a duty to speak up. When do we do this? When do we keep quiet? The standard answer is, "It depends on the situation." This is true, which leads to the conclusion that the young officer must learn about as many different kinds of situations as possible.

Knowledge of such situations can be acquired in various ways. The first and, of course, the best is by personal experience. Others are: by instruction or schooling, by observing other officers, by talking over troublesome questions with associates or seniors and by reading. The latter, in many cases, offers more opportunity for wider acquaintance than the others.

From reading we learn how men think, and that poor thinking has lost more battles than poor fighting. Reading also gives us a standard by which to judge the future. Learning how to fight in one sense is like learning how to navigate—you have to know where you have been to be able to tell where you are going. Finally, reading can help to make us aware of *how* we *think*. More particularly it can help us gain the objectivity with which we must view certain issues and problems.

Almost everyone has had the experience of watching and listening to two or more persons in an argument, or trying to settle a knotty problem. To an outsider who is not emotionally involved in the argument and who is not concerned with trying to prove that he is *right,* the solution may seem perfectly obvious. That it is not equally obvious to the participants is due to the fact that when people are part of the problem their biases, prejudices and emotions are deeply involved, and frequently they are more interested in solving the problem *their* way than in solving it to the benefit of everyone concerned.

A leader may find it difficult to disassociate himself from the problems that confront him, but if he is to be successful he must learn to be impartial and objective.

Reflection will disclose, for example, that each of us has attitudes and convictions derived from the part of the country in which we were born, the economic and social status of our parents, the schools we attended, and numerous other sources. In themselves these attitudes and convictions may not be bad. They are harmful, however, when they keep us from seeing problems as they really are and when they unduly influence our decisions and thinking procedures.

At one time during World War II certain brands of cigarettes were difficult to obtain in PXs overseas. Negroes tended to blame the shortage on racial discrimination. White soldiers blamed the shortage on the Army. The truth was that the shortage existed in the United States and neither race, creed, color nor the Army had anything to do with it.

The misjudgment of the reason for a cigarette shortage in itself is not serious, but the attitudes revealed can lead to serious short circuits in thinking. For instance, when a reserve officer reasons, "All regular officers discriminate against reserve officers, Captain Lowblow is a regular, therefore he will discriminate against a reservist like me," he impairs his ability to judge Captain Lowblow as

an individual. A situation such as this encourages an emotional rather than a thinking reaction.

On the other hand, if Captain Lowblow looks at the reserve officer and sees not the individual but all reserve officers in general, Captain Lowblow may not think either. Little team play will result in such a situation and neither man will fully trust the other. Actually, if Captain Lowblow discriminates against the reserve officer, without cause, it is because he is that type of individual and the fact that he is a regular is entirely incidental.

Another great bar to thinking is custom or habit. All of us drift into doing things a certain way or in a certain manner. In itself this may not be bad. It is only when we come to believe that *our* way is the *right* way, that we run into trouble. From this it is but a short step to the conviction that we know *the* answers. Not only does such an attitude make us hard to live with—it is dangerous.

Twenty years ago Lt Col (later Maj Gen) E. F. Harding wrote that in view of the great weight of unknown factors it would take a crystal gazer to tell who would win the next great war. "However, one need not be a major prophet to predict how it may be lost," he wrote. "Assuming that the contestants are evenly matched, our guess is that the willows will go to the army that is most thoroughly indoctrinated with the belief that it knows the answers."

Young officers are often fond of saying, "There are two ways of doing a thing, the right way and the Army way." When one takes this seriously, he should stop and ask himself, "What is the basis of my knowledge? Do I have any evidence other than an unsupported prejudice?"

Undoubtedly there are many reforms that need to be made in Army ways, as improvements can be made in any large organization. The individual, however, must realize that often he does not like the Army way simply because it conflicts with the way he has been doing things and that *the goals to be reached* are sometimes different. The trick is to learn which ways are best for the organization and the Army. This takes some more learning about different kinds of situations.

Mark Twain once said that when he was 17 he thought his father one of the stupidest men in the world. When he was 27, Twain said, he thought his father had learned more in the preceding 10 years than any man he knew. Sometimes, one can learn in less than 10 years that there is wisdom in many Army customs.

These thoughts lead to the conclusion that the thought barrier is an internal barrier, one of our own creation. It is not other people, or the Army, that keep us from thinking, but we ourselves. Unless we are willing to take the time and effort to think and are truly receptive to the ideas of others, our defenses will withhold almost all thoughts. Self-examination will disclose how much thinking we are willing to do and what defenses we erect against others' thoughts.

To a certain extent a closed mind is like a shield or piece of armor plate. Ideas bounce off as low-velocity missiles ricochet off tanks. The analogy can be carried too far, however, because armor can be penetrated by high-velocity missiles. Idea missiles travel at the speed of thought and light and attack from many different directions, but are deflected unless the thought barrier is lowered from the inside.

For this reason once an officer decides to lower his own barrier and let idea missiles in, he takes the first great step toward encouraging those under him to think. No longer will his men tailor plans and procedures to fit his prejudices, biases and preconceived notions. They

will do what they think is right under the circumstances.

But this is not the whole story. Additional help in creating conditions that encourage thinking and in training people to think can be obtained by exploring three areas. These are: human relations, materiel and tactics and techniques. Let's look at each of these in more detail.

To get better human relations the officer must study human behavior and he must put himself in the shoes of the enlisted man. From this vantage point he must take a look at everything of importance that happens to that individual.

Then he starts questioning himself. If I were a new man reporting to duty what would be the first thing that would impress me about this company? What kind of a welcome would I get? With what kind of men will I have to associate? Who will make my duty assignment and on what will he base the assignment? Will anyone in this company be interested in what happens to me? Do the men in the company have a spirit that indicates a first-class outfit? What will I tell my family about this company and the men in it?

What does this company do? What is it training for? What are the officers like? Do they know their business? How do they give orders?

What are the chances for promotion? Does promotion depend on what you know or who you know? Does anyone help give you a boost up the ladder?

The officer must then ask his men these and many other questions. Answers will be listed and studied. From the list five or 10 questions should be selected to be passed on to the enlisted men for suggestions.

Three precautions should be used in presenting questions. The first is that they should always call for a positive response. "What can be done to welcome men into this company and make them feel a part of the organization?" Not: "What's wrong with our procedures for welcoming new men into this organization?"

The second is to make sure that questions deal with one topic or item that can be limited and made fairly precise. Do not ask broad questions such as: "What can be done to improve morale?" Rather: "What can we do to increase the use of recreational equipment?" Attack broad questions, such as morale, from a number of different viewpoints.

The third precaution to be observed is that (with exceptions to be mentioned later) questions should not be raised that cannot be answered inside the company. In other words, deal only with company affairs. Do not build up frustration by asking for suggestions to problems that require a Department of the Army decision for a solution.

Before any questions are given out all men should be told exactly what is to be accomplished. They should be told that their ideas are desired and welcomed, and that all good ideas will be used if at all possible. If ideas cannot be adopted a full explanation will be given.

One way to pass out questions is to divide the company into groups of eight to 10 men. Set aside a definite period for idea-producing sessions and give each group a different question. Ask each group to select a leader and recorder and to turn in to the company commander all suggestions.

When the suggestions are received the company commander and his officers can evaluate them or turn suggestions over to other groups for evaluation. Whatever the method, it should be clear to all concerned that the company commander has the final word as to what will be implemented. Best results are usually obtained when the men do the evaluation and are made responsible for implementation.

What can happen when such an approach is used was illustrated by Lt Col Ralph Keller at Stanford University. In the fall of 1953, freshman enrollment in AFROTC took a big drop, primarily because the Korean War no longer stimulated interest in ROTC. If another drop came in 1954, Colonel Keller knew that the unit at Stanford might be discontinued. Under these circumstances juniors and seniors in advanced ROTC were asked: "What can be done to increase freshman AFROTC enrollment at Stanford in 1954?"

The students took the problem, analyzed it and came up with a number of suggestions, all of which they implemented. They wrote personal letters to all freshmen who had applied for enrollment at Stanford. They stuck pins on a map to pinpoint the location of incoming freshmen. Next they put in pins showing the location of all men signed up for advanced AFROTC. Where locations coincided, personal visits were made during the summer. In short, the students planned a campaign and put the campaign into action.

What were the results? In 1954 the freshman enrollment in AFROTC at Stanford *doubled.* In many other schools where ROTC was not mandatory (as it is in land grant colleges) freshman enrollment dropped from 1953 figures. At Stanford, however, enrollment increased not only in 1954 but also in 1955 and 1956, showing that long-term factors were at work.

A program such as this causes men to be more conscious of problems dealing with people and to look for solutions to these problems. It also causes people to take a deeper personal interest in the organization and the part they play in it. And, it brings a new awareness and appreciation of the supervisor's responsibilities.

Problems involving higher authority should be given only when the company commander and his men have exhausted all their resources and believe a problem urgently needs solution. When such a problem is given the men should be instructed to visualize *all* the results that will flow from a recommended action. They must try to see the problem from the battalion and regimental commanders' point of view. When the problem with its recommended solution goes forward, it should contain a discussion of all feasible alternatives and a summary of the advantages and disadvantages that will follow adoption.

Materiel "think" sessions should be devoted to accomplishing three objectives: Finding more and better uses for the materiel in the company and available to the company; developing simple and complex modifications to materiel in use; and developing ideas for new materiel.

Few of us are free from what psychologists call "functional fixedness." That is, once we use an implement or item for a long period we are unable to visualize any other use for that implement other than the use we commonly make of it. For example, a rifle is commonly used for firing. It could, however, be used for a club, a funnel, a support, a splint or for making a spark to start a fire.

Finding additional uses for a rifle may seem a trivial occupation, but lives have been lost and saved because of such trivialities. The point is that no weapon or piece of equipment is in itself versatile. The versatility resides in the user. This means that the more we can stretch our imagination to think of unusual uses for ordinary things, the better we will be able to think in an emergency. Take, for instance, the sentry who couldn't shoot at an enemy prowler because his gun jammed. He jumped in a jeep and ran over the prowler. This seems like a rather commonsense solution to the problem, but many people would not have thought

of it. Getting through the Normandy hedgerows was much easier after a sergeant put a bulldozer blade on a tank. A simple solution — *after* the sergeant thought of it.

Functional fixedness and the tendency to make less than maximum use of materiel can be avoided by asking: "To what other uses can this object be put?" Many answers to such questions will not need evaluating. Others will need exploration to determine their feasibility.

After some work has been done with the more common items that are used every day, variety can be introduced by bringing in new materiel and new techniques. For example, give each member of a think group a piece of aluminum foil. Ask him to feel and examine it carefully. Then ask, "What is this like?" and, "What are its properties?" Try to get as many answers to these questions as possible, and then ask for additional uses of the aluminum foil.

By using techniques such as these men will get practice in thinking and will be convinced that they can think. In fact, many will be pleasantly surprised at their own capability. Use this capability to get suggestions for modifications to existing equipment and to get ideas for new equipment. Stimulate thinking by asking what would happen if we made this larger, smaller, heavier, lighter, more compact, a different color, shorter, longer, wider and so forth.

To get ideas for new equipment, think sessions should start with a thorough discussion of the company mission and the relationship of the company mission to that of the battalion and regiment. With this knowledge clearly in mind, explore what the battlefield of the present and the future will look like. Then ask for specific suggestions for materiel the company will need to accomplish missions it may be assigned. The aim should not be to completely develop a new piece of equipment in the sense of visualizing how it will be built, but rather to develop the idea of the *function* the new materiel will perform. If the concept is good the idea can be passed up through channels for evaluation and possible development.

Discussions centered around the materiel available to the company can lead naturally into questions about tactics and techniques. Questions in this area should be framed in such a manner as to get people to think about all the ramifications of the issue presented.

Suppose the men are asked, "How can we insure constant and correct communication in an attack?" Among other things, the answers to this will reveal the common conception of what communication is. If there are misconceptions, additional questions in this area can be directed toward creating awareness of the problems involved and the need for having a good idea of what must be done. On the battlefield initiative comes with understanding the need of the moment and with developing determination to carry through with an action once started.

Interest in tactical problems can be stimulated by placing a problem box in the company area into which suggested problems can be dropped. Each week the problems can be taken out and submitted to an impartial board to select the best problem. The man who submits this can be given a three-day pass or rewarded in some other appropriate manner. The suggestion box can be used for other types of problems and suggestions.

A great deal of interest in all types of think sessions can be stimulated by using Alex Osborn's "brainstorming" techniques. Basically, brainstorming is an extremely clever, psychologically sound procedure for getting a large number of

ideas from a small group in a limited time. Best of all, it is immensely stimulating. Intelligently used it is a tremendous morale booster.

Space does not permit a description of Mr. Osborn's methods, but those interested can write to the Creative Education Foundation, Inc., (a nonprofit organization), 1614 Rand Building, Buffalo 3, New York, for a copy of *Principles and Procedures of BRAINSTORMING.*

The procedures and program outlined in this article are merely suggestive of what can be done to develop the atmosphere in which each man can do his best. Within a relatively short time after think sessions are started and the three areas of human relations, materiel, and tactics and technique are explored, a distinct change will be noted in the way men think. The officers start the ball rolling by indicating that they are receptive to new ideas and that they encourage the presentation of new ideas. The program outlined above provides the means for expressing ideas and gives the stimulus needed to bring the imagination into play.

At the second annual meeting of the Association of the United States Army General Maxwell D. Taylor said, "Technology is opening up vistas of new possibilities in terms of new weapons, new equipment, and new techniques at a rate which challenges the capacity of the best minds and most vivid imaginations." Our ability to take a penetrating look at these new vistas is determined largely by how successful we are in cracking our own thought barrier. Our minds and imaginations can function if we are determined to use them. Whether our brain wears out or rusts out depends entirely on us. If we decide to oil it and use it, then we are ready to accept General Wyman's "Invitation to Think."

When an Army officer has a constructive idea or an illuminating professional experience, I feel that he has an obligation to communicate it so that the Army as a whole may benefit. With its large professional readership, *Infantry* magazine provides an excellent medium for such communication. It is a forum where solutions to many of our atomic-age problems —especially those which confront the Infantryman in the lower units—will receive wide and productive attention.

GENERAL WILLARD G. WYMAN

So you want a command

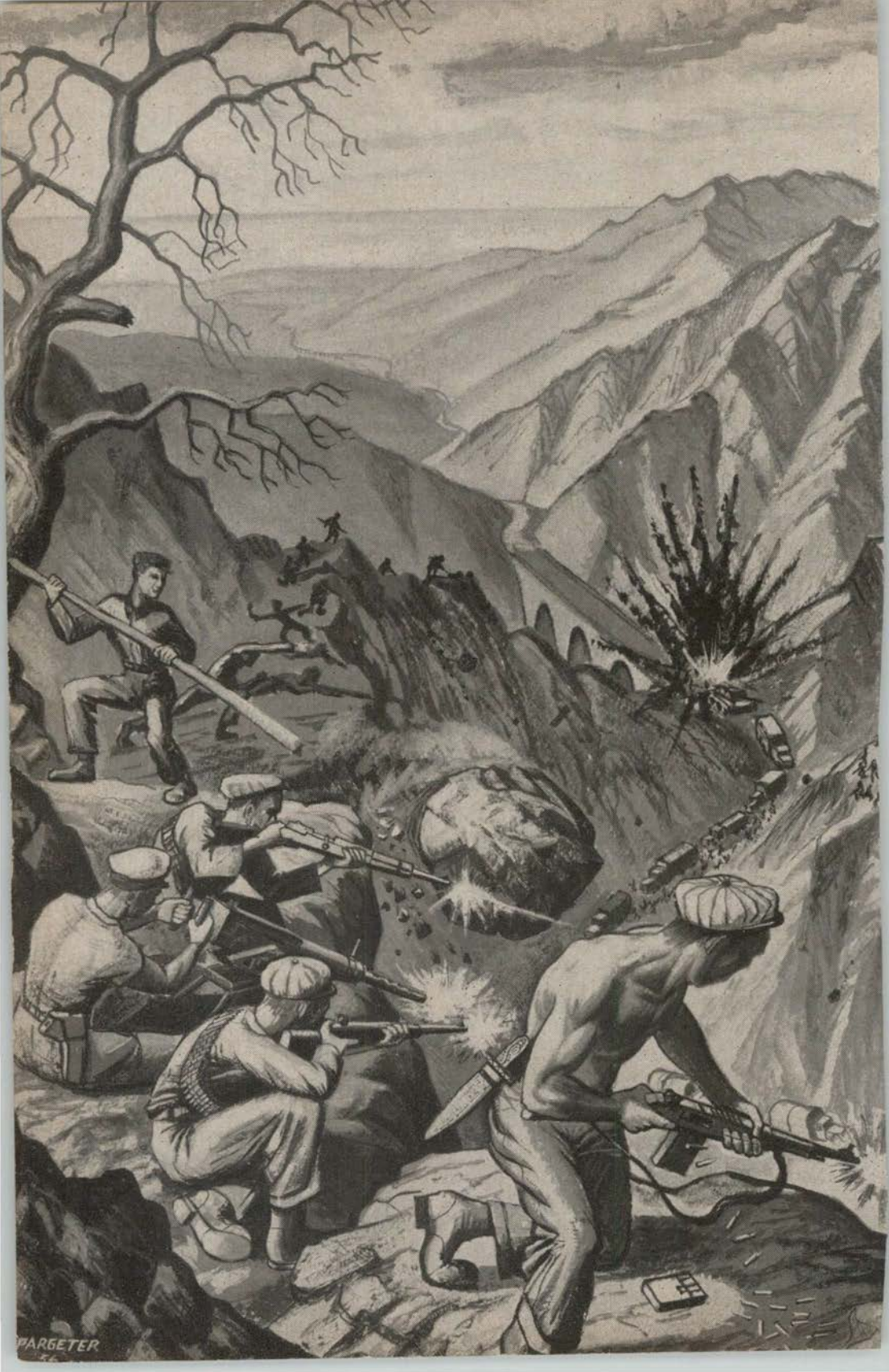
BY LT. GENERAL
BRUCE C. CLARKE

We hear many officers say, "I'd do anything to get a command." If you are one of these, do you really mean it? Are you suited for command? Have you really considered what having a command entails? What are your answers to the following questions?

- Are you willing to devote all hours of the day and night, seven days a week, to your command?
- Is your wife willing to do likewise when needed in order to make a happy "Army community" in your unit area?
- Is your family willing to be secondary, if necessary, to the "Company," "Battalion," "Group," "Regiment," "Combat Command," "Brigade," or "Division"?
- Are you willing to learn, teach, stress and live with the "basic fundamentals" necessary to make your unit good and still believe that your great talents for "bigger things" are not being wasted?
- Do you like to be with young people? Can you live with their energy, points of view, and the problems they create?
- Are you willing to take the hard knocks that come from carrying responsibility for the failure of your subordinates?
- Can you juggle, at the same time, all the balls of training, maintenance, tests, administration, inspections, communications, messes, supply, athletics, marksmanship, discipline, public relations, without dropping any of them?
- Are you able to do many things "concurrently," or are you a "consecutive" doer? Can you manage a complex job?
- Can you receive and carry out orders? Are you a good "follower" as well as a "leader"?

- Can you stand tough competition from like units in your outfit and still retain a spirit of cooperation and teamwork with them?
- Are you physically and emotionally fit to carry the load?
- Do you have the courage to make and stand by tough decisions?
- Are you and your family willing to "live in a goldfish bowl" where your actions are closely observed by both subordinates and superiors?
- Are you still enthusiastic and cheerful when confronted with seemingly impossible tasks to be performed with inadequate means?
- Are you willing to take responsibility yourself when things go wrong in your unit and correct a bad situation rather than blame it on the staff or a higher headquarters or a subordinate?
- Are you willing to do your best with "what you have" even though it apparently is inadequate?
- Are you confident you can produce a superior unit with the ordinary run of manpower? Can you inspire personnel to produce outstanding accomplishments?
- Are you willing to take a chance on being relieved for attaining only mediocre results?
- Do you really want "command" or do you just want "to get command on your record"?

If your answers to these questions are "Yes," you should fight to get a command. And, if you hear an officer say "I want a command," you should confront him with these questions. If his answers are "Yes," he is undoubtedly sincere and you should make every effort to see that he gets a command. No assignment will ever give greater satisfaction or enable an officer to contribute more to the Army and our Country.


PARGETER

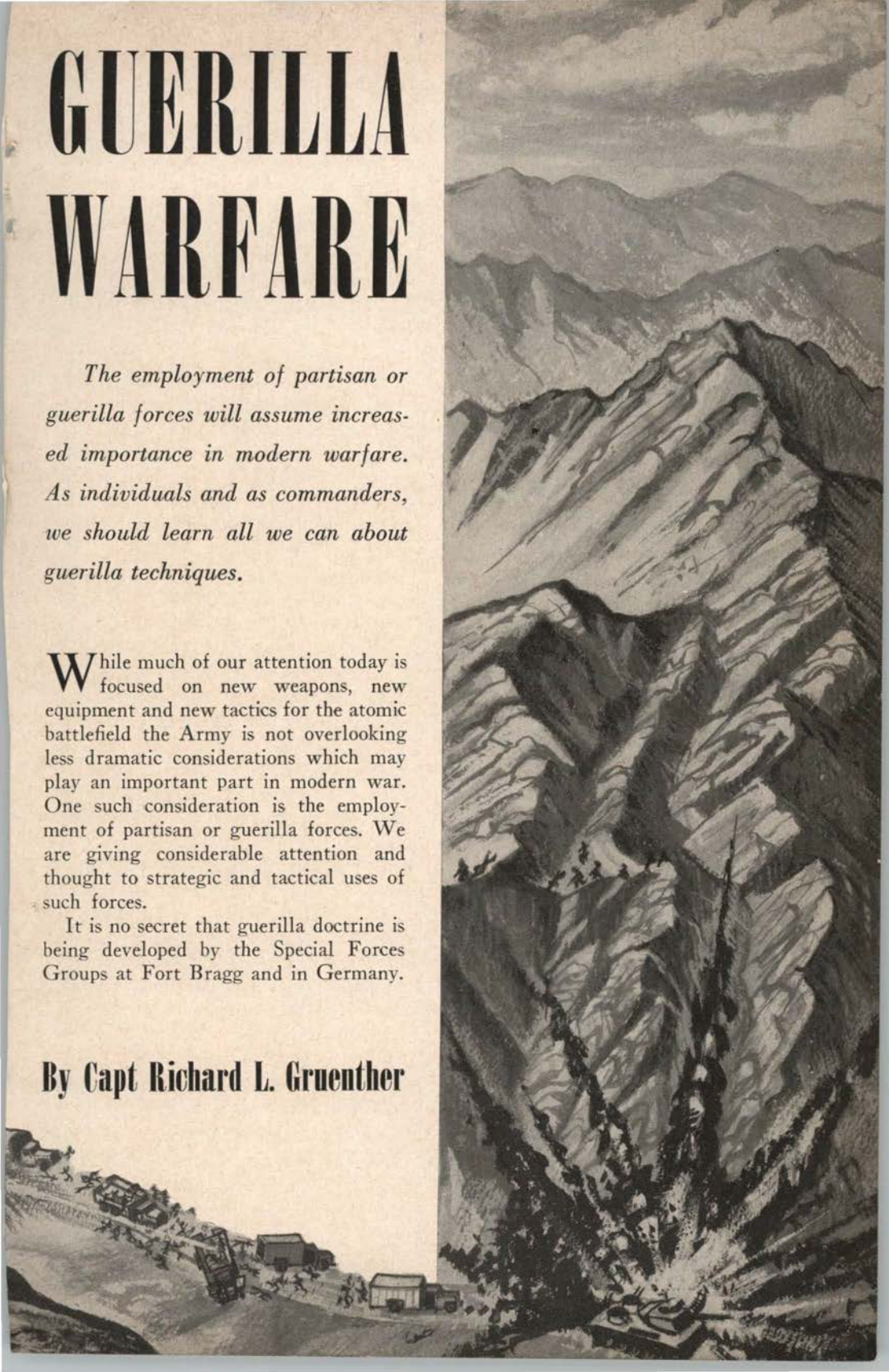
GUERILLA WARFARE

The employment of partisan or guerilla forces will assume increased importance in modern warfare. As individuals and as commanders, we should learn all we can about guerilla techniques.

While much of our attention today is focused on new weapons, new equipment and new tactics for the atomic battlefield the Army is not overlooking less dramatic considerations which may play an important part in modern war. One such consideration is the employment of partisan or guerilla forces. We are giving considerable attention and thought to strategic and tactical uses of such forces.

It is no secret that guerilla doctrine is being developed by the Special Forces Groups at Fort Bragg and in Germany.

By Capt Richard L. Gruenther



CAPT RICHARD L. GRUENTHER is a 1946 graduate of the United States Military Academy. After completing the basic Infantry officer and Airborne courses at The Infantry School, Capt Gruenther competed in the 1948 Olympics at London, England, with the U.S. modern pentathalon squad. A year later, he went to Korea where he fought with the 17th Infantry Regiment from Inchon to the Yalu River. Returning to this country, he spent three years as an instructor in the Department of Tactics, United States Military Academy. Last year, he completed the advanced and Ranger courses at The Infantry School. Capt Gruenther is presently assigned to the 28th Infantry Regiment, 8th Division, in Europe.

It is no secret either that our first reserve Special Forces Group was organized not long ago.

Although guerilla operations are currently the primary concern of Special Forces, we in the Infantry should know all we can about them. The day may come when such knowledge could be valuable to us as commanders or as individuals. The future battlefield, as we visualize it, will be characterized by dispersion and independent or semi-independent operations. Instances in which individuals or units will be isolated or cut off can be expected to increase. In some situations an individual may find it expedient to join a guerilla band or even to organize a partisan force on his own initiative. Units may carry on guerilla-type activities until such time as they can rejoin friendly forces. (Troops who escaped from Bataan and Corregidor successfully carried on operations against the Japanese for years.)

We all know that guerillas fought and harassed the enemy in the occupied countries of Europe and Asia during World War II. Such groups as the French Maquis, the partisans of Tito in Yugoslavia, the Polish "Home Army," the Greek guerillas and the American and native guerilla bands in the Philippines all had a significant effect on the outcome of that war.

Many partisan bands attained a high degree of organization and achieved notable tactical successes. With advances in communications equipment and aerial-supply techniques this type of warfare can be expected to become even more effective and more widely used in the future.

German General Hubert Lanz, who had two years of experience in anti-partisan warfare in Greece and Albania as commander of the German XXII Mountain Corps, has stated, "The tactics of the partisan is the most effective form of combat in future war. It will be a counterpart to the major weapons of wholesale destruction." And Lieutenant General Ponomarenko, Commander in Chief of all partisan warfare in the USSR during World War II, said, "If we ever fight another war, partisan warfare, with all that we have learned about it, will be one of our most powerful weapons." An insight into what the Soviets learned is found in another of General Ponomarenko's statements, "In two years of guerilla warfare in the rear of the German invaders, Soviet guerillas annihilated more than 300,000 invaders of whom 30 were generals, 6,336 officers and 1,520 airmen. . . ."

One does not have to search long before discovering that Communist actions as well as words point out the importance they place on this type of warfare.

Since the end of World War II, guerilla activities in Greece, Burma, Malaya, Indonesia, Indochina and other areas have shown us that this is an instrument of cold war as well as a hot one. With this brief background, let's take a closer look at this business of guerilla warfare.

The history of past guerilla operations indicates that the best areas for the conduct of such warfare are mountains, deserts, jungles, wooded areas and sparsely populated districts. Guerilla bands function best in the areas in which they are organized—partisans who have lived a long time in one area will fight more effectively there than in some place with which they are not familiar.

A guerilla (the term is used interchangeably with partisan and irregular) is a combatant who is not a member of an organized and recognized military force. Guerilla (or unconventional) warfare is conducted by predominantly indigenous forces, organized on a paramilitary or military basis and fighting independently or semi-independently. Usually guerillas are recruited from the native civilian population, although regular troops, cut off by the withdrawal of friendly forces, also may become guerillas.

According to FM 31-21, "Guerilla Warfare," March 1955, the broad aims of guerilla strategy are to: lessen the enemy's combat effectiveness; delay and disrupt the operations of the enemy's forces; and weaken the morale and will to resist of a hostile military force.

Partisans can achieve these objectives by cutting signal communications, gaining information and transmitting it to friendly forces, disrupting supply lines, destroying supply and industrial installations. They can assist the combat operations of friendly conventional units by forcing the enemy to divert much of his combat power to the defense of rear areas. Guerilla warfare, then, capitalizes on the enemy's inability to defend himself in strength at all times in all places.

To be successful in the variety of tasks they are called upon to perform, partisan groups must follow certain principles of unconventional warfare. These include:

1. Making maximum use of surprise, deception, shock action, stealth, evasiveness and concentration of force at the selected point and time.

2. Maintaining mobility and flexibility.

3. Maintaining the offensive (guerillas rarely conduct a static defensive operation).

4. Disengaging and withdrawing quickly when a mission has been accomplished—or when it becomes obvious that a particular mission cannot be accomplished with the forces available.

5. Using simple plans.

6. Insuring coordination of effort within the guerilla forces and between the guerilla and conventional forces.

7. Forcing the enemy to make extensive efforts for his security.

8. Causing the enemy to dissipate his mass to counter the actions of irregular forces.

9. Limiting the movement of the enemy's units.

Operations by irregular forces are, by themselves, usually incapable of gaining a military decision. Such forces should be given strategic objectives which assist and are closely correlated with the general military and political aims of a sponsoring power.

In view of these considerations it is important, in the actual conduct of guerilla operations, to rely on the mobility, enterprise and effectiveness of the forces employed rather than on numerical strength. Generally, the best results are obtained with small detachments under capable and versatile leaders, all operating under the direction of an experienced senior commander. The enemy is harassed by repeated threats and raids.

Movements and attacks are made at night, whenever practicable. During the day large forces remain concealed, leaving reconnaissance patrols in contact with the enemy.

Small detachments operating separately from a main force may seriously interrupt the enemy's supply system by destroying bridges and attacking supply trains. The main force maintains communication with these detachments so that future operations may be planned to take advantage of their successes.

Although guerillas may incite civil disturbances and carry out sabotage in occupied areas, they are more likely to concentrate on such military operations as ambushes, raids and limited attacks. The recent fighting against the Russians in Hungary was carried out principally by guerillas.

Ambush is a surprise attack against moving or temporarily halted targets such as railroad trains and motor convoys. Defiles or ravines in mountains or woods are excellent ambush sites—commanding ground, concealment and camouflage are usually available. Roadblocks, demolitions or recoilless weapons may be used to halt fast-moving columns at the desired spot. Attacks are usually made at close range for maximum effect and automatic weapons may be employed to cover the entire target in depth.

Enemy advance guards usually are permitted to pass through an ambush position; a designated element of the ambush force is detailed to deal with them. The attack is launched on a signal. Action is brief, withdrawal rapid. However, if the enemy cannot counter the guerilla blow, and there is no threat of enemy reinforcement, partisans should salvage usable supplies and equipment, destroy the remainder, and withdraw. Extensive security measures are used to cover movement to and withdrawal from the ambush position. Often secondary ambushes, some distance from the site of the main effort, destroy or delay enemy reinforcements. If the guerillas are not strong enough to destroy the enemy, the action is ended at a prearranged signal. The planned withdrawal is covered by security detachments. The force may withdraw by detachments in several directions to frustrate and complicate enemy pursuit. Subsequent ambushes may delay or destroy enemy pursuing forces.

The *raid* is a thoroughly planned surprise attack against static targets such as rail lines, canals, bridges, power plants, supply installations and communication centers. A guerilla raiding force, as required by the situation, may be organized into three principal elements, each with a specific task:

One element is designated to eliminate guards — as silently as possible since surprise is essential for a raid.

Another element carries out the main mission, usually one involving demolitions.

A third detachment may cover the operation and withdrawal.

Withdrawal should be rapid and complete. A properly planned raid will permit withdrawal by covered routes.

Guerilla forces which have attained a high level of organization and training —and which are properly armed and equipped—are capable of limited attacks against isolated enemy garrisons, combat units and installations. Often irregular forces will be more effective against certain objectives than conventional units of comparable strength. Agents, and even small units, may be infiltrated into the objective area. Coordinated surprise attacks should be launched simultaneously against every enemy echelon: security, command, supply, communications. The guerillas try to isolate their objective from reinforcement by harassing and interdicting railroads, roads and wire communications. They may establish road-

blocks and ambushes to delay or destroy troop and supply movements into the objective area.

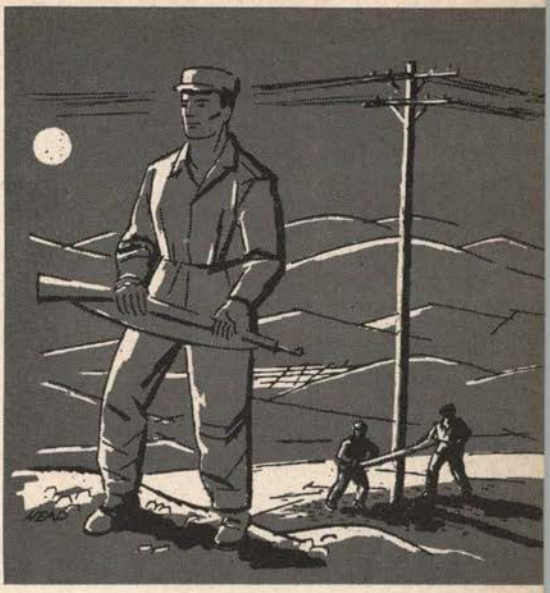
These limited attacks may become more frequent and may be conducted on a larger scale as the battle zone of friendly conventional forces approaches the guerillas' area of operations. Such operations may be supported by the conventional force. They are generally conducted during critical periods of enemy operations requiring unusual supply and troop movements.

Two almost classic guerilla actions of World War II illustrate some of these principles. They also show, in a concrete way, how effective well-planned partisan operations can be.

The first action took place in the summer of 1942 in the mountains of northern Greece between the cities of Arta and Joannina. About 100 Greek guerillas ambushed a 21-vehicle Italian convoy bringing supplies from Joannina to Arta. A mountain-ringed road through the Luron Valley was the Italians' main supply route to southern Greece. Italian motorized patrols tried to keep it open for the convoy which left at noon every other day from Joannina.

Several weeks of observation had told the Greek partisans that the column usually consisted of 18 trucks protected by tanks at the front and rear. Some 60 troops were scattered through the column as a protective force.

The night before the scheduled ambush was a busy one for the guerillas. They placed demolitions on the old stone bridge across the Luron River and installed antitank mines 540 yards down the road from the bridge. Between the demolition points they prepared firing positions on the steep hills on either side of the road. Heavy rocks were positioned so they could be sent hurtling to the road by tripping a lever. The poles of the Italian telephone line along the road



were partially cut through; by pulling on attached cables the guerillas could topple the poles, severing communication between Arta and Joannina. Two partisan groups were organized into assault detachments to close with and eliminate any enemy troops left alive after the initial attack. Shortly after dawn the partisan leader briefed his men, sent them to their firing positions and clambered back to his hilltop observation post from which he could see some distance up the valley.

The Italian commander in Joannina held his column up when he was informed that partisans might be active in the area. He strengthened the convoy with a truck carrying two machineguns and an assault detachment. On each of the 18 supply vehicles rode two guards armed with machineguns. The tanks at each end of the column had two machineguns mounted in a revolving turret. The column left for Arta four hours late, at 1600 hours.

As the last vehicle crossed the bridge the exit from the valley was blocked by

the exploding mines. The lead tank skidded and rolled down the embankment. Almost immediately another, more powerful detonation destroyed the Luron Bridge. The Italians were trapped. The cracking of rifle and machinegun fire and the exploding of grenades left the Italians demoralized and confused. The only resistance came from the tank at the end of the column which had barely made it across the now-ruined bridge. But several guerillas quickly set off a concentrated charge under the tank which turned it over, burying its crew in smoke and flame. The partisans rushed at the burning column, killing every enemy soldier who had survived the initial attack.

The guerilla leader reinforced his security guards at both ends of the valley before ordering mules to be brought down to remove captured supplies. The guerillas stripped the dead Italians of papers, valuables, weapons and ammunition. What they couldn't take they burned. They were miles away when Italian troops arrived at the ambush site the next day.

For the lightly armed Greeks the operation was a complete success. They suffered few casualties and captured a good stock of useful equipment. Although the Italian convoy was more heavily armed with superior weapons, the Greeks overcame this advantage by choosing the time and place for the ambush, by surprise and by the sudden, violent blow of their attack. The partisans made maximum use of ideal guerilla terrain.

In contrast to the shock action which won for the Greeks in the Luron Valley was the stealth by which a small guerilla band conducted a successful raid in North Africa in May 1942.

Vladimir Peniakoff, a British officer serving as a guerilla leader behind German lines in Libya, received a radio message to "spread alarm and despondency." Although Peniakoff's main job up to this time had been to gather intelligence from his numerous Arab contacts, he took this message as the go-ahead signal for more decisive action. Rommel's second offensive was under way, with the objective of capturing Tobruk.

Realizing that Rommel's tanks were having trouble with their fuel supply, Peniakoff chose a 100,000-gallon gasoline dump at El Qubba as the target for his first offensive operation. Italian troops were in charge of the dump. Peniakoff's force consisted of two other British officers, six Arabs from his guerilla detachment and an Arab named Mohammed el Obeidi, a civilian from the town of El Qubba.

On the night of 20 May Peniakoff and Mohammed el Obeidi worked their way to the gasoline dump and made a thorough reconnaissance. In two hours of stealing through the 10-acre barbed-wire enclosure he found 96 lots of gasoline, each lot made up of 27 drums. Several days later Peniakoff returned with the remainder of his band, which was divided into three parties of one British officer and two Arabs each. Mohammed el Obeidi did not accompany this group. All parties were to arrive at the dump at 2100, set their charges and return to a meeting point by 2215.

There was no moon, but the sky was clear and the stars gave enough light to work by. Across the dump three Italian trucks were being loaded with gasoline drums. Even the drums near this work detail were charged because any noise made by the demolition party was muffled by the loud complaints of the Italian troops about their unwelcome night work.

Although one party was late in returning to the assembly point, all nine men were moving toward the hills to safety by 2230. Shortly after 0100 the first charge went off and by 0155 the skyline

to the rear of the guerillas seemed to be on fire. Rumbling, thunderous explosions followed each other in quick succession. Drums of gasoline were blown off the ground. When they burst they filled the air with blazing balls of fire. Peniakoff estimated that he had deprived 200 German tanks of about 12 days' fuel supply.

The guerillas' success was due to a perfectly planned and executed operation against an ideal target. The dump was strategically important, poorly protected and not vulnerable to attack by other means. The Italian units were 150 miles behind the frontlines and thus were extremely casual about protecting this vital area. Although a company of Italian troops was within two miles of the dump no guards were assigned to it. Peniakoff had learned from the British Eighth Army that it would be impossible to send an air strike against the dump. The British had few planes, and these were assigned to daily bombings of Benghazi and Tripoli. Guerilla action was the only way to destroy the gasoline.

These are not unusual examples. They are presented here only to illustrate guerilla techniques and to stimulate thinking. The history of guerilla operations is made up of similar or more significant success stories.

Objectives for partisan activities are unlimited. They can be as varied and as daring as circumstances and the audacity

of the guerilla force dictate. However, certain factors and techniques are common to all guerilla activities. Every successful operation capitalizes on surprise, terrain, shock action and enemy weaknesses.

The study of guerilla operations and techniques coupled with imagination can help us in modern combat.

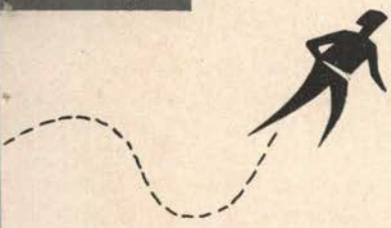
This is the first in a series of articles on unconventional or special types of warfare which can be expected to have continuing or increased importance in modern combat.

Future articles will cover such subjects as jungle warfare, desert warfare and arctic warfare—Editor.

BACK ISSUES AVAILABLE

The Book Department has a few back issues of the *Infantry School Quarterly* (now *Infantry*) which are available for $.50 each on a first-come-first-served basis. Orders for the following issues will be filled as they are received, until the supply is exhausted: April, July 1953; April 1954; April, July, October 1955; January, April, July, October 1956; January 1957. Write: Book Department, United States Army Infantry School, Ft. Benning, Ga.

EVASION and ESCAPE



By M/SGT JAMES F. QUINN

The treatment we may expect if we are ever taken prisoner by a communist foe prompts us to know how to escape and evade.

Capture in combat can be a fate worse than death. Investigation and study of communist psychological-warfare practices during the Korean conflict show that death might have been more merciful for many of our prisoners of war than endurance of the brainwashing and other treatment to which they were subjected. It is apparent that future conflict with such an enemy will involve even more savage attacks on our prisoners, particularly on their minds. Future brainwashing techniques can be expected to include such refinements as, the application of tranquilizing drugs, electric brain stimulations, scientific starvation and extreme sensory deprivation.

Can we expect any man to stand up under such brainwashing techniques? The medical profession says "no." Dr. Joost A. M. Meerlo, a Dutch psychiatrist, coined the word *menticide*—murder of the mind—to describe brainwashing. And, an American psychiatrist, Dr. James Miller, speaking to the American Psychological Association, in September 1956, advocated that the American serviceman who carries secret information be provided with some concealed means of committing suicide in the event he is captured and is unable

M/Sgt James F. Quinn has served 17 years with the Infantry and is an "old timer" to the *Infantry School Quarterly*, having been a staff writer and photographer from 1948 until 1949. He has the distinction of being the first enlisted author whose work was published by the *Quarterly* ("Supply by Air," April 1948, and "Evolution of Vertical Attack," October 1949). Sgt Quinn has spent nine of his 17 years' service with Airborne-Infantry units. During the Second World War he was a combat correspondent with the First Allied Airborne Army following which he was chief editor and photographic supervisor, The Airborne School. After a tour on the *Quarterly* staff, he became chief instructor, Signal School of Photography, Camp San Luis Obispo and then NCO-in-charge, the Technical Liaison Office, Camp Gordon. In May of last year, Sgt Quinn began his present assignment as a member of the *Infantry School Quarterly* staff.

to withstand brainwashing. As grim as this suggestion may be, it certainly stimulates thought and question about methods of keeping out of the enemy's hands and of escaping if captured.

The average American serviceman does not possess or carry classified information—at least not as such. However, the Communists pursued their brainwashing program under the premise that *all* enemy prisoners possessed at least some bit of military information which could be extracted and used for reconstructing the whole. Consequently, they processed most, if not all, prisoners of war through primary phases of brainwashing and, on the basis of prisoner pliability, selected "useful" subjects for more complete processing.

It is time, then, to learn all you can about evasion and escape. Unless you know what evading and escaping entail you may never be successful.[1] You may run away from the enemy, but you will not evade pursuit or recapture. Unless you have had some training in moving through mountains, deserts or jungles—unless you know about maintenance of direction, elementary first aid, woodcraft, concealment and camouflage, and the enemy—you simply become lost and ultimately recaptured in hostile territory.

In the event of capture, you must maintain mental alertness, and act with common sense and self-discipline. The actual moment of capture is a critical one. It is a fearful moment for any soldier when certain factors will determine, then and there, whether he will live or die. If you demonstrate immediate submission, you will stand a better chance of living. You must at all times face the captor and keep your hands elevated or clasped to your head, unless otherwise directed. You must make no movement in any direction on an oral command, unless the command is in English and fully understood, or is accompanied by a directional hand and/or arm signal.

You must, at this time, be prepared to be stripped not only of your personal jewelry and trinkets, but also of your shoes and, quite often, other articles of clothing. To resist or show resentment may prompt the captor to kill you on the spot. Watches, rings, good shoes and clothing are luxuries for the average enemy soldier. Even enemy junior officers have been known to loot prisoners of war.

Personal effects might disclose items

[1]Evasion techniques apply to two situations: when a unit is cut off and its members seek to avoid capture by evading the enemy; when a soldier escapes from captivity and seeks to avoid recapture by evading the enemy and returning to friendly lines. This article discusses evasion after escaping from captivity. However, the same or similar techniques will be used by cut-off troops seeking to evade capture in the first place.

which will determine whether your future status will be that of a general prisoner or a special prisoner. If you have been careless and have kept on your person maps, documents or typewritten papers of any kind, whether military or personal, you undoubtedly will become a "special" prisoner. As a special prisoner you will be closely guarded at all times, until you have been delivered into the hands of military intelligence. Your chances for escape are thus reduced at the outset.

The habit of continually studying terrain before, as well as after, capture cannot be stressed too highly. Constant terrain study will increase the chances of effecting a successful escape. Too many men have gotten away from capture only to discover that they were lost and traveling deeper into enemy territory. The few men who finally effected escape under these circumstances have reported feelings of extreme despair on discovering that they were lost, and lacked any definite direction for successful evasion. They were tempted to surrender to the first enemy troops sighted.

When you are first disarmed by the enemy, you probably will be close enough to the front to reach safety a short time after escape. But as you move to the rear the chances of successful escape diminish with each additional yard of enemy territory covered. Therefore you should become escape-conscious at once. The next incoming shell or burst of gunfire may force your captor to seek cover —to throw himself on the ground, or perform some similar instinctive action. Watch your chances; when this happens get away fast—this is the time to run.

If such an opportunity fails to arise, there still may be other chances to escape in the early stages of your capture which will not come again. So be on the alert for them. In all probability, your captor will be inexperienced in capturing and guarding prisoners. He may be fatigued and deeply engrossed in his own personal problem of staying alive. Look for such symptoms. You may be able to take advantage of them.

Once you have been escorted from the immediate vicinity of capture, you normally will be taken to a collection point near an enemy company CP. Here again inexperienced guards are to be found. Here, too, chances for escape may be presented by the usual confusion and disorder of the combat area. The more prisoners that are held here, the greater are the chances for unobserved movement. Usually there will be no stockade. The confines may be only the barriers imposed by the eyes and ears of the armed guards —guards who can be distracted from constant vigilance by the actions of other prisoners, artillery fire, actions of fellow guards, the need of food or drink, or the call of nature.

Contrary to widespread belief, a slight wound is sometimes an advantage when captured. Even a small cut or scratch can be dramatized into an apparently disabling wound by forcing it to bleed freely into the bandage, then reversing the dressing so that it looks worse than it is. It will require very little acting ability to pretend that the wound has drained your strength, that you are dazed and exhausted—and in no condition to escape. Successful escapes have been made through this ruse. The guard is inclined to discount the possibility of escape by an obviously wounded prisoner.

Also, when escape is made under such circumstances search normally will be concentrated in the immediate area of escape, under the assumption that a wounded prisoner cannot travel far or fast. So get away as far and as fast as you can.

A sergeant tells of his escape after being captured while on a patrol with an element of the 2d Infantry Division in Korea. He says that early in the action

he had torn his forearm on a sharp rock. He hastily bandaged it and continued with the group.

"We had entered a narrow draw," he says, "when the ambush was sprung. Three men were killed with the first blast of automatic-weapons fire from both sides of the draw. I jumped for a shallow ditch and, as I did, something tore my helmet off with an ear-splitting crash. I was dazed. I don't know how long I laid there before I could get my senses together enough to move. There was no firing going on when I did move. I looked around and saw five of the patrol standing in a close group with their hands on their helmets. I counted four dead.

"I was still dizzy. So dizzy in fact that I fell four or five times as I tried to join the others. There were only two Chinese holding guns on the boys and as I fell down again both of them walked over to where I was lying. One of them kicked me in the ribs and pointed toward the group. The second soldier rattled off something in Chinese pointing to his arm and then mine. He was talking about my bandaged arm. I looked at it and it sure looked like hell. I guess I must have lain on it when I fell and had squeezed blood not only through the bandage but also out the sides. Some scratches sure bleed a lot.

"The first soldier laughed, handed his rifle to the other, bent down and took off my wristwatch and my boots.

"My head had stopped spinning by then and I started to get up. The soldier who took my stuff yelled something at me and kicked me in the chest. I fell back and waited for him to shoot me. He didn't. Instead, he bent down again—and damned if he didn't take off my socks. They were a real heavy pair—new. Both soldiers said somehing and got a real loud laugh out of their remarks. Then the first one kicked me in the ribs again and pointed to the boys with their hands on their heads.

"I got to my feet, and right there decided to play like I was real hurt. So I stumbled over to the boys and pretended to fall again as I reached them. The two Commies made us take off our tin pots after looting the bunch of their watches and wallets. Then they herded us down the draw. I continued to pretend being awfully weak, staggering, stumbling and falling down every once in a while—and got a few bruising kicks from one and

sometimes both of the guards as they tried to hurry me along.

"We had reached the end of the draw and were just a hundred feet out of it when mortar fire started to come in on us. The guards got all shook up and started yelling and pointing back at the the draw. I fell down again and lay there. The shells got a lot closer and the guards ran right on past me as they herded the boys back into the draw. I got up as more shells hit, and ran like hell toward our lines in my bare feet. I knew the area real well and made it back OK. I never saw the other guys again."

This report points out five important escape techniques:

1. The sergeant submitted at once to capture when he realized no alternative was possible.

2. He did not resist or show resentment when looted of his watch, shoes and socks.

3. He became escape-conscious immediately by determining to play up his superficial wound.

4. He seized the opportunity to get away when the guards became concerned with their own personal safety during the shelling.

5. He knew the terrain.

When captured, resist interrogation at once. Don't be defiant but adhere strictly to the Armed Forces code of conduct. Immediate resistance to interrogation has a twofold purpose. First, of course, is to deny the enemy useful information in accordance with the code. Second, to establish your uselessness as an information source as quickly as possible and to avoid being placed under close guard.

The enemy will attempt to extract information from prisoners even as far forward as the company CP. Here, the first answers you give to the interrogators may establish your value to the enemy intelligence effort and your susceptibility to more intensive questioning. At this time a prisoner is classed as *useful, doubtful* or *useless.* Under no circumstances should you attempt to deceive the enemy by giving false information. True or false, any information you offer not only violates the code of conduct but also establishes you as a useful subject for enemy brainwashing. You will be earmarked immediately for special attention, placed under close guard and, in all probability, rushed to a higher intelligence collecting agency.

The safest and most effective way of resisting interrogation is to pretend to be dazed and physically and mentally exhausted. Be useless, act dumb or vague—and be less carefully guarded.

The temptation to give false information to enemy interrogators is prompted, even in the face of grave danger by the ingrained American habit of kidding—a peculiarly Yankee brand of humor. The majority of American servicemen indulge in this tall-story telling and this is considered one of our most colorful spontaneous morale builders.

A grimly humorous tall story made the rounds of front-line units during the early days of World War II.

A certain rugged American Infantryman had told his German captors a story concerning a proposed Allied attack in a sector far from the point of his capture. The story was accepted by the Germans who were at that time entirely unfamiliar with the American soldier. Consequently, they rushed heavy reinforcements to that sector, leaving their own area exposed—with subsequent disastrous results.

The Germans fled but before doing so they dragged the GI into a French stableyard to be shot. As he was being tied to a post, the German officer in charge remarked that shooting was too pleasant a death for such a liar. "Pvt Smith," he said, "you are a dirty lying Yankee pig. You have caused the death

of hundreds of good German soldiers with your monstrous lie. Your name will go down in history, I promise you—an American soldier who murdered hundreds of fine young German soldiers with a blackhearted lie."

Saying this, the outraged officer walked over to the firing squad and gave the preparatory orders that lifted eight rifles in line with GI's chest. He paused in his commands and said, "Have you anything to say, Pvt Smith?"

The soldier nodded. "My name will go down in history for this?" he asked.

"As a murderer," the officer shouted, "do you have anything to say to that?"

The Yank made a wry face. "Sir," he said, and his voice was choked with emotion, "I wish I hadn't told you that last damned lie."

The officer smiled savagely. "Ah," he shouted, "at last you regret the lie that murdered our good men."

"Oh, not that one, sir," the soldier said, "I mean the one that will murder your history—my name ain't Smith."

This seemingly innocuous "funny" story, plus endless others, may have influenced many servicemen to become contemptuous of enemy intelligence—with tragic results. After recovering from the first shock of capture this subconscious contempt may prompt the prisoner to answer even the simplest questions with absurd lies.

Such attempts to delude interrogators are reckless rather than courageous, stupid rather than clever. They achieve no purpose other than to self-condemn yourself to brainwashing—with all its modern refinements—or to execution on the spot. Through this mental attitude you may irrevocably deny yourself the slightest opportunity to escape.

From the vicinity of the company or battalion CP you probably will be taken to a regimental, or higher, prisoner-of-war collection compound. Here you may be interrogated further; officer and enlisted personnel will be separated.

During the march to the regimental area, whether by motor or foot, further escape opportunities may exist. Even with a large number of guards escorting the column you should look for these opportunities. You should study the terrain for bends or dips in the road ahead, for rough terrain near the road or for fields of tall grass or grain. As the column enters a bend or a dip in the road, that part of the column in the bend or dip becomes momentarily invisible to a number of guards and there are a minimum number of eyes watching it. Coupled with any other favorable factor, this is the time to attempt escape either from the truck or foot column.

Once you make the break you must expend all effort and direct all thinking toward putting distance between yourself and the column. If you survive the first sporadic small-arms fire that will surely come if the guards detect your escape, immediate pursuit is unlikely. A search party must be organized. Then search will first be made in the vicinity of your escape. It is almost instinctive to search the nearest hiding places for something that has suddenly become "lost"—in this case a desperate human being. To hide is also a very human weakness common to even the strongest of us when exposed to dangerous circumstances of this type. You must resist this and get as far from the initial search area as possible.

The opportunities for escape from a halted motor column are few. Not only are armed guards generally posted in the road but each vehicle probably will have an additional guard on the cab with an automatic weapon. Perhaps the only possibility in this situation will arise if the vehicles have been stopped by strafing or shelling. The resulting confusion may present an ideal opportunity for escape—especially if the column is hit.

When moving in a foot column, a number of things may come up which would make a break possible. There are no specific rules to be applied here, but there are certain circumstances which favor escape and which must be seized without hesitation. Several examples of such circumstances have been reported by successful escapees:

"One of the guards nearest me took advantage of a halt, to urinate. I had about five feet to go to reach the bank at the edge of the road. I didn't bother to get to my feet and run—I just started rolling, like kids do. The guard hollered, shook the rifle he was holding in one hand and continued urinating with the other. He was still yelling and urinating and waving his rifle as I ducked behind the rocks at the bottom of the slope . . ."

"I think a break was made or attempted about a hundred yards up the road toward the head of the column. First there were a lot of shots like a machinepistol firing, then a lot of shouting. Most of the prisoners jumped to their feet. The second they got up I started running like a rabbit for the tall grass a short distance away. My guess is that nobody saw me—at least not a guard —because not one shot was fired after me. I made the grass all right. It was rice and I ran right on through it, water and all . . ."

"The road was extremely dusty. The powdery dust lifted and filled the air with each footstep. The wind came straight down the length of the road and made a choking tunnel through which we marched like grey ghosts. The guards walked about fifteen or twenty feet off on both sides of us to keep out of the dust. For some strange reason—a miracle to me—the wind suddenly shifted and the guards on my side were hidden in the blowing dust. I knew that this would be just about my last chance and I took off as fast as I could run. I saw one guard;

in fact I ran right past him, thinking that he was just a black stump or a rock until he fired at me. Then he disappeared into the dust . . ."

These, and countless others, were crucial moments seized as opportunities for escape. Such moments are fleeting at best and only the alert and escape-conscious prisoner will recognize and grasp them with success.

To escape from the enemy while under armed guard is not to escape to freedom. Escape to freedom is accomplished only by evasion of the enemy. This entails successful application not only of knowledge obtained in military training but also of the strictest self-discipline.

Regardless of the area in which you escape, you will face hardships. Perhaps the most difficult of these to overcome is the relentless drive of impatience. If not quickly controlled, this state of mind will betray you. It will either cause you to become reckless or drive you into activity beyond your endurance. Once in the grip of extreme fatigue, superinduced, perhaps, by thirst and hunger, you will become not only physically, but mentally, incapable of evading capture. Evasion

will become secondary to the importance of alleviating the craving for water, food or rest. You will take any risk to fulfill these needs.

Obviously, then, you must look to your physical needs before you consider progress through enemy territory. Each step of the flight must be planned on the basis of how long you figure you can maintain your strength. Let the distance take care of itself. Your primary consideration will be water supply. Unless you have some means of carrying water, your travel may be restricted to a constant search for water. You will be limited to short distances, from one point to another. You must look for food while on the move. Here again self-discipline plays an important part in successful escape. The temptation to seek food in the vicinity of inhabited areas is difficult to resist, but long experience indicates that most fugitives come to grief at this point. Successful theft of food is all but impossible in most areas. Not only is food scarce in primitive or war-torn communities but what food the natives possess may be "on the hoof," to be slaughtered when needed, or in the form of raw grains to be prepared as required. Theft of these precious foodstuffs will be more difficult where animals and grain are kept in the dwelling. Barns, or similar livestock buildings, may be nonexistent in such areas.

Food, then, must come from the countryside—from roots, herbs, grains, nuts, berries, and whatever small animals may be killed by various expedients. Information on edible plants within the area in which you have been committed for combat will be contained in all future precombat orientations. Lacking this information, the safest rule to follow is: Eat only what you know is edible, until you have tested what you think may be safe. If you see birds or animals eating roots, grains, nuts, berries, bark or lichen, try a small amount yourself. If, after three hours, you have not developed any unpleasant symptoms, you may consider the item edible and eat a moderate amount. Any plant that tastes bad or bitter should not be tested beyond a mere taste. Most toxic plants are easily identifiable by their bitter taste and smell. (Note: A future *Infantry* article on survival will discuss living off the land in some detail. —Editor.)

The safest time to travel in enemy territory is during darkness. Travel may be slower, but it is far less dangerous insofar as observation by the enemy is concerned. Your travel may take you out of the militarized area but your danger will not be lessened to any appreciable degree.

So far as you are concerned, there are no friendly natives. If you wish to argue this point, think back to the Korean conflict and remember Major General Dean and the "friendly natives" who betrayed him to the Communists.

It is important to remain unobserved by either civilian or military. This is best accomplished by traveling at night. Night travel also reduces the temptation to contact any natives you may see working in the fields or around their dwellings. It also reduces excessive precautions and resultant fatigue which may be imposed by efforts to remain concealed from suspected distant observation.

In selecting the day's hiding places, you must be extremely cautious and avoid the obvious. You should not select a large cave, for example, as such caves generally are well known in the area, and are certain to be investigated by enemy search parties or patrols. A cave just large enough to accommodate a single body is the best choice, if at all isolated from habitation. Very little effort will be required to camouflage the location to make it relatively safe from even careful search.

Hiding in culverts, regardless of remoteness from habitation, also must be avoided. Culverts present two real dangers. The first, strangely enough, lies in the possibility of a sudden heavy rain filling the culvert. Secondly, the existence of a culvert indicates that the road bears normal to heavy traffic and any movement in the vicinity is likely to be observed.

For obvious reasons, hiding places on open ridges or bald hills must be avoided.

Hiding places, then, require careful selection. The desire for shelter must be secondary. Concealment is foremost. To this end, you should burrow into dense undergrowth, bed down in fields of tall grasses or grains, hole up among the rocks or hillocks of broken terrain, or dig yourself in if you are on a barren plain. All hiding places require varying degrees of camouflage for additional security from observation. Digging in on a barren field usually is the least difficult to effect but the most difficult to maintain, for here the only camouflage lies in covering yourself with soil as you lie in a shallow excavation. Any movement of the body will dislodge some of the soil and require immediate repair.

If you attempt to disguise yourself in native garb or an enemy military uniform you will probably make yourself conspicuous and risk identity as a spy, if recaptured. Spys are summarily executed —after extensive torture. In any event try to retain some type of military identity such as the ID card, dog tags, etc.

Evasion, escape and survival are important subjects in the Army's combat training curriculum. They are especially necessary since the Communist enemy has chosen to debase, degrade, brainwash and destroy men captured in combat. The techniques discussed here are only a small part of the story. Each of us must seek out personally additional knowledge which could be helpful if ever needed to successfully evade or escape from the enemy.

WHERE IN THE WORLD . . .

are you? It's a small world—until we try to follow a *Quarterly* subscriber who has forgotten to send us a change of address. We'll move heaven and earth to locate you. You can help. When you go globe-trotting your first move should be to drop us a note. Write: *Infantry* Magazine, Book Department, United States Army Infantry School, Fort Benning, Georgia.

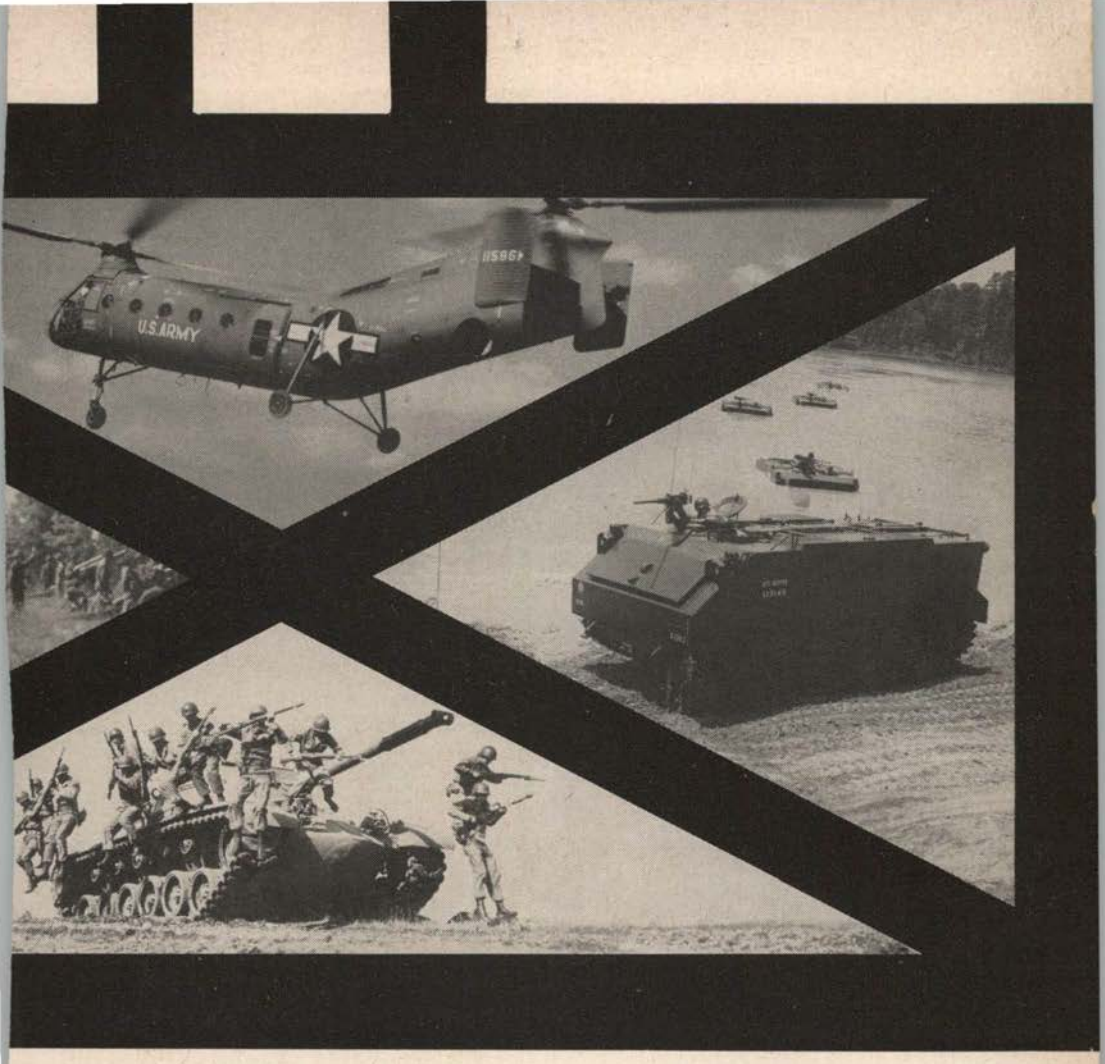
Combined-arms task forces will be essential and routine elements of our tactics on the battlefield of the future. We must be ready and able to use them quickly and effectively.

This is the third and concluding article in the series on small-unit task forces. It discusses the battalion-size force. Whether we fight with the current Infantry organization or the recently announced pentagonal division we must be able, on short notice, to break conventional units into smaller semi-independent mobile task forces and to unite them again just as quickly, for massed effort.—Editor.

By Major Charles D. Folsom

SMALL UNIT TASK FORCES

Commanders at all echelons have always faced the problem of training for tomorrow's operations with organizations and weapons of today. The emphasis which has recently been placed on the organization and training for mobile task-force-type operations, however, is a decided departure from inflexible training patterns we have known in the past. Previous articles on small-unit task forces have portrayed the impact of the atomic weapon on tactics, and the steps that are being taken within present organization to provide a common sense approach to the inherent problems of dispersion, mobility and firepower.



When our present Infantry division is reorganized under the pentagonal structure, many of the elements which now must be combined from TOE units to form a task force will be organic. However, it is visualized that even these units will need some tailoring to accomplish specific missions. The same basic principles and considerations now given to the forming of a task force will apply to the organizing of such forces.

This article will deal with the "battalion-size" (Type A) force which is the largest force included in Training Memorandum Number 13, USCONARC, dated 4 June 1956.

The Infantry regiment is the normal source for the organization of the battalion-size force. The current regiment is capable of and should be able on at least two hours' notice to organize, assemble and employ a mobile battalion-size force composed of a provisional headquarters and service company, a TOE rifle company, a TOE regimental tank company, a provisional direct fire support company, and a provisional indirect fire support battery. TOE units, or elements thereof, should be used to form the provisional companies and batteries so that the basic team organizations that have trained together in those units are left undisturbed.

Task force mobility is provided by armored personnel carriers

Such a force is capable of attacking, counterattacking, pursuing, delaying, and defending. It has the ability to strike the enemy with lightning speed by means of fire, maneuver and shock action in order to dislodge the enemy, repel his assault or delay him before he has the opportunity to build up strength at a critical point. The capabilities of the force to effect rapid dispersion when necessary should not be minimized when operating under atomic conditions. It is entirely mobile, self-sufficient, heavy in firepower, and has adequate voice radio, visual and wire communications.

. . . Army aircraft

Commanders in the field have been encouraged to experiment with various task-force groupings, reorganized within the present TOE but adaptable to future organization, to determine the types which appear to be most effective. This experimentation should be integrated into existing programs with minimum disruption to training presently required for the Infantry regiment. The directive is explicit in the requirements for valid experimentation, and prescribes firing exercises and use of Aggressor forces in two-

sided tactical exercises to provide a realistic evaluation of the mobile force. A restriction, however, is placed on simulating equipment which may not be available to the unit.

Task organizations of reinforced-battalion size habitually will have attached means and weapons organic to or in direct support of the regiment. When required, means and weapons organic to the division may also be attached such as light artillery, elements of the division tank battalion and reconnaissance company.

In training in the employment of the battalion-size force, all forms of available transportation are to be utilized, to include not only wheeled vehicles, which normally will be provided by the division, but armored Infantry vehicles, army aircraft, and even landing craft, where applicable. Of course, the tank will also provide transportation for Infantry elements. In visualizing the use of army helicopters, possibilities exist for expanding the types of operations which the battalion-size force may conduct. Many situations will prevail where the Infantry and lighter elements of the force may be airlifted, and the heavier tanks and engineer equipment join the remainder of the force in rapid linkup action. Some examples are river-crossing operations, seizure of critical installations or key terrain features, and isolation operations in pursuit.

The organization of the Type A force used in this discussion will be based on the "sample" organization in the training memorandum, with no appreciable deviations (see Figure 1, next page). It is apparent that flexibility *within* the organization is the answer, and not the over-all organization itself. As long as this size task force has the component elements of command, maneuver, and direct and indirect fire support, with minimum essential service support, it

. . . and tanks.

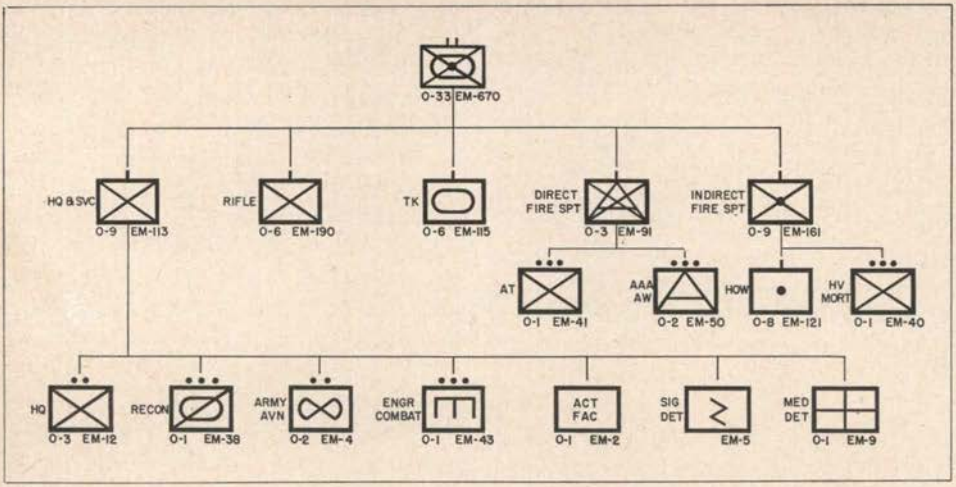


Figure 1. Mobile force Type A (battalion size). The headquarters section consists of the task-force commander, executive officer, operations sergeant, communications officer and communications section (two wire teams and one radio team). Its equipment includes five jeeps, one ¾-ton truck and the following radios: one AN/VRC 10, one AN/PRC 10, one AN/GRC 9, one AN/GRC 7. The rifle company uses TOE weapons and transportation; battalion provides six additional 2½-ton trucks from headquarters and service company if distance precludes Infantry from riding on tanks. In addition to TOE vehicles the tank company receives 12 2½-ton trucks from headquarters and service company for ammunition and supply. Other units use TOE equipment, augmented as necessary by battalion. Note that the above task force is based on current Infantry organization. Modifications will be necessary for units of the pentagonal division.

will be able to accomplish missions requiring rapid movement and decisive action.

To better understand the considerations and actions required to form and employ a battalion-size mobile task force let's look at a hypothetical situation.

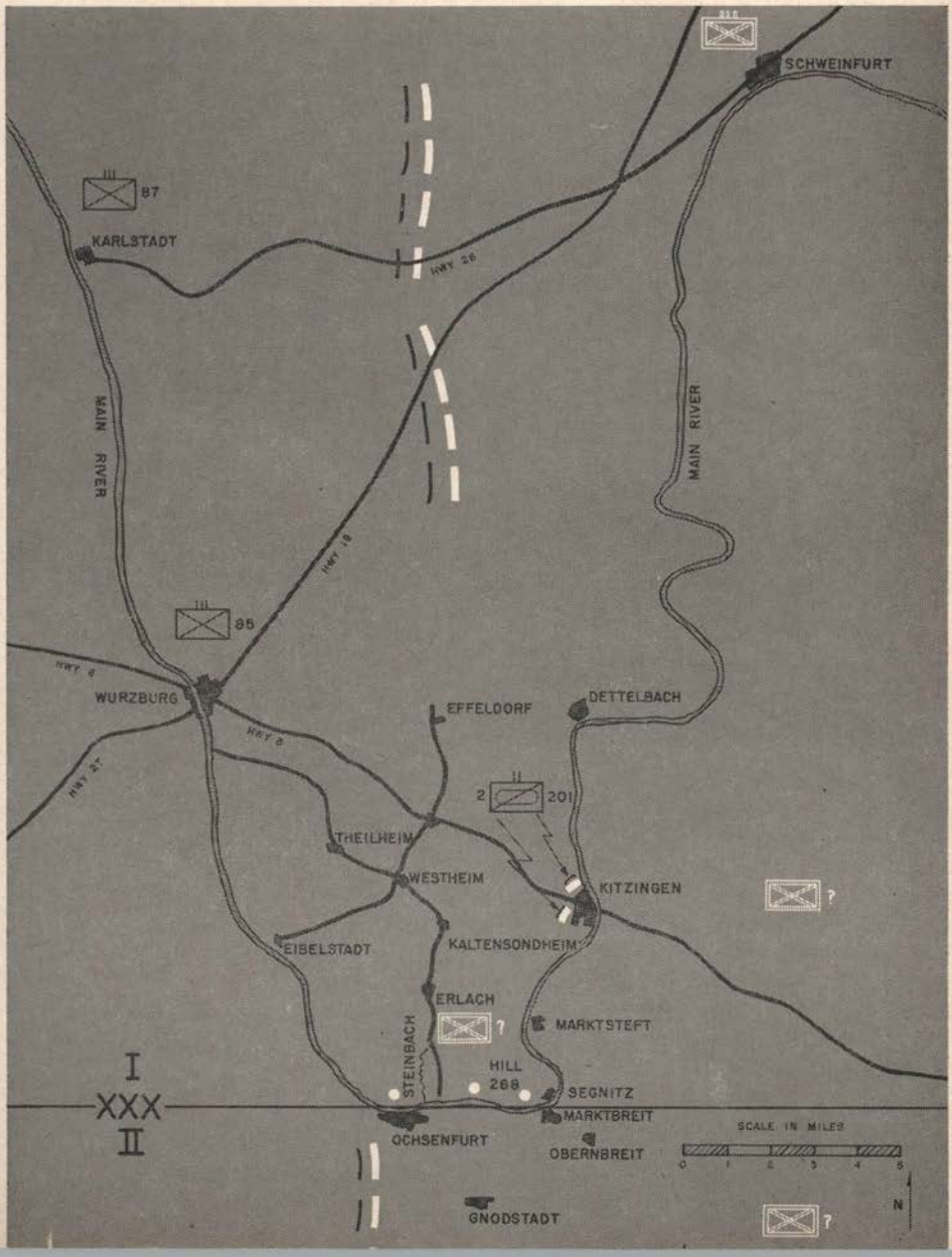
I US Corps, after seizing a crossing of the Main River on a broad front from Wurzburg north, has continued the attack to the east against determined enemy resistance. The general locations of the forward units of I Corps are shown in Figure 2. Elements of II Corps south of the Main River in the vicinity of Ochsenfurt also are attacking to the east in an attempt to bypass the river on the south. These units have made very slow progress, but are able to place fire on the crossing site where the bridge was formerly located at Ochsenfurt. Both sides have an unlimited atomic capability and have employed tactical atomic weapons in support of ground operations. Air parity exists, with either side capable of gaining local air superiority for limited periods only.

Reports from reconnaissance aviation operating to the southeast indicate that scattered Aggressor units are still in the area between Wurzburg and Kitzingen and that Aggressor is concentrating forces southeast of Marktbreit in apparent preparation for a crossing in that vicinity. The 2d Battalion, 201st Armored Cavalry, moving on Highway 8 from Wurzburg to Kitzingen, has become heavily engaged with Aggressor elements holding a bridgehead in the Kitzingen area, and is now attempting to contain this force. All bridges across the Main River have been destroyed; how-

ever, floating-bridge equipment has been observed on the south bank of the river in the Marktbreit area, and Aggressor is capable of executing an unopposed crossing there at this time.

It is now September, and the weather is clear and cool. The gently rolling terrain in the area is trafficable, except in areas along the Main and its tributaries where banks are steep and difficult to negotiate. All streams with the exception of the Main River are fordable. Observation throughout the area is generally good with the exception of the large wooded area just north of Ochsenfurt-Marktbreit, where trees limit observation to from 100 to 200 yards. Wind is from the west at 3 to 5 miles per hour.

Figure 2. Forward units, I US Corps.



At 170700 September Commanding General, 10th Infantry Division, ordered Colonel, 85th Infantry, to dispatch a mobile force to prevent enemy crossings in the Marktbreit area from the Stein Bach to Hill 263 and to maintain contact with elements of II Corps south of the Main River.

Colonel, 85th Infantry, contacts Lieutenant Colonel, 1st Battalion, 85th Infantry, and directs the formation of a Type A task force organized as shown in Figure 1 except that the organic I&R platoon will be used instead of the reconnaissance platoon and a section of machineguns, 81mm mortars and 106mm AT weapons from the heavy weapons company will be added. A platoon of armored Infantry vehicles will be attached.

Maj Morris, Executive Officer of the 1st Battalion, 85th Infantry, is selected to command Task Force Morris. Having received the order from the Regimental Commander, Maj Morris determines the objectives he must seize to accomplish the mission and considers the general areas he must defend.

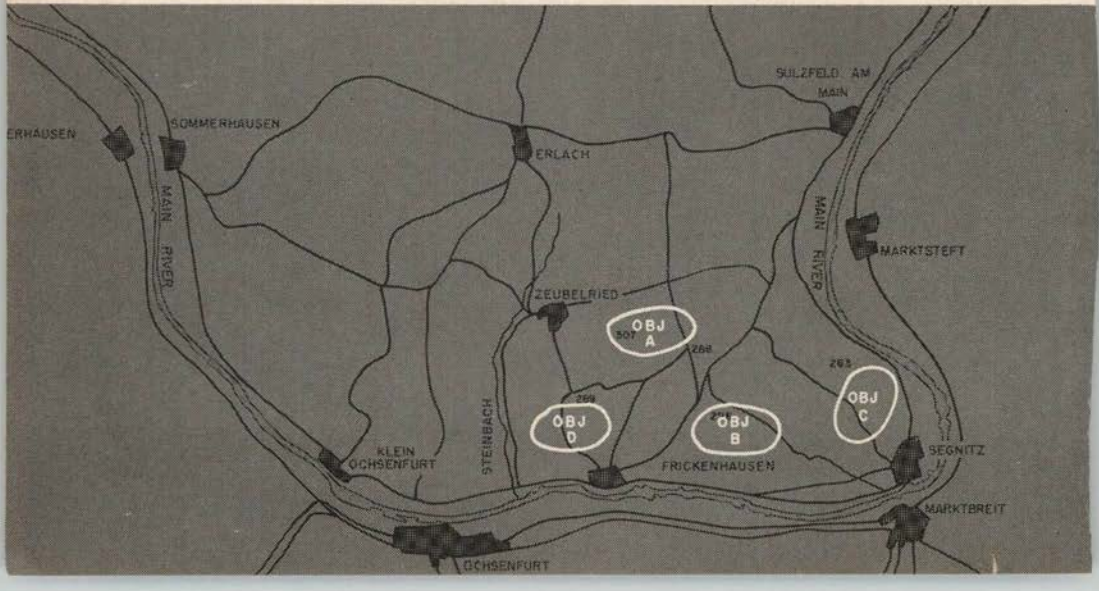
Figure 3 shows the objectives the task-force commander has selected; the same terrain will be organized for defense.

Seizure of these objectives insures control of the higher ground dominating possible crossing sites for Aggressor. Seizure of objectives A and B is the priority task because of their dominance over the objective area. Objectives C and D are necessary to insure control of the entire area and to provide an adequate defense against crossings over the Main River.

Defensive positions will be established on the objectives to conserve time and take advantage of the defensible terrain. After seizure of the objectives, consolidation must be accomplished rapidly so that defensive positions can be prepared before the enemy is capable of attacking in strength. Additional position areas are unnecessary for the accomplishment of the task-force mission. Security elements must be positioned near the river to extend observation over the hostile approaches. Patrols will operate in the area west of Stein Bach and north of Ochsenfurt in order to provide warning of possible Aggressor interference from that area. Security measures, such as roadblocks, must be undertaken as required.

Once the objectives and areas for defense have been selected, Maj Morris plans for his attack and defense mission. He considers the forces available and organizes for combat based on the over-all mission. He also considers missions for his subordinate teams and the formation

Figure 3. Objectives of Task Force Morris.



to be used during movement to the objective area.

The 1st platoon, Company A, 88th Infantry Tactical Carrier Battalion, is attached to Company A, 85th Infantry, to provide transportation for the rifle platoons of that company. Unit integrity within the tactical carrier platoon is maintained to the greatest possible extent. Maj Morris then organized for combat as follows:

TASK FORCE HEADQUARTERS:
Provisional staff (from Hq 1st Bn)
Detachment, 10th Signal Company
Detachment, medical company, 85th Infantry
Army aviation section
Provisional supply section, service company, 85th Infantry
Air control team with forward air controller

TEAM 1 (CAPTAIN, TANK COMPANY, COMMANDING)
Tank company (less 2 platoons)
2d platoon, Company A
One section, 81mm mortar platoon
One 57mm rifle squad
One 60mm mortar squad

TEAM 2 (CAPTAIN, COMPANY A, COMMANDING)
Company A (less 2 rifle platoons)
3d platoon, tank company
One 57mm rifle squad
One 60 mm mortar squad

TEAM 3 (LIEUTENANT, 3D PLATOON, COMMANDING)
3d platoon, Company A
4th platoon, tank company
One section, machinegun platoon
One 57mm rifle squad
One 60mm mortar squad

TEAM 4 (CAPTAIN, BATTERY A, COMMANDING)
Battery A, 25th Field Artillery Battalion
1st platoon, Battery A, 43d AAA (AW) Battalion
1st platoon, 85th Heavy Mortar Company

TEAM 5
Intelligence and reconnaissance platoon, 85th Infantry
One section, antitank platoon

TEAM 6
1st platoon, Company A, 41st Engineer Combat Battalion

To these six teams and to the task-force reserve (Team 7) he assigns the following missions:

TEAM 1: Seize objectives A and B in that order. Upon seizure of objective B, defend that position. On order, release to task-force control one tank platoon and one rifle squad to form Team 7.

TEAM 2: Prepare to assist in seizure of objectives A or B; on order, seize and defend objective C.

TEAM 3: Prepare to assist in seizure of objectives A or B; on order, seize and defend objective D.

TEAM 4: General support. Provide antiaircraft protection for column during movement and for artillery and mortar positions in objective area. Artillery and mortars support attack and defense of objective area from positions vicinity Zeubelreid.

TEAM 5: Reconnoiter flanks of column, two squads on right and one squad on left; contact elements 201st Armored Cavalry vicinity Leisten; on order patrol area between the Stein Bach and the town of Sommerhausen; contact elements II Corps vicinity Klein Ochsenfurt.

TEAM 6: Assist task-force advance on axis Morris; prepare to execute demolition missions in objective area as required; prepare and defend roadblocks X and Y.

ALL MANEUVER TEAMS: Prepare to assume missions of other teams in priority 1, 2, 3; or to assist other teams on order.

TEAM 7: On order, task-force reserve; organize, occupy and defend position A.

Initial formation is designated as column of teams, with order of march as follows: Team 1, command group, Team 2, Team 6, Team 4 (less AAA AW), headquarters (-) and Team 3.

Maj Morris has organized his force into teams to accomplish his mission. Three maneuver teams are required for quick seizure of the objectives. If fewer than three maneuver teams were organized, the attack probably would be slowed by the reorganization needed to continue the attack from one team objective to subsequent objectives. Three maneuver teams can seize the designated objectives and consolidate them, if the attack proceeds according to plan. The lead team, with two platoons of tanks and one Infantry platoon, and reinforced by other elements, should be capable of seizing both objectives assigned. If one of the maneuver teams lacks sufficient assault power to seize its objective, another team can be committed quickly to assist. Initially, the teams are as equal in capabilities as the number of available weapons and Infantry platoons permits. Any of the three teams can assume the mission of any of the other two without changes in organization. Such flexibility is especially desirable in this type of operation, since it is not known which team will arrive first at the objective area. Each of the three teams must be prepared to change its mission in an instant, and proceed without delay on its new mission.

Four principal terrain features must be organized and occupied, and this can best be accomplished by four teams for defense. Team 1 will be employed in the attack on objectives A and B, after which the team commander will release a portion of his team to task-force control for organization of objective A. The task-force commander will designate the force on objective A as Team 7. Since four teams would be needed to organize and occupy the defense areas, consideration was given to having the task force formed initially into four teams. This was rejected, however, since more than three teams would reduce the Infantry strength in two of the teams and lessen their effectiveness for the offensive mission.

The mobility of the teams enables them to shift quickly and to make necessary adjustments in the defense to counteract enemy action. This characteristic of the teams obviates major reorganization for the defense. In this situation, a reserve is provided by splitting the tank-heavy Team 1 to form an additional team; however, since major strength is needed in the forward areas, only a small force is retained in reserve. The speed required in this operation makes the attachment and detachment of units during the attack undesirable. If the defense, for any reason, is prolonged, further adjustments in the organization of the force may be made.

The 81mm mortar section is attached to Team 1 to provide readily available medium-range mortar fires for the lead team. Team 4 is the fire-support team. The task-force commander visualizes that all elements of Team 4 will be employed in a general-support role throughout the operation unless the lack of enemy air permits the attachment of AAA (AW) weapons for use in a ground-support mission. During the column movement, the antiaircraft automatic weapons will be spread throughout the column to provide adequate protection for the force.

Team 5 is reinforced by the attachment of the antitank section for protection during its flank-security mission. If this section is not needed to reinforce the team

in its patrol activity after reaching the objective area, it will be detached from Team 5 and employed in the defense of positions A, B and C.

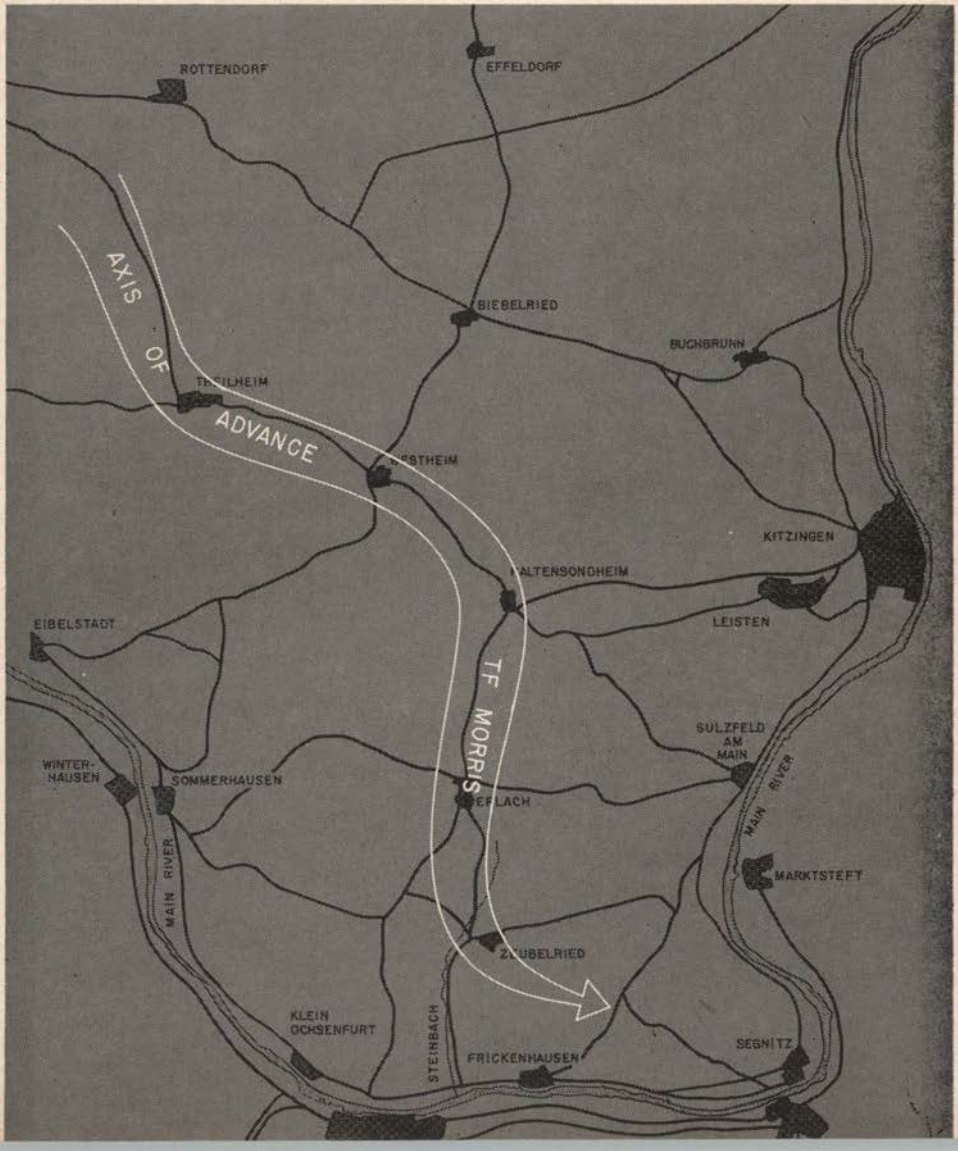
Team 6 has a primary mission of engineer support. It will perform its secondary mission by fighting as Infantry in the defense, if necessary.

Team 7 will constitute the task-force reserve in defense. It is located on a dominant terrain feature in the rear area. This team, and unengaged teams on other positions, may be employed to influence the action in the conduct of the defense by functioning in a blocking or reinforcing role or to counterattack.

Missions for the teams are specific but brief: each team has a necessary task to perform. The organization is based on what is necessary to seize and to hold. Resistance en route to the objective area is not expected to be heavy; however, if heavy resistance is encountered, it may become necessary to change the organization of the teams.

Even though a single axis (Figure 4)

Figure 4. Axis of Task Force Morris.



has been assigned by the regimental commander, Maj Morris considered moving in two columns, for this would facilitate reaching the objective area in minimum time. He decided, however, since the situation is extremely vague, to move in a single column to insure maximum flexibility. The march order adopted takes into consideration the mission and capabilities of each team. Team 1 leads the column, since it provides the force with greater strength to take care of any situation that may develop en route to the objective area. The command group follows this team so the force commander can more effectively control the action of the entire force. From this position he will have first-hand knowledge of the situation to the front. Team 2 is next in column, where it will be readily available for rapid commitment and can assist in the seizure of objective A or B if required. Team 6 follows Team 2 so it can be employed rapidly to assist the advance and can move to establish roadblocks in the objective area. Team 4, less the antiaircraft artillery, moves next in column, prepared to go into firing positions as required. The antiaircraft artillery is spread throughout the column, under control of the antiaircraft-artillery-platoon leader, to provide for column defense against enemy air. The headquarters and service elements move near the rear of the column for protection and to provide medical and maintenance support for the entire column. The rear guard, Team 3, protects the column during its move against enemy threats from the rear. When the objective is reached, deployment of the force will enable this team to move rapidly to objective D on order of the force commander.

Roads and trails in the area provide easy movement for the security force dispatched to the flanks. A lesser requirement for security exists on the left flank because of previous operations and presence of the 2d Battalion, 201st Armored Cavalry Regiment, in the Kitzingen area. Rapid movement envisaged for the force moving in column also will afford a degree of security by reducing the time in which the enemy can react to the thrust to the objective area.

The movement to the objective area was unopposed except for a well-defended roadblock just north of Kaltensondheim which was bypassed after being brought under fire. The objectives were secured after a brief but sharp fight in which an unsupported enemy rifle company was destroyed. Team 5 is now patrolling the riverline to the west of the force, while Team 6 is constructing roadblocks X and Y. Contact has been made with 2d Battalion, 201st Armored Cavalry. The disposition of the force at 171300 is as shown in Figure 5.

At 171310 an air observation post reports that three separate sightings of approximately company-size Aggressor units have been made in the area south and east of the river. The force south of Gnodstadt is reinforced by 10 tanks, and the force in vicinity of Marktsteft is known to have at least 18 armored personnel carriers and five tanks. Reconnaissance elements have been observed in the vicinity of Marktbreit and along Highway 2 between Marktbreit and Marktsteft.

Enemy fire against task-force positions begins to increase in intensity, particularly in the area of positions B and C. At 171320 Lieutenant, engineer platoon, reports that Aggressor is deploying along the river bank just north of Marktsteft and has begun shelling the area in vicinity of roadblock X. The squad manning roadblock X has withdrawn to positions about 300 yards west of the roadblock.

Maj Morris takes the following actions:

1. Requests air strikes on enemy col-

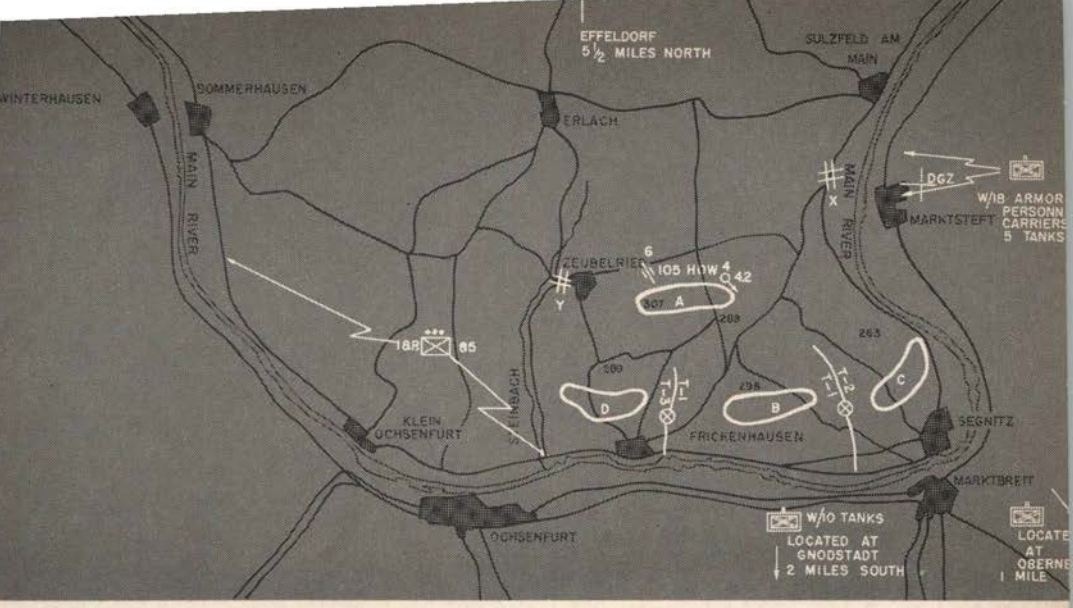


Figure 5. Task Force Morris, 171300 September.

umns vicinity Gnodstadt and Obernbreit.

2. Notifies Colonel, 85th Infantry, of the situation and requests a 10KT atomic weapon on enemy force vicinity Marktsteft: ground zero as indicated in Figure 5; gun delivered, low air, as soon as possible. Alerts Team 7 to be prepared to move to a blocking position vicinity roadblock X in case the weapon is not delivered or does not achieve the desired results.

3. Notifies commander, Team 4, to maintain maximum fires on targets at Obernbreit, Gnodstadt and Marktsteft.

4. Informs all teams of the situation and alerts them for possible redisposition to meet the threat from the northeast.

5. Advises Lieutenant Colonel, 2d Battalion, 201st Armored Cavalry, of the situation.

Indications are that Aggressor is going to attempt his crossing operations on a wide front in the salient of the river between Ochsenfurt and Marktsteft. Positive measures must be taken now to forestall this action and insure protection of the force in its present positions.

The enemy forces at Gnodstadt and Obernbreit pose a real threat to the accomplishment of the force mission; controlled air strikes on these columns will minimize their capability for further offensive action in closer proximity to the defensive pesitions.

The regimental commander is informed of the situation so he may keep abreast of enemy activities which may threaten the I Corps units advancing on Schweinfurt. If Aggressor elements in the vicinity of Marktsteft succeed in crossing, they are capable of threatening the force with an attack from the rear. This enemy force must be engaged as rapidly and as violently as possible. The fact that the enemy has armored personnel carriers in the area makes the use of at least a 10KT weapon desirable. Maximum reliance must be placed on all types of fire and delivery means to gain decisive results in minimum time.

Team 4 commander is notified to bring enemy targets to the south and southeast under fire to assist in fixing the enemy preparatory to the air strikes which have been requested.

All troops must be notified of the situation so that they may be protected at the

time of the atomic detonation and ready to assume new missions if necessary. As soon as the time on target of the atomic weapon is announced, this information will be disseminated through each echelon of the force.

The atomic weapon delivered on the enemy force in vicinity of Marktsteft produced excellent results; scattered troops have been sighted moving to the east and north out of the target area. Air reports good results in the strikes on the other two forces; the column near Obernbreit dispersed in the woods north and south of the town where napalm and rockets were employed against the remaining elements. Four tanks and approximately 100 Aggressor Infantry, the remainder of the force initially sighted near Gnodstadt, moved toward Ochsenfurt in a widely dispersed formation.

Defense and surveillance missions continued for the next few hours in the face of increasing enemy activity to the south. Another atomic weapon of 2KT yield was called for and detonated just southeast of Ochsenfurt at 1540 hours to destroy an estimated reinforced company in that area.

At 1600 hours a radio message is received from Lieutenant Colonel, 2d Battalion, 201st Armored Cavalry, to the effect that Aggressor has succeeded in reinforcing the bridgehead at Kitzingen. He further states that he will have trouble containing the enemy, and that he will probably have to withdraw to the north and west.

At the same time the II Corps units south of the Main River inform the task-force commander that they have succeeded in breaking the enemy position in several places, have captured Ochsenfurt, and are now moving rapidly eastward. Once they have passed Marktbreit, they expect to swing to the north and destroy the enemy attacking between Marktbreit and Kitzingen.

Maj Morris gives this information to the regimental commander. Colonel, 85th Infantry, at this time tells him that the division has been committed in the attack to seize Schweinfurt. Maj Morris is directed to withdraw his force to the vicinity of Effeldorf where he will be given further orders.

Maj Morris takes the following measures to comply with the orders he has just received:

1. Orders Team 1 to occupy position A to protect withdrawal of the remainder of the task force from present areas and, on order, to withdraw through Erlach. Team 7 reverts to control of Team 1 in its present positions.

2. Orders Team 4 to place fire on enemy approaches to the river; to protect withdrawal by fires on near side of river; and, on order, to displace by echelon to position areas north of Erlach.

3. Orders Teams 3 and 2 to move to position areas east and west of Erlach and to establish positions to protect withdrawal of remainder of task force to the north.

4. Orders Team 5 to move immediately to Erlach; to contact elements 2d Battalion, 201st Armored Cavalry, vicinity Kitzingen; and to screen the east flank during withdrawal of the task force.

5. Orders Team 6 to withdraw immediately to Erlach, to be prepared to execute demolition missions and to establish blocks on routes of withdrawal as required.

6. Orders Team 7 to revert to control of Team 1 upon arrival of Team 1 on position A.

In ordering Team 1 to a position on commanding terrain in the rear central portion of the area, Maj Morris insures that maximum protection will be afforded to other units withdrawing on either flank.

Team 4 will interdict approaches to

the positions on the near side of the river to insure close protection for the task force in its withdrawal. It will displace by echelon with the remainder of the force, and be prepared to continue fire missions from new position areas.

From new positions east and west of Erlach, Teams 2 and 3 will be able to cover the withdrawal of the remainder of the task force from the Zeubelreid area. If there is no ground contact at the time the force clears through these positions, the task-force commander will cease the delaying action and retire, using the most direct route to the new area while maintaining tactical formation within the column.

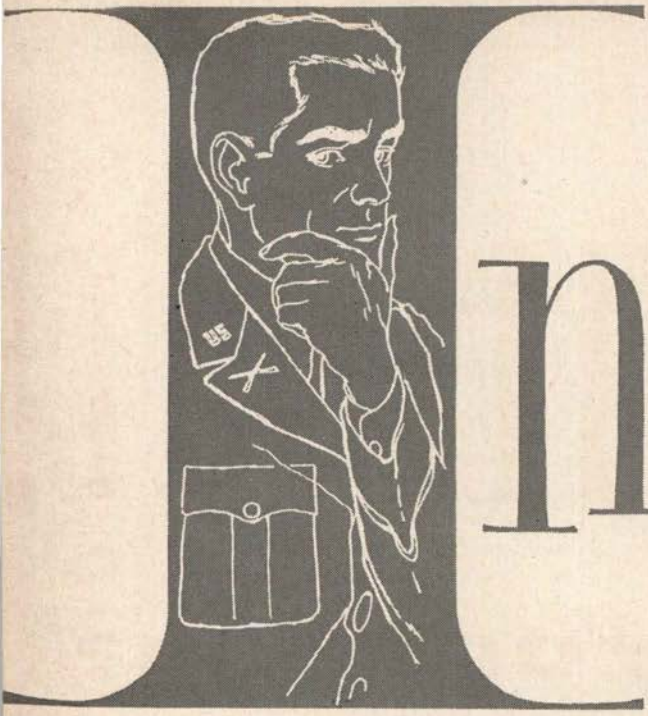
The mission of Team 5 west of Stein Bach has been fulfilled. In view of the enemy threat to the withdrawal toward Effeldorf, Maj Morris needs to protect his right (east) flank. The reconnaissance unit is moved immediately to an area from which it can accomplish this mission on order of the task-force commander.

Team 6 is moved into Erlach prepared to execute missions which will impede any attack by Aggressor from the south or east. This team, or a portion of it, probably will move just ahead of the rear-guard team to be available for establishing obstacles along the route.

The mission of Team 7 as task-force reserve is no longer required. This team, when it reverts to control of Team 1, will enhance Team 1's capability of protecting the initial withdrawal. The subsequent movement of the entire force from the Erlach area will be facilitated by the reduction in the number of teams and by again having as much balance as possible within the teams.

This brief picture of one day's action of a battalion-size task force indicates what the future may hold in store. Operations under atomic conditions will require highly mobile teams of combined arms, capable of accomplishing many types of missions. In present organization, the formation of such a force may result in a decreased capability for the remainder of the unit not employed as part of the force. However, the training memorandum covering these organizations states that one of its purposes is to provide training for leaders at all echelons in the formation and employment of such forces on an atomic battlefield. As new organizations become standardized, the formation and employment of mobile forces will be commonplace—an inherent mission of larger units. As long as the task-force commander knows how to employ the tools at hand, and how to retain maximum flexibility in the tailoring of balanced teams within the force, he can successfully accomplish missions of short duration which have heretofore been assigned to much larger units.

MAJ CHARLES D. FOLSOM received a commission in the reserve upon graduation from Oak Ridge Military Institute in 1939. He entered active service in 1941 and saw combat in World War II as a company commander with the 83d Infantry Division. He was wounded in Europe and evacuated to the United States. Four years later, after a brief return to civilian life, he received a regular commission and was assigned to the 1st Infantry Division in Germany, where he served in several command and staff jobs. His next assignment was with the G1 Section, Second U.S. Army, at Fort Meade. Overseas again, he joined the 25th Infantry Division in Korea, serving as battalion executive officer, battalion commander and assistant division chief of staff. Since 1954 he has been an instructor in the U.S. Army Infantry School's Tactical Department.



Infan

DO YOU

For if the trumpet give an uncertain sound, who shall prepare himself to the battle?

I Corinthians, xiv, 8.

This is a period of profound change within the Army and the Infantry. Revisions in doctrine and techniques for future combat are the order of the day. The advent of nuclear power as a tool for war and other technological advances have brought and will continue to bring modifications in our organizations, weapons, equipment and tactics. The problem of keeping abreast of these changes and new developments is a staggering one for any officer or noncommissioned officer. In the Infantry where we must know so many more weapons and where leadership problems are so much more varied than those in some of the other branches, this problem is magnified. Yet, it is a problem we must face squarely — and solve.

The battlefield of the future will demand — more than ever before — strong leadership. We have heard and read much about abstract and elusive qualities which characterize the military leader and which our great commanders of the past have displayed. While there is never unanimity as to the most desirable attributes of the successful leader, there is general agreement that he must have *comprehensive knowledge of the job at hand*. This requirement may not be described in these precise words but it is ever present. Some have called it *technical mastery*. Our Chief of Staff, General Maxwell D. Taylor, describes it as *professional competence and ability*. Others have simply labeled it as *knowing your stuff*.

Regardless of the terminology, it is quite clear that *we must know our job*. Department of the Army Pamphlet Number 600-3, "Career Planning for

By MAJ GEN ARMISTEAD D. MEAD

tryman!

KNOW YOUR JOB?

Army Officers," concisely expresses the need in these words: "There is no type of human endeavor where it is so important that the leader understand all phases of his job as that of the profession of arms. A military commander is vested with a high degree of authority which extends into matters normally considered individual and personal. Everything concerning a soldier's existence, ability, potentiality, professional knowledge, as well as those matters which influence his personal life such as his food, clothing, comfort, promotion, and in time of war his very life, depends upon his commander's knowledge and appreciation of the importance of all phases of his work."

I need not belabor the point. We all recognize that knowing our job is a fundamental element of leadership and an absolute necessity in the successful training and functioning of the Army. It is a matter of utmost concern to every officer and noncommissioned officer. Yet, during numerous and widespread training inspections, staff visits and maneuver observations I have witnessed many Infantrymen who do not know what they are doing. I have followed the conduct of training tests and have studied the results. In many instances performance has been unsatisfactory. Some commanders fail to maintain control of their units and do not coordinate the employment of their supporting weapons. Other officers and noncommissioned officers, while supposedly supervising training, do not recognize or correct obvious errors in tactics and techniques.

I am not the only one to witness these shortcomings. Many senior officers, with whom I have talked, also have noted and commented on similar deficiencies. I am sure you have seen them yourself.

In spite of the problems we face we can never offer a reasonable or acceptable excuse for not knowing our job. Many of the things we need to know are basic—

they have not changed, they are not new. I am particularly disturbed whenever there is evidence that we lack knowledge of basic matters. These are things that can be acquired, with a little enterprise, by anyone who has the desire or proper motivation to do so. As an old First Sergeant of mine used to say, "You can excuse a man for being stupid 'cause he was born that way, but there's no excuse for a big belly hanging over a dirty waist belt!"

On the other hand, I realize that keeping up with voluminous changes and new developments can be difficult. But I repeat, we cannot make or accept excuses. We must find ways of acquiring the knowledge we need.

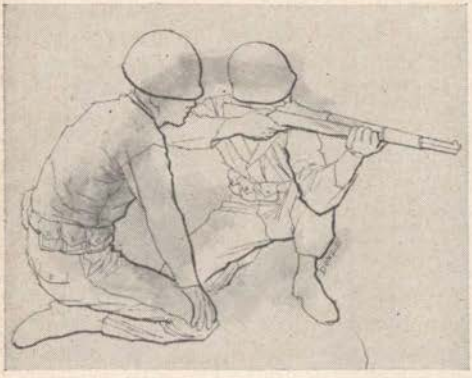
Admittedly, we have a problem. How are we going to solve it?

The first step, of course, as always, is command action. This is a step that must start at the top. If our subordinates do not know what they are doing we are at fault. We have with us, at all times, responsibility for the training and performance of those under us. If they fail to measure up, our own ability to command is questionable. We must assume this responsibility of command and see to it that our subordinates maintain professional competency.

It is of greatest importance that all leaders, especially field grade and higher, practice delegation of duties and foster initiative in their officers and men. We must give our subordinates jobs appropriate to their rank and then let them alone to work out the details. On the other hand, it is of equal importance that we know how to handle the job ourselves, at least well enough to supervise and check the subordinate's performance. The successful training and operation of the Army is hinged on this principle of delegation of duties and command supervision. If a commander lacks necessary knowledge or is dilatory in using it or if he looks at training with unseeing eyes, he does not belong in the chain of command.

An important adjunct to command action in solving this problem is our school system. It is reputedly the world's finest. Our own United States Army Infantry School is the foremost institution of its kind in existence. And, although none of our Infantry School courses is designed or expected to teach an officer *all* he needs to know about any particular subject, I am firmly convinced that the graduate of the Infantry School who goes directly to the duty for which he has been trained, does an acceptable job. The degree of acceptability will depend on the amount of time the individual devotes to

Command supervision is this



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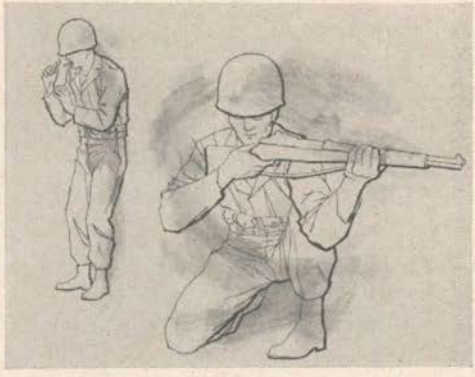


study and further improvement of his knowledge after leaving the school. I am also convinced that the very many Infantry School graduates who go to branch immaterial assignments or duties other than those in which they have received training will soon forget much of the tactical and technical knowledge they have accumulated. The amount they forget or retain will depend directly on the amount of personal effort they put into keeping up with Infantry professional matters.

The surest solution to our problem will be provided by personal effort. Command action and schooling will help but they alone cannot correct all of our individual deficiencies. Each of us must devote a fair share of his own time to constant self-improvement. This is the only way we can maintain our professional competency.

How long has it been since you had a machinegun or a BAR home for the weekend? When did you last look into the manual to refresh yourself on tactics for the rifle platoon or the rifle company? How many of our training texts or official service magazines have you read in the past year?

I invite you to indulge in a bit of self-analysis. Ask yourself the question, "Do I really *know* my job—the one I am doing today and the one I may be called upon to do tomorrow?" Before you answer let me pose a few questions on a variety of subjects which should be well known to a good Infantryman:

1. What is the difference between concurrent and integrated training? What is the purpose of each?

2. What are the most common stoppages encountered when firing .30-caliber machineguns and the cause of each?

3. What does the term "basic load" mean in relation to a particular type of ammunition?

4. What are the duties of a coach in rifle marksmanship training? What should he do when his "pupil" fires outside the four ring?

5. What are the organic fire support weapons of the rifle platoon? Rifle company? Infantry regiment?

6. Under the Uniform Code of Military Justice what commander is author-

MAJ GEN ARMISTEAD D. MEAD was commissioned in the Infantry upon graduation from the United States Military Academy in 1924. Prior to World War II he served in Infantry assignments in the United States, the Philippines and Hawaii and was an instructor at The Infantry School. During the war he served in both the Pacific and European Theaters. Later, returning to The Infantry School, he was in turn director of the Staff and Tactical Departments. In Korea, he was assistant division commander of the 3d Infantry Division. After a tour as chief of staff, Third Army, he returned to the Far East and commanded the 1st Cavalry Division. In his present assignment as chief of Infantry, Headquarters, Continental Army Command, he is the foremost spokesman for the Infantry.

ized to reduce a corporal?

7. What are the four phases of the Army training cycle? What is the purpose of each phase?

8. What are the maximum and minimum ranges of the 81mm mortar? The 4.2-inch mortar?

9. What is the difference between a field exercise and a field maneuver?

10. What is the mission of the Infantry in the attack and defense?

11. How does one aline the weapons system of the 106mm Recoilless Rifle M-40 using the M-92D direct fire sight?

12. What is a National Match Grade M-1 Rifle?

13. What major requirements in tactical operations for Infantry units are necessitated by atomic warfare?

14. What are the principal radios in the rifle company? Infantry regiment?

15. How many men are in the rifle squad, rifle platoon, rifle company and battle group of the new Infantry division?

16. Where is second echelon maintenance performed on the vehicles of the rifle company?

17. What is the primary difference between the new Trainfire system of rifle marksmanship instruction and the instruction we have used in the past?

18. What weapons are the light weapons Infantryman trained to operate? The heavy weapons Infantryman?

19. What jobs are graduates of the Basic and Officers Candidate Courses at the United States Army Infantry School trained to fill?

20. What is the maximum weight of equipment normally carried by the Infantryman?

I do not consider that knowing the correct answers to these questions will necessarily enable you to say that you know your job or that they will qualify you as an Infantry commander. However, failure to know the correct answers should serve as an indicator that you're getting too far away from the Infantry!

The extensive evolution in doctrine and organization which lies ahead will create even greater demands for professional competency on the part of all Infantry leaders. These increased demands

must be met largely by study and self-education. If we devote adequate time to the needed self-improvement it will be reflected in sound planning and effective supervision of training. The troops will know that we *do* know our job. Most important of all, we will be ready for our real job—combat. So, as Infantrymen at the head of the column and on the right of the line, let's heed Paul the Apostle and insure that in the future our trumpets sound loud and clear!

ANSWERS TO QUARTERLY QUIZ *(See page 45)*

Possible score 100 points, expert 90-100, sharpshooter 70-80, marskman 50-60, recruit 30-40 and bolo 0-20. For detailed discussion of the answers check the references listed.

1. Defensive measures include: shelter, damage-control plans and organization, dispersion of units and facilities, individual protection and counterreconnaissance and counterintelligence efforts to prevent the enemy from discovering lucrative targets. At higher echelons electronic countermeasures, deception, clandestine intelligence and destruction of enemy mass-destruction-weapons capabilities are employed. (Chap. 9, Sec. VI, Par. 299b, FM 100-5, September 1954.)
2. **No.** Section 9 of the Uniform Code of Military Justice, 5 May 1950, provides that any civil or criminal prosecution against a member of the armed services on account of an act done under color of his office may be removed for trial to the Federal District Court.
3. Integrated training is conducted in addition to and as a part of the scheduled subject and affects the entire unit at the same time. Subjects to be integrated should be related to, but not necessary to, the effective presentation of the scheduled subject. One or more subjects may be integrated; however, each subject must be planned. The subjects being integrated may be any in which the unit has shown weaknesses or in which a commander desires more emphasis. Additional instructors are not normally necessary. Personnel should have received previous instruction in the integrated subjects. An example of this type of training is the integration of a gas attack with a platoon advance-party exercise.

Concurrent training takes place simultaneously with the scheduled subject but affects only part of the unit at one given time. The subjects to be taught concurrently may either be related or unrelated to the scheduled subject and must be carefully planned and presented. This training normally requires additional instructors. It should not be used merely to keep troops busy but must serve a materially constructive purpose. Concurrent training may be used to introduce new subjects, for additional training in subjects previously presented, or for make-up periods for personnel who missed past instruction. An example: Training in the use of booby traps for personnel of a unit waiting to participate in a combat-in-cities problem.

Both integrated and concurrent training should be used whenever possible because they provide for maximum use of training time. (Part 3, Par. 39, Operations and Training Handbook, United States Army Infantry School. This material will be included in a revised edition of FM 21-5.)
4. A magnetic azimuth of 4 degrees. When magnetic north is *west* of grid

north, as in this situation, add the number of degrees in the declination diagram (the GM angle or 10 degrees in this case) to the grid azimuth to find the magnetic azimuth. (Chap. 3, Sec. III, Par. 50, FM 21-26, March 1956.)

5. To aline the weapons system make the axis of the 106mm bore (extended) and the telescopic line of sight parallel or convergent on some distant aiming point beyond the range to any likely target. After boresighting the 106mm rifle with the direct-fire sight, aline the spotting rifle with the system by zeroing at a range between 1000 and 1200 yards. (Chap. 6, Sec. V, Par. 144, FM 23-82, December 1955.)

6. **b.** The best locations for transmission and reception are hilltops, elevations or other slight rises in the ground. Flat, open terrain also is good. As a general rule transmission over water is better than over land. Valleys, depressions, densely wooded areas and low places are poor sites. When the set is installed in a vehicle it should be kept away from bridges, large buildings or trees and heavily traveled roads. Proper siting and proper antennas can be more effective in maintaining communication than increasing the power of the radio 10 or 20 times. (Sec. IV, Par. 29, Technical Bulletin SIG 223, March 1954. For additional information on getting maximum efficiency from Infantry radios see "Longer Range for Infantry Radios," *Infantry School Quarterly*, July 1956.)

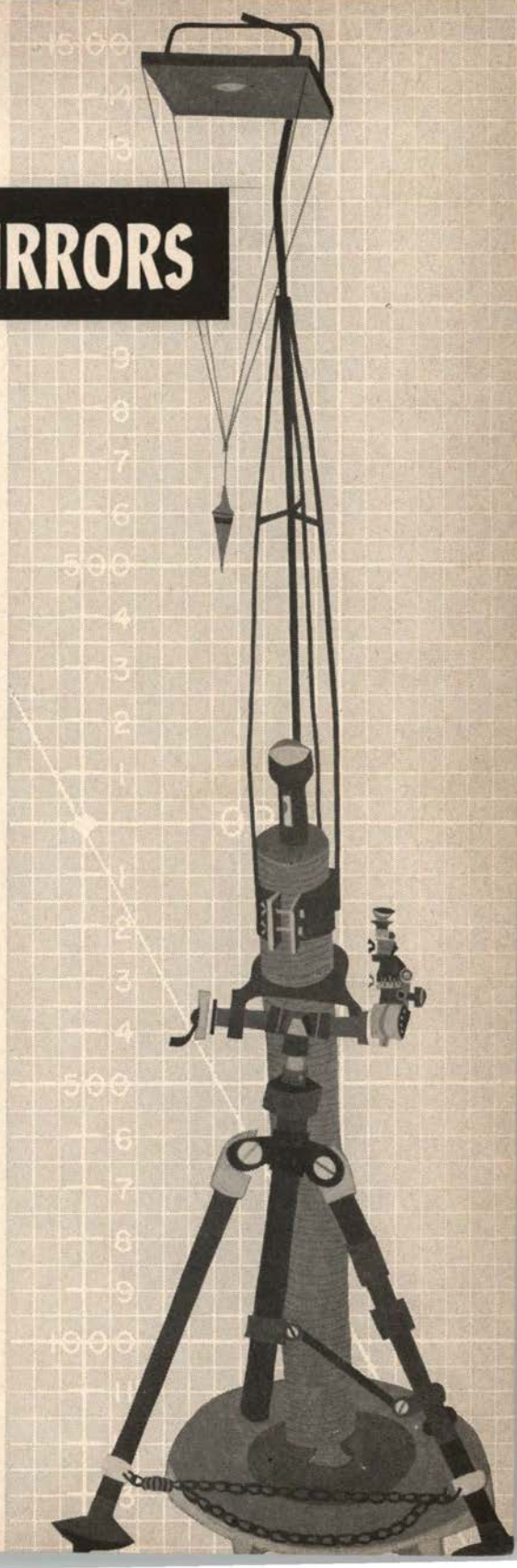
7. **a.** (Chap. 1, Sec. II, Par. 6a, TM 9-772A, April 1952.)

8. Intervals between strongpoints must be kept under observation to reduce the possibility of undetected enemy airborne attack, guerilla action or infiltration in such numbers as to threaten the integrity of the strongpoints or critical installations. The commander develops a detailed plan, based on the plan of higher headquarters, for the employment of all available means to provide adequate surveillance. Initially, he may emphasize the plan of surveillance forward of the battle position. He should, however, maintain a proper balance for the plans of surveillance within and forward of the battle position. The combat effectiveness of the strongpoints is maintained by avoiding the assignment of responsibilities for surveillance beyond the strongpoints' capabilities. Within his area of surveillance, a commander is charged with the all-inclusive responsibility of observing and reporting the presence of enemy forces. This may be accomplished through a combination of patrols, observation posts, patrol bases, listening posts and air reconnaissance. (Infantry School Reference Material, Tactics, Infantry Regiment, Chap. 2, Sec. V, Par. 10, April 1956.)

9. The basic load of ammunition is a fixed amount of ammunition authorized by the Department of the Army to be in the possession of a unit. It is that quantity of ammunition carried by the individual soldier, stowed in self-propelled weapons, carried in prime movers and in unit trains. The basic load is designed to enable a unit to enter combat and to sustain itself in combat until it can be resupplied. (Chap. 5, Sec. V, Par. 103, FM 101-10, September 1956.)

10. Realism. Although the fundamentals of shooting remain the same, Trainfire I uses a more realistic approach than conventional known-distance firing to train the combat rifleman. The purpose of Trainfire I is to teach a soldier to detect, engage and neutralize enemy personnel targets. To accomplish this purpose Trainfire uses target-detection ranges and increased field firing—both of which have a higher transfer value to actual combat firing than does the present KD firing. (Infantry School Instructors Guide for Trainfire I, Chap. 2, Par. 3, November 1956.)

MORTARS & MIRRORS



The problem of making indoor mortar instruction profitable and interesting has been the subject of experimentation for many years. Inclement weather, economy and limited range facilities, particularly for reserve component units, have demanded the search for a practical means of teaching crew drill and mortar gunnery in a classroom. Such a means must be relatively simple and inexpensive, yet realistically provide practice in all procedures employed in actual firing on an outdoor range.

Many training aids have been devised for this purpose but, to date, none has quite solved the problem. They have been either too expensive or too complicated to be produced locally or too simple and unrealistic.

Like most mortarmen I have pondered this problem and, after many frustrating attempts, have developed a device for use with the M-29 81mm mortar which I believe meets all the requirements and provides the training means for which we have been searching. My associates at the United States Army Infantry School, where it has been tested, have named it the Bryant Mortar Training Device. With it, students can train in every phase of 81mm mortar gunnery, from crew drill to firing and they can do it indoors.

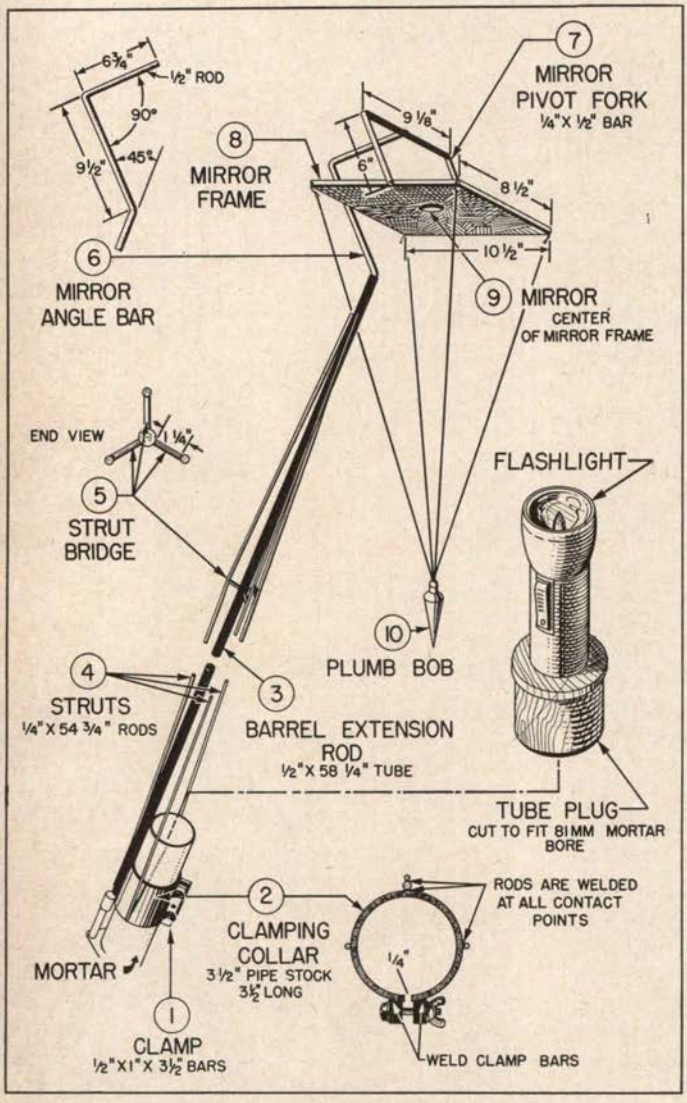
This device permits the mortar firing range to be brought indoors to a classroom where maximum instruction can

By M/Sgt Charles L. Bryant

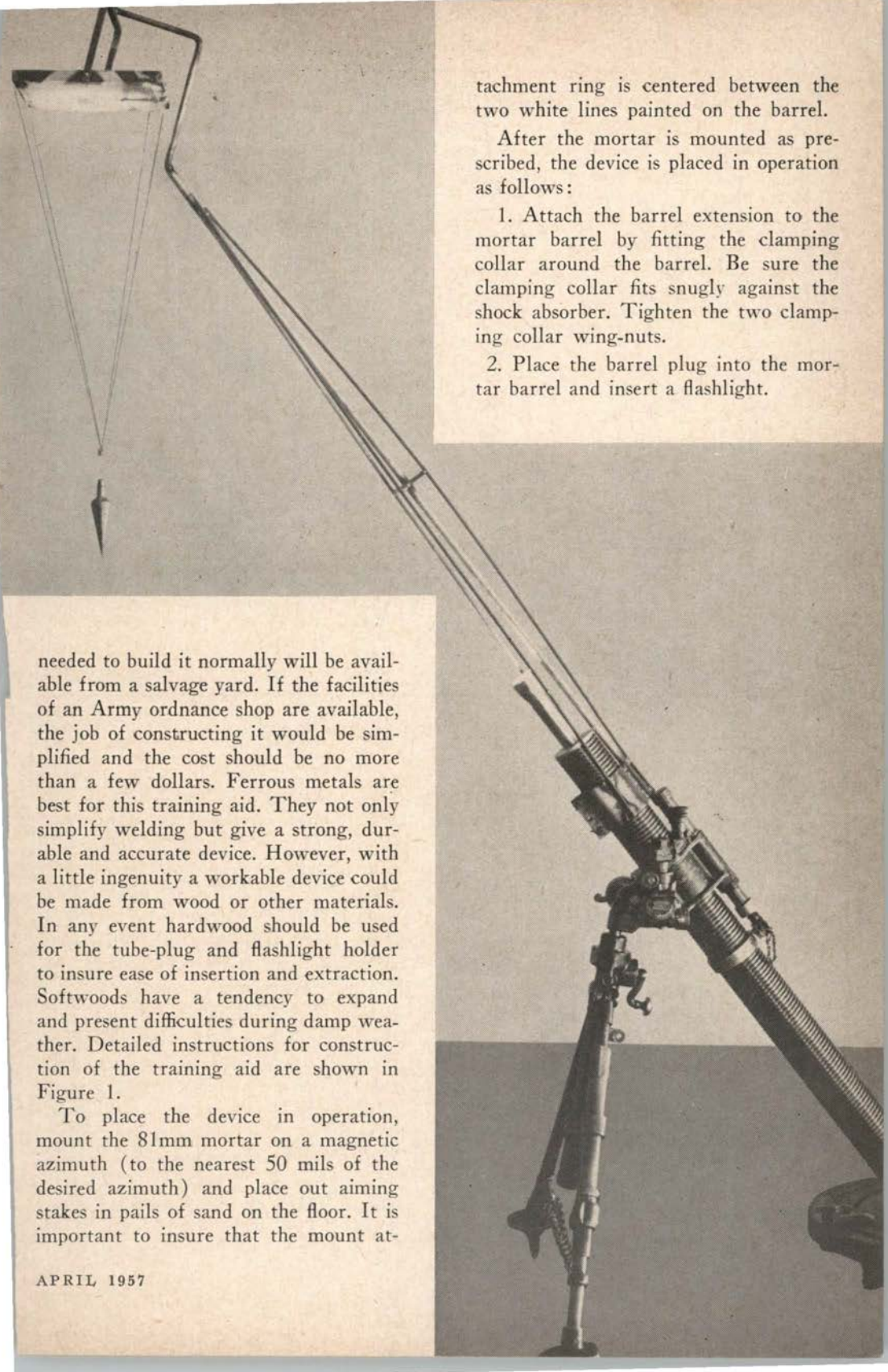
be given with a minimum of time, effort and expense. Inclement weather, the lack of facilities, ammunition or transportation or other bottlenecks to training need no longer hamper our mortar instruction. We can now go beyond the usual classroom or drill floor mechanical training and crew drill. Use of this aid extends the scope of indoor training to include instruction in the target-grid method of fire control with the M-10 plotting board, the conduct of fire, and forward observation procedures with visible target registrations. These capabilities make the device an ideal aid for National Guard or Reserve units. But it can also be an asset to any Army mortar unit to supplement range work.

Construction of the device is inexpensive and relatively simple. The materials

Figure 1. Construction details.



(1) CLAMP: Two 3½" pieces of ½x1" flat steel bar. Drill ½" bolt holes 1" from each end. Weld bars flush to lips of clamping collar. Wingnuts on ¼" bolts permit band tightening. (2) CLAMPING COLLAR: 3½" pieces of ⅛x3½" pipe. Cut ¼" slot for lip-gap. (3) BARREL EXTENSION ROD: A 58¼" length of ½" tubing. Weld to clamping collar opposite the collar lip-gap. (4) STRUTS: 3 steel rods ¼x54¾". Weld one strut on top of barrel extension rod at clamping collar; weld others on clamping collar at 3 and 9 o'clock. (5) STRUT BRIDGE: 3 bars of ¼x1¼" stock. Weld to barrel extension rod and struts at center of rod. (6) MIRROR ANGLE BAR: A 19¼"-long ½" solid steel rod. Insert 3" (depth of first angle) into barrel extension rod tube. Weld joint after getting proper angles in angle bar. (7) MIRROR PIVOT FORK: A 21½x ¼x½" steel bar. Bend 6" from each end to form "U". Drill ⅜" pivot hole ½" from each end. (8) MIRROR FRAME: An 8½x 10½x¾" piece of board or plywood. Frame by banding with heavy gauge sheetmetal strip. Strip should be ½" to ¾" wider than thickness of board to permit lapping on both sides. Center pivot holes on 10½" sides. Insert pivots through pivot fork and frame. Weld against metal band. Pierce corners of frame with ⅛" holes for plumb-bob attachment. Paint all surfaces flat black to reduce reflections. (9) MIRROR: Cement or tack a circular mirror to center of frame. (10) PLUMB-BOB: Must be heavy enough to keep mirror frame horizontal. Fishhooks (barbs removed) can be used to attach four cords to mirror frame. TUBE-PLUG: Make from hardwood to minimize swelling. Size of flashlight hole depends on type of flashlight. A 3- or 4-cell flashlight is best for strong light output and sharper reflection on target area.



needed to build it normally will be available from a salvage yard. If the facilities of an Army ordnance shop are available, the job of constructing it would be simplified and the cost should be no more than a few dollars. Ferrous metals are best for this training aid. They not only simplify welding but give a strong, durable and accurate device. However, with a little ingenuity a workable device could be made from wood or other materials. In any event hardwood should be used for the tube-plug and flashlight holder to insure ease of insertion and extraction. Softwoods have a tendency to expand and present difficulties during damp weather. Detailed instructions for construction of the training aid are shown in Figure 1.

To place the device in operation, mount the 81mm mortar on a magnetic azimuth (to the nearest 50 mils of the desired azimuth) and place out aiming stakes in pails of sand on the floor. It is important to insure that the mount attachment ring is centered between the two white lines painted on the barrel.

After the mortar is mounted as prescribed, the device is placed in operation as follows:

1. Attach the barrel extension to the mortar barrel by fitting the clamping collar around the barrel. Be sure the clamping collar fits snugly against the shock absorber. Tighten the two clamping collar wing-nuts.

2. Place the barrel plug into the mortar barrel and insert a flashlight.

FIRING TABLE
BRYANT MORTAR TRAINING DEVICE

Range	Charge	Elev.	Range	Charge	Elev.
800	1	1367	1500	2	1168
825	1	1360	1525	3	1160
850	1	1355	1550	3	1154
875	1	1346	1575	3	1146
900	1	1340	1600	3	1138
925	1	1332	1625	3	1132
950	1	1325	1650	3	1125
975	1	1318	1675	3	1118
1000	1	1311	1700	3	1108
1025	2	1304	1725	3	1101
1050	2	1296	1750	3	1094
1075	2	1290	1775	3	1085
1100	2	1283	1800	3	1080
1125	2	1278	1825	3	1068
1150	2	1268	1850	3	1066
1175	2	1260	1875	3	1058
1200	2	1254	1900	3	1047
1225	2	1248	1925	3	1042
1250	2	1241	1950	3	1034
1275	2	1233	1975	3	1024
1300	2	1226	2000	3	1018
1325	2	1220	2025	4	1012
1350	2	1212	2050	4	1004
1375	2	1205	2075	4	0992
1400	2	1198	2100	4	0984
1425	2	1192	2125	4	0980
1450	2	1184	2150	4	0970
1475	2	1174	2175	4	0960
			2200	4	0950

Figure 2. Firing table.

3. Attach the plumb-bob to the mirror frame by engaging the hooks in the four corner holes.

The device is now ready for operation. Various small objects, such as match boxes, flashlight batteries, etc., may be used to simulate targets on the floor in front of the mortar. A scale of 6/3600 (6 inches equal 100 yards) is used to construct the target area.

To operate the device, the forward observer is positioned to the right or left of the mortar at a minimum distance of ten feet from the target. If he is positioned any closer than this, it becomes difficult to focus binoculars. A screen may be placed in front of the mortar so that the gun crew cannot see the target area.

Assuming that the distance from the forward observer to the target is ten feet, and a range scale of six inches equal one-hundred yards is being used, this would make the observer target range 2000 yards. The FO determines the azimuth to the target and formulates an initial fire request which he transmits to the Fire Direction Center.

When the FDC receives this request, the computer formulates an initial fire command. He determines his firing data from the M-10 plotting board. A special firing table (Figure 2) must be used for elevation to obtain the proper range. The firing table contains a simulated charge element. This can be used or omitted in the fire command.

The gunner then receives the initial

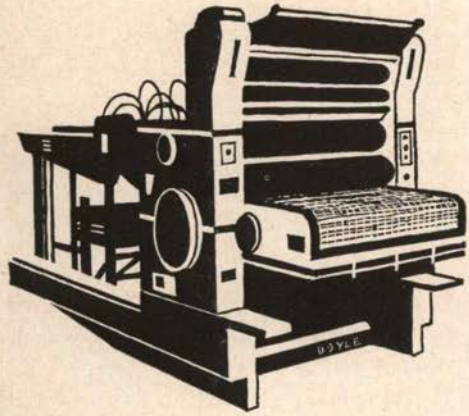
fire command from the FDC, places the announced deflection and elevation on the sight and lays the mortar accurately on the aiming stakes. The gunner fires the round by turning on the flashlight and announcing, "On the way." A beam of light from the flashlight will be reflected from the mirror downward to the target area at distances that vary according to the angle of mortar elevation. Normal gunnery procedures are then followed to adjust fire.

To make range corrections the forward observer uses the scale that has been established (six inches equal 100 yards). To make deviation corrections, the FO uses the mil scale in his binoculars and then converts mils to yards using the mil-relation formula (WORM formula). The range factor used in the mil-relation formula is determined by the scale.

It is readily apparent that this device allows the entire mortar platoon to be trained indoors, utilizing TOE equipment. Communications may be set up and the FDC moved into another room to add realism to the operation. All three units of the indirect fire team can be trained at the same time. Personnel should be rotated so that the entire unit receives instruction and practice in all phases of the training.

M/Sgt Charles L. Bryant began his military career in the Marine Corps in 1942. While in the Pacific Theater he learned the value of mortars in the hands of well-trained gunners—both our own and the Japanese. Since that time he has enlisted in the Army and has become an expert in 81mm-mortar gunnery. Sgt Bryant is applying his knowledge and experience to the instruction of future mortarmen as an assistant instructor with the Weapons Department of the United States Army Infantry School.

THE PRESSES ARE WAITING



. . . for an article from you. If you have ideas or information that will help other Infantrymen, let us know about them. If your article would be interesting and useful to our thousands of readers, we'll get those presses rolling. And we'll pay you for accepted material. Write: Editor, *Infantry,* Editorial and Pictorial Office, United States Army Infantry School, Fort Benning, Ga.

KNOWN? KNOWN INDEED!

A QUARTERLY *reader throws light on an old Infantry School article.*

Recently, while doing some research for my own satisfaction on the German General Ludendorff, I came across, quite by accident, information[1] which throws new light on an article published in the April 1947 issue of *The Mailing List,* predecessor of *Infantry.*

The Mailing List article, "The Principles of War," uses the battle of Tannenberg to illustrate the theory of unity of command. In that battle, Russian General Samsonov's Southern Army was encircled by the Germans and slaughtered. His pleas for help to the Russian Northern Army under General Rennenkampf were not answered.

The unnamed author of *The Mailing List* article says, "Had Rennenkampf known of the situation . . . and then failed to cooperate, he would have been guilty of criminal neglect of duty."

Known? Known indeed! Rennenkampf did know! Samsonov's plight was one for which he had been waiting for years!

This battle was lost ten years earlier in Mukden Station when Samsonov smashed his fist into Rennenkampf's face before two trainloads of their troops. The two generals, rivals from the same military academy, were bitter enemies from that day forth.

By chance, the Mukden brawl of Samsonov and Rennenkampf was witnessed by a German military observer and later related to a fellow officer, Captain Max Hoffman. This same Max Hoffman was Chief of Operations for Ludendorff at the time of the battle of Tannenberg. Having kept up with the Samsonov-Rennenkampf feud, he presented a plan, based on this knowledge, to attack and defeat Samsonov's army while it was separated from Rennenkampf by the waters and vast marshes of the Masurian Lakes. Hindenburg and Ludendorff bought the plan, although they did not know of the feud. At a crucial point in the battle, Ludendorff wanted to withdraw his forces because he was sure that Rennenkampf would hit his unprotected flank. It was then that Hoffman shared his secret. He was backed by Hindenburg and the gamble that Rennenkampf would not move was allowed to continue to ultimate, brilliant victory—a victory that soon saw the destruction of Rennenkampf's army as well.

Since *The Mailing List* author apparently did not have the benefit of this "inside story," I would like to set the record straight—particularly in view of the ultimate significance of this great battle. Tannenberg became a legend—a myth—that carried Ludendorff to the military dictatorship of Germany (1916-1918) and put him in a position to send Lenin to Russia—the consequences of which we are living with today. Had the Germans not won this battle, Lenin most probably would have rotted in Switzerland, an infamous revolutionary. By the same token, Hindenburg, who became a national hero as the result of Tannenberg, might not have become president of Germany. Instead, he probably would have died a somewhat obscure general. While Hindenburg actually signed Germany's death warrant when he handed over control of the country to Hitler, this did not become fact until we had dealt with Der Fuehrer, at a tremendous cost, in World War II.

ROBERT A. DETWILER
Harrisburg, Pa.

[1] *Wooden Titan: Hindenburg in Twenty Years of German History, 1914-1934,* by John W. Wheeler-Bennett, William Morrow and Company, New York, (1936).

CHECKLISTS for Infantry leaders

This is the fifth in the U.S. Army Infantry School series of checklists for small-unit leaders. These lists are for current TOE organizations. Many of the checklists will require revision for new Infantry units organized under the ROCID program. We repeat our word of caution on checklists. They are not inflexible rules but guides that should be modified to fit the situation. Use them to check your thinking and free your mind for other considerations.—Editor.

WEAPONS UNITS IN DEFENSE

Weapons Platoon Leader

1. After receiving the company commander's warning order—

a. Issues a warning order to his subordinates.

b. Accompanies company commander to receive battalion defense order.

c. Accompanies the company commander on his reconnaissance.

d. Makes recommendations to the company commander for the employment of the weapons platoon.

e. Selects specific personnel to accompany him to receive the company defense order.

f. Plans the use of available time to insure that sufficient time remains to employ the sections of the platoon.

g. Begins his estimate of the situation, analyzes the terrain within the company area of responsibility and considers available information of the enemy.

h. Arranges to move the platoon and to issue the order.

2. After receiving the company defense order—

a. Coordinates with other leaders of fire-support units in the company area.

b. Coordinates with rifle platoon leaders.

3. To prepare the platoon for the defense—

a. Orients his section leaders on the terrain.

b. Issues the platoon defense order, including—

(1) Information of enemy and friendly forces.

(2) Attachments and detachments.

(3) Tasks for each squad or section, depending on their employment.

(4) Priorities for work in preparing position.

(5) Administrative and logistical matters.

(6) Command and signal matters.

c. Announces his location during conduct of defense.

4. Takes section leaders over area previously reconnoitered and—

a. Assigns the general location of the sectors of fire for the mortar squads.

b. Tells each section leader the requirements of the company and battalion preliminary fire plans and assigns one barrage for each mortar.

c. Designates the general location for the squads of 57mm rifle section and assigns each squad a principal direction of fire in accordance with the company preliminary fire support plan.

d. Insures that security is provided for the sections of the platoon.

e. Insures that ammunition resupply responsibilities are assigned.

5. Supervises preparations for the defense by—

a. Insuring that squad orders are issued correctly and, by questioning the members of the platoon, making certain that each member understands the orders.

b. Insuring that communications are established as required within the platoon.

c. Assigning specific duties to his command-group personnel to assist in the employment of the platoon.

d. Making certain that the mortars are capable of firing their assigned sectors and barrages.

e. Insuring that the mortars are located where they have good routes of communication, dispersion, mask clearance, defilade, and can receive protection from a rifle platoon.

f. Making certain that ammunition is stockpiled on the position.

g. Insuring that camouflage of the position is maintained.

h. Checking the range cards of the 60mm mortars and 57mm rifles.

i. Insuring that sufficient observation posts are organized for complete coverage of the company front and that communication with the observation posts is established.

j. Checking the 57mm rifle positions to insure their correct location and proper organization.

k. Assisting the company commander in receiving rifle platoon fire plans, integrating them into the company preliminary fire-support plan, and forwarding the final plan to the battalion fire-support center.

l. Assisting the company commander in transmitting the information contained in the battalion fire-support plan to platoon leaders and subordinates.

6. During the conduct of the defense—

a. Remains with the company commander to keep him advised on employment of the platoon.

b. Establishes priorities of fires; controls and directs the massing of the platoon's fires on the most dangerous targets as directed by the company commander.

c. Keeps the company commander advised on the effectiveness of the weapons platoon.

d. Maintains communication with his subordinate leaders and keeps them informed of the situation.

e. Checks on ammunition expenditures and requirements, casualties, and the amount of reorganization required as the fighting progresses.

Weapons Squad Leader

1. After receiving the platoon leader's warning order—

a. Issues a warning order to the squad.

b. Accompanies the platoon leader to hear the company defense order.

c. Accompanies the platoon leader on reconnaissance.

d. Plans positions for the squad's machinegun teams according to the battalion preliminary fire plan and locations of avenues of approach, and makes recommendations to the platoon leader for their employment.

e. Reconnoiters the recommended positions and walks final protective lines to determine the location of gaps.

2. After receiving the platoon leader's order—

a. Begins his troop-leading steps.

b. Coordinates with the rifle squad leader in whose area the machineguns are placed.

c. Moves the squad into position.

3. To prepare the squad for the defense—

a. Orients squad members on the terrain.

b. Issues the squad defense order, including—

(1) Information of the enemy and friendly forces.

(2) Mission of the squad.

(3) Tasks for each member of the squad.

(4) Administrative and logistical matters.

(5) Command and signal matters.

c. Assigns exact locations on the ground for machinegun teams and ammunition bearers.

d. Informs machinegun-team leaders about the final protective lines and the sectors of fire assigned by the platoon leader.

e. Directs the gunners to mount their guns in position and to verify their final protective lines and sectors of fire.

f. Coordinates with the rifle squad leader when assigning sectors of fire for the ammunition bearers and providing security for the weapons.

g. Designates certain members of each machinegun team to remain with the guns to insure security and readiness to fire.

h. Directs the organization of the position according to the priorities established in the platoon order.

i. Plans to locate himself where he can control fires of both guns, if possible.

4. Supervises preparations for the defense by—

a. Insuring that all members of the squad understand the details of the order.

b. Coordinating with platoon leader to insure that the sectors of fire assigned and final protective lines tie in with the fire plan.

c. Checking the work being done on the ground to insure maintenance of camouflage and continuous improvement of the position.

d. Checking that the work being done on the construction of emplacements and fields of fire is effective and coordinated.

e. Insuring that all members of the squad know the challenge and password.

f. Supervising the preparation of range cards.

g. Insuring that he can maintain communication with the platoon leader.

h. Insuring that ammunition is distributed and stockpiled on the position.

5. In the conduct of the defense—

a. Maintains observation to front and notifies the platoon leader of any enemy activity observed.

b. Gives timely warning of the approach of the enemy.

c. Maintains fire discipline based on platoon leader's orders.

d. Directs the fires of the machineguns on the enemy.

e. Joins in the final protective fires on order from the platoon leader.

f. Keeps the platoon leader informed about casualties and ammunition supply.

g. Keeps his subordinates informed of the situation.

Antitank Platoon Leader

1. After being notified to meet the company commander to receive the reconnaissance order—

a. Notifies personnel to accompany him on reconnaissance.

b. Alerts the platoon to begin preparations for the defense.

2. After receiving the reconnaissance order—

a. Plans the time available for reconnaissance.

b. Plans his reconnaissance by—

(1) Studying the terrain from a map, sketch or aerial photo looking for—

(a) Avenues of enemy armor approach.

(b) Section firing-position areas.

(2) Making an estimate of the situation.

c. Arranges for moving the platoon (where, when, how).

d. Makes his reconnaissance (selects routes, a time schedule, persons to take along, and decides how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander on—

a. Method of utilization—

(1) Can the fires of the platoon best be controlled by the battalion commander?

(2) Can the fires of the platoon best be controlled by the platoon leader or section leaders?

(3) Can the fires of the platoon best be controlled by the rifle company commanders?

b. Selection of firing-position areas for each section—

(1) Fields of fire.

(2) Observation.

(3) Cover and concealment.

(4) Routes into position.

(5) Room for dispersion.

(6) Security.

(7) Alternate and supplementary positions.

4. After completing his reconnaissance arranges for—

a. Issuing the platoon defense order (when, where, to whom).

b. Coordination with leaders of other supporting units and commanders of units in whose areas the guns are located.

5. After receiving the heavy weapons company defense order—

a. Completes the platoon defense plan.

b. Completes his reconnaissance.

c. Prepares his order.

d. Issues the platoon defense order to key personnel, including in it the—

(1) Method of utilization for each section.

(2) Section firing-position areas.

(3) Fire-control instructions.

(4) Plan for ammunition resupply.

(5) Limitations imposed by ammunition supply.

e. Submits a sketch or overlay to company commander showing the—

(1) Section firing positions.

(2) Principal direction of fire for each section.

6. During the conduct of the defense—

a. Locates himself where he can best control his platoon.

b. Keeps the heavy weapons company commander informed.

c. Keeps his subordinates informed of the situation.

d. Supervises the platoon's—

(1) Ammunition resupply.

(2) Conduct of fire.

81mm Mortar Platoon Leader

1. After being notified to meet the company commander to receive the reconnaissance order—

a. Notifies personnel to accompany him on reconnaissance.

b. Alerts the platoon to begin preparing for the defense.

2. After receiving the reconnaissance order—

a. Plans the time available for reconnaissance.

b. Plans his reconnaissance by—

(1) Studying the terrain from a map, sketch or aerial photo looking for firing-position areas.

(2) Making an estimate of the situation.

c. Arranges for moving the platoon (where, when, how).

d. Makes his reconnaissance (selects routes, time schedule, persons to take along, and decides how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander on—

a. Method of utilization—

(1) Can the fires of the platoon best be controlled by the battalion commander?

(2) Can the fires of the platoon best be controlled by the platoon leader or section leaders?

(3) Can the fires of the platoon best be controlled by the rifle company commanders?

b. Selection of firing positions—

(1) Defilade.

(2) Located near the center of sector.

(3) At or beyond minimum range from the forward edge of the battle position.

(4) Mask and overhead clearance.

(5) Good routes into the position.

(6) Room for dispersion.

(7) Security.

(8) Alternate and supplementary positions.

c. Location of platoon observation post—

(1) Is there good observation of the battalion sector?

(2) Is there cover and concealment?

(3) Is it near the battalion observation post?

4. After completing his reconnaissance arranges for—

a. Issuing the platoon defense order (when, where, to whom).

b. Coordination with leaders of other supporting units and the commander of the unit in whose area the mortars are located.

5. After receiving the heavy weapons company defense order—

a. Completes the platoon defense plan.

b. Assigns final observation parties to the rifle companies.

c. Completes his reconnaissance.

d. Prepares his order.

e. Issues the platoon defense order to key personnel, including in it the—

(1) Method of utilization for each section.

(2) Firing-position area(s).

(3) Fire control instructions, including—

(a) Registration of concentrations and barrages.

(b) Location of platoon fire-direction center.

(4) Plan for ammunition resupply.

(5) Limitations imposed by ammunition supply.

f. Submits a sketch or overlay to the company commander showing the—

(1) Mortar position(s).

(2) Location of assigned barrages.

(3) Location of concentrations the platoon is capable of firing.

6. During the conduct of the defense—

a. Locates himself where he can best control his platoon.

b. Keeps the heavy weapons company commander informed.

c. Keeps his subordinates informed of the situation.

d. Supervises the platoon's—

(1) Ammunition resupply.

(2) Conduct of fire.

Machinegun Platoon Leader

1. After being notified to meet the company commander to receive the reconnaissance order—

a. Notifies personnel to accompany him on reconnaissance.

b. Alerts the platoon to begin preparations for the defense.

2. After receiving the reconnaissance order—

a. Plans the time available for reconnaissance.

b. Plans his reconnaissance by—

(1) Studying the terrain from a map, sketch or aerial photo looking for firing-position areas.

(2) Making an estimate of the situation.

c. Arranges for moving the platoon (where, when, how).

d. Makes his reconnaissance (selects routes, a time schedule, persons to take along, and decides how to use subordinates).

3. While on reconnaissance prepares recommendations for the company commander on—

a. Method of utilization—

(1) Can the fires of the platoon best be controlled by the battalion commander?

(2) Can the fires of the platoon best be controlled by the platoon leader or section leaders?

(3) Can the fires of the platoon best be controlled by the rifle company commanders?

b. Selection of firing-position areas for each squad—

(1) Fields of fire.

(2) Observation.

(3) Cover and concealment.

(4) Routes into position.

(5) Room for dispersion.

(6) Security.

(7) Alternate and supplementary positions.

4. After completing his reconnaissance arranges for—

a. Issuing the platoon defense order. (when, where, to whom).

b. Coordination with leaders of other supporting units and commanders of units in whose areas his guns are located.

5. After receiving the heavy weapons company defense order—

a. Completes the platoon defense plan.

b. Completes his reconnaissance.

c. Prepares the order.

d. Issues the platoon defense order to key personnel, including in it the—

(1) Method of utilization for each section.

(2) Squad firing positions.

(3) Fire control instructions.

(4) Plan for ammunition resupply.

(5) Limitations imposed by ammunition supply.

e. Submits a sketch or overlay to the company commander showing the—

(1) Squad firing positions.

(2) Final protective line and sectors of fire for each squad.

6. During the conduct of the defense—

a. Locates himself where he can best control his platoon.

b. Keeps the heavy weapons company commander informed.

c. Keeps his subordinates informed of the situation.

d. Supervises the platoon's—

(1) Ammunition resupply.

(2) Conduct of fire.

WHAT'S NEW FOR INFANTRYMEN

APPROVED

School's Name Changed

A new Army policy to assure units are readily identified as part of the United States Army has effected a change in name for several Fort Benning installations. The Infantry Center and The Infantry School have been officially designated United States Army Infantry Center (USAIC) and United States Army Infantry School (USAIS). The Third Army Food Service School has been retitled the Third United States Army Food Service School.

Department Change

The Automotive Department, United States Army Infantry School, has been changed to Ground Mobility Department. Instruction in the department will be revised to emphasize the training of leaders in the production of ground mobility with the mechanical means available. This will be in addition to the training of the specialist in maintenance. Emphasis on mobility is designed to give the Infantry leader the first ingredient in the formula: Mobility + Firepower + Communication = Superior Force at Point of Decision.

Instruction on New Division

Changes are being introduced in instruction at the United States Army Infantry School for the new Infantry division which is being organized under the recently announced ROCID program. When the new organization is implemented, there will be no Infantry battalion. Battalion-level instruction will then be given only for the Armored-Infantry battalion, tank battalion and Armored-Cavalry battalion.

In the new organization, the rifle company is a larger unit possessing greater combat power and increased capabilities. Additional instruction at company level will be required. Reduction in time currently devoted to battalion level will permit this increase.

More attention also must be given to the duties and responsibilities of the battle group commander and his staff officers. Current concepts call for greater dispersion between battle groups and more frequent operations of an independent and semi-independent nature.

The new organization will require instruction in the employment of the brigade headquarters to familiarize the advanced-level student with:

1. Responsibilities of the battle group staff officer when the battle group is functioning as a part of the brigade.
2. Differences encountered when the battle group functions directly under division.
3. Differences encountered when the battle group functions tactically under the brigade headquarters and logistically under the division.

DEVELOPED

Face Shield

A new face shield for use by troops or others required to work in extremely cold climates has been developed by the Corps of Engineers Research and Development Laboratories, Fort Belvoir, Virginia. The shield is not clouded by

105mm Mortar.

the condensed moisture of respiration, and incorporates an improved, readily adjustable mounting, permitting it to be rotated upward 90 degrees when not needed. The main shield and inner apron are made of transparent plastic. The head harness can be adjusted to size.

Little John Rocket

A new rocket, the Little John (XM-47), has been developed for the Army. The 318mm missile, which is about 12 feet long, was designed as a small-caliber, lightweight field artillery free rocket. Little John will provide the field commander with highly mobile fire support of increased effectiveness. It will be built at Redstone Arsenal, Alabama.

Heavy Mortar

The newly developed 105mm mortar T33E3 is a smoothbore weapon having greater range and improved accuracy over the preceding heavy mortars. This weapon will permit greater traverse without displacement and, although lighter in weight, offers improved stability and ruggedness. The 105mm mortar, in the field artillery role, will supplement the light howitzer by providing an initial volume of area fire. The capability of the light howitzer will be augmented by the provision of very high angle fire to reach over obstacles and by the immediate response possible by close association of this weapon with the supported unit.

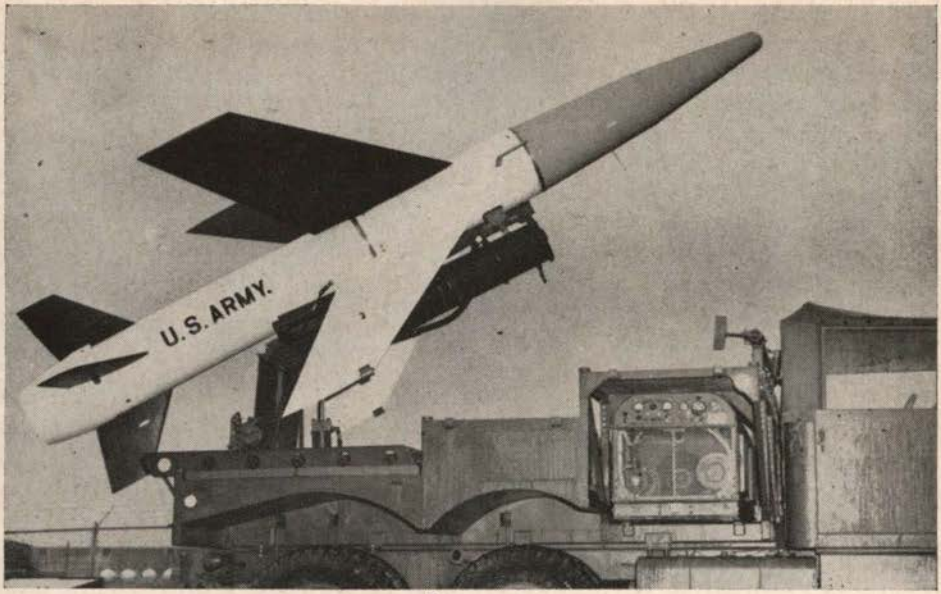
Lightweight Automatic Rifle

A newly developed lightweight automatic rifle, designated the AR-10, will be tested by the Army. The AR-10 weighs 6.85 pounds, has an aluminum barrel of special alloy, with a stainless steel liner, and a stainless steel, 20-round clip. The stock is made of feather-weight Fiberglas and plastic foam, with a rubber butt plate. It is manufactured by the Fairchild Engine and Airplane Corp., which has just entered the arms field with a series of lightweight, corrosion-resistant firearms. Another weapon in the new line is the AR-5, a 30½-inch survival rifle that breaks down into a 14-inch, two-and-a-quarter-pound package with storage of the barrel and action in the Fiberglas and foam stock. It will float if dropped into water. The Air Force has adopted this rifle as its standard survival weapon, according to the manufacturer.

Nike-Hercules

The Army's latest announced surface-to-air guided missile, Nike-Hercules, is undergoing final tests. It has several times the destructive force of the Nike-Ajax, which it was designed to replace in

Little John.



Lacrosse.

antiaircraft installations guarding key cities and strategic areas in the United States.

Known as Nike B during development, Hercules is substantially faster and has a much greater range than its predecessor.

Longer, heavier and more than double the diameter of the Ajax, the Hercules model will have extreme maneuverability at much higher altitudes. It should be operational with units in the relatively near future.

Both missiles can be fired with the same guidance system.

Lacrosse

A new member, Lacrosse, is joining the Army's family of surface-to-surface guided missiles—which already includes the Corporal, Honest John, Little John and Dart. Production has begun on Lacrosse, which has three main parts: the missile, propelled by a solid-fuel rocket motor; a launcher mounted on a 2½-ton truck; and a guidance station. Designed as a mobile, accurate close-support weapon, Lacrosse can answer calls for fire with a speed comparable to that of a 105mm howitzer. Lacrosse battalions probably will be assigned first to corps artillery, and possibly later to division artillery.

REVISED

New Nike Names

The Army has adopted new names for its Nike family of antiaircraft missiles. The weapons systems will be known as the Nike-Ajax instead of the Nike I; Nike-Hercules for Nike B; and Nike-Zeus for Nike II. The new names will be used throughout the Army immediately, according to a recent directive.

Small Unit Task Forces

In line with current emphasis on atomic-warfare and mobile-forces concepts, the United States Army Infantry School's current two-hour conference and map exercise on small unit task forces has been expanded into a six-hour conference and outdoor terrain exercise. The revised problem uses helicopters to move a task force in an atomic-warfare situation.

The fundamentals of task force organization and a discussion of strengths and weaknesses of various types of motorized and helicopterborne task groupings are covered in a two-hour classroom conference. The class then moves to an airstrip where it is divided into reinforced-platoon-size groups for practical work during the remaining four hours. All students act as task force commanders during the planning phase of the operation. They plan for the composition of a platoon-size task force, its loading and employment. Upon completion of this planning and the arrival at a solution in each group, the students form into reinforced-platoon-size task forces under their own leaders, organize, draw necessary weapons and equipment, issue orders and physically participate in helicopterborne assaults of three deep objectives. Once the objectives are seized, each task force organizes a roadblock and defends its area until simulated passage of the parent unit moving by motor along two axes of advance.

Each student has an opportunity to discuss the considerations in the organization of task forces, to plan and organize a task grouping and to participate in a helicopterborne task force mission—in addition to learning about the tactical use of atomic weapons. This new version, designated Problem 2054-B6, "Small Unit Task Forces," is presented to all BIOC and OC classes.

FIELD MANUALS

The following training literature is being written and edited; publication can be expected during the next year:

FM 7-10, Rifle Company, Infantry Regiment,[1] (based on new organization).

FM 7-21, Headquarters, Headquarters and Service Company, Infantry Regiment,[1] (based on new organization).

FM 7-40, Infantry Regiment,[1] (based on new organization).

FM 21-20, Physical Training.

FM 21-( ), Survival.

FM 23-5, US Rifle, Caliber .30, M-1.

FM 23-15, Change 3, Browning Automatic Rifle, Caliber .30, M-1918A2.

FM 23-30, Hand and Rifle Grenades.

FM 23-82, 106mm Rifle, M-40.

TM 21-200, a new technical manual for planning physical-training programs.

TC 21-( ), Physical Training.

ROTCM 145-10, Organization of the Army and ROTC.

DA pamphlet on Ranger training.

The following manual has been forwarded to USCONARC for approval:

FM 21-75, Combat Training of the Individual Soldier and Patrolling. When approved and published *FM 21-75* will supersede *TC 17, Battle Indoctrination,* and *TC 20, Sniper Doctrine.*

TRAINING FILMS

The following training films have been approved for release to requesting units:

TF 7-2433, The 106mm Rifle, Part I, Introduction to the Weapon.

TF 7-2434, The 106mm Rifle, Part II, Duties of the Crew and Service of the Piece.

TF 7-2435, The 106mm Rifle, Part III, Crew Drill on Vehicular Mount.

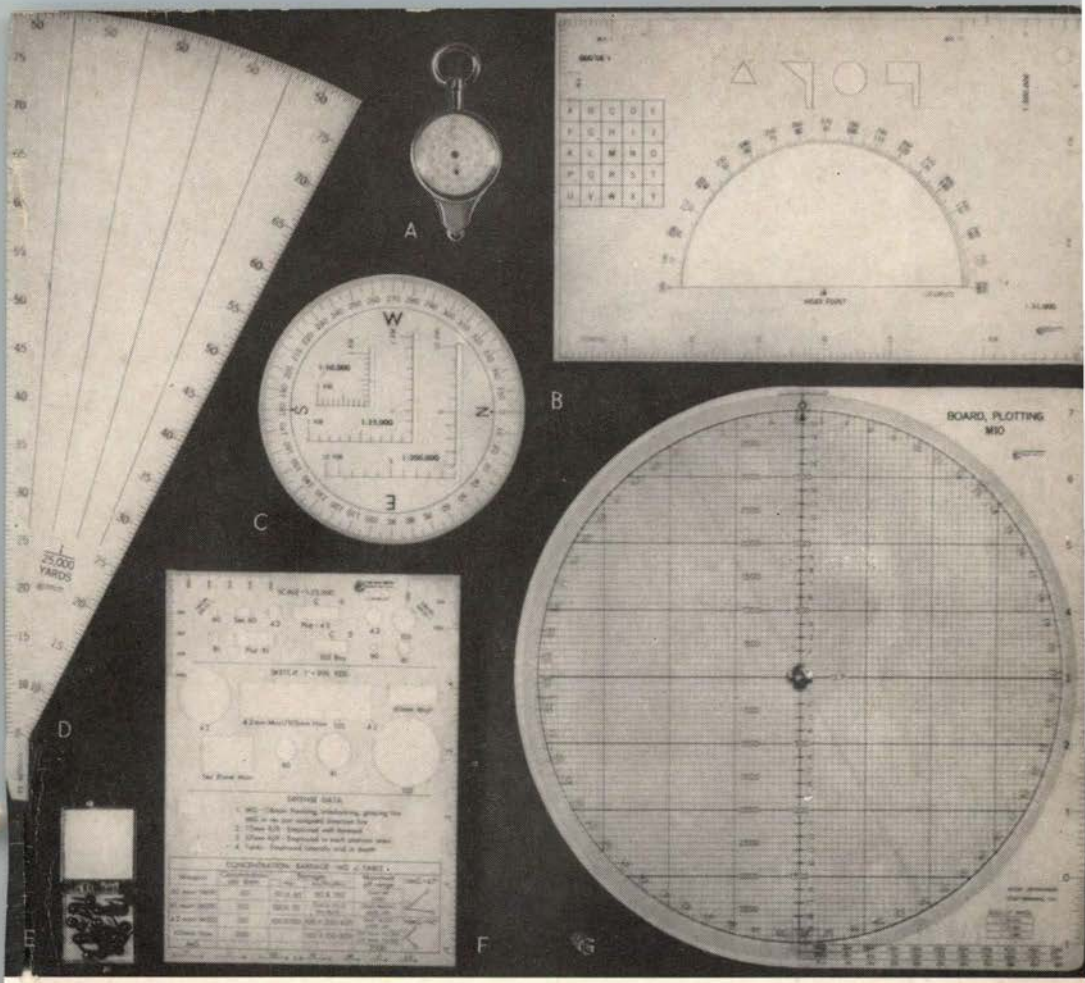
TF 7-2436, The 106mm Rifle, Part IV, Dismounting and Mounting the Rifle.

TF 7-2437, The 106mm Rifle, Part V, Using the Spotting Rifle.

(Each of the above films is about seven minutes long.)

TF 21-2197, Camouflage for Scouting and Patrolling, 30 minutes.

[1]This is current title of the draft manual. However, "Regiment" undoubtedly will be changed to "Battle Group" to conform to new organization.



Tools for Infantrymen

Working on a tactical or gunnery problem, or a map exercise? The proper tools will help. Here are a few of the many items carried by your Book Department to make your work easier and more accurate: A. map measurer, $1.75; B. protractor with coordinate scales and target-area designator, $ .90; C. 360° protractor with coordinate scales, $ .55; D. fan-type range deflection scale, $1.05; E. map pins, $ .25; F. defensive template with weapons data, $1.15; G. M-10 plotting board, $2.10. All prices include postage and handling. If the item you need is not listed ask us about it. We probably have it in stock. If not we will try to get it for you. Write:

Book Department, U. S. Army Infantry School, Fort Benning, Ga.

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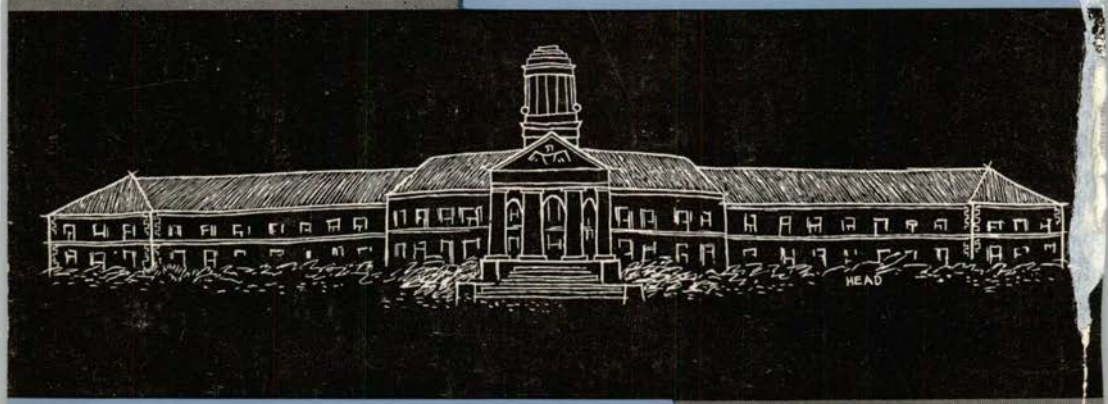

In this issue:

- **So You Want a Command**
- **Helicopterborne Operations**
- **More About Trainfire I**
- **Cracking the Thought Barrier**
- **Guerilla Warfare**
- **Evasion and Escape**
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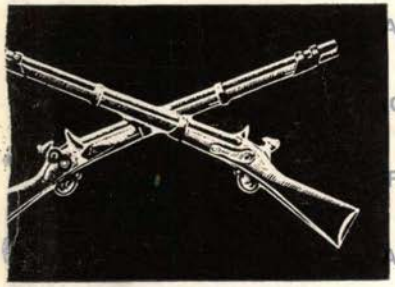

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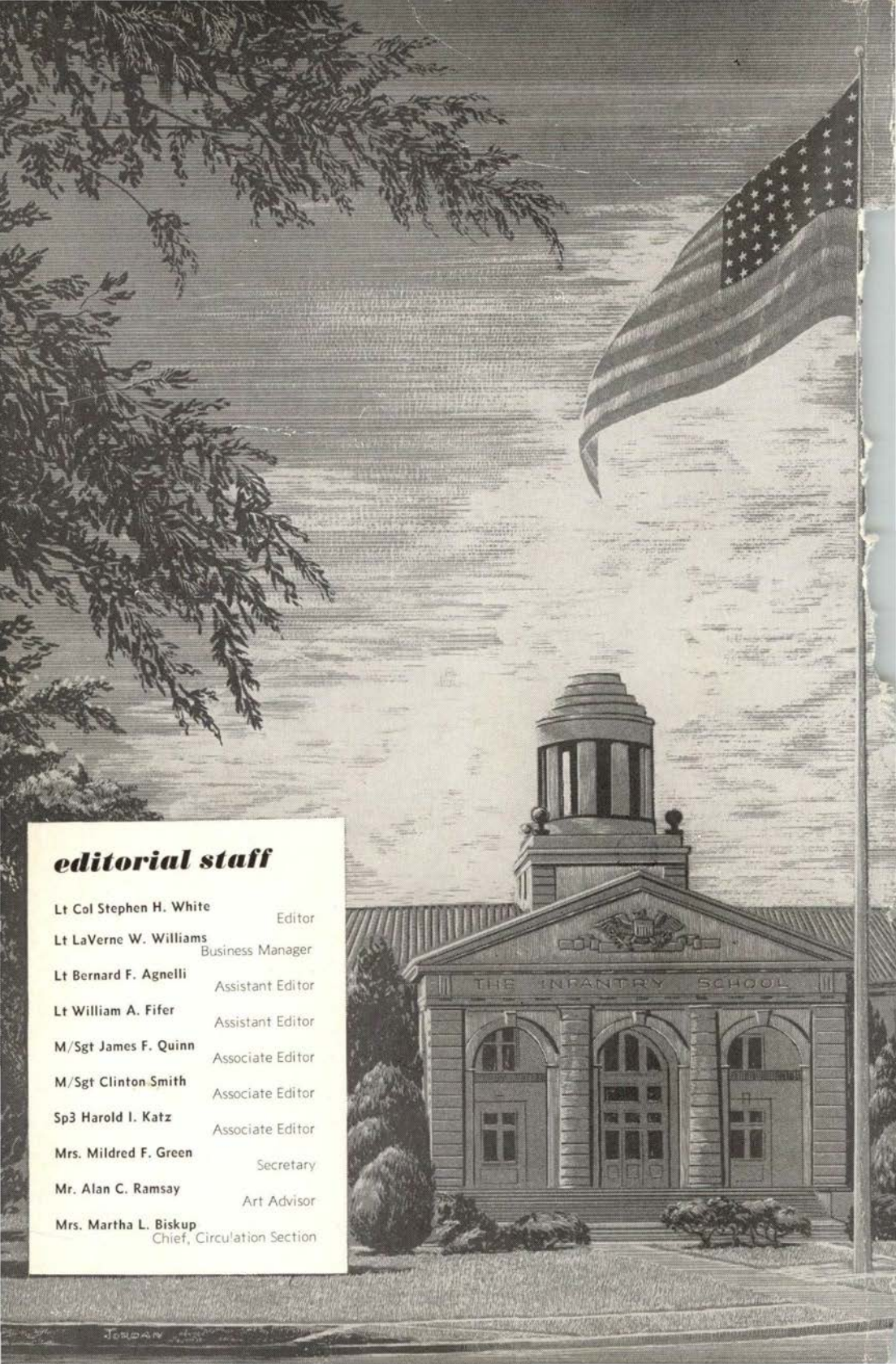

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Infantry

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volume 47 number 3 — july 1957

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features

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EDITOR'S PAGE

Dear Reader:

The Army, particularly the Infantry, is undergoing sweeping changes that will give us units and capabilities with little resemblance to those we knew in World War II and Korea. These changes range from "bare knees" to atomic artillery; from the new green uniform to the pentomic structures of our reorganized Infantry and Airborne divisions. They include new weapons and new tactics and provide for progressive integration of additional developments that can be expected during the next few years.

Infantrymen, and those who work with Infantry, must keep abreast of these accelerated changes. We must understand how specific changes fit into our requirements and plans for combat on the atomic battlefield. *Infantry* magazine will do everything possible to provide needed information. It will publish contemplated and approved developments that affect the Infantry and will attempt to relate each specific item to overall plans.

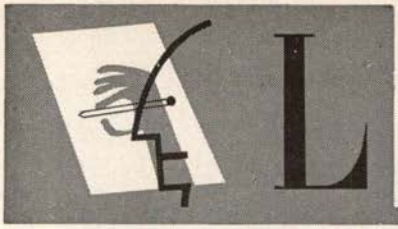
Past issues of *Infantry* have carried information on a number of items while they were still in the developmental stage. Battle Drill, Trainfire I, the 11 man rifle squad and many of the weapons and tactics discussed in *Infantry* have recently been adopted. With the publishing of the ROCID organization in the April issue, the reason for many of these developments became clear. Others will become more understandable as additional material is published on this organization.

In this issue we have an important "package" of related articles on pentomic Infantry division organization, tactics, firepower and mobility. In the next issue, and in issues for some time to come, other aspects of the new Infantry division; its weapons, its tactics and techniques for its employment will be discussed.

THE EDITOR

The Redstone missile, currently the Army's largest, takes its place along with other missiles and new weapons in support of ground troops on the atomic battlefield. The Redstone is controlled at Army or higher level.


U S A R M Y



LETTERS TO THE EDITOR

Airmen Read *Infantry*

Sir:

. . . I would like to take this opportunity to make a few comments about your very wonderful magazine. . . .

As a result of an accident during my Ranger training I was hospitalized at Eglin AFB for an extended period. I was very close to forgetting many things I had learned in OCS but that good old standby, *Infantry,* came to my rescue. I was able to brush up on a few things I'd forgotten and also to keep up on current changes in doctrine and training. Now this might not seem to be an unusual letter as you probably get many similar in content, but you might like to know that many Air Force officers with whom I came in contact while at Eglin actually argued about who would get my issues of *Infantry* after I'd finished reading them. Many of these officers have become avid readers of *Infantry.* It gives them expert and official viewpoints on changes and developments in a branch of service which many of them supported closely in Korea and during World War II but about which they haven't had a chance to learn much. I could go on and say many more good things about *Infantry.* The only bad thing is that I have to wait three months between issues.

Robert L. Goldtrap
1st Lt, Infantry
Ayer, Mass.

It is especially gratifying to hear that Infantry *is of interest and help to members of other services. We are pleased if, in a small way,* Infantry *can help to promote better understanding and cooperation among the various members of our defense team. We hope that someday circumstances will permit more frequent publication.—Editor.*

Permanent Plan OK

Sir:

. . . my one hundred percent endorsement of your new permanent subscription plan. This is one of the best ideas I've encountered for many a day—and I'm on your list. . . .

An Infantry officer cannot afford to be without *Infantry*—the unit problems, the new ideas and theories are tops. Articles like those of General Wyman and General Bruce Clarke are invaluable both to the professional and to the civilian component officer.

Congratulations on your very long step forward. . . .

Richard L. Gillespie
Colonel, USAR
Cleveland, Ohio

We have been happily surprised by the tremendous response to the permanent subscription plan. For readers who may have missed the announcement, this is how it works: Permanent subscribers will be billed $2.25 each year until termination of the subscription is requested. This, of course, can be done at any time. The new plan insures continuous delivery of Infantry, *reduces paperwork at both ends and saves the subscriber money. Present subscribers may convert to the*

plan at any time. Merely ask the Book Department, U.S. Army Infantry School, to "make mine permanent." *The first bill will be sent upon the expiration of any subscription now in effect. Of course, new subscribers also may choose this plan.—Editor.*

NCOs Subscribe

Sir:

I have been a subscriber to *Infantry* for several years. It has been an invaluable aid to me in keeping up with new developments in my so-called "side line," an Infantryman in the National Guard. . . . With the present emphasis on National Guard training, I felt that some positive action should be taken. I have therefore requested my NCOs to take advantage of this valuable training aid. You will find enclosed a check for fifteen subscriptions. . . .

If possible, it is requested that these subscriptions start with the January issue of this year so that they may take advantage of the excellent article entitled "Battle Drill."

Gunnar G. F. Pedersen
Captain, NYNG
Brooklyn, N.Y.

Paragraph two complied with. Needless to say, your letter has added spark to the editorial staff. We'll do everything possible to provide material which will be useful in your training. We hope we will receive similar letters from other units. If we ever let you down in any way let us hear about that, too.—Editor.

Checklists Helpful

Sir:

I have looked forward to your series of articles entitled *"Checklists for Infantry Leaders."*

Leaders within the battalion have made extensive use of these lists and they have been invaluable in training.

Have you published similar lists for the battalion commander and battalion staff officers? If you have, will you please advise me as to the issue in which the list appeared.

If you have not published checklists for the battalion commander and the battalion staff, could you please advise me as to where I might find them, or if the Book Department sells such lists?

C. G. Dansby
Maj, Infantry
New York, N.Y.

We have not published checklists specifically designed for the battalion commander and staff. However, on page 97 of this issue you will find a list of troop leading steps which is appropriate for all troop leaders.

As you probably know, there will be no battalion in the new Infantry division. (See "Why Five?", April 1957 Infantry.*) While most of the checklists which we have published are applicable to the new organization, some minor revisions will be required. These will be consolidated and published in a future issue. We have mailed to you two items which may provide some of the material you desire.—Editor.*

More Issues Wanted

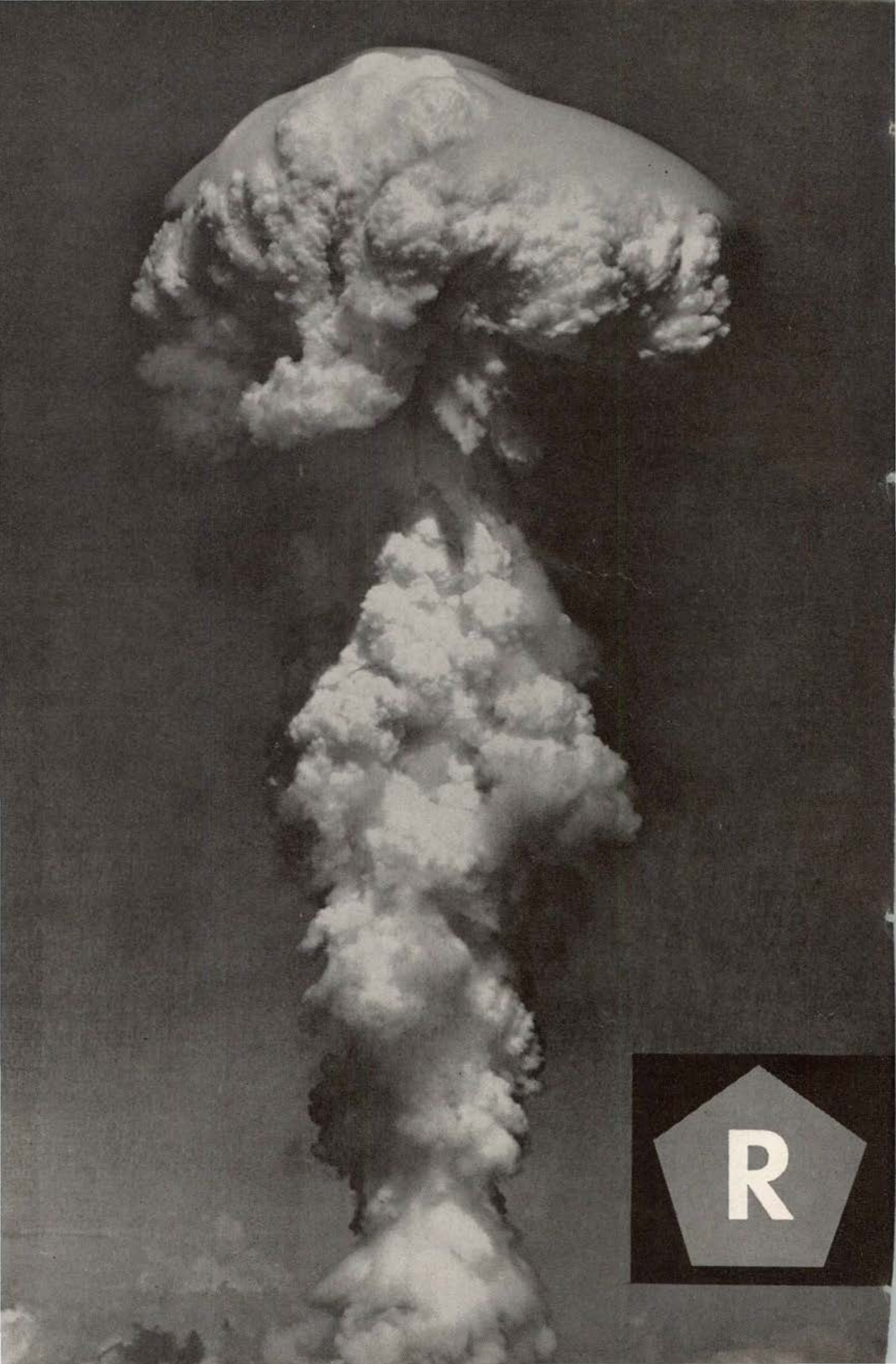
Sir:

. . . please renew my subscription to *Infantry* for the next three years. As a National Guard officer I look forward to each new issue as it is about the only source for information on the latest doctrine and techniques of the Infantry. I have read and reread many of the copies I have received in the past three years. My only regret is that it does not come out every month.

Roy L. Sodergren
1st Lt, Infantry MNG
Grand Rapids, Mich.

We, too, regret that Infantry *cannot be published monthly. However, since*

Continued on page 102.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WHY FIVE? PART II

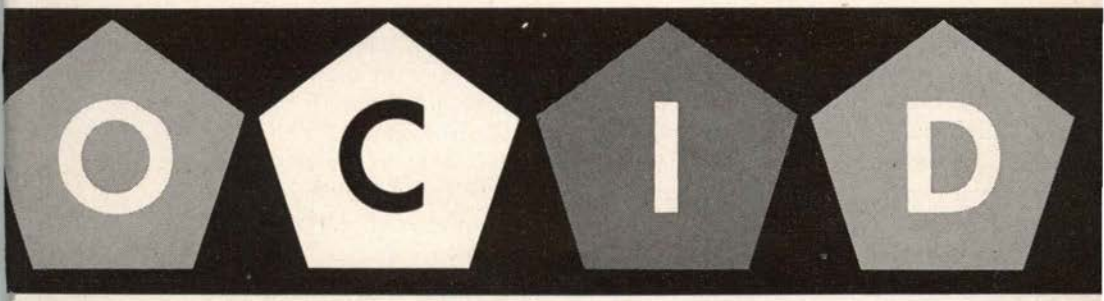
Here is a "package" of related articles on the new pentomic

INFANTRY DIVISION

The April issue of *Infantry* carried an article on one of the most dramatic and significant changes in the long evolution of the Army—the reorganization of the Infantry division for atomic warfare. That article, entitled "Why Five?", discussed the *pentomic* concept (five-sided organizational structures with emphasis on capabilities for atomic warfare.) It also outlined the major features of the new Infantry (ROCID)[1] division which will replace the current Infantry division under the *pentomic* concept.

For readers who may have missed the basic article, and to refresh the memories of those who have read it, here are some of the important changes which have taken place in the Infantry division. The three regiments of the triangular division have been replaced by five battle groups. The battle group, with 1427 officers and men, is larger than the old battalion, smaller than the regiment it replaces. There are no Infantry battalions in the pentomic division. The battle group consists of a headquarters and headquarters company, four rifle companies (each with 243 officers and men) and a field artillery heavy mortar battery. Logistical and administrative support units are grouped under a new division trains headquarters. The division artillery has an atomic capability. There is no organic antiaircraft unit. A brigade headquarters and a transportation battalion with two armored carrier companies and a truck transport company have been added. Some units have been reduced in size and incorporated into other units. Units which normally provide direct support for the battle group such as the armor battalion, engineer battalion, 105mm howitzer battalion, forward communications company of the division signal battalion, ordnance forward support company, etc., also are organized pentagonally. While the overall strength of the division has been reduced

[1]Reorganization of Current Infantry Division.



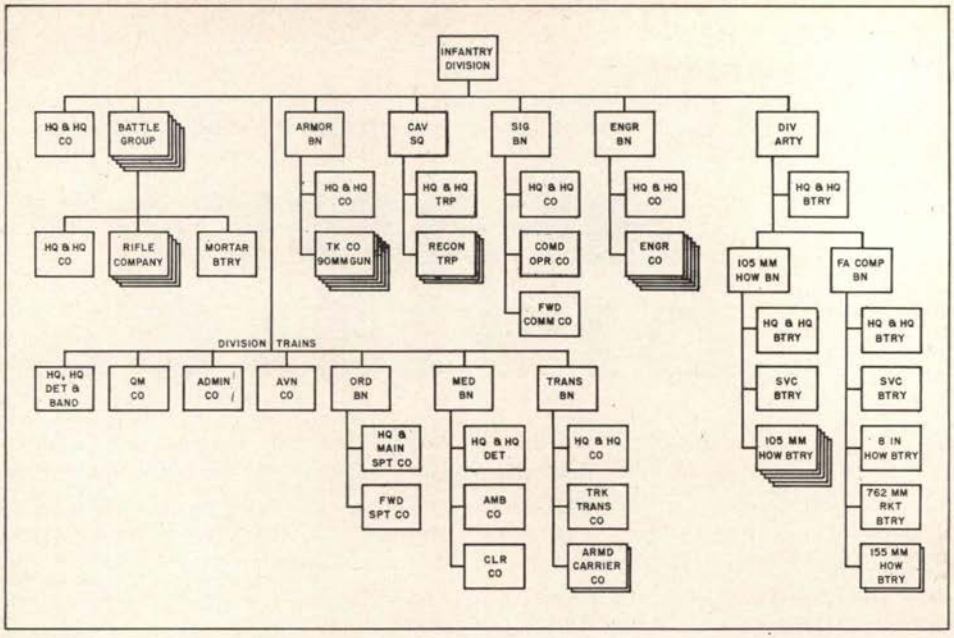


Figure 1. The new Infantry division — note that the names of several units have been changed since this chart appeared in the April issue.

from 17,460 to 13,748, the foxhole (riflemen in squads) strength has been increased by 453 men. Other changes brought about by the pentomic organization can be seen by looking at Figure 1.

The reasons for these changes are apparent. The Infantry division must be able to fight and survive on the atomic battlefield. This means that it must attack to exploit our own mass-destruction weapons and defend against enemy nuclear weapons.

To understand and appreciate these extensive changes we must consider the *effects* of atomic weapons. This subject has been discussed before in *Infantry,* in other publications and in training literature, but a very brief summary of atomic effects and other pertinent factors is presented here so that we may have them in mind as we discuss the new division.

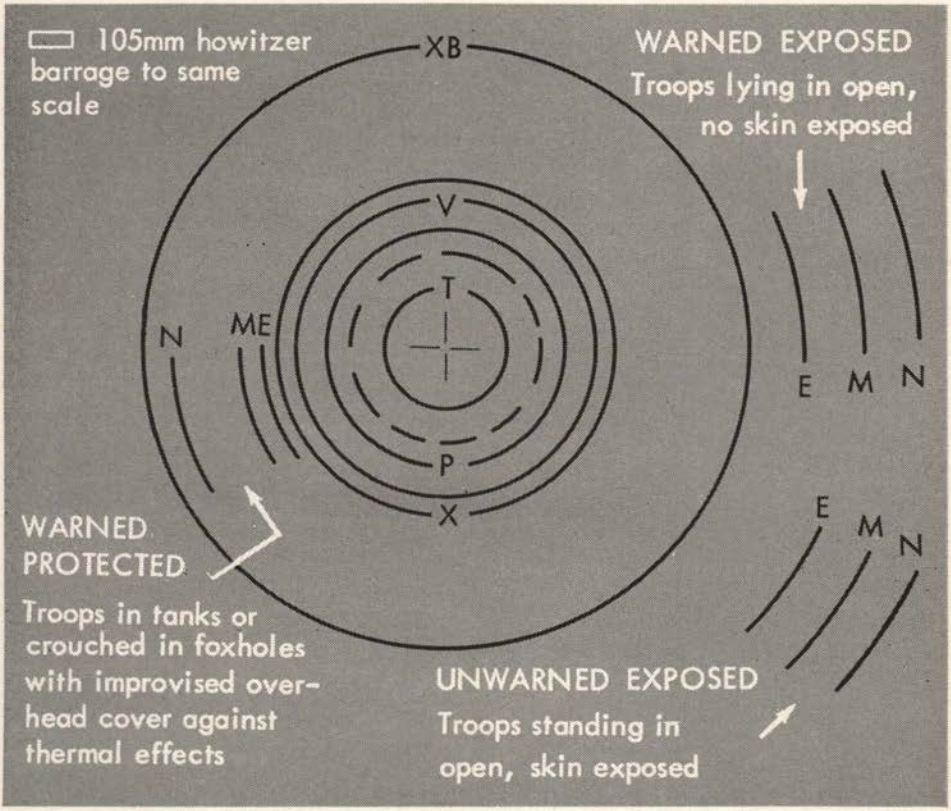
Normal chemical high explosives gain their energy essentially from a "rearrangement" of molecules in the substances involved. Atomic weapons gain their energy from the "fission," or splitting, of atoms. The energy released in the fission of a uranium 235 atom is 90,000,000 times greater than the energy released in the rearrangement of molecules in a chemical explosion. In spite of this great difference in force, the explosions of an atomic weapon and an ordinary high explosive are similar in one respect: both are caused by the rapid release of a large amount of energy in a small space.

Both the high-explosive and nuclear weapons are essentially blast producers—that is, a major portion of the total energy released by the explosion produces a shock or blast effect. The high explosive produces a small amount of heat in addition to blast; an atomic explosion produces large amounts of heat and nuclear radiation. Thus, the major effects of the atomic weapon are blast, heat and radiation; the major effect of high explosive is blast.

Figure 2 depicts the approximate radii of effects of a 20KT low-airburst atomic explosion. It also illustrates the atomic damage template used for atomic fire planning and determination of results of the nuclear explosion. The scale of this template (1:50,000) indicates that the XB circle (casualties to personnel exposed to burns) has a diameter of about 2.6 miles. A barrage of maximum width fired by a six-tube 105mm howitzer battery is drawn to the same scale to emphasize the power of the atomic weapon. A wide variety of yields may be used on the atomic battlefield; the 20KT weapon is selected for illustrative purposes.

(The bombs used on Hiroshima and Nagasaki approximated 20KT. The flash of this weapon seen from six miles is 100 times brighter than the sun seen from the earth's surface. A 20KT underground burst can throw more than a million tons of earth and rocks into the air; it can crater a hole 150 yards deep

Figure 2. Training template for map 1:50,000 showing radii of effects for 20KT low-air burst. Legend: T - moderate damage to tanks, Artillery, armored vehicles, Infantry weapons; P - casualties to personnel in tanks and foxholes; V - moderate damage to trucks and other unarmored vehicles; X - casualties to personnel in open with little flesh exposed; XB - casualties to personnel exposed to burns (low reliability since simple precautionary measures can prevent flash burns); E - emergency risk safety arc representing some loss of combat effectiveness to friendly troops but no deaths. M - moderate risk safety arc representing minor nuisance effect at worst; N - negligible risk safety arc, no appreciable effect on troops. Circles represent 50% probability of the occurrence of the indicated degree of damage. Dotted circle represents 2 roentgen per hour line resulting from neutron-induced gamma radiation from air burst. Moderate damage requires major repair effort to restore equipment to usefulness. Casualties are based on noneffectiveness within one hour.



and 170 yards across. Weapons organic to the pentomic Infantry division can fire weapons up to 100KT).

Three types of burst are used in ground operations: air, surface and subsurface. Low air bursts probably will be most commonly used because they provide the best over-all immediate damage to surface personnel and equipment targets and create less radiation hazards than surface or subsurface bursts.

Surface and subsurface bursts give smaller radii of effects for blast, heat and prompt radiation (emitted within 60 seconds after the explosion). However, they cause considerably more residual radiation (emitted by radioactive material deposited after an atomic burst) and downwind fallout. One hour after detonation a 20KT *surface* burst in a 15-knot wind produces approximately the residual radiation shown in Figure 3. Notice that there is residual radiation in two main areas: the mile-wide circle around ground zero and the five-mile ellipse of the fallout proper which forms downwind of the blast.

Although surface and subsurface bursts cause greater residual radiation hazards than the air burst, commanders must consider the circle of neutron-induced gamma radiation produced around ground zero by an air burst. Thus, troops marching at two miles per hour across an area hit by a 20KT low-air-burst weapon must remain (for an hour after the blast) at least 350 yards from ground zero to avoid receiving more than 25 roentgens.

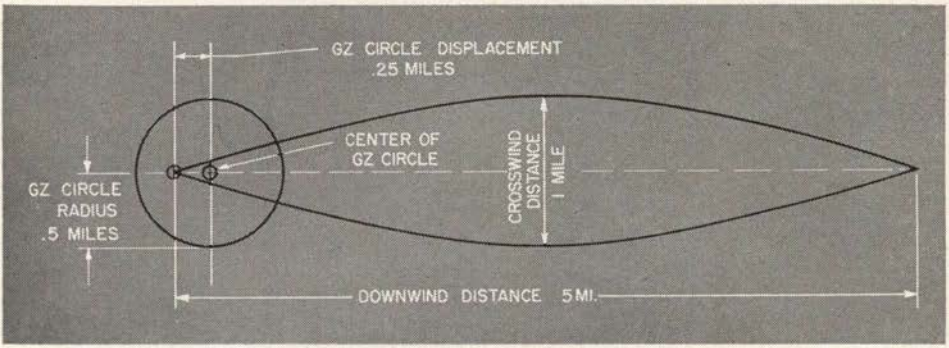
While templates, graphs and tables enable the commander *to approximate* the residual radiation hazard, radiac[2] instruments must be used extensively for exact on-the-spot checks of radiation intensity. Pentomic units have organic radiac instruments. A "command dosage" must be established to fix the maximum radiation which individuals will be allowed to receive.

Blowdown (blast-produced debris such as fallen trees and destroyed structures) and fires caused by atomic explosions may produce obstacles and hazards affecting the tactical employment of the rifle company. Flash blindness may last up to five minutes during the day and up to an hour at night.

With the organizational changes and atomic effects in mind, it is time to take a closer look at the pentomic division.

[2]Radiac: radioactivity detection, indication and computation.

Figure 3. Contours for residual radiation 1 hour after detonation of 20KT surface burst in 15-knot wind. Contours shown are for 300 roentgens per hour radiation. Three hundred roentgens cause vomiting and nausea in all personnel on the first day. All need evacuation by the end of a week. Twenty percent deaths may be anticipated. Survivors are ineffective for full military duty for about 3 months. G-Z (Ground Zero) circle is formed quite soon after detonation from heavy particle fallout, throwout and soil made radioactive by neutron bombardment. It displaces depending on velocity and direction of wind.



ROCID

Tactics

PENTOMIC INFANTRY DIVISION

By Lt Col James W. Hungate

Reorganization of the Infantry division has required major revisions in our tactics. This was to be expected. Tactics have always changed as the means to wage war within an organization have changed. The invention of gunpowder, automatic weapons, the tank, the airplane, etc., have in turn affected organization and tactics for the battlefield.

New organization, changes in weapons and, particularly, the addition of an atomic capability in the new division have had a great impact on the tactics of subordinate units.

The pentomic division is designed to conduct operations in active atomic warfare or in situations not involving the use of atomic weapons but conducted under the threat of their use. In this connotation, active atomic warfare is warfare in which both sides use atomic weapons and the use of such weapons is considered normal. Nonactive atomic warfare

is considered to be warfare in which both sides possess atomic weapons, neither side has used them, the threat of their use exists in varying degree and they may or may not be used in subsequent phases of the war. It is impossible to predict accurately the relative probability of active and nonactive atomic warfare; however, emphasis must be placed on attaining optimum capabilities for active atomic warfare. A situation in which one side possesses atomic weapons and the other side does not is considered as exceptional.

Although the pentomic division is the result of much study, experimentation and some testing under simulated atomic conditions, we cannot assume that it will meet the ultimate requirements of an atomic battlefield without some refinement. Further testing and experience are certain to bring additional changes in weapons, organization and tactics.

Discussion of tactics for the subordinate units of the new division will, therefore, be limited to the means now available. Furthermore, in attempting to cover such a broad subject in a single discussion, we can deal only with basic concepts, doctrine and specific variations wherein changes in operational concepts, weapons, equipment and organization have occasioned changes in tactics for these units.

Before we consider specific tactics for the battle group of the pentomic division we should examine, briefly, some of the general requirements for Infantry operations under atomic conditions. These requirements have become apparent during studies at the U.S. Army Infantry School in the development of new doctrine and techniques for the subordinate units of the new division.

Dispersion. One of the most obvious requirements placed upon an Infantry unit of the atomic era is the ability to disperse in order to deny the enemy a lucrative atomic target and still remain effective enough to accomplish its mission. Dispersion is probably the cheapest form of protection from enemy atomic action. A criterion has been established that dispersion should be "maximum consistent with the accomplishment of the mission."

Concentration. Units on an atomic battlefield must mass combat power to accomplish certain missions. This concentration is as necessary now as it has been in the past; however, since an atomic weapon is in itself combat power, the use of these weapons plus greater mobility may reduce the number of personnel and units required to concentrate to achieve a given objective. Regardless of the number of personnel and units, the concentration must not be permitted to exist longer than is essential to perform the task at hand.

Mobility. To concentrate, accomplish a mission and then rapidly disperse, units must have good mobility—not necessarily in terms of miles per hour, but in speed of movement relative to that of the enemy and particularly with respect to the rapidity with which the enemy's atomic delivery means can react to targets of opportunity. The pentomic Infantry division has enough transportation, including armored personnel carriers (APCs), to mechanize two reinforced battle groups. In addition there are both limited organic and large-scale supporting air mobility means which may be made available from division or higher headquarters to increase the mobility of the battle group. Additional armored personnel carriers or wheeled vehicular transportation means from corps or field army may further improve the mobility of selected units. Unless there is some reinforcing transportation from outside the division, at least three of the division's battle groups normally will be restricted to foot mobility.

Control. Dispersion, swift reaction to capitalize on atomic strikes and the need for rapid implementation of orders places a heavy demand on control facilities. Communications must be rapid, reliable and capable of unfailing operation over extended distances.

Independence of Action. Basic combat units must be capable of independent action. This requires a unit which is logistically and administratively self-sustaining as well as an integrated tactical unit. This does not mean that it is anticipated that the battle group will operate without support from division since it must rely on its parent unit for atomic fires, artillery support, tanks and logistical support.

Atomic Support. In the past a commander normally developed a plan of maneuver, then tailored his fire support plan to aid in accomplishing the already determined maneuver. It is felt that in atomic conflict the commander may frequently determine the atomic support he will apply to any given operation, then tailor his plan of maneuver to exploit most expeditiously the effect of the nuclear weapons he will fire.

Posture on the Battlefield. Due to the circular area effects of atomic weapons, it follows that battle group formations which are linear in nature will, under most conditions, offer the best protection from enemy nuclear attacks. This is particularly valid in the offense where attacks may be made in column on separated axes when sufficient mobility is present. Conversely, the least profitable formations (those which incur greatest risk from enemy atomic attack) are those which present bulk both in width and in depth.

ROCID

Battle Group

By Lt Col James W. Hungate **TACTICS FOR OFFENSE**

With these general requirements in mind, attention may be focused on tactical considerations for the battle group in the offense.

A glance at the organizational chart for this unit (Figure 1, next page) reveals that unlike most of the other elements of the new division, the battle group has a "square" rather than a pentagonal organization. However, the fourth rifle company and a fourth platoon in each rifle company—one more than in the current triangular structure—give the commander more flexibility, allow him to retain a larger reserve when desirable and give him the capability of attacking on a wider front.

The mission of the battle group in the pentomic Infantry division is unchanged from that of the Infantry regiment in the

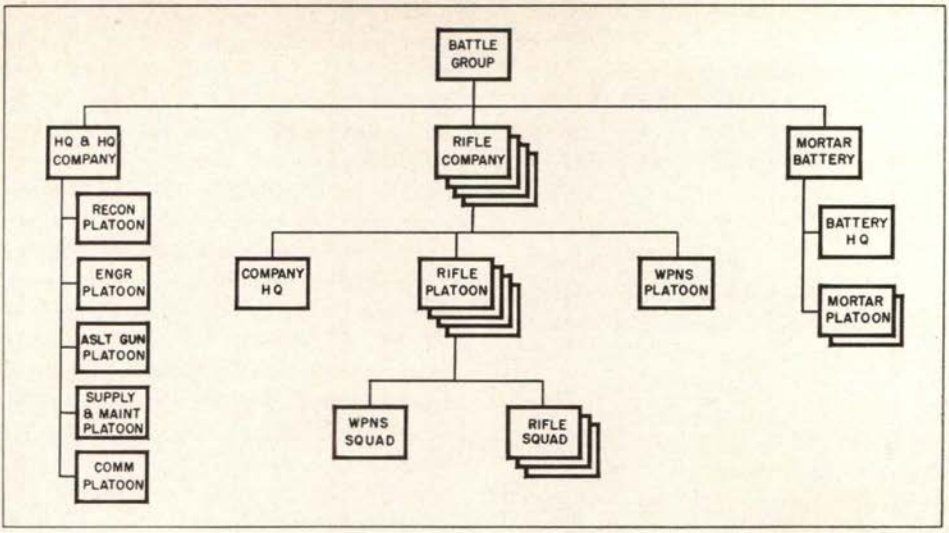


Figure 1. Battle group organization chart.

old triangular division: *To close with and destroy or capture the enemy.* The battle group attacks as part of the division, but is capable of independent action for limited periods. It accomplishes its mission by a combination of firepower, maneuver and shock action. Firepower is furnished by a combination of atomic and nonatomic weapons organic to or supporting the battle group. Rifle companies maneuver and engage the enemy in close combat. Shock action is the cumulative effect of the firepower and the assault of the maneuvering forces.

When the battle group commander receives a division attack order, he employs basic troop leading procedure. He makes a preliminary plan, issues a warning order, plans for the movement of his troops if pertinent and arranges to issue his order; with selected members of his staff, makes as complete a reconnaissance as possible; completes and firms his plan of attack and prepares the attack order; issues the order; and, finally, supervises its execution. In making his plans, the battle group commander should give particular attention to the following basic considerations which, while they are not hard and fast rules, should be applied to the maximum consistent with the situation:

Integration of plans of maneuver and fire support.

Minimum atomic target presented to the enemy.

Maximum flexibility.

Mobility—in relation to the mobility of the enemy.

Utilization of the terrain.

Mission-type orders to subordinates.

Exploitation of atomic weapons.

Retention of an adequate reserve.

Security.

Retention of the offensive.

Mass at the critical point followed by immediate dispersion.

Surprise.

The classic types of offensive action—the penetration, the envelopment, the double envelopment and the turning movement—are valid for the battle group. However, because of the wide area of damage caused by atomic explo-

sions, a penetration may be a more desirable form of maneuver than was general in the past, particularly when a nuclear weapon is used to break the enemy's shell of resistance. An equally preferred form of maneuver by the battle group commander may be the envelopment, provided:

The fighting is fluid.

The utilization of a company or companies in an envelopment can be implemented speedily.

The companies will not converge sufficiently to present a lucrative atomic target to the enemy.

The presence or absence of vehicular mobility, i.e., armored personnel carriers, for a unit in the assault has such an impact on the tactics of the Infantry battle group that any discussion of offensive tactics should be divided into "mounted operations" and "dismounted operations."[1] When APCs[2] are available, the battle group plans to fight highly fluid operations. Multiple columns may be employed to allow dispersion and still allow rapid concentration if necessary to accomplish the mission. When the battle group fights on foot its ability to disperse subordinate units widely, and still concentrate them rapidly, is reduced.

Mounted Operations

In considering mounted operations it is assumed that the battle group has sufficient armored personnel carriers to lift all its foot elements. The plan of maneuver is integrated with the plan of fire support to take maximum advantage of both atomic and nonatomic fires. The plan of maneuver aims at reducing the battle group's vulnerability to enemy countermeasures (atomic or otherwise), and may be directed toward seizing terrain, forcing the enemy to mass into a lucrative target for our atomic strikes or at destruction of enemy troops. Battle group objectives will be relatively deep as compared with objectives assigned in the past. Intermediate objectives will be kept to the minimum consistent with necessity for coordination.

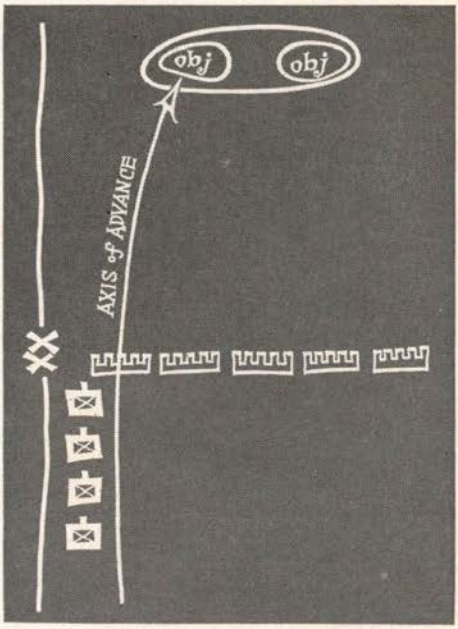
Mounted-operation attack formations should be based either on a single column or several adequately separated columns. If more than one column is used the axes should be separated widely enough to reduce the effects of an enemy atomic strike on one axis, yet near enough to permit rapid shifting of forces from one axis to the other. The column formation (Figure 2):

Permits a maximum of flexibilty.

Presents a minimum atomic target to the enemy.

Permits an adequate force forward to engage the enemy initially while retaining the bulk of the force for the most profitable subsequent employment.

Figure 2. Attack on a single axis.



[1]Air-transported operations, another subdivision of battle group offense, will be discussed in a later issue of *Infantry*.

[2]See "Chariot for the Queen," October 1956 *Infantry School Quarterly*.

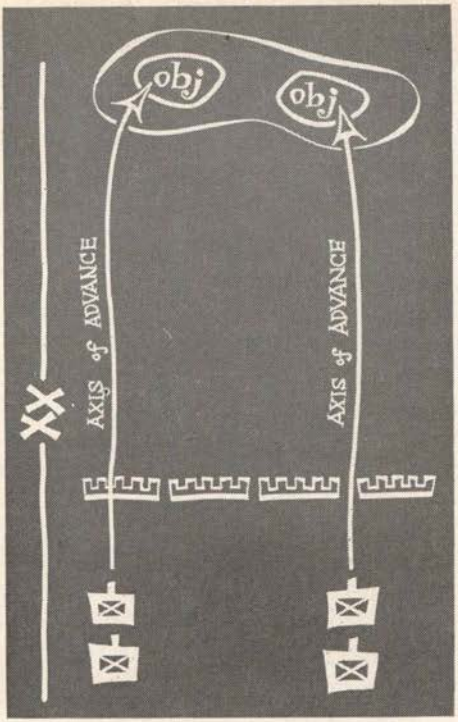


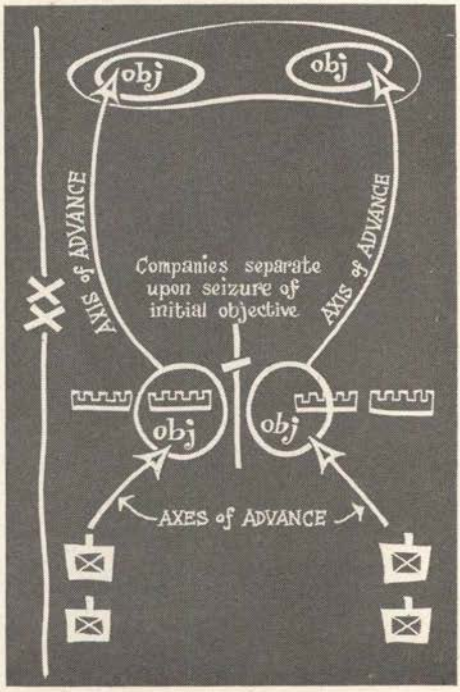
Figure 3. Attack on multiple axes (companies not required to mass).

Multiple axes may be used when adequate fire support, including atomic weapons, is available to breach the enemy shell of resistance at more than one point. Lateral road nets sufficient to permit rapid shifting of forces from one axis to the other are desirable (Figure 3). A variation of the multiple axis, where forces need not concentrate on the objective, is the multiple axis where mass (concentration) must be achieved on the objective. (Figure 4 shows an example of two axes converging on an intermediate objective; however, the convergence could be on the final or any other objective.)

The battle group should seldom use more than two separate or converging axes in mounted operations. Formations on three or four axes reduce the flexibility of the command and unduly divide available fire support. This concept does not preclude the utilization of the entire force, if necessary, in the final seizure of the objective.

In mounted and fluid operations the preferred method of controlling the attack is by assigning a line of departure and an axis or axes of advance. These control measures give maximum flexibility to subordinate commanders and still retain adequate control at battle group level. Intermediate objectives should be kept to a minimum and used only when necessary to coordinate the attack, to facilitate control or when certain terrain is vital to the successful completion of the mission. The battle group commander subdivides the final objective into company objectives consistent with the need to seize and control the objective assigned by division.

Figure 4. Attack on multiple axes (companies required to converge on intermediate objective).



A change in the organization of the pentomic Infantry division which will have a major effect on tactics of the battle group is the artillery support available for the battle group. The organic mortar battery, now a field artillery unit manned by field artillery officers and enlisted men, is the organic artillery of the battle group. This battery furnishes forward observers to the four rifle companies, and fire requests will feed from the forward observers directly to the mortar battery. Requests for additional fires will go through the mortar battery to division artillery. The mortar battery, with two platoons of four 4.2-inch mortars[3] each, will be reinforced habitually by the fires of a 105mm howitzer battery of six tubes, with the primary consideration in location and employment of this battery being its ability to provide continuous support to the battle group. The mortar battery commander is the fire support coordinator for the battle group commander. It is preferable in the offense to use the mortar battery in general support wherever range considerations do not dictate dividing the platoons. Such division may be necessary when operating on more than one axis.

When atomic fires are available, they are the basis around which all other fires are planned. Priority of supporting fires is given to the main attack when more than one company is in the attacking echelon.

It will be normal, where terrain permits the use of tanks, for division to attach a tank company or companies to battle groups in contact with the enemy. Tanks, when attached, are generally used most frequently in the assault echelon; a tank company may be used as the nucleus for a tank-Infantry team to spearhead the battle group advance.

As the result of a recent change the assault gun platoon of battle group headquarters and headquarters company is equipped with four M-48 90mm gun tanks for primary use in an antitank role. Eventually these will be replaced by an extremely accurate AT guided missile, the Dart.[4]

In the offense the assault gun platoon's primary mission is antitank protection for the battle group. The platoon will usually be in general support except when the platoon or a section of it is attached to a company-size task force or when companies are so widely separated that direct support or attachment are necessary.

The reconnaissance platoon of the battle group, organized like the reconnaissance platoon of the old division reconnaissance company, has considerably more capability than the old regimental intelligence and reconnaissance platoon. It can perform missions of screening as well as reconnoitering. The platoon may be used to screen the flanks of the advancing battle group. If one flank contains a more serious threat, the entire platoon may be used on that flank. In such a case, the mission of screening the remaining flank should be delegated to one of the reserve companies.

When conducting mounted operations, the assaulting companies move to the objective or as close to the objective as possible before dismounting. They engage the enemy in close combat, destroy him quickly, and either disperse widely to protect the objective or quickly resume the advance to maintain the momentum of the attack.

Reorganization is continuous. However, specific halts to reorganize are avoided because of the danger inherent

[3]The 4.2 mortars may be replaced by 105mm mortars when they become available. The 105s are now under test.

[4]For more about the Dart see "What's New for Infantrymen," January 1957 *Infantry School Quarterly*, and page 34 of this issue.

LT COL JAMES W. HUNGATE began his military career when he received a direct commission in 1942. During World War II, he served briefly with the Armored Replacement Center at Fort Knox and with the 68th Tank Battalion at Camp Cook before entering combat in the Pacific Theater. Col Hungate was separated from the service after the war but returned with a regular commission in 1947 as an instructor at The Infantry School. He then spent two years as a student at The Infantry School and the Command and General Staff College. Following a three-year tour of duty in Austria with the 350th Infantry and G3 section of United States Forces, Austria, he returned to his alma mater, Washington State College, as an instructor. In 1955 he went to Korea where he commanded a battalion in the 7th Infantry Division. Later he became commandant, I U. S. Corps NCO Academy. Last September, Col Hungate rejoined the staff of the United States Army Infantry School and is now chairman of the regimental committee, Tactical Department.

in stopping or slowing the operation. Plans for consolidation on the final objective are made concurrently with attack planning. These plans must be consistent with the mission of protecting the objective without presenting a likely atomic target to the enemy.

Dismounted Operations

Dismounted operations include fighting under atomic conditions where the mobility of the battle group is restricted to that of the foot soldier. This applies to all movements on the battlefield, from the area from which the assault is launched through the objective. This restricted mobility may be from one extreme where the entire battle group is fighting on foot, to semi-mobility where one or more companies are motorized, with the remainder of the battle group fighting on foot.

Since the division cannot provide organic mechanization for all its Infantry units, the division commander may decide to commit certain battle groups without vehicular mobility when:

The terrain is such that the use of vehicles is unprofitable, i.e., jungle or mountain.

The battle group is making a secondary attack.

The battle group is making a limited objective attack.

The battle group is making a night attack.

Expected enemy resistance will permit rapid movement on foot.

The area in which the battle group will operate does not present a radiation hazard.

The attack is not expected to bring an enemy atomic reaction—such as a mopup action in an area where we have expended an atomic weapon.

Dismounted formations will more nearly approximate those of our current concepts because, without mobility, swift convergence of mass on the objective is more difficult. Attacks in column should be less normal than in mounted operations, and should be used chiefly when the enemy situation is vague or when it is determined that the result of our atomic strike will leave little or no effective enemy resistance.

In atomic warfare speed of movement is always important. Any formation which facilitates speed, without sacrificing security, should be used.

If atomic support is limited it may be advisable to use two companies in the assault. This would increase the speed of the operation yet retain flexibility with a sizeable reserve. When adequate atomic

support is available, wider frontages may be used and three companies may be employed in the assault. This would enhance speed of the operation, but limit the commander's flexibility. Three companies also may be employed when the attack is against a limited objective. The use of four companies in the assault should be the exception since it would deprive the commander of flexibility. If the situation does dictate the utilization of four companies in the assault, the commander must make provision for a temporary reserve from other elements of the battle group, and an adequate reserve will be reconstituted as soon as the situation permits.

The criteria of "maximum dispersion consistent with accomplishment of the mission" is as valid for dismounted operations as it is for mounted operations. However, because of the restricted mobility of foot troops, the subordinate elements of the battle group in a two-company or three-company assault may be in such close proximity that control measures of a more restrictive nature must be used. As a consequence foot attacks most frequently will be assigned lines of departure and zones of action. Intermediate objectives, although held to a minimum, may be more frequent than in mounted assaults. Objectives will still be deeper than in nonatomic warfare, but not as deep as in mounted operations.

Another limitation is imposed by the lack of mobility in dismounted assaults. Attacking echelons on foot cannot as easily bypass enemy resistance.

Reserves are utilized as under the present concept, with an added emphasis on flank protection since wider frontages and greater dispersion of the attacking forces will result in greater gaps between units.

Care must be taken in committing the reserve to avoid massing sufficiently to present a remunerative atomic target to the enemy.

Mortars and antitank guns will usually be used in general support of the attack. This will be facilitated in foot operations since distances laterally may not be as great as in mounted actions. Tanks from the armor battalion should be attached to the attacking company or companies and are rarely held in reserve. The reconnaissance platoon has missions similar to those in mounted operations, and the engineer platoon of battle group headquarters company is employed to support the entire battle group.

The battle group commander may take any or all of the following measures to reduce the unit's vulnerability to atomic weapons when it attacks on foot:

Attack at night.

Utilize smoke in mass.

Infiltrate through the enemy's forward defenses to reach the assault position without forming an obvious atomic target.

Use massed firepower, including atomic fires, on enemy positions with emphasis on destroying the enemy's ability to control, direct or deliver atomic fires.

In the conduct of the attack, atomic weapons should be fired when the assaulting units are as close to the enemy as possible. An attack on foot poses a problem in the matter of atomic fire support since the vulnerability of foot troops to atomic weapons and their comparative slowness of movement may result in placing our atomic fires too far in front of the attacking units to be exploited rapidly. This may be resolved in part by the use of small-yield weapons. Radiation teams to accompany the assaulting foot units are particularly important as radiation may present a formidable hazard to troops moving on foot.

Once contact is gained it is vital that the attack move vigorously and that

pressure against enemy forces be continuous. This creates what has been termed "hugging tactics"—rapid engagement of successive enemy positions in close combat—to make it more difficult for the enemy to place atomic fires on attacking units without endangering his own troops. Consequently, a minimum of delay on intermediate objectives is allowed and each succeeding attack is pushed with the same vigor as the initial assault. An alternate technique would be to make contact with the enemy until his position has been developed sufficiently to locate a target or targets for atomic weapons. The attacker then would redispose his force—in effect, pull back —sufficiently to allow the employment of low yield atomic weapons to destroy the located targets.

As in mounted operations, action after seizure of the final objective is planned concurrently with the plan of attack. Units disperse beyond and to the flanks of the objective to protect the area from a counterattack, or to reorganize for continuation of the attack if pertinent.

Nonatomic Warfare

Offensive operations of the battle group in nonatomic warfare are similar to those described for dismounted operations in atomic warfare. However, the elimination of atomic weapons results in some differences in planning and conduct of the offensive. Techniques for mounted operations in active atomic warfare are valid in nonatomic warfare when strong enemy positions have been breached or when a successful envelopment or turning movement becomes possible.

While terrain is always important, it becomes increasingly important in nonatomic warfare because of the commander's inability to deliver atomic weapons on dominating terrain and then bypass or move freely through or near such terrain. In nonatomic warfare it becomes necessary to neutralize enemy observation from dominating terrain by physical assault. This usually is accomplished by attacking along ridge lines running into dominating positions and seizing successively higher ground.

In the absence of atomic support, the commander bases his formation on different criteria. The following factors favor a formation with one rifle company in the attack echelon (attack in column), when:

1. The enemy situation is vague.
2. One reinforced company provides a preponderance of force over the enemy.
3. The dominating terrain on the objective can be seized by one company.
4. The usable portion of the battle group zone is narrow or lacks maneuver room.

Two companies may be used in the attack when:

1. The enemy situation is relatively obscure but the terrain makes it advisable to use more than one company.
2. Two companies are necessary to provide a preponderance of force.
3. Terrain features or the objective dictate the use of two companies to seize and dominate the ground.

Three companies may be used in the attack when:

1. Enemy strength makes such a formation necessary to provide preponderance of force.
2. The terrain feature assigned as an objective requires an attack by three companies.
3. The zone of action has appropriate objectives and is wide enough for adequate maneuver room.

(It must always be remembered that use of three companies in the initial assault weakens the commander's reserve and reduces his flexibility.)

An initial attack formation with four companies in the assault will be used only in exceptional circumstances such as a mission to seize a limited objective, or when conditions of visibility (such as

a night attack) would hamper the employment of a reserve.

Without atomic weapons, the penetration becomes more difficult and commanders should seek to use the envelopment as a more desirable form of maneuver. Although fronts may be narrower in nonatomic warfare than under conditions of active atomic use, excessive concentrations still should be avoided to protect the unit from the enemy's use of nonatomic weapons in mass and from the surprise use of atomic weapons.

In conduct of the attack under nonatomic conditions the battle group commander has more freedom to commit his reserve in close proximity to companies making the initial attack. The reduced enemy atomic threat in nonatomic warfare also allows the unit to spend more time on the objective in the reorganization, and removes the necessity for immediate dispersion after seizure of the objective.

NOTE: *Battle group tactics for the defense will be discussed in the next issue of* Infantry.

Rifle Company

By Capt Thomas H. Jones **TACTICS FOR OFFENSE**

The great power of atomic weapons creates a need for unprecedented dispersion and mobility for the rifle company. It emphasizes passive and active measures designed to minimize effects of enemy atomic weapons and to provide security for extended units. To meet these requirements, an organization of increased capabilities was needed. The rifle company of the pentomic division, depicted in Figure 1, next page, is the answer. Some of the changes in this company are immediately obvious. A fourth rifle platoon has been added. Rifle squads of 11 men are organized with a squad leader and two balanced fire teams of five men each, for greater control and more efficient fire and maneuver. The 60mm mortars and 57mm rifles of the weapons platoon have been replaced with 81mm mortars and 106mm rifles. Two ammunition bearers are provided in the weapons squad to supply the LMGs or 3.5-inch rocket launchers as required. This organization increases the capabilities of the rifle company in three important areas: mobility, firepower and communications.

Mobility. The weapons platoon is completely motorized. The two armored carrier companies and the truck transport company in the new division transportation battalion mean more frequent motorization of all or part of the rifle company.

Firepower. The weapons platoon with two 106mm rifles and three 81mm mortars has greatly increased range and

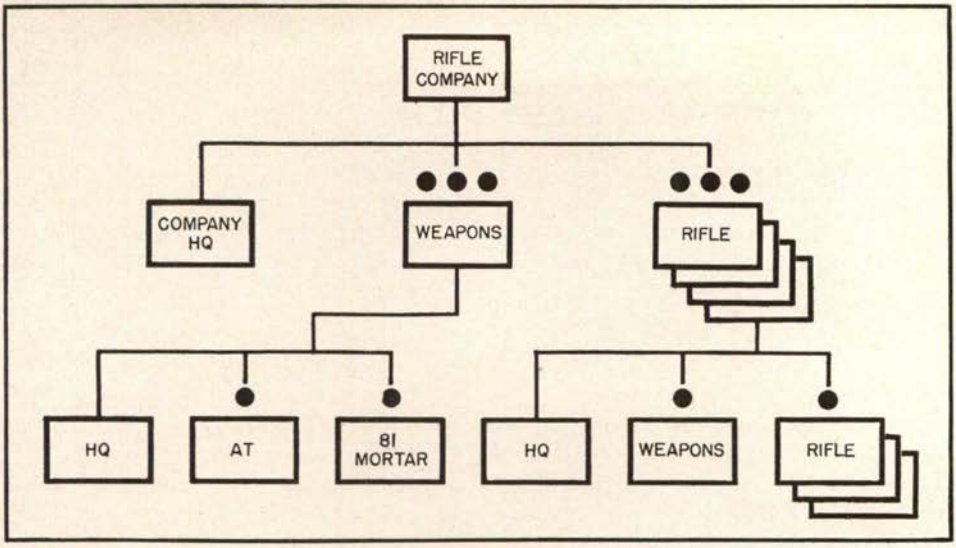


Figure 1. The rifle company.

power. Each rifle platoon has two 3.5-inch rocket launchers and the entire company has 12, as compared with three formerly. The addition of another rifle platoon and two men to each rifle squad increases the firepower and flexibility of the company considerably.

The basic mission of the new rifle company in the attack remains the same as that for the rifle company in previous organizations—*to close with and destroy or capture the enemy*. Offensive principles of fire and maneuver retain their validity; however, the tactical effects of atomic weapons on the company are far reaching.

Before we discuss specific concepts and doctrine for this new company's operations we should review, briefly, some of the *general considerations* which will affects its employment.

Dispersion. The atomic battlefield requires that the company achieve maximum dispersion consistent with the accomplishment of the mission. The rifle company becomes more dispersed in the attack, particularly when mobile, converging its platoons onto objectives at the last possible moment to achieve the necessary assault power. The column formation is used extensively.

Security. To decrease the possibility of location and destruction by enemy atomic weapons the company relies heavily on the use of covered and concealed routes, movement by night or under other conditions of reduced visibility, and on movement by infiltration. Night attack is emphasized, and smoke is used extensively to cover operations or to deceive the enemy. The increased isolation of the company increases the reconnaissance and security measures necessary to prevent surprise by the enemy throughout the conduct of the attack. Movements are as continuous as possible. Armored vehicles when attached to the company provide some protection from atomic effects.

Mobility. One of the most effective methods of avoiding hostile atomic fires is to close with the enemy so rapidly that he cannot effectively use these fires without endangering his own troops and materiel. Mobility allows this rapid advance.

The rifle company will frequently utilize armored personnel carriers and trucks for this purpose. Atomic war is also characterized by deep objectives and a need for rapid convergence of maneuver elements, followed by quick separation of these elements and aggressive exploitation of atomic strikes. Again, mobility will permit the effective use of these tactics. The probable high degree of enemy mobility is another factor necessitating friendly mobility. The engagement of lucrative enemy atomic targets during the attack may necessitate rapid shifting of friendly forces in close proximity to these targets. Pursuit of fleeing enemy also demands mobility; helicopters are used for this and other operations.

Flexibility. Fluid, fast-moving situations and sudden changes in mission demand flexibility of the rifle company. Planned routes or objectives may be blocked by radiation and blowdown caused by atomic explosions. Enemy threats to flanks or rear areas demand quick reaction. Sudden assumption of the offense after a defensive engagement is common. The rifle company performs a variety of missions as the nucleus of a task force and forms task forces of its own. It may be attached to a tank unit in pursuit or exploitation.

Maneuver. The rifle company is often assigned deep objectives and an axis of advance. Intermediate objectives are used infrequently since they tend to slow the attack. Assembly areas, if needed, should allow considerable dispersion by the company. Enemy elements are frequently bypassed and eliminated by reserves and fires (nonatomic and/or atomic) of higher echelons. The maneuver plan is made with due consideration to atomic radiation and blowdown; concealed routes are sought. Frequently, the maneuver plan is designed to develop atomic targets; for instance, the company attacks to determine the location and degree of concentration of enemy forces, and then bypasses or withdraws to allow atomic strikes on those forces. Maneuvers also may be designed to force the enemy to mass into concentrated atomic targets. Rapid exploitation of atomic fires is a basic element in the determination of maneuver plans. While dispersal is highly desirable, the degree of dispersal must not seriously risk defeat in detail. The battle group converges companies only when essential to the accomplishment of the mission and separates them quickly. Atomic weapons make the penetration a more desirable type of maneuver than in nonatomic war since they provide a means for creating gaps in enemy positions. Continuous movement is desired to minimize atomic vulnerability with reorganization frequently accomplished during movement. Night attacks, while commonly used to achieve surprise and avoid atomic fires, are nevertheless hindered by the confusion and flashblindness resulting from enemy atomic strikes at night, and by the great difficulties to movement at night posed by atomic destruction and radiation hazards. Adequate antiatomic dispersion and deep objectives are difficult to attain at night. Dominating terrain remains the most frequent objective for the company, but since atomic strikes are frequently used on this type of terrain, the radiation may cause the company to be assigned less dominating but safer ground as an objective.

Fire Support. In the attack, scheduled, on-call, and target-of-opportunity atomic fires are used. Scheduled fires are most frequently used on the enemy's forward positions and his immediate rear; on-call fires for deeper positions. Atomic fires on enemy in less than company strength is generally considered unremunerative; however, the mission may require this use. Decisiveness is the key in using

CAPT THOMAS H. JONES, an instructor in platoon and company tactics at U. S. Army Infantry School, enlisted in the Army in 1943 and was an intelligence scout with the 78th Infantry Division in Europe during World War II. He received an OC commission at Fort Benning in 1945, following which he was assigned to an AAA battery at Fort Bliss and later to the 2d Armored Division at Fort Hood where he served as a company commander. He was a reconnaissance platoon leader and company commander with the 1st Cavalry Division in Korea. In 1952 he served in the G3 Section, OCAFF, and then completed the advanced course at the United States Army Infantry School. After a tour as assistant G3 with the military advisory group to Saudi Arabia he studied Portugese at the Army Language School. Capt Jones began his current assignment in July 1956. This is Capt Jones' second appearance in *Infantry*. He coauthored "Small Unit Task Forces" in the October 1956 issue.

atomic fires. The company commander plans his fires for close support of the attack and on enemy outside the atomic effect radii. Fires also are planned to prevent enemy reinforcement of atomic-striken areas. However, the possibilities of sudden nonavailability of atomic support, effects less than expected, or atomic duds make plans for the use of nonatomic fires in planned atomic target areas mandatory. Also, troop safety and the danger of creating obstacles along routes needed for maneuver may make atomic fire inadvisable. The company may request atomic fires but echelons higher than battle group retain the authority to fire them. The delivery time required for atomic fire on targets of opportunity makes the use of nonatomic fires essential in many situations.

Intelligence. The effective use of atomic fires depends heavily on good intelligence. The rifle company, properly trained, is one of the most effective sources of tactical intelligence. All pertinent information of the enemy and terrain must be reported by the company so that profitable atomic targets are located and destroyed.

Offensive tactics of the rifle company, like those of the battle group, should be considered under conditions when the company has vehicular mobility and when it must engage in combat on foot.

Mounted Operations

When armored personnel carriers are attached to the company, the maneuver plan is designed to take full advantage of their speed, firepower and shock action. The column formation is often used in the initial stages of the attack because of the advantages it offers in flexibility, speed, low atomic vulnerability and control. The platoons needed to seize the objective deploy rapidly from this formation.

The operations of a reinforced rifle company with carrier mobility have many of the characteristics and employ many of the techniques of mobile task force operations, discussed in "Small Unit Task Forces," October 1956 and January 1957 issues of the *Infantry School Quarterly* (now *Infantry* magazine).

In allocating personnel carriers tactical integrity is maintained and routes suitable for their movement are chosen. Personnel remain loaded until actual or expected enemy action forces them to dismount. Enemy antitank weapons are the major threat. Troops may dismount for the assault, or prior to it, if forced by enemy action to do so, or they may be

able to ride onto the objective, particularly if accompanied or led by tanks, possibly under artillery time fire. The senior Infantryman aboard is vehicle commander and mans the .50-caliber machinegun mounted in the turret. When the troops dismount drivers or other designated personnel man the guns. The APCs either follow the dismounted Infantry by bounds or move forward to designated positions when called for by the commander of the transported unit.

Ammunition and other supplies carried by the APCs are extremely useful during consolidation or for continuing the attack. The company commander must make provision for refueling and maintenance of the personnel carriers. The mobility afforded by these vehicles is of great value in the conduct of reconnaissance, security, pursuit and task force operations and in avoiding enemy or friendly atomic fires. Also, each squad of nine APCs has two AN/GRC 8 radios which augment the company radio net.

In employing the weapons platoon to support the company mounted in APCs, the company commander must consider that the wheeled vehicles organic to the weapons platoon cannot traverse certain terrain trafficable only to the tracked armored personnel carriers. In fast-moving situations, the mortars may follow on carrier and set up when fires are called for.

A dismounted rifle company may often be assigned a zone of action. As a guide, a rifle platoon may attack on a frontage of up to 300 yards. Because of the necessity for a rapid attack on an objective, the rifle company will not be required to clear its zone of action unless specifically ordered to do so or unless bypassed resistance would jeopardize the success of the attack. Zones of action may be assigned to attacking platoons by using easily recognizable terrain features. The company commander may select a tentative assault line (formerly called assault position), preferably within 150 yards of the enemy positions.

The rifle company may attack with one, two, three or, in exceptional situations, with four platoons in the attack echelon. Platoons, or elements thereof, not in the attack echelon constitute the reserve. The mission, terrain, enemy, reinforcements, supporting fires and width of the company zone determine the formation. The company commander selects a formation which most nearly meets the combined requirements of all these factors.

A formation of one platoon in the attack and three platoons in reserve is suitable where the enemy situation is obscure (or the enemy is known to be weak), where the company has a narrow zone, where a very high degree of control is necessary, where one or both flanks are exposed, where the distance from the LD to the objective is great and/or where terrain limits lateral dispersion. Two platoons in the attack and two in reserve provide considerable firepower to the front and allow the retention of a sizable reserve. This formation is suitable when the enemy situation is only fairly well known (or it is expected that two platoons will provide sufficient assault power), when one or both flanks are exposed or when the terrain and the distance from the LD to the objective necessitate fairly close control. Also, no more than two platoons are normally used in the attack if the zone of action of the company is 500 yards or less since excessive concentration would result. A formation of three platoons in the attack and one in reserve provides great firepower to the front and still retains a reserve of sufficient strength to influence the action. This formation is used when there is relatively detailed knowledge of

the enemy, where the distance from the LD to the objective is not great and the terrain allows considerable lateral dispersion and/or where the company flanks are relatively secure. No more than three platoons are used if the company zone is 750 yards or less. A formation of four platoons in the attack is rarely used in daylight since it does not provide an adequate reserve to exploit or otherwise influence the action or to provide security. It may be used when the width of the objective is extreme, when the objective is very close to the LD, when the company flanks are secure or when detailed enemy information is available. It may also be used to clear rapidly a large objective following a friendly atomic detonation, when attacking at night or when making a river crossing.

The reserve platoons in the attack may be assigned one or more of the following missions: attacking from a new direction, taking over the mission of an attacking platoon, protecting one or both flanks of the company, maintaining contact with adjacent units, mopping up a position, protecting the reorganization and consolidation, or assisting the assault echelon by fire of the machineguns of the weapons squad.

The 81mm mortar squads are usually used in general support of the company attack from a centralized location. This employment permits effective massing and shifting of fires and eases resupply. Mortar squads may be attached if a rifle platoon is beyond effective supporting range or if terrain reduces the company commander's control of his platoons and mortars. The mortars fire effective close support at ranges up to 2000 yards, then displace, preferably by squad echelon, when the range to objectives or other likely target areas becomes excessive.

The antitank squads, usually in general support for greater flexibility, are used primarily to engage enemy tanks, and secondarily to fire on pillboxes, crew-served weapons, grouped personnel or other definitely located point targets. An antitank squad may be attached to a semi-isolated platoon such as a platoon performing a flank security or advance party mission. The antitank squads support the attack, frequently from widely separated positions, and displace to the objective when fires are masked. They also may provide antitank flank protection to the company.

The company avoids dangerously radioactive areas and, if radiation hazards exist, personnel with radiac instruments move with lead elements in the formation. Higher headquarters prescribes the allowable radiation dosage for individuals.

NOTE: *Rifle company tactics for the defense will be discussed in the next issue of* Infantry.

The entire officer corps of the Army must now change its way of thinking. It must learn quickly and absorb the new concepts, tactics, and techniques necessary to make these new pentomic structures work. For example, the division commander who once had only three regiments to direct now has five battle groups. There is no complacency about the finality of our newly developed structures and concepts. We think we have good interim solutions, but we are sure that they will soon be modified by experience. There must be no closed minds in this business; we must encourage imagination and creative thought in the search of better solutions.

GENERAL MAXWELL D. TAYLOR
Chief of Staff, U.S. Army

ROCID

Firepower

PENTOMIC INFANTRY DIVISION

When you try to determine the comparative firepower of the Infantry weapons in the pentomic division and those in the old triangular division, do not base your analysis on numerical differences of men and weapons alone. The result might be interesting to a statistician, but it would be of no practical use to an Infantry commander at any level. A numerical comparison of weapons in the two divisions would show you that the old division had 1.21 weapons per man and the new has 1.20 weapons per man, or .01 weapon per man less. The infinitesimal difference does not seem worth considering. It isn't.

The new division is built around atomic weapons and we cannot make a comparison of firepower in the new and old without taking them into account. We must throw into the balance the pentomic division's *atomic* firepower — the 8-inch shells and Honest John rockets— as well as the support available from

corps and army. We must never lose sight of the fact that these weapons support everyone in general and rifle elements in particular. It is not expected that their use will be limited only to emergencies. They will be used, adequately if not lavishly, to clear the way for Infantry units—to make their mission more certain of success.

If you take the time to study the TOEs,[1] you will feel a surge of satisfaction when you find that there are 228 M-1919A4 machineguns in the new division while there were only 102 in the old division. Your feeling of satisfaction is likely to be shortlived when a further check shows you that the new division does not have a single M-1917A1, twin 40 or quad 50 machinegun, nor does it contain a 60mm mortar, 57mm or 105-mm rifle. At this stage of comparison you will probably feel that you have lost much more firepower than you have gained. But you are basing your decision on comparative *numbers* of weapons and apparent losses. Much more significant is where the Infantry weapons are located in the new organization.

The twin 40 guns and quad 50 machineguns that are now missing in division have been pooled at corps. The 60mm mortar and 57mm rifle are gone, but each rifle company has acquired three 81mm mortars and two 106mm rifles. These heavier weapons do much more than just fill the gap.

By continuing the analysis in this way you will see that pentomic units have been noticeably increased in firepower. This is the case even with weapons, such as the M-1919A6 machineguns and M-1 rifles,[2] which show smaller totals in the ROCID TOE.

For example, there are eight M-1919A6s in the rifle company. There were only six to a company in the triangular division. As for the M-1 rifle, there were 8060 in the old division, while there are only 7480 in the new. Yet there are 453 more riflemen in the squads of the pentomic division than in the squads of the old division, or 51 more in the new rifle company than in the old one. There are still two automatic rifles[3] in each rifle squad.

There were 550 3.5-inch rocket launchers in the triangular division and there are 569 in the new division. The 19 additional rocket launchers do not seem to represent an impressive increase of firepower. But the old rifle companies had only three of these launchers, one in each platoon headquarters. The new rifle company has 12 of them: two in company headquarters, two in the weapons platoon headquarters, and eight in the weapons squads where they will do the riflemen the most good. You can recognize this as a tremendous increase of rifle company firepower in this particular category.

Each of the five battle groups in the pentomic division has a mortar battery with eight 4.2-inch mortars. These batteries give the new division 40 heavy mortars compared to the 36 found in the triangular division (12 in each regimental heavy mortar company). Each rifle company has three 81mm mortars. The new division contains 74 81s, compared to the 58 of the old division. In considering these gains in mortar firepower, however, do not forget that the 81 60mm mortars of the triangular division have been dropped from the ROCID TOE.

The battle group will receive antitank protection from 106mm rifles (two in each rifle company) and from M-48 90mm gun tanks (four in the assault gun platoon of battle group headquar-

[1]Tentative. TOEs are available in limited quantities to units as they are to be reorganized. Finalized TOEs are not expected until early in 1958.
[2]Department of the Army recently announced the adoption of a new rifle, the M-14 which will replace the M-1.
[3]A new rifle, the M-15 will replace the BAR.

ters and headquarters company).

You can see that several heavier weapons as well as the greater quantities of other weapons at rifle company level represent a real increase in firepower, not just an apparent increase.

But it is only when you contemplate the probable employment of the new division *without* its atomic weapons that you are likely to have any real misgivings as to the adequacy of its firepower. We can only repeat here that the division's organization is based on incorporating the best attainable dual capability (atomic/nonatomic) but with emphasis on requirements for atomic warfare. Its atomic weapons are an integral part of it and must be so considered.

Aside from the division's atomic artillery, most of its current weapons are familiar to every experienced Infantryman. Nevertheless, because of the Army's continuous effort to improve its old weapons and to develop new ones to meet the ever-changing requirements of ground warfare, there probably will be other changes in ROCID TOEs in the future. Even while this article was being written the Army adopted as standard the new M-14 and M-15 rifles to replace the M-1, carbine, submachinegun and BAR. Limited quantities of the new rifles have been produced for test purposes. Money for greater production probably will not be available until 1958-59, and troop units probably will not begin to receive the new rifles until 1960.

The pentomic division's new weapons exemplify the Army's aim of increasing firepower and effectiveness while decreasing bulk and reducing weight. Let's take a brief look at some of the more recently developed weapons which will help to provide the firepower of this division.

M-14 and M-15 Rifles

Department of the Army has announced the adoption of two new rifles, the M-14 and the M-15 which will replace the M-1, the BAR, the submachinegun and the carbine.

These new weapons are the results of years of experimentation, revision and testing. Along with the recently adopted all-purpose M-60 machinegun, they are a part of a new, streamlined weapons system.

Actually, the M-14 and M-15 may be considered as one rifle. They are identical except for several interchangeable components. There are two barrels for this rifle, a light and a heavy. With the lighter barrel, the rifle is designated the M-14 (Figure 1). It weighs 8.7 pounds and does the work of the carbine, M-1 rifle and submachinegun. When equipped

Figure 1. The M-14 rifle.

Figure 2. The M-15 rifle.

with the heavier barrel and bipod, it is called the M-15. The M-15 (Figure 2) weighs 13 pounds and replaces the 20-pound BAR.

Known during their development as the T-44 and T-44HB these weapons were subjected to exhaustive tests under all conditions of use in arctic, tropic and temperate zones. Their performance was superior to that of the M-1 and other weapons. Some of the factors favoring their adoption are their weight, balance and suitability for mass production. The M-14 is approximately one pound lighter than the M-1; the M-15 seven pounds lighter than the BAR. The excellent balance of the M-14, causes its carrying load to resemble the carbine. Both versions of the rifle fire the 7.62 new NATO standard cartridge and are capable of full automatic or semiautomatic fire.

Currently, it is believed that the rifle will be issued as a semiautomatic weapon but a small selector lever which can be attached to the receiver will make it fully automatic. The selector lever probably will be furnished and maintained with company supply.

The cyclic rate of the new rifle is 750 rounds per minute. The sustained rate of fire is 40-60 RPM for the heavy barrel and 15 RPM for the light. It will fire ball, armor piercing and tracer ammunition.

A new flash hider and system for loading have been developed. The flash hider is effective for single shot at ranges over 50 yards and for automatic fire at ranges exceeding 75 yards. Loading may now be accomplished with a 20-round magazine and then, if desired, by a 10-round charger. The charger is used when ten or less rounds remain in the magazine and the firer wishes to reload without changing magazines. This is accomplished by inserting the charger from the top in a manner much resembling the loading of the M-1 with the conventional clip.

The current plan is to issue nine M-14s and two M-15s to the new 11-man rifle squads. It is not expected that these rifles will be available for issue to troop units until about 1960.

This article was prepared through the combined efforts of Capts Ernest S. Ferguson and Donald S. Ballard and Lt John P. Casey of the Weapons Department, USAIS, and of Mr. Horace Rundell, Training Literature Editing Section, Editorial and Pictorial Office, USAIS.

M-60 Machinegun

You have probably heard rumors that the Army was in the process of developing a so-called "general purpose machinegun." The rumors were right; the machinegun is here (Figures 3 and 4). It is called the M-60 and it has been adopted as standard by Department of the Army.

The M-60 fires the 7.62mm NATO cartridge, which appears to have a ballistic efficiency and killing power within usable ranges that equal the M-2 ammunation used with the heavy and light Brownings. It fires 100 rounds per minute for sustained fire and 200 rounds per minute for rapid fire. Its cyclic rate is 600 rounds per minute.

This new machinegun is expected to replace the .30-caliber Brownings that are currently used on ground mounts: the heavy, water-cooled M-1917A1 on the M-74 tripod and the light M-1919A6 on the bipod and on the M-2 tripod. Pending arrival of the new guns, the M-1919A6 will be retained in the rifle companies and the A4s and A6s in the headquarters company of the battle group.

The M-60 is a lightweight gun. It weighs about 30% less than the Browning machinegun when mounted for comparable tactical employment. Here is a comparison of weights:

M-1917A1 heavy machinegun on the M-74 tripod	71 pounds
M-60 on the M-91 tripod (comparable to the M-74 in stability and performance)	48 pounds
M-1919A6 on M-2 tripod	49 pounds
M-1919A6 on bipod	33 pounds
M-60 on bipod	23 pounds

The M-60 design is simple. The gun is made largely of stamped parts, which facilitates mass production. Some parts are coated with hard rubber to make it more comfortable to handle in extremes of heat and cold. It is relatively easy to disassemble without special wrenches and

Figure 3. The M-60 machinegun on the M-91 tripod.

Figure 4. The M-60 machinegun on bipod.

without any great risk of injury to the operator. Field stripping requires the disassembly of comparatively few parts and headspace does not have to be adjusted. These qualities simplify and speed up training as well as combat maintenance.

The barrel of the M-60 is lined with highly wear-resistant stellite. It has a permanently fixed flash reducer which destroys the characteristic machinegun trademark during night firing. The bipod is attached to the barrel as an integral part. The entire barrel-bipod assembly weighs eight pounds. It can be replaced in six to 10 seconds.

The bipod swings easily into the down position and its adjustable legs "remember" settings with their plunger-type leg and foot locks.

The M-91 tripod used with the M-60 is similar to the heavier M-74 mount. It is made of aluminum alloy and has a recoil mechanism. It weighs only 25 pounds. It permits all-around traverse and free elevation varying from 300 to 600 mils above zero, depending on the position of the gun in relation to the rear legs of the tripod.

The gun fires from "open bolt"; that is, when the trigger is pressed, the bolt and operating rod move forward and the bolt strips a cartridge from the belt. The round is chambered, the bolt is locked and the gun is fired almost simultaneously, and the bolt immediately extracts and ejects the cartridge case. This action practically eliminates cook-offs.

The M-13 disintegrating, split-link, metallic belt is used with this weapon. In addition, a magazine-mounting bracket has been developed that can be fixed to the left side of the receiver to accommodate a 100-round metal or fabric magazine. This innovation is expected to be particularly valuable in the employment of the machineguns of the rifle platoons in close support of the final phases of an attack, since it obviates the need for an assistant gunner while the gunner is delivering marching fire.

The M-60 was service-tested at the

Arctic Test Branch and at Fort Benning by the United States Continental Army Command. It performed with a high degree of reliability in both extreme and average climates, comparing favorably with the heavy Browning in all-around performance. The gun is slated for troop testing this year by one airborne battle group of the 101st Airborne Division. As soon as the results of the troop test have been evaluated and precise modification needs have been determined, the gun will go into quantity production. It is expected that this gun will be issued to units starting in 1958 and that it will take about five years to equip all units.

The killing power of the M-60 machinegun makes it an ideal weapon to assume the direct fire, close support role of the heavy and light Brownings in defense and offense, while its light weight and versatility give it a plus value because it can accompany attacking rifle companies all the way to the objective.

105mm Mortar

A new 105mm mortar (T-33E5) is being developed. It is being considered as a replacement for the 4.2-inch weapon which has been giving indirect fire support to the Infantry since 1943 and which has been an integral Infantry weapon since 1946. The 4.2 or 105 will constitute the organic artillery of the Infantry and airborne battle groups. According to present plans, each of the new Infantry fighting groups should have a battery of eight 4.2s or 105s.

The 105mm mortar (Figure 5) is 200 pounds lighter than the 4.2 (456 pounds to 661), and it breaks down into three loads instead of five as the 4.2. These characteristics make it more mobile for both ground and airborne operations.

The 105 has a smooth-bore barrel, like the lighter Infantry mortars. It is 65 inches long—five inches longer than the 4.2. It has three position seatings located on the barrel to make elevating easier. The smooth bore has reduced the cost and increased the life of the tube.

The 105 has a bipod and baseplate but no separate bridge, rotator and standard like the 4.2-inch mortar.

The bipod has telescoping, adjustable legs that allow the mount to be leveled on uneven ground and facilitate firing at extreme elevations. It can be broken down into two loads for hand-carry. The bipod mount contains the elevation, traversing (including the cross-leveling knob) and shock-absorber mechanisms. The cross-leveling knob is on the left side of the mortar, next to the M-34A2 sight unit. It is manipulated by the gunner.

The one-piece steel baseplate is bowl-shaped. Its underside is heavily ribbed and has spades of such length that the baseplate will rest evenly on the ground without special seating. With the 4.2-inch mortar, the bridge must be supported by sandbags or its baseplate must be emplaced before firing. The 105 has a base-firing mechanism similar to the trigger mechanism on the 60mm mortar.

Both mortars can shift 6400 mils, but

Figure 5. The 105mm mortar.

the 105's barrel-bipod-baseplate combination proves far more successful because, with the 4.2, the crew must dig out around the bridge after prolonged firing to maintain the 6400-mil shift capability.

The new mortar currently is undergoing service tests to determine its suitability as a replacement for the 4.2-inch mortar.

Figure 6. The Dart.

The Dart

The initial draft TOE for the battle group called for the assault gun platoon to be equipped with four 106mm rifles.[4] These were to be used until the M-56, a 90mm self-propelled gun, popularly called the "Spat," became available. Still later the unit was to get the "Dart," an extremely effective guided missile. However, a recent change by Department of the Army removes the M-56 as a contemplated weapon for the assault gun platoon and replaces the 106mm rifles with four M-48 tanks until the Dart becomes available.

Most Infantrymen are familiar with the M-48 tank. The Dart, however, is new (Figure 6). It is a highly effective missile, powered by a rocket motor which uses a smokeless propellant. During demonstrations it has scored bull's eyes on moving targets at extreme ranges. It is designed to destroy the heaviest tank known today and also may be used against any heavily reinforced concrete fortification. The Dart may be fired and guided from the ground or from a vehicle.

Most of the performance characteristics of the Dart are currently classified.[5]

[4]See "Why Five?", April 1957, *Infantry*.
[5]When additional information is available for publication, *Infantry* will discuss this weapon in more detail.

The imposing array of responsibilities which rest upon our Army today is matched by its impressive accomplishments in the development and employment of new weapons, modern equipment, streamlined organization, and atomic battlefield tactics. The Army is fully abreast of the rapid evolution of modern warfare. It has promptly seized upon each advance of technology to insure that it will be fully able to accomplish its mission no matter what kind of war might be thrust upon us.

SECRETARY OF THE ARMY WILBER M. BRUCKER

In respect to firepower, the Army now has more than five different weapons capable of delivering atomic weapons with ranges from a few thousand yards to scores of miles. Through the use of guided missiles, we now have a firepower range that is 14 times greater than that of World War II.

GENERAL MAXWELL D. TAYLOR

ROCID

Mobility

PENTOMIC INFANTRY DIVISION

GROUND MOBILITY *By Capts Vernie G. Tosh & James B. Hobson*

WE now turn to another factor in the "Pentomic equation."[1] This factor, without which the equation means nothing, is mobility. The new division is highly mobile. It has to be. Atomic weapons demand that units move quickly on the battlefield. If they don't, they face destruction.

The pentomic Infantry division has better air and ground mobility than its triangular predecessor. This article will discuss some of the means which have increased the division's ability to travel on the ground.

Division

Two important factors give the division more ground mobility. It has more

[1]Mobility + firepower + communication = superior force at the point of decision.

vehicles, *in relation to personnel strength,* than the triangular division. And its vehicles are pooled (mainly at division level but also at battle group level) for centralized control.

Although the new division has 22% fewer personnel than the triangular division, it has only 17% fewer vehicles. The number of armored carriers has been considerably increased.

MOBILITY CAPABILITIES OF THE PENTOMIC INFANTRY DIVISION

Battle group	37%
Hq & Hq Co	75%
Rifle Company	10%
Mortar Battery	100%[3]
Division artillery[4]	100%
Division Hq & Hq Co	100%
Ordnance battalion	80%
Quartermaster company	100%
Aviation company	100%[5]
Signal battalion	66%
Hq & Hq Co	30%
Command Operations Co.	80%
Forward Communications Co.	90%
Armor battalion	100%
Cavalry Squadron	100%
Transportation Bn	87%
Hq & Hq Co	50%
Truck Transport Co	100%
Armored Carrier Co	100%
Engineer battalion	100%
Hq & Hq Det & band	10%
Medical battalion	45%
Hq & Hq Det	25%
Ambulance Co	100%
Clearing Co	10%
Administration company	10%

Figure 1. Mobility of the pentonic Infantry division using organic transportation.

Centralized control of vehicles increases the division's efficiency by permitting use of a maximum number of vehicles at all times, by providing maximum utilization of shop facilities and specialized personnel and, finally, by eliminating duplication and overhead at all levels of command.

Perhaps the best example of this centralization is found in the battle group. Compared to the regiment it replaces, the battle group has 66% fewer vehicles and 74% fewer motor maintenance personnel. It has one maintenance unit (the supply and maintenance platoon of battle group headquarters and headquarters company) while the regiment had 11 maintenance units (sections in the medical company, headquarters and headquarters company, service company, tank company, three battalion headquarters and headquarters companies, and three heavy weapons companies).[2] The supply and maintenance platoon performs organizational maintenance on all battle group tracked and wheeled vehicles.

Centralized control and additional vehicles enable many of the division's units to ride to work. Many units, as shown in Figure 1, have 100% mobility. Others, especially the rifle companies, can be completely mobilized by the attachment of APCs or trucks from the division transportation battalion. By using all of the transportation battalion's organic 2½-ton trucks (80) and armored personnel carriers (114) two battle groups can be made 100% mobile. The armored carriers will lift one battle group.

The transportation battalion, a newcomer to the Infantry division, furnishes the division commander with a ready pool of transportation over which he has di-

[2]The battle group's mortar battery, however, still maintains its own vehicles, as did the regimental heavy mortar company.
[3]Depends on Headquarters and Headquarters Company for ammunition resupply and transport of mess.
[4]Tactically self-sufficient but requires additional administrative transport for 100% mobility.
[5]100% mobile with use of aircraft.

M-59 armored personnel carrier.

rect control. The battalion is composed of a transportation truck transport company and two armored carrier companies.

The truck transport company of the transportation battalion has 80 trucks in four truck platoons of two squads each. Each squad has 10 2½-ton cargo trucks with trailers. The truck company can lift, at one time, 1200 personnel or 240 short tons of cargo or any appropriate combination. This capability is based on a 75% availability of trucks. A large percentage of these trucks probably will be in use at all times. Except when they are back in the transportation battalion area for maintenance, these trucks will not be idle as are trucks of current organizations when the units are in a relatively inactive status, such as in reserve.

Each of the two armored carrier companies can transport, at one time, 60 tons of cargo or 440 personnel, also based on a 75% availability. Unlike the trucks, the APCs will occasionally be a waiting pool of transportation. The carriers give the Infantry division an added mobile river-crossing capability and a limited Armored-Infantry capability. This is a significant addition to the flexibility of the division.

Both the truck transport company and the two armored carrier companies depend on the battalion headquarters and headquarters company for maintenance. This is another example of centralized maintenance control. The headquarters and headquarters company has the additional capability of attaching maintenance sections to the operating companies when they are supporting assault units.

Battle group

What does the consolidation of vehicles and maintenance support at division level mean to the battle group?

Consolidation and centralization of

CAPT VERNIE G. TOSH began his military career when he enlisted at Fort McPherson in 1942. He was graduated from OCS three years later and served as an instructor in the Automotive Department of The Infantry School before joining the Eighth U. S. Army Special Services Group in Tokyo. Returning to the United States, he once again was assigned to The Infantry School as an automotive instructor. Three years later Capt Tosh found himself once more in Tokyo, this time as chief of the Highway Division, Central Command. He has been at the U. S. Army Infantry School since September 1955 and is currently chairman of the Movements Committee, Ground Mobility Department.

CAPT JAMES B. HOBSON was graduated from the United States Military Academy in 1946 and completed the basic airborne course the next year. He then served as a platoon leader and company commander with the 34th Infantry Regiment in Japan and with the 511th Airborne Infantry Regiment at Fort Campbell. After a three-year tour in the G2 Section, Office of Chief of Staff, United States Army, Europe, he was graduated from the advanced class at the United States Army Infantry School in 1956. He then began his present assignment with the Training Literature Editing Section, Editorial and Pictorial Office, United States Army Infantry School.

vehicles and motor personnel and facilities help give the battle group commander a proportionately larger foxhole population than that of the old regiment. The reduction of vehicles in the battle group (124 to the regiment's 371) lessens, somewhat, the battle group commander's general automotive responsibilities. Specifically, it decreases his responsibility for the maintenance of vehicles which he does not need at all times. He no longer must supply all of his gasoline needs with his organic vehicles. The gasoline is now delivered to the battle group by tank trucks organic to the division quartermaster company.

The battle group motor officer is a member of the battle group commander's staff.

Although the battle group requires considerable supporting transportation for all types of operations, it does have a limited amount of organic transport. Besides the combat and command vehicles throughout the battle group, the supply and maintenance platoon of the headquarters and headquarters company has a truck squad and an ammunition squad.

The truck squad has five 2½-ton trucks and five 1½-ton cargo trailers for transporting company mess equipment and personnel, company individual rolls and supply room paraphernalia, and reserve rations. In other words, each truck does the job of two trucks in the triangular organization.

The ammunition squad is equipped with four 5-ton trucks, six 2½-ton trucks, six water trailers, two 1½-ton cargo trailers, and two 2-ton ammunition trailers. The squad can normally lift 42 tons of cargo.

The rest of the headquarters and headquarters company is about 85% mobile, with the reconnaissance, assault gun, communications and engineer platoons being 100% mobile.

Mortar battery

The heavy mortar battery is considered to be 100% mobile except that it depends on the battle group headquarters and headquarters company for ammunition resupply and for a mess truck, trailer and water tank. The ammunition appetite of the heavy mortar makes this an important exception, however. The battery has one 2½-ton truck for battery maintenance, compared with the four 2½-ton trucks of the Infantry heavy mortar company which it replaces.

Rifle Company

Compared with the current rifle company the pentomic rifle company has lost its one 2½-ton truck and has gained four ¾-ton trucks. The company now has four ¼-ton trucks and the four ¾s. Most of these vehicles are organic to the weapons platoon: all of the ¾s and three of the jeeps. The only vehicle in company headquarters is a jeep.

Here is what these changes will mean to the company commander:

The ¼-ton truck in the headquarters carries the company's principal radio set, the AN/VRC 18. Thus, it cannot be used as a utility vehicle as is the second ¼-ton truck in the current company headquarters. This second vehicle has been available to the supply sergeant, mess sergeant, armorer artificer and communications sergeant for the hauling of supplies, rations, ammunition, wire, batteries and other supplies necessary to support the company in combat. The loss of the 2½-ton truck in the company makes the company dependent on battle group for transporting individual rolls and supply room items such as chemical detector kits, demolition sets, armorers tools, wire cutters, panel sets and radiac equipment which are not used every day.

The weapons platoon is now 100% mobile with a gain of one ¼-ton truck (making a total of three) and four ¾-ton trucks. One ¼-ton truck is a reconnaissance vehicle in the platoon headquarters. The other two carry the two 106mm rifles. One ¾-ton truck in platoon headquarters transports forward observers, computer personnel, radio telephone operators and their equipment, and ammunition when possible. The remaining ¾-ton trucks carry the 81mm mortars.

Even though there are fewer vehicles in the pentomic Infantry division than in the triangular division it is readily apparent that mobility has been gained. Trucks are assigned, by type, where they can give greater support to the fighting soldier. The "loss" of trucks which sat around in the old organization with poor utilization will help, not hamper, our operations. We can do more with less because our vehicles are more functional.

Air Mobility

By Maj Lawrence L. Mowery and Capt James B. Hobson

Today, more than ever before, the Army—from the highest command down to the squad—must be air mobility conscious. The development of tactical atomic weapons has increased our requirements for speed, flexibility and dispersion.

These powerful weapons demand that we be able to bring tactical units together at the critical time and place. When an objective has been taken and the need for concentration has passed, we must have the means to disperse these forces rapidly to avoid presenting a remunerative atomic target to the enemy.

The ability to move forces by air,

along with increased ground mobility, will permit commanders at all echelons to concentrate or disperse forces more rapidly. It will permit greater flexibility in combat operations. For example, with air mobility, the commander can quickly shift reserves to a threatened area or blocking position. He can exploit success, reposition forces to parry enemy actions, overcome natural and artificial obstacles, or withdraw his forces vertically from untenable positions.

Among the criteria[1] established for a new Infantry division for the atomic-age battlefield was a requirement for increased air transportability. When these criteria were translated into organizational plans, the need for improved air transportability was considered. However, this requirement had to be weighed against the primary characteristic of any Infantry division—the capability of sustained ground combat.

Sustained combat is not compatible with complete air transportability. It demands heavier items of equipment such as tanks, armored personnel carriers, artillery and rockets which are not air transportable in current troop carrier aircraft or which would require too much airlift to be feasible in normal operations. Consequently, while a higher degree of transportability has been achieved in the pentomic Infantry division, complete air transportability is found only in the pentomic airborne division.

In discussing air mobility, we should consider the Infantry division's specific capabilities for air movement and other capabilities provided by its own organic aircraft. There are many ways in which the division's aircraft can be utilized to increase mobility and to give the commander greater flexibility. Aerial reconnaissance, airborne or airtransported patrols, raids, target acquisition, shifting of reserves, repositioning of forces, vertical withdrawals, aerial supply or resupply are but some of the many capabilities of the aircraft available to the division commander.

Air transportability

The new organization has improved air transportability without materially decreasing its sustained combat capability. The major portion of the division *can* be airlifted in a strategic air movement. This type of move normally will require the use of heavy troop carrier transports of the Air Force (C-124 and C-133).

[1]See "Why Five?" April 1957 *Infantry*.

The L-19, "Bird Dog". This and the other aircraft shown are those currently found in the new aviation company.

L-20, "Beaver"

It will be used primarily to transport the air-lifted echelon of the division from the zone of interior to an overseas theater or from one theater to another. Tanks, armored personnel carriers, heavy engineer equipment etc., either cannot be airlifted or will require too many aircraft to be practical.

The division also has the capability of participating in joint tactical airborne operations. Such operations will contain specialized airborne elements and Air Force elements including assault and medium troop carrier aircraft (C-123 and C-130). Some of the heavier division vehicles and weapons cannot be transported. However, the five major combat elements of the division, the battle group, are light and, except for two light tanks and two armored personnel carriers in the group's reconnaissance platoon and the four tanks in the assault gun platoon are completely air transportable by medium transport aircraft.

Many elements of the division—from squad to reinforced battle group size—can be transported for small-scale tactical operations in Army aviation available to the division and higher commanders.

Let's take a look at some of the specific air transportability capabilities of the combat elements of the division. While the numbers and types of aircraft required to lift the pentomic Infantry division and its subordinate elements are currently being studied and requirements have not yet been finalized by Department of the Army, the United States Army Infantry School has developed tentative capabilities. These capabilities were determined by using the airborne planning figure of 240 pounds (weight of the average combat loaded soldier) for all personnel, by making basic load calculations from information in "Reference Data, Infantry Division Battle Group," March 1957 and by computing other weight and size data from information in appropriate technical manuals.

The battle group can be airlifted in a single lift in 92 C-119 aircraft with only the following equipment and personnel left behind:

Personnel	47
Carrier, personnel, full tracked, armored	2
Tank, 76mm gun	2
Tank, 90mm gun, M-48	4
Truck, cargo, 5-ton, 6x6, LWB	2
Truck, cargo, 5-ton, 6x6, LWB WW	2
Truck, light wrecker, 2½-ton, 6x6, WW	1
Truck, Shop van, 2½-ton, 6x6	1
Trailer, 1½-ton, 2W, water tank	3
Trailer, 1½-ton, 2W	1

The same capability exists when the C-123 aircraft is used. This is based on

H-19

a 16,000 pound allowable cargo load for both aircraft. It should be pointed out that the airlift requirements depend on the figures used for allowable cargo load since the allowable load varies depending on the mission, range or radius of action, condition of the aircraft, weather, and other factors.

A new aircraft in our arsenal is the C-130 "Hercules," the replacement for the C-119. This aircraft has a 25,000-pound allowable cargo load as compared to 16,000 pounds for the C-119 and C-123. As a result, the battle group can be airlifted in 71 C-130s, leaving behind only 39 personnel, two armored personnel carriers, four 90mm gun tanks and two 76mm gun tanks.

When we compare these capabilities with those of the regiment in the current division the improvement in air transportability becomes apparent. In a joint airborne operation the regiment to be air landed normally is divided into an initial echelon, a follow-up echelon and a rear echelon. To airlift the regiment 100 C-119 aircraft are required for the initial echelon and 141 C-119s for the follow-up echelon. Movement of the rear echelon requires heavy transport aircraft, and therefore, it is not considered as air transportable in making this comparison. Remaining in the rear echelon are 176 personnel, 11 trucks, 5 trailers, 22 90mm gun tanks, 1 armored vehicle and 2 tank recovery vehicles. Even when the difference in the size of the two units is taken into account the battle group has greater air transportability than the regiment.

Airlift requirements using the H-34 helicopter to transport the battle group are based on an allowable cargo load of 3,400 pounds and a radius of action of 50 nautical miles. The total number of H-34's required to airlift the battle group is 203. The number of personnel and types and quantities of equipment that cannot, or would not, be airlifted are listed below:

Personnel	106
Carrier, personnel, full-tracted, armored	2
Trailer, ammo, 2-ton, 2W	2
Trailer, ¾-ton, 2W	41
Trailer, 1½-ton, 2W	11
Trailer, 1½-ton, 2W, water tank	6
Truck, cargo, 5-ton, 6x6, LWB	4
Truck, cargo, 5-ton, 6x6, LWB WW	2
Truck, cargo, 2½-ton, 6x6, LWB	5
Truck, cargo, 2½-ton, 6x6, LWB, WW	10
Truck, cargo, ¾-ton, 4x4	44
Truck, light wrecker, 2½-ton 6x6, WW	1
Truck, shop van, 2½-ton, 6x6	1
Tank, 76mm gun	2
Tank, 90mm gun, M-48	4

All radio sets mounted in vehicles larger than ¼-ton truck.

When the H-37 helicopter is used to transport the battle group airlift requirements are based on an allowable cargo load of 6,000 pounds and a radius of action of 76 nautical miles. The total number of H-37s required to airlift the battle group is 188. The number of

personnel and types and quantities of equipment that cannot, or would not, be airlifted are listed below:

Personnel	44[2]
Tank, 76mm gun	2
Tank, 90mm gun, M-48	4
Carrier, personnel, full-tracked, armored	2
Trailer, ammunition, 2-ton, 2W	2
Trailer, water tank, 1½-ton	6
Truck, cargo, 5-ton, 6x6, LWB	2
Truck, cargo, 5-ton, 6x6, LWB, WW	2
Truck, cargo, 2½-ton, 6x6, LWB	4
Truck, cargo, 2½-ton, 6x6, LWB, WW	10
Truck, light wrecker, 2½-ton, 6x6, LWB WW	1
Truck, shop van, 2½-ton, 6x6	1

The number of H-34s and H-37s required to transport the battle group in a single lift obviously is quite large. However, all of the air transportable equipment or vehicles may not be needed in the operation. Also, it will be normal in such operations to lift the battle group in two or more lifts. These factors will reduce the number of aircraft required.

Organic aircraft

The pentomic division has gained additional mobility and flexibility through an increase in organic aviation. There are 50 fixed and rotary wing aircraft in the new organization as compared with 26 in the current division. Equally important is the pooling of these planes in a new aviation company. Decentralization of aircraft and personnel to operate them in the triangular division has presented problems and resulted in reduced effectiveness in the past. Many division commanders have found it necessary to organize a provisional aviation company to obtain increased utilization and more efficient maintenance for these expensive, difficult to maintain and hard to replace items. Centralized control should be a definite improvement. It should be noted also, that some of the aircraft in the new division have greater performance capabilities than those in the current division.

The new aviation company has three major subordinate elements: a direct support platoon, a general support platoon and a service platoon.

The *direct support platoon* is broken down into a platoon headquarters, an artillery flight, a target acquisition section, and five combat support flights. The artillery flight has ten L-19 aircraft and provides aircraft on a required basis to the artillery elements of the division for spotting targets and adjusting artillery and mortar fires. The target acquisition section has three L-19 and three L-20 aircraft. These aircraft team up with the reconnaissance and surveillance platoon of the cavalry squadron for aerial visual reconnaissance and provide platforms for aerial TV, infrared and radar devices. This gives the division a tremendously increased capability for the acquisition of targets — a particularly essential requirement on the atomic battlefield. Each of the combat support flights has one H-13 reconnaissance helicopter. This aircraft and the pilot (flight commander) are attached to a battle

H-13

[2]The 106mm rifle, mounted on ¼-ton truck, is substituted for tank, 90mm gun, M-48.

H-23

group on an as-needed basis. The flight commander in actual practice becomes the aviation adviser to the battle group commander upon attachment of the flight group to the battle group.

The *general support platoon,* within its capabilities and as required, provides reinforcement for the direct support platoon. The platoon normally operates from a divisional base airstrip. It is broken down into a command support section, tactical support section and a utility section. The *command support section* has three L-20 utility aircraft and three L-19 observation aircraft. These planes normally will be used by the division commander and his staff officers for reconnaissance and liaison. The *tactical support section* has fifteen H-13 reconnaissance helicopters and it is from this section that aircraft are provided on a required basis to reinforce the combat support flights or to support other units of the division. The *utility section* is the work horse of the division. It is from this section that the capability for aerial lift of troops and supplies is provided. Specifically, this section, based on average conditions, can lift 48 fully equipped troops or about 6 tons of supplies in a single lift.

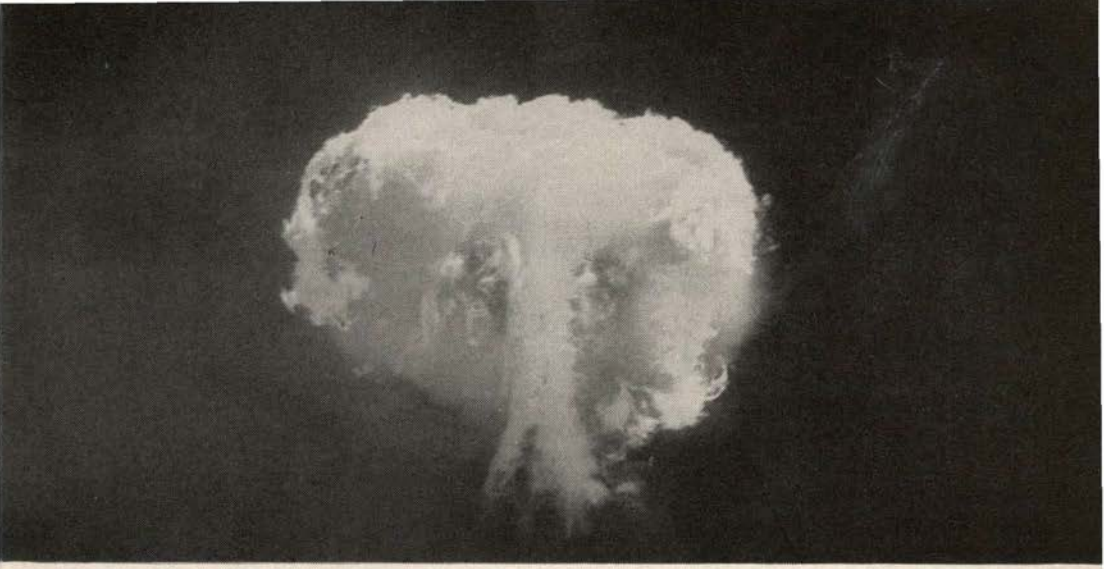
The *service platoon* maintains all aircraft organic to the division and operates basic airfield facilities. Its maintenance section is composed of one warrant officer and 28 enlisted men, most of whom are airplane mechanics, helicopter mechanics, and hydraulic or electrical repairmen. The small (five men) airfield service section is responsible for petroleum storage, crash rescue and runway lighting.

An analysis of the Infantry division aviation company reveals areas in which the pentomic infantry division achieves increased capabilities for air mobility, reconnaissance, surveillance, target acquisition and other functions. However, in spite of the greater number of aircraft in this division its organic air mobility is still at a minimum. Corps and Army must be relied upon to extend these capabilities by furnishing additional army aircraft, particularly for operations which require the movement of troops by air.

This "package" of articles on the pentomic Infantry division will be continued. The material to be covered in the next issue will be: tactics for the defense, communications, logistics, medical support, staff procedures, etc.

BATTLE DRILL

Instruction in combat formations and battle drill, covered in considerable detail in article, "Battle Drill," January 1957 issue of *Infantry* is now being implemented in Infantry units. Several weeks after its appearance in *Infantry* information on this subject was published in Training Circular 7-10-2, "Combat Formations and Battle Drill," 14 January 1957, and later as an appendix in Training Text 7-10, "Rifle Company, Infantry Regiment." It will also be published for pentomic units as an appendix in FM 7-10, "Rifle Company, Infantry Division Battle Group," which is now being revised and should be published by the end of this year.



DECISION

Decision on the atomic battlefield will be most difficult.

Commanders must react immediately and with skill.

By Capt Robert T. Fallon

A figure moves quickly through the darkness, stumbles at the entrance to a small CP bunker and enters, apparently in some haste.

"Colonel!"

"Yes?"

"Sir, it's Foster."

"Oh. Hello Chuck. What is it?"

"The enemy has moved out from in front of A company, sir."

"They've moved out? How long ago? What time is it?" The colonel is suddenly alive. He moves quickly from a cot in the corner as he listens intently to his young S3 standing in the dark before him.

"Sir, everything has been pretty quiet since midnight. There was normal activity with our contact patrols and a little scattered firing, but nothing unusual. Then around 0300 one of A company's patrols got about 400 yards forward of their position without finding anything. They reported back immediately and I came to get you as soon as I heard from Captain Phillips."

"How about the other companies?"

"I've had no reports, sir. Sergeant James was calling them when I left."

"OK. Let's go."

The two men emerge into the night

and follow the ghostlike line of engineer tape which leads to the operations bunker. In their movements, voices, and obvious haste, they reflect the tension which this single report has created.

This is an atomic war. This is a battle group, part of a defensive line situated in the midst of a land desolated by the atomic weapon. This battle group is organized on a position which has withstood, for more than 24 hours, the strong attacks of a determined enemy. The enemy has now stopped his attacks. What will he do now, faced with the failure of his assaults? The pattern was set early in the war. He can continue his pressure on the ground or withdraw.

If he withdraws he may do so for two reasons. He may attempt to blast his way through with an atomic weapon or endeavor to draw the battle group into a salient and cut it off.

Threat of the atomic weapon hangs like a cloud over the battle group. It permeates the night air and reveals itself in a hundred different ways—the nervous movement of sleepless troops; quick, tense telephone conversations between units; drawn faces of staff officers who stand gazing intently at the maps before them. These men know that their lives hang on the skill and the speed with which their commander can react to the situation that appears to be developing there in the night. They all know that they must "hug" the enemy for their own protection if he withdraws to use his terrible weapon. On the other hand they must not get "sucked in." Above all they must keep contact with him.

This anxiety is apparent in the face of the commander as he enters the operations room. His first questions are short and terse.

"Any word from the companies, sergeant?"

"Yes sir. There's been no change in enemy dispositions except that reported earlier in the evening by A company."

"What's A company doing now?"

"They've had several patrols to their front trying to locate the enemy. Captain Phillips has been trying to reach you sir."

"Get him on the phone. Chuck, I want 100% alert. Step up the patrolling. I want to get some people into the enemy rear areas. Find out if there's anything in back of them. If this is only a screen they're leaving in front of us they may be getting ready to drop one. Meanwhile, I want everyone else in his hole, minimum movement in the area, everyone under cover. I mean *everyone!* Johnson, call division and find out if they're pulling out anywhere else along the front."

With this activity the tenseness relaxes somewhat. The commander has given his orders. His men can busy themselves now, forgetting their fears. They know what to do. They've done it before successfully and they work now with the growing confidence that they will succeed again.

"Sir, I have A company."

"Thanks. Hello, Phillips? What's going on out there?"

"Nothing new, colonel. It looks like they've really gone. I've had two patrols out as far as 500 yards and there's just nothing in front of me."

"OK, Phillips. Here's our situation. We don't know yet if there have been withdrawals anywhere else. We're checking with division right now. I want you to move out about 300 or 400 yards but don't lose contact with B and C companies on your flanks. They may be trying to suck us out the way they did D company the other night. I don't want you more than 400 yards forward of your present positions. Any questions?"

"Sir, I'd like to patrol out beyond that 400 yards and see if I can find them."

"Of course, but only in your own sector. B and C companies are patrolling to their fronts and I don't want you getting

mixed up with them in the dark. Now go to it. Keep me informed."

"Right, sir."

By this time the battle group is awake. Orders are passed on. There is the quiet movement of bodies through the night and the occasional sound of a shovel chipping away at the rocky soil. These are comforting indications of activity. The group is preparing. The men know little at the moment except that they must remain under cover. Some of them, those who have seen the fiery ball erupt before, are less anxious, knowing that one can live through such a thing. The others, the newer ones, display a mixture of bravado and naked fear. All know that something must happen soon, though not sure at what instant it will come. To these, the ones who can do nothing but burrow into their holes and wait, this war is the most terrible. But in this the war is no different from any other. It is the busy ones who are fortunate.

"Sir, I have a report from B company. They say that there's no change to their front. They managed to get a patrol through far enough to find a company CP still intact, and they could see no indications of any movement to the rear."

"I can't make it out, Chuck. What the hell are they up to?"

"I don't know, sir."

"If we try to push them back now it may be just what they're waiting for. They may be sitting back there with enough stuff to smack us good and even cut us off. But if they are really pulling back, we've got to move out and follow them up before they bust one over us."

"Colonel, here's a message from C company. They're having trouble getting a patrol through the enemy lines. They all seem to be wide awake over there."

"Wide awake eh? How long till daylight?"

"About an hour, sir."

"Chuck, get hold of C company. Tell Martin that he's got to get through. We must know if there's anything behind those people and we won't be able to see a thing for at least another hour. Tell D company to stay where they are and remain under cover. Now, where's Johnson?"

"Here, sir."

"Joe, do you have anything from division about enemy movements?"

"Not much, sir. There doesn't seem to have been anything out of the ordinary along our front. They're still moving people up. There doesn't seem to be any slackening. If you have a few minutes, I can give you some of the exact dispositions as we . . . ."

"Excuse me, sir, B company on the

CAPT ROBERT T. FALLON graduated from the United States Military Academy in May 1949. During the following two years, he attended the Ground General School at Fort Riley, Kansas, and the Infantry Officers Basic Course at The Infantry School, Fort Benning, Ga. He then served as a company officer with the 17th Infantry Regiment, 7th Division, in Japan and Korea, following which he returned to Fort Benning to attend the Airborne School. After a two year tour of duty with the 82d Airborne Division at Fort Bragg, N. C., he went to Germany where he served with the 43d and 5th Infantry Divisions until May 1955 when he was appointed an instructor at the 7th Army's NCO Academy in Germany. Returning to the states he attended the Advanced Class at The Infantry School. He graduated from the course in April of this year and was assigned his present position as Assistant Professor of Military Science and Tactics at Canisius College, Buffalo, N. Y.

phone. Captain Carter wants to speak to you."

"Thank you, sergeant. Colonel James here."

"Sir, they've gone!"

"What the . . ."

"I don't know when it happened exactly. About 10 minutes ago one of my patrols reported that they couldn't find anyone to their front. I went out to see for myself and that's it. They just seem to have slipped off into the . . ."

"Get after 'em, Carter. Move out immediately. The group will secure positions as far as phase line Bravo. Tie in your flanks and then patrol to your front up to 400 yards. See if you can find . . . what's that?"

A sudden burst of air rushes through the vent holes of the bunker and a violent tremor shakes the ground beneath. Outside a ball of fire rises above the distant horizon and momentarily gives the night a light brighter than any day.

"Sir, they've just busted one to the north. It's over the 4th group somewhere. I don't know . . ."

Another flash followed by a roar from the south drowns out any further words.

"My God! Carter! Carter, can you hear me? Keep your people down in their holes! All of them! Foster! Get in touch with the other companies and tell them to get set. I want every man in this CP under cover! We're staying. If it's going to come it'll be in the next few . . ."

The early morning sky erupts into a holacaust of flame and blast which descends with its wild fury upon the small ridge where the battle group lies huddled in its holes. Many of these men will live to see the dawning of the day. Some won't. Those who survive and later come down off that hill are a different breed of men from those who climbed it. They have, for an instant, seen the face of Hell. Such a sight does not soon leave the eyes of men.

SELL OUT

The April issue of Infantry, *with a basic article on the pentomic Infantry division, was a complete sellout. Several thousand additional copies of the July issue have been printed but it is probable that demand may again exceed our supply. There may be others in your unit who would benefit from the official information on pentomic Infantry organizations, tactics, weapons and techniques to be found in this and future issues. Will you please bring* Infantry *to their attention and ask that they enter a subscription as soon as possible? The Book Department will fill all subscriptions on a "first come, first serve" basis so long as the supply lasts. Subscriptions received after copies of the current issue have been exhausted will necessarily begin with the next issue.*

United States Army Infantry School

The United States Army Infantry School celebrated its golden anniversary on 1 April. Since its founding 50 years ago the school has developed and trained Infantry leaders. Victories on the battlefields of three wars attest to its success.

Today's Infantry School, the foremost of its kind in the world, grew from the School of Musketry organized in 1907 at the Presidio of Monterey, California. A secondary function was quickly added to its primary job of training Infantry leaders. It became—and still is—a testing and research organization. Some of its first experiments dealt with the tactical employment of the machinegun.

Shortly before America's entry into World War I the War Department reorganized the school, which had moved to Fort Sill, Oklahoma, and expanded its area of responsibility. Toward the end of the war Fort Sill proved inadequate for the increased program; classes were being held at such widely separated locations as Camp Perry, Ohio, and Camp Hancock, Georgia.

To overcome the congestion at Fort Sill and to consolidate the activities of all three "Infantry Schools" the Army decided, late in 1918, to locate the Infantry School near Columbus, Georgia, on the site of an old plantation. The new post was named Camp Benning, after Confederate Brigadier General Henry L. Benning who had lived in Columbus. The school officially opened 22 June 1919. It has grown steadily since.

Tents gave way to frame buildings, which in turn were replaced by concrete and brick structures. Land acquisitions over the years gave Fort Benning its present 184,000 acres of varied terrain needed for Infantry training.

As the post changed so did much of its teaching. Garand's semiautomatic rifle replaced the bolt-action Springfield. Mortars became more powerful and more accurate. Recoilless weapons and antitank rockets were developed. The square division went triangular in time for its winning role in World War II. The airborne Infantryman learned to jump into battle. Guided missiles and free rockets added their firepower to the support of the foot soldier.

The Infantry School played an important part in developing or testing these new concepts in weapons, organization and tactics.

Today the school trains men not only from this country but from some 35 Allied nations as well. It is developing organizations and tactics for a new pentomic (ROCID) division designed to fight and win on the atomic battlefield.

The 1957 graduate of the Infantry School is prepared to face nuclear weapons just as the 1907 alumnus of the Presidio was ready to deal with the machinegun—the mass-destruction weapon of that day. This fact, better than any other, shows how the school has kept abreast of technical developments and helped to shape the Army's thinking as the means of waging war have changed.

The United States Army Infantry School begins its second half century with its training and testing missions just as important as ever. In spite of today's nuclear weapons, it is still the Infantryman, with his rifle, bayonet and mud-caked boots, who must seize and hold the ground. As always, the man with his feet on the ground is still the ultimate weapon.

PARACHUTING

Parachutists jumping from a helicopter may seem a rather odd sight. With this aircraft's ability to hover and to land almost anywhere, in any kind of terrain, it may seem ridiculous for time and money to be spent on this sort of activity. Yet, jumps are being made from helicopters and from small, fixed-wing aircraft at the U.S. Army Infantry School—and for very good reasons as we shall see.

Current regulations prohibit the use of Army aircraft for troop parachute operations. However, authority has been given for experimentation and testing. Tests with a number of different aircraft have now been conducted and training literature is being prepared on doctrine and techniques for limited parachute operations using helicopters and small, fixed-wing planes. These tests and other developments are expected to lift the restriction.

Why are we interested in parachuting men from Army aircraft, particularly helicopters? The answer is relatively simple; it stems from a specific need. There will be many situations on the modern battlefield in which this capability will be of great value. One such situation is the need to put a small reconnaissance patrol into enemy territory. Of course the patrol could be landed, especially by helicopter, but not with secrecy and not without risk to the aircraft. The noise made by the plane's landing and takeoff would alert the enemy to the patrol's presence and could expose the plane to fatal ground fire. However, in an area where helicopters or light aircraft have been used in normal operations, an airborne patrol can be *dropped* without risk of immediate detection by the enemy. The mission can be accomplished at night and the parachutists can jump from the craft without

By Major Lawrence L. Mowery

Parachuting from helicopters and other light army aircraft, though it may seem incongruous, is an important new capability for Infantrymen

from ARMY AIRCRAFT

Figure 1. Parachuting from the H-21C helicopter.

any visible or audible indication of the operation. The droning sound of these small aircraft in flight will reveal nothing unusual to the listening ear. Since there is no necessity for either decreasing or increasing the sound of the engine, the patrol can drop on its objective without the enemy knowing when, where or even if it were dropped.

There are many other situations where men parachuted from Army aircraft can be employed effectively, such as Army pathfinder operations and operations in restricted areas such as woods and jungles where not even a helicopter can land.

This capability of parachuting men from Army aircraft can also be used for small raids and for other operations when speed is needed and when weather, natural or artificial obstacles or the depth of the enemy's defensive crust prevents the use of normal ground operations. It will provide a flexibility long desired and needed by the commander in many situations. Other valuable uses for this capability will become apparent as the tests and developments continue.

Jumping from light Army aircraft is not just a matter of going up in the air and stepping out. Numerous safety factors and special techniques are required and vary according to the type of plane. For example, the downwash of the helicopter's rotor blades may invert the canopy of the parachute unless the proper technique is used.

Tests are being conducted and doctrine and techniques are being developed for this new capability by the Airborne-Air Mobility Department of the U.S. Army Infantry School. Before any plane is considered for this purpose it is first tested by the U.S. Army Airborne and Electronics Board at Fort Bragg. This board determines the suitability and safety of parachuting from Army aircraft. All

Army aircraft except command and liaison fixed-wing planes and reconnaissance helicopters are being tested. As each new type aircraft is made available to the Army it will be evaluated for a parachute capability and, if appropriate, similar tests will be made.

To date the Airborne-Air Mobility Department has conducted jump tests with the following planes: the L-20 (Beaver), a fixed-wing aircraft, and the H-19D and H-21C helicopters. Training literature on the L-20 has been prepared and published as a change to TM 57-220, "Technical Training of Parachutists." Literature also has been prepared for the H-19D and H-21C helicopters and submitted to Department of the Army through U.S. Continental Army Command for approval and publication. Jumps will be made from the U-1A (Otter), the H-34 helicopter and the H-37 helicopter as soon as the tests conducted at Fort Bragg determine that the planes are suitable and safe for the delivery of parachutists.

Jumping from Army aircraft has been received with enthusiasm by old and new parachutists alike. Although the same general techniques are used by the jumper

MAJ LAWRENCE L. MOWERY began his military career 17 years ago when he enlisted in the California National Guard. He received an OC commission at Fort Benning in December 1942 and later was graduated from the Parachute School. Throughout World War II, he served in Europe with the 505th Parachute Infantry Regiment, 82d Airborne Division. He returned to the United States with that unit and, following a brief tour of duty at Fort Bragg, went to Japan to serve with the 187th Airborne Infantry Regiment and later with the 7th Infantry Division. Returning to this country, Maj Mowery was once again assigned to the 505th at Fort Bragg and then went to Korea to serve with the 279th Infantry Regiment, 45th Infantry Division, and with the 24th Infantry Division. Two years ago he was graduated from the Command and General Staff College, Fort Leavenworth, and returned to Fort Benning as a member of the Doctrine-Requirements Committee, Airborne-Air Mobility Department, United States Army Infantry School.

Figure 2. Trooper immediately after jumping from the L-20 "Beaver."

in leaving the aircraft and in landing, there are several differences. The opening shock of the parachute is normally less when jumping from small aircraft. This is due to the lower forward speed of these planes. While reduced shock pleases the trooper, this type of jump demands that he be more alert. The lower forward speed *increases* the length of time it takes his parachute to fully deploy after he leaves the plane. The four seconds usually required for the chute to open when parachuting from Air Force planes flying at speeds of 100 to 130 knots is increased to five or six seconds when parachuting from the slower Army aircraft. The jumper must allow for this time difference before resorting to use of his reserve chute.

Of the Army aircraft tested to date, all but the H-21C helicopter require the parachutist to exit from the craft from a sitting position. This necessitates some modification in technique and does not appeal to all jumpers.

Although the helicopter can hover without any forward motion, the parachutist cannot jump from the craft at this time. Downwash from the rotor blades could invert his canopy, or push him into the static line or lines of preceding troopers causing serious malfunction of the parachute and possible injury or death. Therefore, it is necessary to prescribe a minimum forward speed for each type of helicopter which will nullify this downwash hazard. Maximum forward speeds must also be established for each helicopter. When rotary wing aircraft reach a certain speed, the body of the parachutist may be whipped into the landing gear or other parts of the craft by the wind blast of the rotor blades.

Since only a small number of troopers can be dropped from Army aircraft, there is no requirement for the large drop zones normally required in joint parachute missions. Small fields can, and normally will, be used as drop zones. These DZs may be

Figure 3. A modification near the floor of the H-21C provides an anchor line to which the trooper "hooks up."

Figure 4. The anchor line on the H-19D helicopter is installed at knee level.

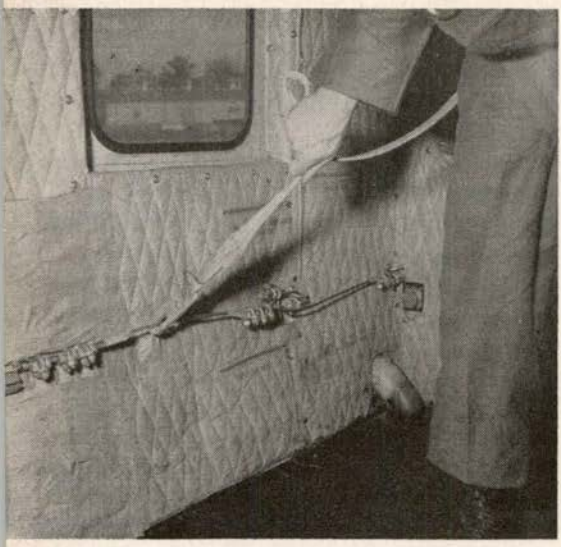


Figure 5. Proper position for exit from the H-21C helicopter.

cow pastures, small gardens, small openings in wooded areas or even a village square. The pattern of parachutists on the ground will be small, even with a two-second interval between jumpers. This compact drop pattern greatly increases speed in assembly and the over-all mission on the ground. The troopers can be out of the aircraft, on the drop zone and assembled at a predesignated point in a matter of a few short minutes.

The troop carrying capacities of different Army aircraft vary. The L-20 "Beaver" can drop up to four parachutists in a single pass over a drop zone with about a two-second interval between jumpers. The H-19D helicopter can drop five parachutists in a single pass and the H-21C can drop 10 troopers. However, since the H-21C can lift a total of 12 parachutists, it usually will drop them in two passes over the DZ. For example, two sticks of six men each can be carried in one lift, with one stick being jumped on each of the two passes.

It must be fully understood that missions for Army aircraft parachute operations will be restricted to limited objectives. Mass parachute drops and long-range parachute-troop operations will continue to be delivered in Air Force troop-carrier aircraft. Parachuting from Army aircraft will be limited to small-scale operations involving the delivery of squad- and platoon-size reconnaissance patrols, small raiding forces or Army pathfinder teams. The Army's planes are suitable for and capable of performing these important missions. Full exploitation of this capability will depend largely on the initiative and imagination of the commander.

Figure 6. Troopers sit down to exit from the H-19D helicopter.

Survival

INCREASED MOVEMENTS OVER GREAT DISTANCES BY AIR AND SEA TRANSPORT AND OTHER CHARACTERISTICS OF MODERN WARFARE PROMPT US TO KNOW MORE ABOUT SURVIVAL TECHNIQUES.

Could you drop what you are doing right now and walk into a desolate area with nothing in your pocket but a penknife and a cigarette lighter and survive for a week or two—or more? Could you feed yourself? Would you be able to find water? Could you protect yourself against heat or cold? If not you'd better read on. You may find yourself in a situation someday where your ability to stay alive will depend on what you know about survival techniques.

Farfetched? Not so much as you might think. Many officers and men have faced this kind of situation in the past. In atomic or mobile warfare units will be more widely dispersed and may be moved about more often over great distances by air or sea transport. The possibility of your facing such a problem may increase.

By John Gause and Capt Howard Kayner

MR. JOHN W. GAUSE served in the United States Navy from 1943 to 1947 as an aerial gunner in Alaska and the Aleutian Islands. After returning to civilian life he earned a degree in journalism at the University of Georgia. Following several years as a newspaper editor and as a public information specialist at The Infantry Center, Mr. Gause joined the Training Literature Editing Section of the Editorial and Pictorial Office, U. S. Army Infantry School.

CAPT HOWARD W. KAYNER enlisted in the Army in December 1942 and served in the European Theater throughout World War II. Following his discharge from the service, he attended Indiana University and was commissioned a second lieutenant in 1948. Capt Kayner attended the Armed Forces Information School at Carlisle Barracks and then served as an instructor at the Army's information school in Europe and as a platoon leader and company commander with the 18th Infantry Regiment in Germany. His next assignment was as troop information and education officer at Fort Riley. In 1955 he received a master of arts degree in journalism from the University of Florida. Since then he has been assigned to the Training Literature Editing Section, Editorial and Pictorial Office, United States Army Infantry School.

This is the type of thing most of us feel will never happen to us. Or it is something we'll worry about when and if it does. But, when it happens is too late. The time for you to take the first steps toward survival is now. Today is the time to acquire the "know how" you will need for survival tomorrow.

Survival lessons learned during World War II and in Korea prove that men can live and return to safety under the most dire circumstances if they know what to do. Yet, there is no pat formula for success. Each situation is unique in many respects and must be faced as such. However, all survivors have had some things in common. Probably the most important of these was the *will and determination to survive*. You won't last long without it. Most survivors also have been prepared in some way—either directly or indirectly, consciously or unconsciously—for the emergency before it happened. In some cases this consisted of little more than knowledge acquired as a Boy Scout or experience picked up while hunting, fishing or living in a rural area.

To get into a proper mood for information on survival, imagine you are sitting in the bucket seat of a military aircraft. Slipping under the wing, a mile or more below, is a vast, uninhabited wasteland—mountains, desert, arctic icepack or tropical jungle. Pretend that in a matter of minutes you find yourself catapulted into that area. You have only those items now on your person or in your pockets. Visualize that you have minor injuries or that you have been knocked out and have just regained consciousness. There is no other person around and you don't know for sure where you are. To make matters really tough, you suspect that you may be in enemy territory.

What can you do about your plight? How will you go about keeping yourself alive until you can be rescued or make it back to civilization or friendly lines? With this mental picture and these thoughts in mind, let's take a look at what you can do right now to prepare for survival.

One of the first things you must do is to prepare yourself mentally and psychologically for such an eventuality. While your efforts in this area will be limited there are some things you can do. A good way to start is to realize that this *could*

happen to *you*. Then you must recognize that when it happens things will be really tough. You must start to build confidence in your ability to cope with such a situation. Beware of false confidence based on a disregard or ignorance of how rough things really can be. Genuine confidence is justified only by a full appreciation of what you may have to face and by acquiring the knowledge you will need to pull through. Confidence in your ability to survive will go a long way in warding off panic. It will help also to allay the feeling of hopelessness and the temptation to give up. It can bolster your will to survive.

You can improve your chances of survival by training yourself to sit down and calmly think a situation through—by learning to develop a plan before you act. Moving about aimlessly will waste energy and time, may prove to be dangerous and certainly will reduce your chances for success.

Another thing you should do now is to take stock of what you already know. If you were a Boy Scout you are familiar with many techniques that would help you to survive anywhere in the world. Review what you have learned in your military training. How well do you know land navigation with or without a compass, map, etc.? How much do you remember about first aid, sanitation, personal hygiene, camouflage and other subjects that form the basis for further study in the techniques of survival?

Your next step is to consider the many kinds of special information and skills which you can pick up through daily living, reading and study. Then make a conscientious effort to add to your knowledge.

The many problems of survival can be grouped under three major considerations: food, water and shelter. You must know what you can eat to sustain life, where you can expect to find it and how to determine if it is safe to eat. You must know also where to locate water or other lifesaving fluids and how to make them fit to drink. And last, you must be able to find or provide shelter from heat, cold and the elements.

Locating food generally is not as big a problem as it may seem—not if you know how to do it and particularly if you develop a new conception of what can be put into your mouth to sustain life. There are about 300,000 plants growing on, under and above the earth's surface. Some 50% of these are edible. Add to plants the thousands of walking, crawling and creeping forms of animal life and you have, in almost any area of the world, a sizable food source. Of course, some plants and animals are not fit to eat. Many have little food value, some are dangerous. How do you learn about all of these thousands of food sources? The truth is, no average person will. You can, however, learn to recognize the most common types of edible plants and the most frequently encountered poisonous ones. You can learn also how to "test" those which you do not know.

You don't have to be a botanist to identify many of the plant foods. You are already familiar with hundreds of them—vegetables, fruits, berries, nuts, etc. Many of these grow throughout the world. Most of them you have eaten. Some, however, you have looked upon as flowers, weeds, animal food or as anything but a human meal. But in a survival situation they will provide as much nourishment as some of the things you ordinarily eat.

You know also about many plants which you should avoid such as poison ivy, sumac, certain types of mushrooms, etc. Plants which have milky or colored sap and those with stinging proprerties—nettles, stinging hairs, etc.—should also be avoided.

If you know enough about the familiar plants, for instance the tomato plant, the potato plant, the radish, dandelion, etc. so that you could recognize them in the field anywhere in the world you have a start.

You will take another step forward when you know how to determine the edibility of plants you cannot identify. Most survivors have used two methods—"taste and wait" and "do-like-the-monkey-do." Both are fairly descriptive and accurate. In the first of these methods you take a very small bite of the strange food and wait. If you get the slightest reaction you leave it alone. However, if you have no ill effects try a bit more. So long as you feel well increase the amounts you eat until you know that it is safe. The second method is quicker provided there are birds or monkeys in the area. Simply eat what the birds or monkeys are eating. It may not be the most appetizing thing you ever ate but it won't hurt you.

The next step, of course, is to increase your knowledge about unfamiliar plant life which you will find in various parts of the world. Your efforts in this direction will be simplified if you consider possible plant foods in three simple categories—plants that grow in the water, those which grow in the ground and those found above the ground. It is impossible, here, to cover these food sources in any detail. However, a few types will be mentioned as a guide to further investigation and study.

The water lily is typical of water-growing plants. Both its tender roots and leaves are edible and nourishing. The water chestnut, actually a tuber like the sweet potato, is also found as a free-floating plant on rivers and lakes in both temperate and tropical areas. This plant bears an edible nut which can be recognized by its steerhead shape. Water plants, of course, also include the many varieties of sea weed and dulse, many of which are both tasty and nourishing—raw, cooked or dried.

Plant foods found underground include tubers, roots or rootstalks. The most common tuber is the potato. Another tuber, found in many areas of the world, is nut grass. It grows in moist, sandy areas along the margins of streams, ponds and ditches in both tropical and temperate zones. This grass differs from true grass in that it has a three-angled stem and thick underground tubers that grow one-half inch to an inch in diameter. The tubers are sweet and nutty. You can boil, peel and grind them into flour.

Typical of survival foods found above the earth's surface is the coconut. This familiar nut has proved a life saver for many survivors. It is usable as food in any stage of growth. Besides the nut proper, which is also an excellent source of liquid, the young palm seedlings and palm cabbages are nutritious. The coconut palm grows in the moist tropics near the seashore.

The inner bark of trees—the layer next to the wood—is another food source. It may be eaten raw or cooked. You can even prepare flour by pulverizing the inner bark of cottonwood, aspen, birch, willow or pine trees. Pine bark, incidentally, is rich in vitamin C. The nut of the pine cone is also nutritious.

Now let's consider, briefly, animal foods. Animals, including fish, supply more food value per pound than plants. While they are generally harder to obtain, there is less of a problem in determining those which are safe to eat. All mammals and birds are edible and almost every other form of animal life *can* be eaten. Humans in many parts of the world consider grasshoppers, snails, snakes, insects and other unattractive creatures as delicacies. Our eating habits and prejudices are a definite handicap in a search for food. However, where extreme hunger and the preservation of life

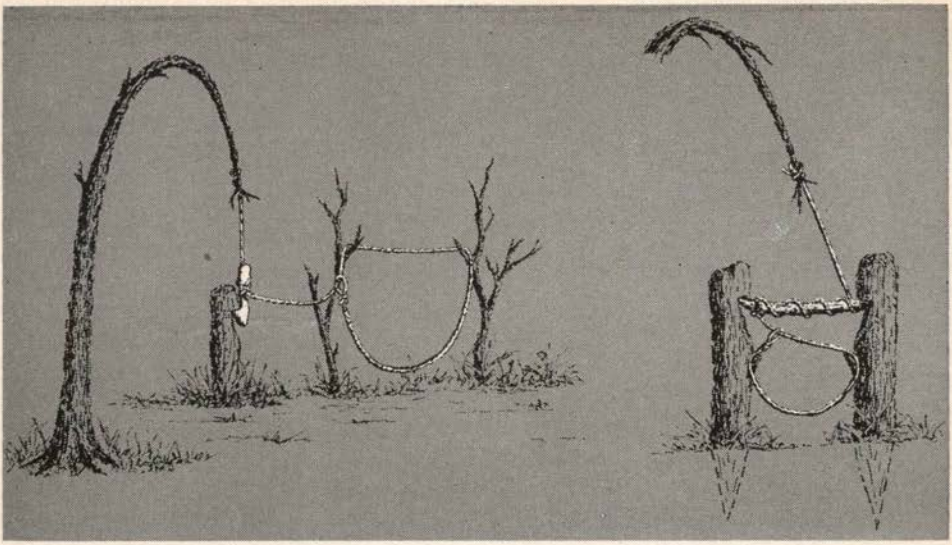


Figure 1. The fixed snare (two versions illustrated) is easily constructed by fastening a loop of light rope or improvised cord to a bent sapling. The loop is held in place by a simple notch trigger mechanism. This snare will catch small game. It achieves best results when placed astride a game trail.

itself determine our choice, unthinkable dishes will be accepted and will provide nourishment.

Wild game and fish provide the most common and most acceptable foods for the average American but they are normally the most difficult to obtain. Clams, oysters, mussels, periwinkles, chitons, etc., are more easily caught. So are frogs, turtles, crayfish, salamanders and snakes. But remember that salt water snakes *are not edible* and that snakes, large turtles, alligators and large wild game should be handled with caution.

Eggs of all kinds and *in any stage of embryo development* are excellent survival foods. Hardboiled, they can be kept almost indefinitely. Nest robbing is a profitable survival pastime. If you can improvise fishing equipment, small traps or snares (Figure 1) go after more elusive fish or game. The techniques are the same as those you would use for hunting or fishing in the vicinity of your home and which are discussed in hunting and fishing magazines. The secrets of successful animal hunting are seeing the quarry before it sees you, staying downwind and studying the animals' feeding and watering habits. Your military training in movement and concealment can be helpful in game stalking.

If at all possible, cook animal food—to kill disease. Roasting over a small fire or in hot coals is the easiest and possibly the best. If you wrap the meat in clean leaves and cover with clay or mud there will be less loss by burning or shrinking. Be sure to leave all fat on the meat as it is rich in food value. Dry excess meat in the wind or smoke it to produce "jerky." Cut the meat across the grain in ¼-inch strips and dry it until it becomes brittle.

The next requirement for survival is water. This may be one of your biggest problems. No matter how abundant your food supply you cannot survive without water. Depending on the area, you re-

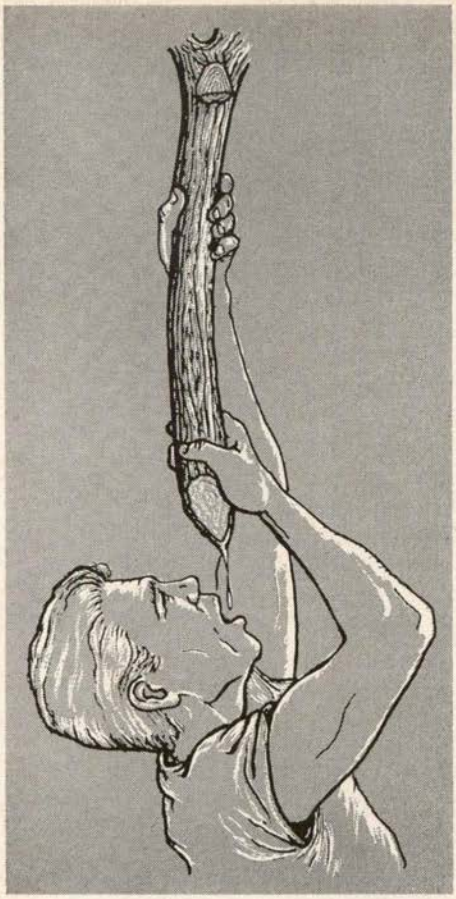


Figure 2. Vines can provide a drinkable liquid.

quire from two to four quarts a day to maintain efficiency. Any lesser amount will cause a slowing of your body functions.

Under no circumstances, can you drink sea or salt water. Unless, by some unusual circumstance, you have equipment for distilling water you must find fresh water.

Consider all water unsafe for drinking. No matter how overpowering your thirst, take precautions against one of the worst hazards to survival—waterborne diseases. *Boil your water!* This will kill typhoid, dysentery and cholera organisms and parasites.

Rainfall is one of the safest sources of water. With a little imagination you can devise numerous ways of catching it. Clear, fast-moving streams with sandy bottoms also provide a good source. But even this water should be boiled.

Less pure but fairly abundant is ground water taken from dry stream beds, lakes and valley floors. A two-foot hole dug in a dry stream bed, for example, may yield enough water for drinking, cooking *and bathing*. A little digging in a green spot on the valley floor where there was once a spring will often produce pure water.

Use run-off water collected in stagnant pools or bogs as a last resort.

After exhausting the possibility of securing water from the ground, you can rely on certain land plants to provide a potable liquid. However, this liquid is not water and, generally speaking, will not satisfy your thirst.

The coconut is the most familiar liquid-containing plant. Green coconuts contain more milk than ripe nuts and you can open them easily with a knife or even with your bare hands. Use the milk of mature nuts with caution because it contains a high percentage of oils which act as a violent purgative and will make you nauseated. Drink no more than four cups of this milk in a single day.

Many vines also contain a drinkable liquid. By experimentation, you should find some that will fill your needs. Cut a deep notch high up into the vine, cut the vine off close to the ground and let the fluid drop into your mouth or a container. When the liquid ceases to drip, cut another section off the top. Continue this process until the supply is exhausted. A new FM on survival, when published, will illustrate some of these vines.

Animal blood is drinkable but like plant fluids it is not thirst-quenching. It is difficult to store because it congeals quickly. Lobsters and crabs contain a

fluid which many survivors have found useful when no other source of fluid was available.

Much has been written about squeezing the flesh of fish to obtain a drinkable survival liquid. In theory, this could be done. However, in practice not enough pressure can be applied to the flesh to make it give up its liquid. But you can chew or suck this flesh to relieve the "cotton" dryness in your mouth. Spit it out when it ceases to serve the purpose.

Fire with which to boil water can be a real problem. This is the reason a lighter or some other means of making fire is considered an absolute must for survival and is an item that should be carried by every soldier at all times. Lacking such means every effort must be made to start a fire with primitive means such as a bow and drill made from dry wood (Figure 3) and a shoe lace or by striking a spark with a piece of steel and flint. And remember, when concealment is necessary your fire must be smokeless.

Last on the list of your survival requirements is shelter. You must have protection from excessive cold, heat, sun, rain, insects, etc.

The word "shelter" does not imply a permanent dwelling. More often it will be a cave, a rock overhang, a hollow tree or stump, or protective terrace or bank. In the absence of these natural shelters you will have to build or dig some type of protection using whatever materials are available. A simple lean-to can be made from a few tree limbs or timbers and covered with boughs, grass, leaves, bark, etc. (Figure 4). A parachute,

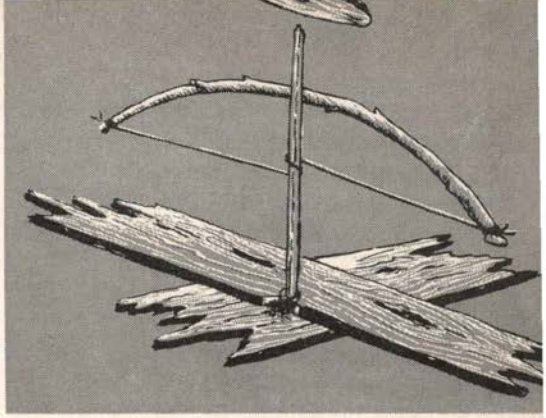


Figure 3. A bow and drill for making fire can be improvised if dry wood is available. Items needed are a stone with a hollow or smooth depression, a branch for a bow, a shoe lace or thong and a dry, straight wood shaft. The shaft is held in place by pressure on the stone and is spun against another piece of dry wood into which a notch is cut. Dry, finely shredded tinder is placed in the notch. As wood rubs against wood under pressure friction will ignite a spark in the tinder which can be carefully fanned into a flame.

Figure 4. A simple lean-to will provide emergency shelter and is easy to construct. Be cautious of fires in enemy territory.

rocks, snow, even ice blocks, can be used under certain circumstances to provide protection from the elements. The Boy Scout manual or camp lore publications provide valuable information on expedients you might find useful.

Many survival situations are brought about by a plane crash. In some cases the crashed or ditched ship itself is used, but in many survival situations this has proved impracticable. The airplane is much harder to heat than a well-constructed outside shelter—the metal collects frost.

Materials for even the most simple shelter are not always available. In the desert for example you may have to seek out other means of warding off the sun and sand and cold. Burrowing into the sand may be the only protection you can provide. You must do the best with what is available. Most survivors who have endured the hardships of living in the open for extended periods emphasize that some type of shelter is necessary.

At this point let's review the steps you have taken toward survival. You've learned that you can eat just about everything—plants, animals, insects, reptiles, birds; that you must have water and a knowledge of how to make it potable; and that you must protect yourself from the elements.

Is this enough information to keep you alive in a real emergency? Obviously it isn't. But it's a start. The rest is up to you. Take a look at your son's Boy Scout manual. The next time you're in a barber shop pick up one of the hunting and fishing or outdoor magazines. Get out in the open on weekends. Learn more about living out of doors. Get to the library for additional reading that could help you to survive. Here is a list of publications that cover various aspects of survival in more detail. You will find them worthwhile reading.

Aviation Training, Office of the Chief of Naval Operations, USN, *How to Survive on Land and Sea,* copyright 1951, US Naval Institute.

Air Force Manual 64-3, *Survival Training Edition.*

Air Force Manual 64-5, *Survival.*

Strategic Air Command Land Survival Guide Book.

FM 21-75, *Combat Training of the Individual Soldier and Patrolling.*

FM 21-(?), *Survival* (being written).

Air Force Review, Winter 1952-53, *Survival Training.*

Arctic, Desert, Tropic Information Center Publication D-102, Maxwell AFB, Alabama, *Sun, Sand and Survival.*

Intelligence Bulletin, September 1943, *Living in the Jungle.*

Samuel A. Graham and Earl C. O'Roke, *On Your Own,* University of Minnesota Press, copyright 1943.

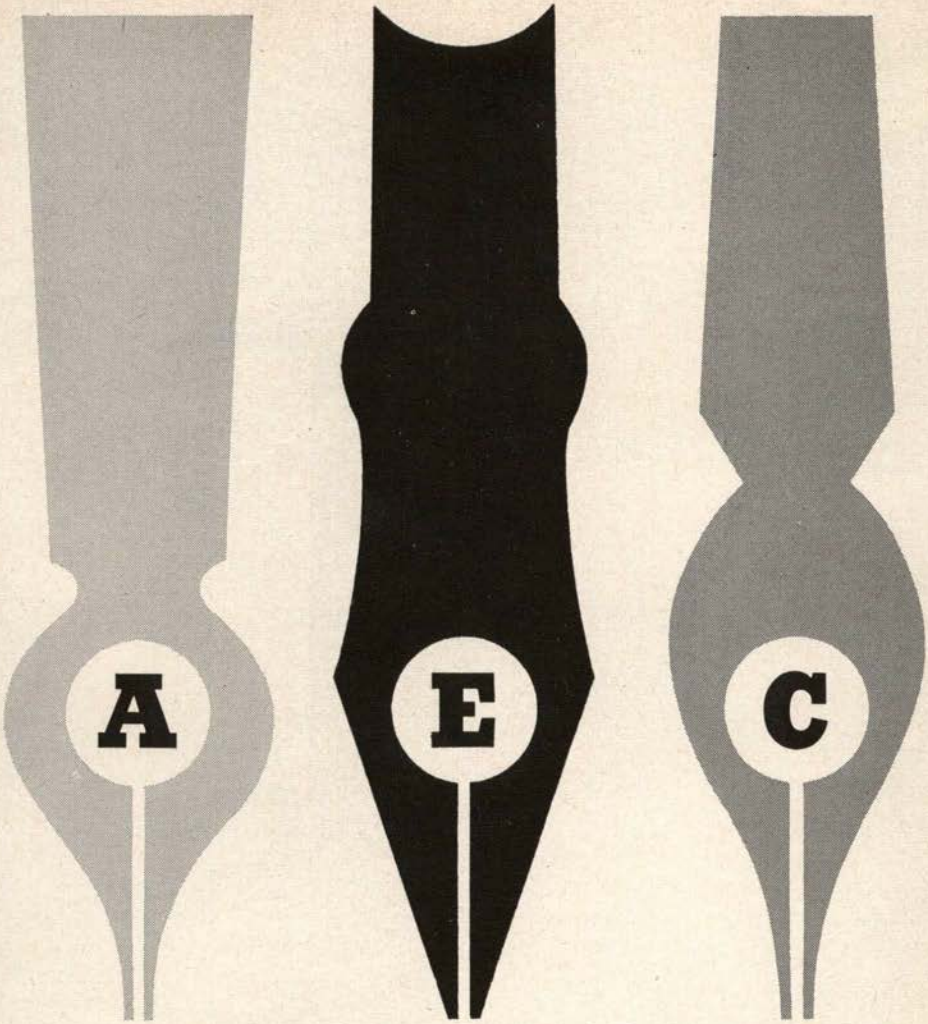
Arctic, Desert, Tropic Information Center Publication D-100, March 1951, *A Foot in the Desert.*

Arctic, Desert, Tropic Information Center Publication A-100, 1953, *999 Survived.*

Arctic, Desert, Tropic Information Center Publication A-103, April 1953, *Down in the North.*

Boy Scout Handbook.

The importance which the Army now attaches to the subject of survival in modern warfare is indicated by the preparation of a survival field manual. The text for this brand new manual has been completed here at the U.S. Army Infantry School and forwarded to Headquarters U.S. Continental Army Command for final review. When published its some 320 pages and 235 illustrations will provide comprehensive information on survival techniques which will be important to Infantrymen under adverse conditions anywhere in the world.—Editor.



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Systematic vehicle inspections, using preventive maintanance indicators to help you know what to look for and where to look, will insure the combat mobility of your unit.

MI*

*PREVENTIVE MAINTENANCE INDICATORS

Ground mobility has become increasingly important in this age of atomic warfare. Considerations of small unit task forces or pentomic battle groups must include careful study of dependable means of transportation. Indications are that vehicles will be required to withstand intense usage during long periods of combat. Normal garrison duty is now complicated by a marked reduction in organic vehicles and maintenance personnel. Our ground vehicular mobility is more directly dependent upon the success of our maintenance and inspection program. We no longer have any buffer of extra vehicles to do the job of those deadlined.

Before the coming of the battle group, the Infantry regiment had a large number of vehicles and maintenance personnel. There were 346 trucks, 25 tracked vehicles and 242 trailers. The 91 maintenance personnel organic to the regiment were spread through the five separate companies and three battalions to provide complete maintenance coverage for all first and second echelon organizational maintenance. Today the commander of a battle group has 122 wheeled vehicles, eight tracked vehicles and 99 trailers. To assist his motor officer, there are a warrant officer maintenance officer, two motor sergeants, 19 mechanics, a wrecker operator and a parts specialist. These

This article was prepared through the combined efforts of Lt Col Mills C. Hatfield, formerly of the USAIS Ground Mobility Department and now assigned to the Army Security Agency, and Capts Carl W. Elvington and Vernie G. Tosh, Ground Mobility Department, USAIS.

figures represent a reduction of 66% in vehicular strength and 74% in maintenance personnel.

Supporting vehicles and armored personnel carriers may be attached to the battle group from divisional or higher units. These units may send a maintenance section along with the vehicles, or maintenance personnel may be sent down at regular intervals to inspect their vehicles and perform the maintenance. However, conditions may prevail where the battle group may be required to provide maintenance support for these attached vehicles. This requires the small unit commander to exercise much closer supervision over his transportation—whether organic or attached. We are now required to produce more mobility with less transport. More attention must be paid to utilization and maintenance.

Maintenance is a commander's responsibility. Whether a squad leader or battle group commander, you must insure your mobility through an effective vehicle inspection program. To be effective these inspections must be well organized and must be based on professional "know-how." The individual who bluffs his way through an inspection fools no one but himself.

There are many different types of inspectors. Some feel that they know all about vehicle inspections, but actually know little. Their inspections usually concentrate on dirt and rust. Their "gig lists" are full of indefinite remarks such as, "dirty," "unsightly," "needs paint," etc. The result of these inspections is that soon all vehicles come to shine in places that do not matter, and as time passes less and less attention is paid to mechanical condition. Another type of commander admits that he knows little about vehicle inspections and, consequently, seems to have an innate fear of them. These commanders also tend to concentrate on the outer appearance of the vehicles. Still other commanders compensate for their lack of knowledge by becoming hipped on one point such as tire pressure, fan belt deflection or oil level. Lacking even a basic understanding of the functioning of these components they establish an exact set of standards, any variation from which is classified as a deficiency. Too often these arbitrary standards turn out to be false. Tire pressures must be inspected before operation to be true readings; fan belt deflection will vary depending on the weight applied by the inspector. Naturally, these inspections fail to obtain the desired results. The vehicles may look good, but are they safe? Will they run?

Many leaders in the Army feel that they are not qualified to inspect our military vehicles, despite the fact that almost all drive a car. Ineffective inspections result from the opinion that maintenance is for the specialist and from fear that they might display some ignorance of the subject.

You need not be an automotive specialist to conduct proper inspections. Since mobility depends on maintenance, an inspection which insures adequate maintenance will insure mobility. With a little study and organization, any commander can conduct a thorough inspection. Excellent aids for the organization of an inspection are preventive maintenance indicators. The term "indicator,"

as used here, means "a simple check point." The condition of appropriate check points will give a good over-all indication of the effectiveness of the unit's motor vehicle preventive maintenance program. Each check point gives the inspector a specific item for which to look when inspecting any vehicle component.

Perhaps you have wondered, how can you inspect all of the many check points on each vehicle in the limited time available? The answer is simply that you cannot. Before an inspection, select certain preventive maintenance indicators from the different vehicle systems, then inspect each vehicle in the same manner with the same information in mind. The inspection should follow a definite sequence. Check points should be examined in the same order. This insures complete coverage of each vehicle, facilitates recording of results, makes preparation for the inspection simpler and speeds up the inspection. In subsequent inspections, pick different PMIs. Over a period of time, this will insure good maintenance and will give you an accurate picture of the condition of your vehicles.

Before beginning any inspection, go over the list of PMIs with the motor officer. Ask him about specific indicators you intend to use. Check the appropriate technical manual for the vehicles you intend to inspect.[1] Most of the difficulty encountered in the use of the preventive maintenance indicator technique stems from ignorance of nomenclature and purposes of various vehicle components. There is no substitute for study to overcome this weakness. In addition to the basic TM for each vehicle, TM 9-8000, January 1956, Principles of Automotive Vehicles, gives a graphic description of every vehicle component.

Just how does the preventive maintenance indicator system work? While each element of a vehicle will have its own individual indicators, all of these numerous check points can be combined into nine basic PMIs (Figure 1). The commander using this list should note first that no special knowledge is required to detect such items as leaks, noises, loose or missing parts, cracks, damage or abuse, and dirt; i.e., items 2, 3, 5, 6, 7 and 9. Items 4 and 8, lubrication and adjustment, in all probability will require that even an experienced inspector consult the technical manual for the prescribed maintenance specifications. Item 1, performance, is an extremely important indicator —one that is frequently overlooked in the commonplace eyewash inspections. The fact that vehicles are lined up and washed, tools carefully laid out, bumper markings correct, and all the other indicators satisfied does not mean that the vehicles will run properly.

Many inspectors limit their inspection of the engine to a check of the oil level

Figure 1. Basic PMI.

BASIC PREVENTIVE MAINTENANCE INDICATORS

1. *Performance*
2. *Leaks*
3. *Noises*
4. *Lubrication*
5. *Loose or Missing Parts*
6. *Cracks*
7. *Damage or Abuse*
8. *Adjustment*
9. *Cleanliness*

[1] ¼-ton 4x4 M-38A1: TM 9-8014, April 1955; ¾-ton 4x4 M-37: TM 9-8030, May 1955; 2½-ton 6x6 M-34, M-35: TM 9-8022, December 1954.

PMI - ENGINE SYSTEM

Air-Fuel	1	2	5	6	7	8	9
Compression	1	3	4				
Ignition	1	3	5	6	7	8	9
Exhaust	2	3	5	6	7		
Cooling	2	5	6	7	9		
Lubrication	2	4	5	7	9		

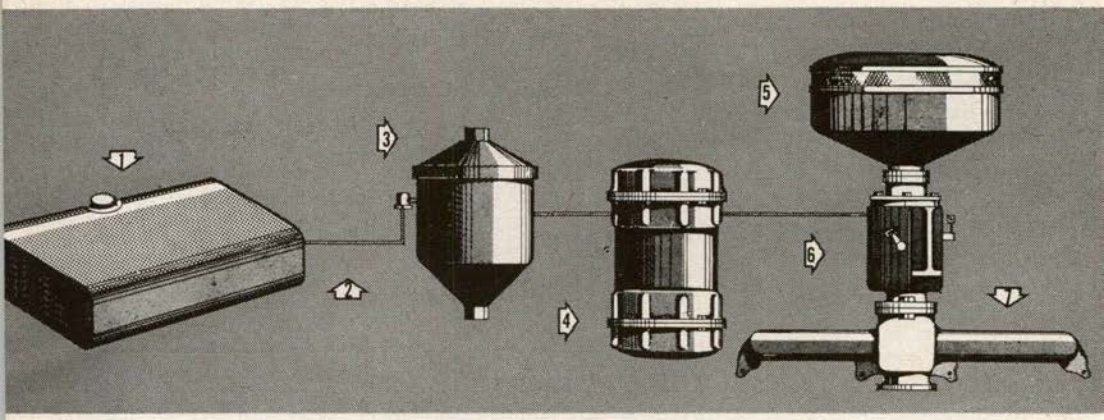
Figure 2. Basic PMI (see figure 1) which are applicable to components of the engine system.

on the dip stick and a check of the coolant level in the radiator. Naturally this will fail to give an accurate picture of the condition of the engine. Understanding this complex piece of machinery is simplified if the engine is considered to be composed of six major systems (Figure 2). These are the air-fuel, compression, ignition, exhaust, cooling and lubrication systems. Inspections of automotive engines are simplified if these six systems are considered individually and inspected as such.

The air-fuel system (Figure 3) consists of the fuel tank, fuel lines, fuel filter, fuel pump, air cleaner, carburetor, governor, intake manifold and intake valves. When inspecting this system using the preventive maintenance indicator technique, deficiencies become quite apparent. A badly dented fuel tank cannot carry its rated volume of fuel. Moreover leaks are quite likely to develop in damaged areas due to weakened seams or rust. A small plug is located in the bottom of the tank for checking the fuel. A sample of fuel taken here will show up any impurities. This inspection is most important during tactical operations where fuel is being transported and supplied from five-gallon cans, the source and contents of which are frequently unknown.

The pressurized gas cap on Army vehicles reduces formation of water in the tank by condensation. A slight hiss or rushing noise heard upon first opening the cap will indicate proper functioning of the valves and gasket. They should also be checked for cleanliness and condition.

Figure 3. PMI'S FOR AIR-FUEL SYSTEM. (1) *Fuel Tank:* Valves in gas cap not operating, cap gasket not sealing, leaks, dents or rust in tank, dirt or water in fuel, tank brackets loose. (2) *Fuel Lines:* Kinks, crimps, dents, loose connection, leaks. (3) *Fuel Filter:* Leaks, rust or dirt, excess water, insecurely mounted. (4) *Fuel Pump:* Loosely mounted, leaks. (5) *Air Cleaner:* Low or dirty oil, clogged air passage, loosely mounted. (6) *Carburetor:* Insecurely mounted, leaking fuel, accelerator linkage loose or damaged. (7) *Intake Manifold:* Loosely mounted, cracked, leaking gaskets.



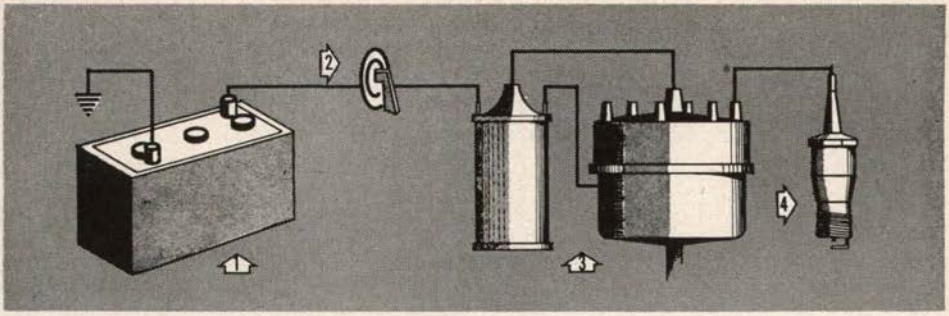


Figure 4. PMI'S FOR IGNITION SYSTEM. (1) *Batteries:* Mounting brackets loose, cracks in case, dirt or corrosion on case and caps, loose cable connections, improper water level, weak charge. (2) *Ignition Switch, Wires and Cables:* Loose or dirty connections, breaks or frays in insulation. (3) *Coil and Distributor:* Loosely mounted, cracks in cap, contact points dirty, excessive pits on points, improper gap. (4) *Spark Plugs:* Dirty, cracks, burnt or eroded electrodes, improper gap, loose connections.

Fuel lines should be checked for leaks, sharp bends, loose connections and crimps. Leaks cause loss of fuel and are a fire hazard. Sharp bends, crimps and other restrictions in the lines may cause fuel starvation, particularly at high speeds.

The fuel filter, if mounted in the engine compartment, should be inspected for cleanliness and leaks. The contents may be checked by removing the plug from the bottom and examining the fuel which escapes for water and dirt. If the filter is mounted in the fuel tank, it should be checked for proper operation.

Inspection of the fuel pump consists of checking mounting, leaks and proper operation.

The air cleaner removes dirt and grit which could cause extreme engine wear. Check the oil level in the bottom of the air cleaner by removing the filter and top. The oil should be checked for dirt by rubbing it between the fingers. The filter should be inspected for cleanliness.

The primary test of the carburetor is its performance—its ability to provide the proper amount of air and fuel to the engine under varying conditions of speed and load during operation of the vehicle. During a formal inspection on line you should look for secure mounting, cleanliness, leaks and proper functioning of the linkage. A governor may be located just below or as an integral part of the carburetor. Inspection is limited to a check of the wire seals which prevent tampering.

The last component of the air-fuel system is the intake manifold. It is merely a specially shaped pipe which carries the fuel mixture to the cylinders. Check it for secure mounting, leaks, cracks and cleanliness.

The compression system will not be checked in detail during a normal inspection. This system consists of those internal engine parts which enclose and harness the explosive power. Preventive maintenance indicators include loss of compression resulting in hard starting, misfiring and rough idle, excessive oil consumption or presence of water in the crankcase oil. Operation of the vehicle is the true means of checking for most of these indicators. If you desire, you can direct a mechanic to perform a compression test. Each vehicle TM will tell you what the limits are for compression variance for that vehicle. If squirting oil in the cylinder brings the reading back within normal limits for a little while, this is a good indication that the piston rings are excessively worn.

The ignition system (Figure 4) consists of the batteries, a series of wires and

cables, the ignition switch, the distributor, the spark plugs and spark plug wires. This system is the cause of 90% of all engine troubles. For that reason, it must be given a high maintenance priority.

The battery is the weak link in this system. Its most important check point is proper electrolyte level. If the level is too low, the battery may be damaged to such an extent that it will no longer take a full charge. If the level is too high, some of the electrolyte may spill, causing corrosion and leaving a weakened solution in the battery. The proper level is from 3/8 to 1/2 inch above the plates, unless otherwise indicated. Some batteries have marks to show proper level.

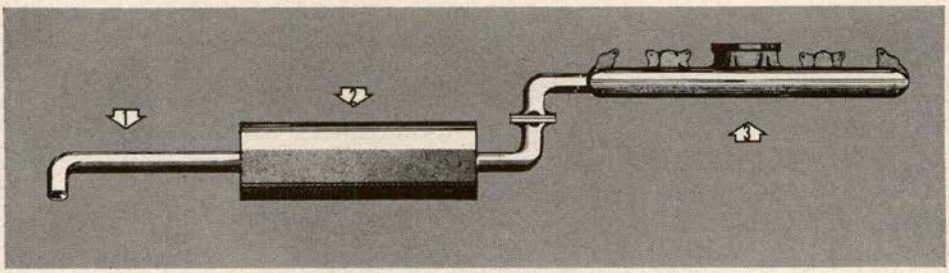
Batteries must be inspected for cleanliness. Corrosion should be cleaned off with a mixture of water and baking soda to neutralize the acid. A light coat of grease should be applied to the top of the battery posts after the straps have been securely fastened. Another important check is the tightness of battery brackets. In rough terrain a loosely held battery may crack after a few miles of operation; loose battery cables may jump off the terminals.

The series of wires and cables connecting the parts of the ignition system should be checked for general condition to insure that all connections are clean and tight, and that the insulation is not frayed or worn. The distributor is best checked by operating the engine to see that it runs smoothly. Spark plugs may be removed to check for carbon, badly burned electrodes or improper gap. Again, smooth engine performance is the best check of the ignition system.

The fourth major system is the exhaust system (Figure 5), consisting of the exhaust manifold, exhaust pipe, muffler and tail pipe. Bends or restrictions in this system prevent complete removal of exhaust gases from the cylinders. This cuts down on the amount of new fuel mixture which can be drawn into the cylinder, resulting in loss of power. Cracks or leaks in this system can allow dangerous gases to escape into the passenger compartment.

The cooling system (Figure 6) carries the excess heat from combustion and friction away from the engine, allowing it to operate efficiently. Once assured that the coolant is clean and at the proper level, check for leaks in the radiator and around all connections. The radiator cap should be checked just like the fuel tank cap. Leaves or mud in the front of the radiator will prevent proper cooling. Paint, oil or grease on the hoses will cause deterioration. The fan belt tension is checked between the water pump and generator. Each vehicle technical manual lists the proper deflection. If the belt is too tight, the bearings in the generator

Figure 5. PMI'S FOR EXHAUST SYSTEM. (1) *Tail Pipe:* Cracks, dents, corrosion, end crimped or plugged. (2) *Muffler:* Dents, cracks, corrosion. (3) *Exhaust Manifold:* Cracks, leaking gasket, loosely mounted.



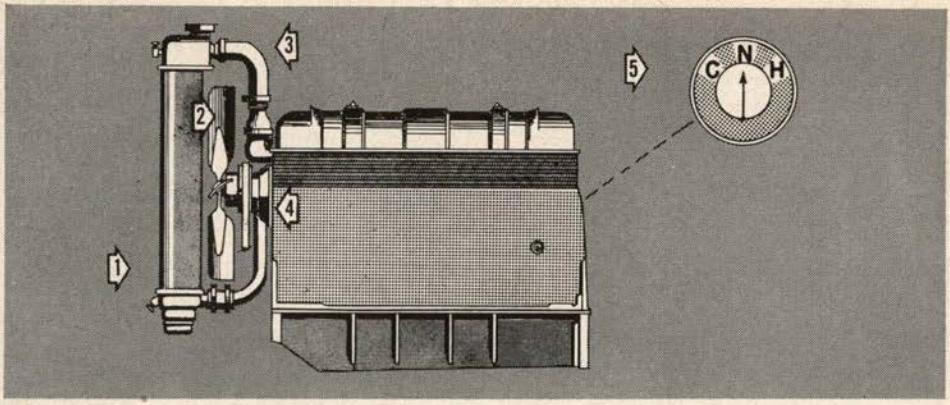


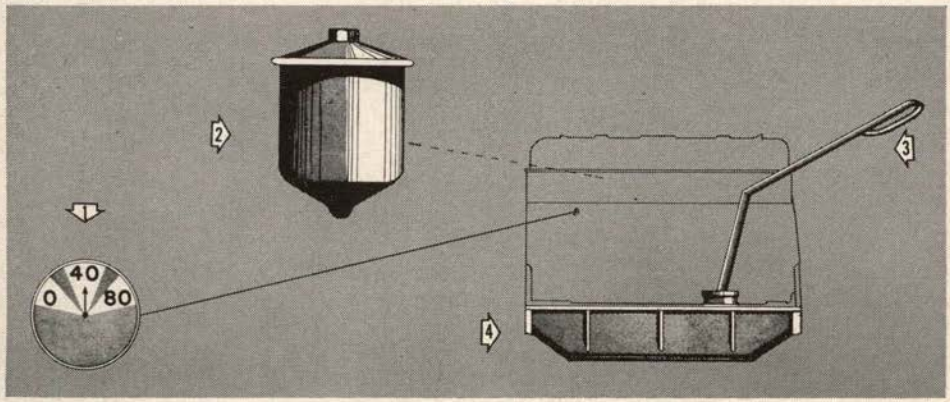
Figure 6. PMI'S FOR COOLING SYSTEM. (1) *Radiator:* Valves in cap not operating, cap gasket not sealing, low coolant level, radiator loosely mounted, leaking or dirty. (2) *Fan and Fan Belt:* Bent or broken blades, bent, loose or missing shroud, belt frayed or dirty, belt improperly adjusted. (3) *Hoses:* Loose connections, leaks, cracks, dirty. (4) *Water Pump:* Unusual noises, leaking, loosely mounted. (5) *Temperature Gage:* Not operating.

and water pump may be damaged. If too loose, the belt will wear rapidly and the water pump and generator may not operate properly. Checking the heat gauge during operation will indicate if the thermostat is present and functioning properly.

The lubrication system (Figure 7) serves four purposes: lubrication, cleaning, cooling and sealing. The lubricant acts as a liquid bearing surface between nearly all the moving parts of the engine. A detergent added to the oil acts as a solvent for dirt and carbon, cleaning the engine. While in motion the oil carries heat away from the moving parts to the oil pan where it is dissipated. Finally it completes the seal between the piston rings and the cylinder wall, improving compression.

Oil level and cleanliness may be checked at the same time. If the engine has been operating, wait a few minutes to allow the oil to drain into the pan,

Figure 7. PMI'S FOR LUBRICATION SYSTEM. (1) *Oil Gage:* Low pressure reading or not operating. (2) *Oil Filter:* Insecurely mounted or leaking. (3) *Lubricant:* Improper type, presence of dirt, water or grit, improper level. (4) *Oil Pan:* Dirty exterior, leaks or dents.



then check proper level on the dip stick. Rub the oil from the stick between your fingers to check for dirt or grit. Examine the oil for presence of water. Dark color in itself does not mean that a detergent oil needs changing. The oil pan must be free of dents which would limit its capacity and must be reasonably clean. If dirty on the outside, the air flow around the pan will not cool the oil, and in turn the oil will not properly cool the engine.

It should be obvious that the use of the PMI technique organizes motor vehicle inspections. All the check points listed for the engine systems are simple in nature. Their use does not require disassembly of any major components. This same technique can be used for inspections of the power train, running gear, frames, cabs and bodies. A brief study of the appropriate technical manual for each vehicle will prepare any commander for an inspection of this type.[2] There is no short cut or substitution for this study.

The commander's inspection of motor vehicles must not be limited to the formal or informal type of inspection conducted in the motor pool. His inspection must be continuous. Unit leaders must be indoctrinated with the need for detecting and reporting evidences of impending mechanical failures. Many opportunities are provided since most of us are users of transportation. One simple but effective technique is to visually inspect the unit's vehicles as they pass by in column. You should select a vantage point along the route where the vehicles will be moving slowly. Careful observation of each vehicle from front to rear will indicate such things as poor appearance, poor driving practices, improper markings, improper loading, low tire pressure, overheating, missing parts, torn tarpaulins and extraneous noises. Under combat conditions this method may be the only one possible for extended periods of time.

You as a commander will insure mobility by the establishment of a sound preventive maintenance program within your unit. You must continually inspect your vehicles as a part of this program. Unless you are competent to do so, you are unable to lend the proper amount of command support to your maintenance personnel. You can never be really sure whether or not your vehicles are being maintained in a condition of combat readiness. The skill with which the commander of the future can make this determination may well be an important factor in measuring his fitness for command, since the combat effectiveness of any unit depends to a large degree on the condition of assigned motor vehicles. This is especially true in modern warfare when mass destruction weapons may be employed and mobility is so vital to success.

2 Preventive maintenance indicators are listed and illustrated in detail in the United States Army Infantry School's publication, "Commander's Automotive Preventive Maintenance Training Program."

Today's Army is well along in transition from powder to atomics, from cannon to missiles, from trucks to helicopters, and from field glasses to airborne television. . . . In building this Army of Tomoroow, emphasis is laid upon the development of maximum flexibility in all its aspects so that the Army can get its troops where they are needed, when they are needed, and with the punch needed to accomplish every specific task it might face.

SECRETARY OF THE ARMY WILBER M. BRUCKER

TIPS

For newly commissioned ROTC officers entering active military service.

Here are a few tips which should save you time . . . money . . . worry.

By Lt Bernard F. Agnelli

A majority of the officers entering the Army today are ROTC graduates. Unlike officer candidates or United States Military Academy cadets, most ROTC cadets take their training in a civilian atmosphere. Consequently, it is only natural that they will have many questions about military duty, particularly those first few weeks on an army post. The newly commissioned officer wants to know how to report for his first assignment, what uniforms to buy, how much he will be paid, what he should bring to his first post, what housing is available. There will be other questions but these are of immediate concern to the officer preparing to report for active duty.

The information that follows may assist you, the new lieutenant, and it may make your transition from civilian to military life smoother. It answers many of the questions most frequently asked by new officers.

Reporting for Duty

You will have little difficulty in finding out where to report. Most posts display a sign reading "Incoming Personnel Report Here"—you can't miss it.

If you're assigned to a unit, report to headquarters, ask for the adjutant or his assistant and follow his instructions. Of course, the military police at the outpost near the entrance of most installations or other persons on the post will be glad to direct you.

Report early (between 0900 and 1100) to have time to get oriented and settled down. Wear the prescribed semidress uniform. At Fort Benning, for example,

the winter uniform is normally worn between November and April, the summer uniform from April through October. Summer and winter uniform seasons begin at different times in different areas. So check on this point—especially if you're reporting for duty in April-May or September-October.

Be prepared to leave a copy of your orders when you sign in.

Your Military Orders

You will need copies of your original orders for a number of purposes. Therefore, it is advisable to bring with you at least 25 copies of the orders directing you to report to your first post. If your army area does not give you 25 copies of these first orders you will have to prepare certified true copies. To do this, type the heading exactly as it appears on the original. You then type, verbatim, the body of the order. If your name occurs only in one or two of a number of paragraphs you need not type the paragraphs which do not pertain to you. In this case, type the word "EXTRACT" at the top of the page and type a line of asterisks (******) wherever a paragraph or paragraphs have been omitted. Finally, type the command line, signature blocks and official line. Where signatures appear on the original, type in the signed name, preceded by ss//. (For example, ss// John H. Wilson.) At the bottom of the page type "A CERTIFIED TRUE COPY" and sign your name, grade and branch.

Your Military Pay

As a second lieutenant without prior service and without any dependents you will receive $222.30 a month basic pay plus $47.88 for subsistence. Your monthly check will be approximately $240, because about $30 will be deducted from your basic pay for withholding tax. If you are married and declare two exemptions (yourself and your wife), you will receive, in addition to your basic pay and subsistence allowance, an $85.50 rental allowance (if adequate government quarters are not furnished). Your withholding tax will be cut by $10, making your monthly check $335. Only basic pay is taxable as income; your subsistence and rental allowances are not taxable.

Student officers attending service schools on temporary duty (TDY) orders receive per diem at the rate of $4 per day. (Officers assigned to a basic officer course usually are on TDY. However, officers on active duty for six months, under the RFA program, are *not* on TDY and do not receive per diem.)

Most officers deposit their monthly checks in a checking account. However, students attending a basic course often encounter some difficulty in reaching post banks during business hours—which are usually a student's duty hours. To prevent such inconvenience and to save time, you would do well to request the post finance office to send your government check to a local or home town bank for deposit to your checking account. A word of caution about checks: Be absolutely certain that your bank balance is sufficient to cover every check you write. Bad checks are frowned on by the military and they will get you into considerably more trouble and embarrassment in the Army than in civilian life. So be especially careful with your pen and checkbook.

You will need some money until you receive your travel pay and clothing allowance. A single man should plan to arrive at his first duty post with about $50 or $60. This should be sufficient to pay for meals and take care of incidentals. Married men with dependents will need this much (at least), plus $100 or $125

for their first month's rent and deposit on an apartment.

If you remain in the Army over 90 days, and are not Regular Army, you'll receive a $300 uniform allowance as soon as the necessary forms are processed—usually within two weeks after you report. Those who remain on duty less than 90 days receive $200. Within two weeks, you should receive travel pay (6¢ per mile) from your home to your new post (if you pay for your own transportation). However, the nearest Army transportation office can provide you with a train or airline ticket. In that case, you'll be paid per diem at the basic rate of $9 for each day of travel. The Army also pays for transporting your dependents, *unless you are assigned only for temporary duty*. Check with the finance officer at your first *permanent-duty* station about travel pay for your dependents.

Uniforms and Equipment

It's best to have some of your military clothing before you report. However, because many newly commissioned officers have only a limited amount to spend before being issued their uniform allowance, they prefer to buy a starter set of uniforms as soon as they receive their orders. A good starter set should include two sets of fatigues, one fatigue cap, one set of greens or khakis (with caps), boots, low-quarter shoes, socks, ties, belts and insignia. You can buy these items at the Quartermaster Clothing Sales Store of any nearby Army installation. Just show them a copy of your orders. The summer uniform prescribed for most Army posts consists of cotton khaki (shade 1) shirt, trousers, AG 44 garrison cap; web belt; black socks, shoes and tie. The winter uniform is Army Green (AG 44) coat, trousers, service cap; shade 46 cotton shirt; black socks, shoes and tie.

Officers attending the basic Infantry officer course at Fort Benning will wear the fatigue jacket and trousers, blocked field cap and combat boots most of the time. Field equipment—helmet and helmet liner, field pack, cartridge belt, first aid pack, canteen, etc.—is issued to students by their student company.

Table of Allowances 21 (14 November 1956) requires that all officers own or purchase the following uniform items. Prices are for the Quartermaster Clothing Sales Store at Fort Benning. Similar prices will be charged by QM stores at any post to which you may be assigned.

Fatigue uniform:

2 shirts @ $2.25	$ 4.50
2 trousers @ $2.20	4.40
2 caps @ $.81	1.62

(Many posts and units require that the fatigue cap be worn with a stiffener. This is not sold by the QM store but can be purchased in the PX for about $.35.)

Cotton khaki, shade 1 uniform:	
4 long-sleeve shirts @ $2.85	$11.40
4 trousers @ $3.25	13.00
In lieu of two of the full-length uniforms, TA 21 provides that officers may purchase two sets of the new short uniform:	
2 short-sleeve shirts @ $2.65	5.30
2 knee-length shorts @ $2.35	4.70
3 pair knee socks shade 115 @ $.65	1.95
Tropical worsted uniform:	
1 coat	$10.00
2 trousers @ $7.30	14.60
1 service cap	3.70
1 garrison cap	1.00
2 TW shirts @ $5.60	11.20
Army Green (AG 44) uniform:	
1 coat	$24.40
2 trousers @ $7.55	15.10
Matched coat and one pair of trousers, cut from the same bolt of material, cost $37.60.	
1 AG 244 service cap[1]	12.50
1 AG 44 garrison cap[1]	2.60
Army Blue uniform:[1]	
1 coat	$46.25
1 trousers	23.75
1 cap	17.25
1 pair shoulder straps	11.00
You will also need a black bow tie (square-tipped) and white civilian shirt for wear with the blue uniform.	
2 cotton poplin shade 46 shirts (for wear with the AG 44 uniform and with the tropical worsted coat) @ $2.30	$ 4.60
2 black neckties @ $.60	1.20
1 shade 79 overcoat	37.00
3 pair black socks @ $.25	.75
5 pair cushion sole wool socks @ $.55	2.75
1 pair black low-quarter shoes	5.50
2 pair service boots @ $7.45	14.90
1 web belt	.25
1 belt buckle	.10
2 pair glove inserts @ $.75	1.50
1 glove shell	1.70
2 pair insignia of rank (metal) @ $.40	.80
2 pair insignia, US (metal) @ $.30	.60
2 pair branch insignia (metal) @ $.30	.60
1 cap insignia (metal) for the service cap	.24
4 white T shirts @ $.45	1.80
4 undershorts @ $.50	2.00

Simple arithmetic will tell you that your military wardrobe will cost $304.31 (based on buying two sets of full-length khakis and two sets of abbreviated khakis). However, you should plan on spending more than this figure. For instance, for the basic course at the U.S. Army Infantry School you will need *at least* five sets of fatigues. You may also want to buy extra belts and buckles, a pair of jump boots (for parades or inspections) in place of one pair of QM service boots (for field wear), a raincoat, or extra sets of khakis. If you want your uniforms tailormade by a civilian concern for better appearance, they will cost more. And you should plan on spending $20 or $30 (the QM Clothing Repair Shop will do it for less) for alterations to uniforms purchased at the QM sales store. It's also a good idea to get a footlocker or a trunk which you can lock.

At most posts cloth insignia may be worn on the collar and cap of the field (fatigue) uniform. Brass insignia is easily scratched during field work and becomes unfit for wear with the service uniform. Cloth insignia of rank (for cap and right collar tab) costs $.17 a pair[1]; branch cloth insignia (for the left collar tab) sells for $.17 a pair[1]. Also to be sewed to each of your fatigue jackets are the "U.S. Army" tab ($.02) above the left pocket and a tape ($.05 a yard) with

[1] Quartermaster stores are not stocking these items. Prices quoted are for the Fort Benning Post Exchange. Other exchanges will charge similar prices.

your last name stencilled neatly in black, indelible ink above the right pocket. If you are handy with needle and thread you can sew all this insignia yourself; if not, the Quartermaster Clothing Repair Shop or PX-concession tailors will do it for you.

Bring some civilian clothes. They are authorized during off-duty hours. Sports attire is generally worn off duty but you should have at least one dress suit, shirt and tie for wear on occasions when casual clothing is considered too informal.

Here are a few hints for the second lieutenant who wants to look smart, yet save money.

Buy one pair each of combat and paratrooper boots: the cheaper combat boots for wear in the field, the "jump" boots for parade or inspection. A pair of Quartermaster low quarters will do for ordinary wear, but you'll want another pair of better quality, smooth calf for dressing up.

Buy belts, ties, shirts and woolen socks at the QM store—you get the same clothing at lower prices. Khakis are cheaply and easily tailored, so buy them from the QM stores, too.

Be sure to check for matching colors. The shade of tropical worsteds or Army greens sometimes varies from dealer to dealer. And speaking of colors—have your new fatigues washed and starched once or twice to fade them before wearing. This will help you to overcome that "brand new" look. Beware of shrinkage with fatigues, too.

Official Calls

As a student, you generally are not required to call on senior officers, but if you have been assigned to a unit, you will be expected to make official calls. Check with the adjutant for instructions and local policies.

Quarters or Housing

Unmarried officers, or those who do not bring dependents with them, live in bachelor officer quarters. These provide each officer with his own bedroom and study, plus bedding and a minimum of furniture. During the basic officer course at Fort Benning two officers usually share a room. A small fee is charged for washing linen and maid service.

Married officers with TDY orders may, *at their own expense,* bring their families. To find out about family housing (which for basic students will generally be off post), contact the Personal Service Division of the Adjutant General Section at your new post.

Many installation commanders send a letter indicating the off-post housing situation to incoming officers shortly after it is known that they are to arrive.

The Personal Service Division's billeting office *does not locate* or *rent* housing. It is an information agency which can provide you with the names of rental

LT BERNARD F. AGNELLI, author of "The Mule Returns" (October 1956 *Quarterly*) now contributes another article. Lt Agnelli has had considerable newspaper and writing experience. He received a reserve commission upon graduation from Fordham University in 1954, completed the basic Infantry officer course at Fort Benning in October 1955 and is now assigned to Editorial and Pictorial Office, U. S. Army Infantry School.

agencies and lists of available off-post housing.

The government will ship up to 600 pounds of household goods on TDY orders. Just write the transportation officer of your assigned post—or any nearby army transportation office for the necessary forms. Send these forms and six copies of your orders to the transportation office of the Army installation nearest your home (preferably the headquarters of your army area). Depending on the distance, you should allow one to two months for your household goods to reach your assigned post.

Your Automobile

If your car is in good condition and adequately insured, bring it. A car is always a convenience in the army, both for getting around post and for off-post travel.

Because of the chance of overseas assignment, many officers prefer not to buy a car until they complete their basic course. You can usually find a fellow student who will share his car if you will share expenses. And at most Army stations, you will find laundry and complete shopping facilities right on post.

At most posts, officers must register their cars at the Provost Marshal's office within 72 hours after arrival. The owner must produce proof (generally in the form of the insurance policy itself) of a minimum coverage of $5,000 to $10,000 property damage and $5,000 personal liability. Don't forget to bring your state driver's license and certificate of registration or title.

When you drive your car on a military post, be sure to adhere strictly to all traffic regulations. These regulations are stringently enforced, and violators may lose their driving privileges.

Activities and Facilities

You can expect to become a member of the Officers Club as soon as you arrive at your new post. The membership fee for each club is different but ranges generally between $3 to $6 a month. The club usually offers golf, swimming and other social and athletic activities. Medical care will be provided for you and your dependents. Adult dependents may purchase groceries at the post commissary, and there is usually a Quartermaster laundry nearby. Unmarried officers can usually eat quite economically at a consolidated, unit or club mess—lunch and dinner should average about 80¢ each, breakfast even less. Post exchanges offer a wide variety of wares at low prices. Motion picture theaters and recreational facilities are found on every Army post, and you'll enjoy the many sports programs, whether you prefer to play or just to watch. Of course, religious services are held in post chapels by chaplains of all the major faiths. And if you require the services of the Red Cross, you will usually find a field office nearby.

How to Get Along

Here are several points of general advice you would do well to remember:

1. If you want to receive mail, send your complete mailing address home and to your friends. Also send your telephone number for use in case of an emergency at home.

2. Always keep your word and have a good reason for everything you do.

3. Never try to bluff or alibi—we all make mistakes.

4. Conduct yourself at all times in a military manner; never forget the everyday military courtesies.

5. The Army places a premium on loyalty. You should encourage it in your subordinates and give it to your commanders.

6. You can't afford to be late for anything in the Army. If possible, always try to be early if you have an appointment.

7. Officers of your own rank have the same problems and receive the same pay that you do. Try to choose most of your close friends from this group.

8. People are quick to judge others by their appearance. If you look "sharp" people will tend to have more confidence in you.

9. Never use obscenity or profanity—this will cheapen you in the eyes of others.

10. Don't tempt fate—keep valuables locked up.

11. Pay your bills on time. (Club and mess bills must be paid by the 10th of each month.)

12. Have your personal affairs in order before you leave home.

13. Save copies of important orders that pertain to you. (Bring your shot record with you to avoid having to take all of your shots again.) Start your personal 201 file as soon as you come on active duty. Keep it up to date as you receive new orders, records or other important documents.

14. If you're married, give your wife a copy of *The Army Wife*—and see that she reads it. Whether you're married or single, buy yourself a copy of *The Officer's Guide*. This perennially useful publication contains a great deal of up-to-date information for the newly commissioned officer.

15. Make use of military information available to you, and keep up to date on the latest changes and developments.

16. Memorize your Army service number (ASN). During your first few weeks on active duty there will be many occasions for you to write or recite it. You can save yourself time and trouble if you know it beforehand.

17. Besides items mentioned in various sections of this article you may want other personal gear. Depending on your own interests and inclinations you may wish to bring along sports equipment, swim trunks, books and stationery. A radio will add to your enjoyment during off-duty hours. One thing which will more than repay in usefulness for the packing space it takes up is an alarm clock. It's a good idea to have a lock or two—for footlockers and wall-lockers.

Because of his college training the ROTC graduate enjoys many advantages in the army. With these advantages goes the responsibility of reporting for duty—prepared. The answers we have provided should help the newly commissioned officer meet his first weeks in the army with poise and confidence—confidence that should make his military service successful and enjoyable.

Infantry *magazine is a valuable source of information for the ROTC instructor and cadet. By keeping up with the latest changes and developments in Infantry organization, tactics and techniques the cadet will be better prepared for his active duty service.*

Isolation of units and encirclement may increase in the fluid operations of modern warfare. Our units must know how to evade and escape.

EVASION

III

In the April issue of Infantry M/Sgt James F. Quinn discussed evasion and escape techniques for the individual soldier. This article by Major Whiting discusses problems facing the commander and the training of units to evade and escape.—Editor.

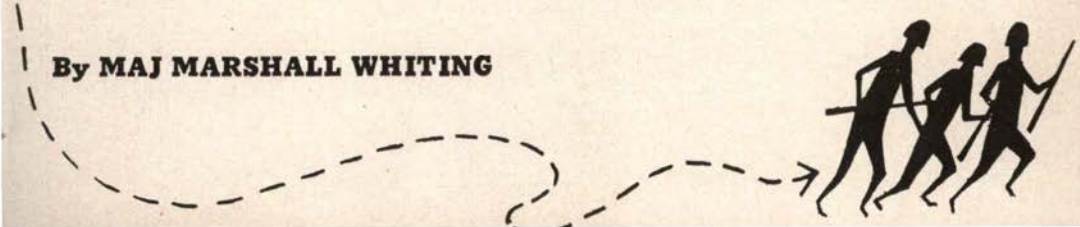
& ESCAPE · PART II

By MAJ MARSHALL WHITING

Three thousand men chopped, crawled and climbed their way through more than 150 miles of jungle, morass and mountains to attack an objective deep in enemy territory. They destroyed or otherwise disrupted 90 miles of railroad, demolished innumerable bridges, and created havoc and confusion that occupied the attentions of an entire enemy army, upon which were inflicted uncounted casualties, before returning to friendly lines.

This was accomplished by British Chindits under the colorful Brigadier Orde. Charles Wingate, in Burma in 1943. His force, popularly known as Wingate's Follies, was composed of many men who would have been unacceptable for enlistment in the U.S. Army because of illiteracy, inaptitude or general physical limitations.

The outstanding success of Wingate's expedition is said to have been the result of a leader's thorough preparation of his troops to operate in tactical isolation. Also important to Wingate's success was his refusal to expend troops in an attempt to defeat a larger enemy force. Nor would he surrender his unit to a larger force when assaulted or encircled. He had organized and trained his unit to strike in force until repulsed or encircled, then to escape and evade in organized segmentary evasion groups. This ability accounted for the successful employment of his unit under extreme and isolated conditions. The enemy could at best crush,



capture or pursue *only small segments* of a force which suddenly burst into numerous organized groups and fled helter-skelter to all points of the compass toward an unknown rendezvous.

Several U.S. Army units were later organized and trained in the same techniques which Wingate used so successfully in Burma. The first and most notable of these was Merrill's Marauders. We are familiar with the fine record of these troops which operated deep in enemy territory. Repeatedly, they emerged from enemy encirclement because they were trained in evasion and escape tactics.

And during the Korean conflict, many instances were recorded where units fought on when isolated from friendly contact or support. Others escaped envelopment or avoided capture through the proper use of evasion tactics, even though they had received no special training in these tactics. In these cases, it was largely the initiative of the commander which made the difference.

Commanders who lose their units through capture or destruction usually do so because they lose control. Reports by many returned POWs indicate their leaders failed in this respect. Their unit literally fell to pieces when control was lost, and a spirit of "every man for himself" took over. As poor as these commanders were, however, many units may have survived if they had been trained in evasion and escape tactics.

Under the conditions imposed by modern warfare, encirclement and isolation of units may increase. We must prepare our troops now if we are to survive in the future. Each individual soldier in our ground forces must be trained to carry out his part in evasion and escape tactics within his unit. Prior to combat, each member of the unit should know how to use all the weapons organic to that unit. He should have confidence not only in the capability of all the weapons but also in his ability to use them. In addition, he must be economical in the use of ammunition; he must be familiar with the use of his unit's communications; with elementary first aid; woodcraft; concealment and camouflage; maintenance of direction; movement through rugged terrain; and he must have knowledge of the enemy. And these are but a small part of the soldierly skills requiring additional precombat training stress.

The same rule applies to the commander. He must be prepared to meet the increased demand for leadership ability. He must be capable of solving the problems involved in fighting under the extreme circumstances imposed by isolation or envelopment of his unit.

The competent leader will take immediate steps to maintain complete control of his unit when he first anticipates isolation or encirclement. At the first indication of this situation, his first requirement will be to alleviate excessive apprehension or allay any tendency to panic by personal and aggressive demonstrations of command. After he has made an estimate of the situation he must give it to his subordinates and then make a decision. A simple guide to aid him in deciding on a course of action should be:

1. Can my unit remain in this position and survive?
2. Can we communicate with friendly forces?
3. Can friendly forces reinforce, resupply and/or support us by helicopter, airborne action, airlifted operations, ground operations, long-range artillery or air-ground support fire missions?
4. Can I still accomplish my mission by holding this position? By other action?

Once the commander has applied these questions to analyzing his position, there are several courses of action which he may adopt.

He may decide to remain in position and continue to fight. This course of ac-

tion has proven successful in many instances and frequently has resulted in fewer KIAs, POWs and MIAs than other possible courses. Positive action on the part of the commander, from squad to major unit, is essential in this situation.

The commander may decide to organize and fight his way back to friendly forces. There are two ways in which this may be accomplished, depending on the circumstances. In case of complete encirclement, it is necessary to organize and conduct a break-out operation. When open areas can be found, it may be possible to infiltrate the entire unit out of the position and move to friendly lines, fighting as necessary, along the route. Full use should be made of reconnaissance and fire support in both measures.

Another course of action may be to break the unit into small segments and organize them into evasion groups. All groups should receive a full share of all supplies within the position. Leaders must be appointed, using all junior leaders present, and a chain of command established within each group. As far as possible, separate routes or evasion areas should be designated in order to gain dispersion.

The commander may decide to move his unit deeper into enemy territory, establish a base camp and conduct guerilla operations. This course of action calls for special knowledge of the area to be penetrated, including friendly and unfriendly natives, enemy installations and actions, likely targets, supplies and the condition and capabilities of the unit. This action in no way infringes on the mission of guerilla warfare units. No attempt should be made to destroy items which may be of value to a counterattack force. Targets should be limited to enemy supply centers, CPs and similar field installations.

The adoption of any of these measures may be made in any sequence at the dis-

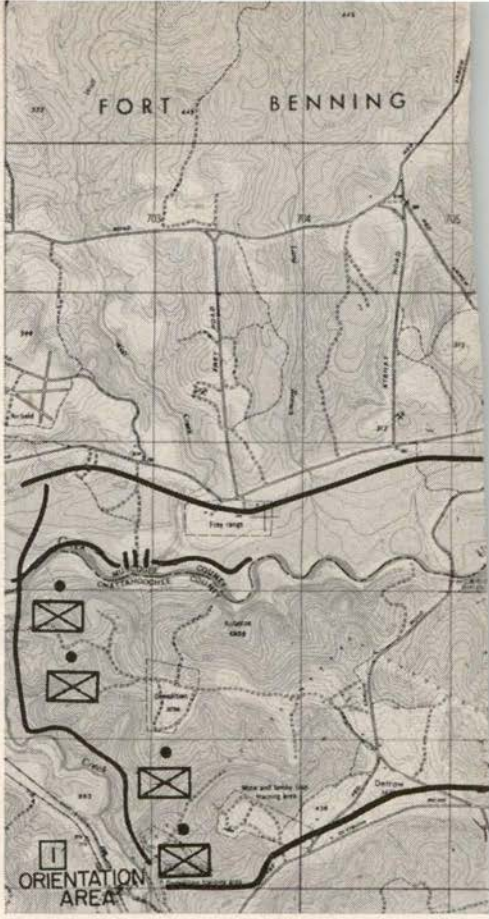
cretion of the commander. He may first choose to defend, then to effect either a breakout or a move deeper into enemy territory and finally to break his unit into small evasion groups. Several factors will influence the sequence of action. Among the most important of these are: the status of supply; communications; physical condition and esprit of the troops; location, strength and activity of the enemy; terrain and distance to friendly forces; and the support, if any, obtainable from adjacent units.

All of these actions require strong, aggressive leadership, and are presented in detail in DA pamphlet 355-6, Officers Call, "Command and the Code—Never Surrender," dated July 1956.

Present tactical training equips Infantry units with the ability to execute the first two courses of action. Training requirements which will enable troops to accomplish the third, will be found in the current Army training directive, Training Circular 621-1, "Evasion and Escape Training," 25 February 1955. This directive establishes a three-phase training program composed of two 1-hour lecture periods to be presented in continental United States, and a field training phase conducted in the overseas area to which the individual is assigned.

The first lecture period is given during basic training. DA pamphlet 21-46, "Behind Enemy Lines," is used as instructional material. The second lecture is presented by an Army-trained briefer, at the time an individual or unit is ordered to an overseas station.

It is not necessary to wait until a unit has reached its overseas area of operations to conduct effective evasion exercises. There is a great deal to be gained by conducting this training early in a man's career. More is to be gained by completing the combat effectiveness of the unit itself, prior to overseas movement, with capabilities in these tactics. Training



schedules notwithstanding, the good leader will find time to fit all, or part, of evasion and escape tactics into his training schedule.

All military training within Infantry battle groups *contributes* to successful evasion and escape ability. However, additional techniques must be learned. These include: the construction of shelter, how to live off the land, evasion geography, enemy interrogation and indoctrination techniques, POW camp organization, escape devices and methods of contacting friendly forces. These subjects are included in the third phase of evasion and escape training.

Leaders are assisted in this training by the "Code of Conduct" outlined in

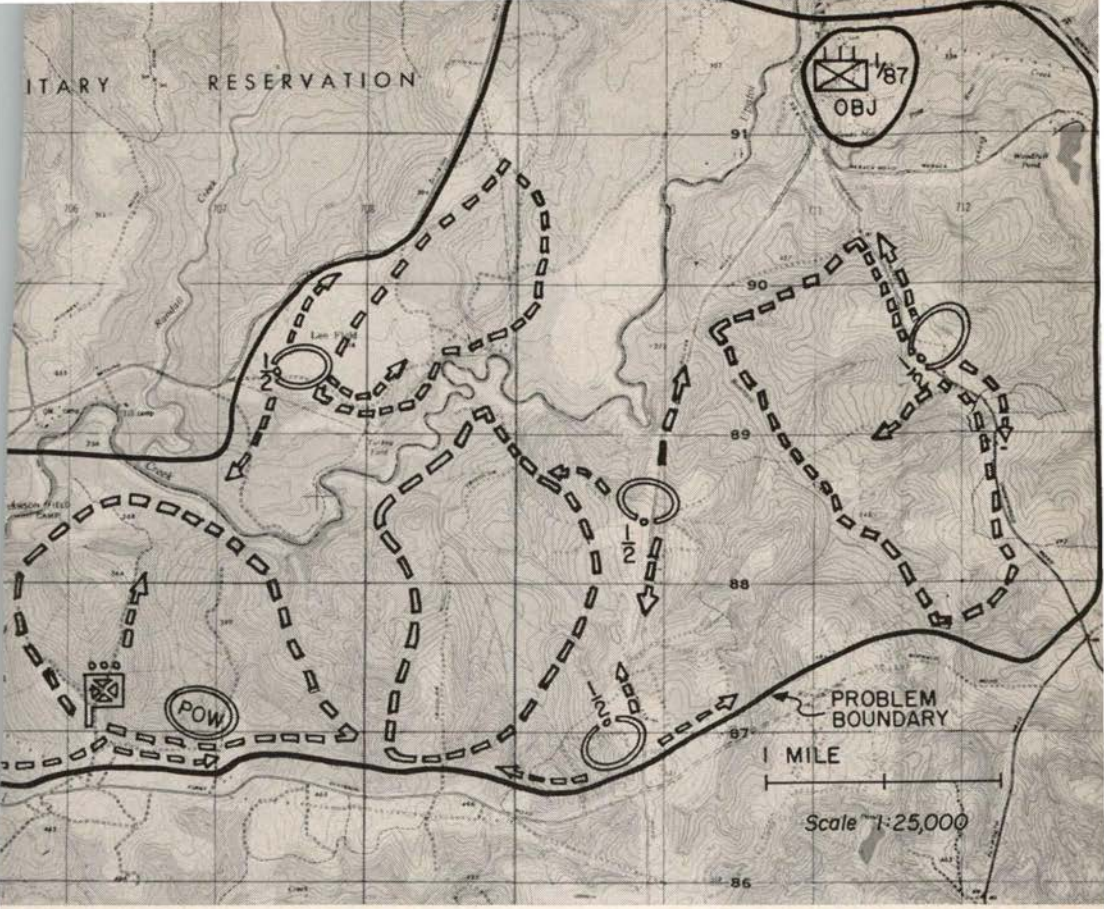


Figure 1. A typical area for evasion and escape training.

Training Circular 21-1, 7 October 1955. The "Code of Conduct" delineates, in simple, everyday language, a basic code for all soldiers.

Additional, and more positive, instructions for evasion and escape training are contained in Training Circular 21-2, "Training for Individual Combat Effectiveness," 3 November 1955. This directive requires all units to integrate evasion and escape training into as many unit exercises as practicable. Small evasion groups should be inserted into problems and required to infiltrate through the unit being trained. An objective should be given to these groups. Activities of this nature offer many training bonuses.

More thorough training will result from a unit exercise specifically designed for evasion and escape instruction. Such an exercise calls for special planning. Without a logical starting point, plan, route, logistical support, communications, chain of command, and an objective, the training program will have minimum value.

Using Figure 1 as a guide, we will examine some of the characteristics of this type of training exercise.

For the conduct of evasion and escape training a large rugged, unfamiliar piece of terrain is required. A minimum area for a 12-24 hour exercise is approximately three miles in width by ten miles in length. Clearly defined boundaries on both flanks of the objective are an advan-

tage; roads, rivers and mountains make excellent natural boundaries.

A good road net throughout the area will facilitate control and movement of the aggressor forces, and act as natural guiding features for the evaders. If water and edible wild plants are present in the area, some of the basic survival techniques may also be taught. If there are any dangerous terrain hazards in the area, trainees should be informed of their presence.

The size, equipment and employment of aggressor forces will depend on the size of the training area and the availability of troops for the aggressor role. Special effort should be made to motorize the aggressor forces so they may be moved about quickly to critical areas throughout the problem area. Activities should include ambushes along easy and obvious routes for evasion, and dismounted and motorized patrols.

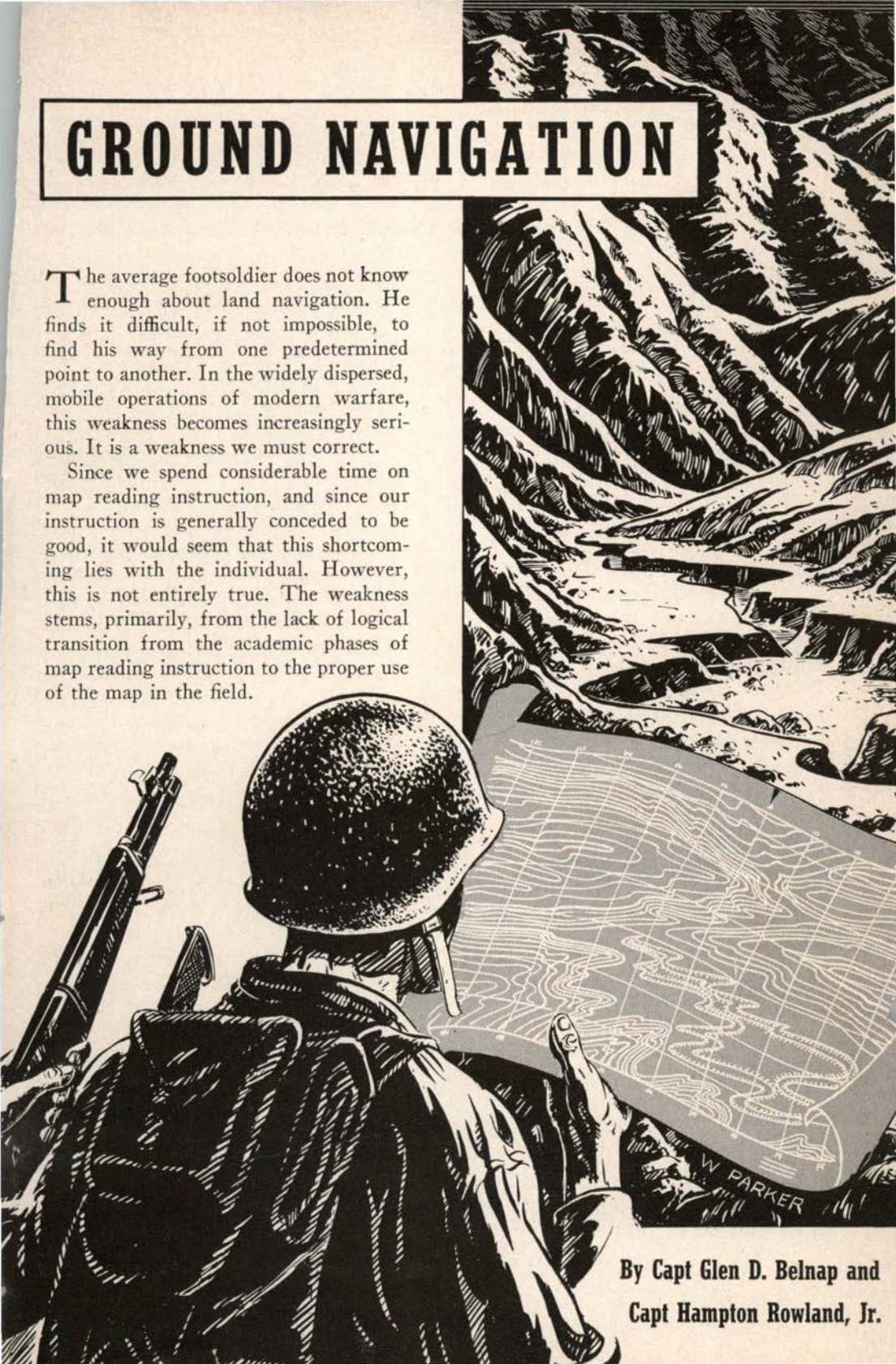
A good long-range radio network will facilitate control and movements of the aggressor forces and will provide an additional over-all safety factor. Actions of the aggressors should be closely observed and umpired, especially their capturing and handling of trainees in a prisoner of war status. TC 21-2 is explicit in the manner in which these activities are to be conducted.

It is advisable to use Army interrogators in conjunction with the aggressor forces to conduct interrogations and check on the security consciousness of each individual captured. Simple ruses and tricks should be employed to test the trainees' alertness. Opportunities for escape between the point of capture and prisoner of war collection points should be created to develop the "escape" facet of the exercise. These staged or assisted escapes should not be made too easy or they will create false impressions concerning the enemy's laxness or the individual's ability to recognize and take advantage of an escape opportunity. Common sense and realism should be the guide for all aggressor activities.

A simple, easily understood control plan supported by an adequate communications net is essential to a safe and smooth running exercise. The rules of the exercise should be as few as possible. It is highly recommended that the umpires and key aggressor personnel attend the initial orientation of the unit being trained. Those items relative to safety, boundaries, capturing procedures and umpiring should be explained and all questions relative to these items answered in their presence. This system will start everyone out with a common understanding. Members of the training unit will know who the umpires are, their uniform and authority.

Safety areas or ambulance points should be established throughout the area and all persons taking part in the exercise should know them. Clearly defined actions in case of accident should be established in order to get medical aid and evacuation to any injured individual as

GROUND NAVIGATION



The average footsoldier does not know enough about land navigation. He finds it difficult, if not impossible, to find his way from one predetermined point to another. In the widely dispersed, mobile operations of modern warfare, this weakness becomes increasingly serious. It is a weakness we must correct.

Since we spend considerable time on map reading instruction, and since our instruction is generally conceded to be good, it would seem that this shortcoming lies with the individual. However, this is not entirely true. The weakness stems, primarily, from the lack of logical transition from the academic phases of map reading instruction to the proper use of the map in the field.

By Capt Glen D. Belnap and
Capt Hampton Rowland, Jr.

When the soldier is thoroughly familiar with the basic phases of map reading—topographic and military symbols, grid coordinates, scale, distance and direction—he is well on his way to becoming a map reader. At present he is taught how to orient his map with the ground, told to determine his individual pace factor for measuring distance on foot and instructed in the use of the compass in land navigation. He then is examined in map reading. If he can successfully negotiate a multi-legged compass course and if he can find his location in an area which probably abounds with manmade features, he is considered proficient. At this point the soldier's instruction in map reading generally ends. He must take the next step—practical application of the knowledge he has acquired—on his own.

This is where we let him down. We expect him to know how to orient his map with the ground, to find his location in the field and to move from one point to another with only natural ground forms on which to guide. Most soldiers cannot do this. We must provide a better transition between formal instruction and land navigation in combat—we must bridge this current wasteland in the development of proficient map readers.

Given considerable time for additional instruction and practical experience on varied terrain, there is no doubt that we could fill this gap. However, there are many demands on the soldier's training time. Our transition training must be simple and easy to accomplish, yet effective. It can be reduced to insuring that the soldier:

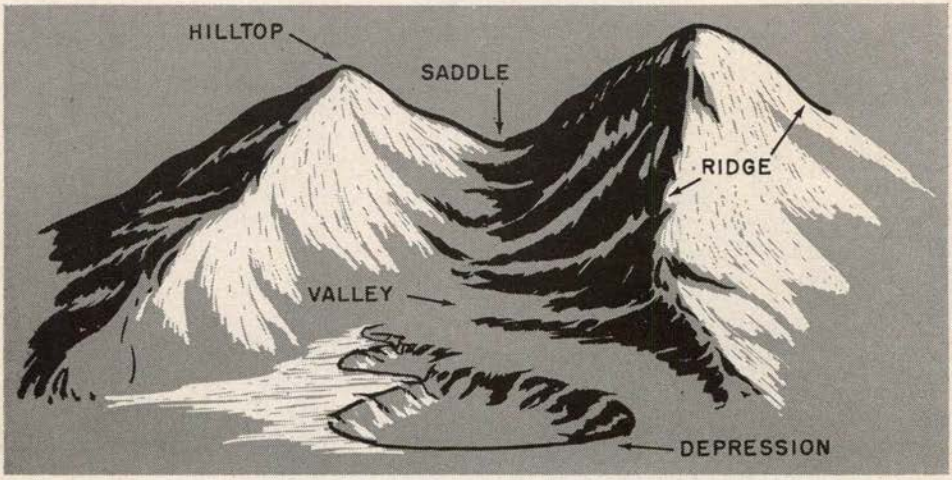
1. Understands the relationship between the contour lines on his map and the ground forms they represent.

2. Knows how to use ground forms to get from one place to another.

Although current training literature adequately defines contour lines and their characteristics in some detail, the average student finds this information difficult to absorb. The deeper the instructor goes into the subject of contour lines, the more confused the student usually becomes as to the significance of these "brown curlicues" and their characteristics. He needs a simple set of terms and principles of terrain association to apply to the interpretation of these lines on a map.

Further confusion is created in the student's mind by the additional requirement that he absorb into his vocabulary the many terms normally used to describe terrain features. Many of these words

Figure 1. Terrain features.



refer to similar, if not exactly the same, features. In addition, there may exist local or sectional names for ground forms which are called something else in other localities.

The problem of terminology becomes readily apparent when a number of persons are asked how they would refer to a valley. Answers, in addition to valley, may be: draw, arroyo, dell, glen, dale or hollow. If the valley contains a stream we might hear creek, branch, stream or river. Furthermore, some terms lead to a variety of interpretations. To the soldier from the Northwest, a mountain is extremely high, heavily wooded and ends in a snow-covered peak above the treeline. To the Southwesterner, a mountain is a towering, barren, craggy mass. On the other hand, most Easterners visualize mountains as lower and entirely covered by trees.

To reduce descriptive verbiage to a minimum and to eliminate this unnecessary mental burden, the multiplicity of terms currently used to describe ground forms should be reduced. Without oversimplification, all terrain features can be classified as *hilltops, valleys, ridges, saddles* and *depressions* (Figure 1).

A standard set of terms for ground forms not only describes the patterns formed by contour lines, but also makes it easier for the soldier to use and remember them. For example, a hilltop is indicated on a map by the last closed contour; a valley, by the base of the Us or Vs formed by the contour lines pointing to high ground; a ridge, by the base of the Us or Vs pointing to low ground; a saddle, by hourglass or figure-eight-shaped contours; and a depression, by a closed depression contour line. To assure complete understanding, the soldier should be required to associate these five terrain features as described on the map with the same terrain features as they appear on the ground (Figure 2).

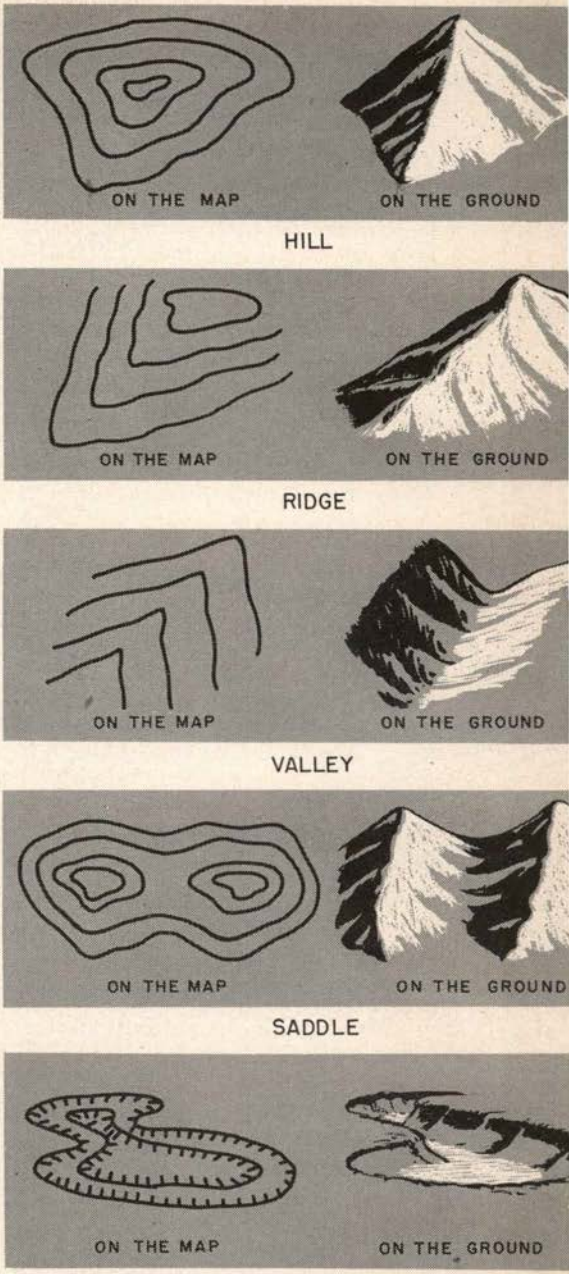


Figure 2.

The student should be taken over varied terrain where these ground forms can be pointed out and where he can learn

CAPT GLEN D. BELNAP was commissioned a second lieutenant in the Infantry after graduating from OCS in 1945. He was then assigned to the 4th Infantry Division with which he served as battalion S3 and company commander at Fort Ord, Fort Benning and in Germany. After completing the Infantry officer advanced course in 1955, Capt Belnap was assigned to the United States Army Infantry School. He is currently an instructor on the Map Reading Committee of the Staff Department.

CAPT HAMPTON ROWLAND, JR. began his military career as an enlisted man in 1942. Upon completion of the OCS course three years later he served in various company-level command assignments at Fort McClellan, Fort Campbell and in Germany. Capt Rowland then became PMS&T at Polytechnic High School, Long Beach, California, and in 1952 served with the 5th RCT in Korea as a company commander, battalion S3 and RCT S3. After completing the Infantry officer advanced course, Capt Rowland was assigned to the United States Army Infantry School as an instructor on the Map Reading Committee of the Staff Department.

to identify them. He must then be taught how to compare and associate these terrain features with the patterns formed by contour lines on the map. Once he understands the terms and the relationship between what is on the ground and what is on the map, the mystery surrounding contour lines vanishes forever. No longer are the characteristics of contour lines merely a list of words in the field manual. They become a useful part of his military knowledge. Upon this firm foundation the soldier can readily master the few remaining significant principles which he must know about contour lines.

He is then prepared to use his knowledge of terrain and its association with the map to assist him in moving from one location to another.

Navigating on land is not new. In fact, it was done successfully long before accurate maps were drawn. A great many methods have been and still are used.

In FM 21-26, March 1956, two methods of land navigation are described. One of these methods is known as "dead reckoning" and is defined as "the process by which position at any instant is found by applying to the last determined position the direction and distance of the course, or courses, traveled." Such a procedure is best applied, and often mandatory, in densely wooded areas, during hours of poor visibility or in any area void of terrain features, such as swamps, deserts and some parts of the polar regions. Dead reckoning depends primarily on movement by compass azimuth for a known distance with little or no regard for terrain features along the route except to use them as sign posts. Such a procedure requires almost complete dependence upon the compass and measurement of distance, either by instrument or by pacing. Dead reckoning has its place, but certainly not in any area of the world where prominent terrain features exist and can be seen.

The second method of navigation is the one normally used by land troops and one in which every soldier should be proficient. Briefly, this method involves movement from one given point to another, utilizing the compass and/or man-made and natural features as reference points to assure accurate direction. A straight line is often followed in this method, but it is also possible to use an indirect route in moving to a given destination. The theory underlying this most common type of land navigation is sound. However, most soldiers frequently fail to use this technique of movement successfully because they have not received proper training. It is fairly easy for an

instructor to *tell* a student to orient his map with manmade or prominent terrain features, and to use those features to guide upon in movement over terrain. Yet, as we have discussed, it is almost impossible for the student to perform such a feat without full knowledge of correct procedures and techniques. Of course, it is recognized that, given time and enough experience with the use of maps in the field, he will probably develop the ability on his own. Some men have what is called "a good sense of direction." This is little more than an unconscious development of this ability. Often those who have it are not able to explain this "natural" skill when asked, and are regarded in complete awe by their "not-so-gifted" comrades.

What is needed is a foolproof method of land navigation which will meet the needs of modern warfare. A system which will include not only the use of direction-finding instruments but a detailed knowledge of map and ground features. Such a system of navigation should appropriately be given a distinctive name. We suggest the name *ground navigation* since this type of navigation is basically dependent upon the knowledge of, and use of, ground forms. It depends on the compass and other direction-finding instruments to the absolute minimum. *Ground navigation* is most effective when prominent ground forms exist and can be seen. Under conditions of reduced visibility and in the absence of prominent ground features a combination of methods must be used.

Ground navigation requires that a soldier have his map oriented to the ground and that he begin from a known location. Assuming that he has a final destination marked on his map, he is ready to start. The first step is to *determine the general direction* to his destination. With his map oriented he needs only to extend a visual line of sight from his map location to the plotted destination. Then raising his eyes out over the terrain in the same general direction, he gets an indication of his course and the intervening ground. It must be emphasized that he will not proceed in this direction on a compass azimuth as he would in dead reckoning or in straight-line land navigation.

The second step is to *study the terrain* on the map between his present location and his future destination. He looks for prominent ground forms upon which he can guide. He then selects the route that provides the easiest movement and which is tactically the most secure. Frequently, this will not be the most direct or shortest route, but it will assure his arrival at the correct destination. Applying his previously acquired knowledge of contour lines he readily recognizes the hilltops, valleys, ridges and saddles on his map and on the ground. He can now plot an accurate route to his destination and reach it by guiding on the predetermined ground forms identified on the map.

The third step is to *determine or measure distance* from the map. Then, as he moves, using his graphic scale and pace factor, he can at frequent intervals determine the distance from one prominent terrain feature to another, especially at changes in direction.

The fourth step, also based on a thorough knowledge of contour lines, involves the *changes in elevation* along the route. The soldier must compute and take into consideration differences in elevation between terrain features.

The final step involves *confirmation* of his location at points all along the chosen route as well as at his ultimate destination. This is done by comparing on the map and the ground not only the terrain feature on which he is located but, also, all surrounding terrain features, using direction, ground forms, distance and elevation.

To the experienced map user this technique of land navigation is not new. He utilizes these principles without conscious effort. However, he does not rely entirely on any one method of navigation. He uses dead reckoning, simple forms of celestial navigation and the various techniques of ground navigation in any combination, depending upon the circumstances.

Our instruction in map reading must make proper methods of land navigation habitual. With a little additional effort we can bridge the present wasteland between formal instruction and practical application. When all Infantrymen *know* the techniques of ground navigation, our leaders and our units will be able to navigate successfully on the battlefield.

PARENTS SHARE OUR SENTIMENTS

As Infantrymen, we are naturally proud of the Army, the Infantry and our Infantry School. But it is gratifying to know that parents of Infantrymen share our sentiments. So that all may be aware of and encourage further development of this splendid mutual feeling I wish to pass on to you the following excerpts from several of the many letters I constantly receive from parents of Infantrymen:

"I was deeply impressed, on my first visit to any Army base, with the attractive buildings, the immensity and the all-over immaculate appearance of Fort Benning. . . . We pray that (our son), ever mindful of the opportunity that exists for all in this wonderful country of ours, may so conduct himself in his personal affairs and in the discharge of his duties as to continue to merit the favorable notice of his superiors. . . ."

"We wish to thank you for the fine letter you wrote to us concerning our son. . . . (He) and his sister . . . our only children . . . were very close. (He) was in his last year in college and (our daughter) was in her first year when she suddenly passed away. The shock was terrible but our boy went on to graduate high in his class. The army gave him his commission and a year's leave of absence to get his Masters Degree. Then he reported to you for duty at Fort Benning. . . . We are proud of our country and proud of our son."

"I am sure that (our son) has had excellent training and from the experience that I had in the Army in World War II, I feel sure that training of this kind certainly is of great value to any man in the Army. It certainly should enable him to do much better work in the future and I trust that his services will be of value to the Army."

HERBERT B. POWELL
Major General, U.S. Army
Commandant

CHECKLISTS for Infantry leaders

This is the sixth in the U.S. Army Infantry School series of checklists for small-unit leaders. We repeat our word of caution on checklists. They are not inflexible rules but guides that should be modified to fit the situation. Use them to check your thinking and free your mind for other considerations.—Editor.

Troop Leading Steps

1. Begin planning—
   a. Plan the use of available time.
   b. Begin the estimate by—
      (1) Using a map, sketch, or aerial photograph to analyze the terrain for—
         (a) Critical terrain features.
         (b) Observation and fields of fire.
         (c) Cover and concealment.
         (d) Obstacles.
         (e) Avenues of approach.
      (2) Analyzing enemy strength, locations, dispositions and capabilities.
   c. Make preliminary plan.
   d. Announce planning guidance to subordinates.
2. Arrange for—
   a. Movement of unit—
      (1) Who will command?
      (2) Where, when and how will the unit be moved?
   b. Reconnaissance—
      (1) Select route, schedule, persons to take along.
      (2) Decide how subordinates will be used.
   c. Issuance of order (notify subordinate leaders of time and place).
   d. Coordination (adjacent and supporting unit).
3. Make reconnaissance by—
   a. Examining the ground.
   b. Changing the preliminary plan, if necessary.

4. Complete plan—
   a. Receive recommendations.
   b. Complete estimate.
   c. Effect coordination.
   d. Change preliminary plan as needed.
   e. Prepare order.
5. Issue order (include orientation on terrain, if possible).
6. Supervise (energetic, intelligent inspection is needed to be certain that the order is properly executed).

Patrol Leader

After receiving commander's briefing the patrol leader—

1. Makes a tentative plan including—
   a. Use of time to accomplish—
      (1) Warning order.
      (2) Reconnaissance.
      (3) Detailed plans to accomplish mission.
      (4) Issuing patrol order.
      (5) Rehearsals.
   b. Personnel to accompany him on the patrol.
   c. Weapons and equipment required to accomplish the mission.
2. Issues a warning order including—
   a. A check of the physical condition of men accompanying him on the patrol.
   b. A statement of mission.
   c. Arms, ammunition and special equipment required.
   d. Uniform, including camouflage measures for men and equipment.
   e. Ration requirements.
   f. Time and place for issuing the patrol order.
   g. Chain of command.
3. Makes reconnaissance (map, ground, air) to include—
   a. Selection of a specific route.
   b. Selection of an alternate route of return.
   c. Plotting of danger areas.
   d. General familiarity with terrain.
4. Orients the patrol members on a map or on the ground and issues his order, including—
   a. General situation—
      (1) Information of the enemy (location, activity, strength and terrain).
      (2) Information of our own troops (location, mission of higher unit, fire support available for the patrol, and mission and routes of other patrols).
      (3) Attachments and detachments.
   b. Mission—what the patrol is going to accomplish.
   c. Execution—
      (1) General plan.
      (2) Specific duties of each individual or unit.
      (3) Coordinating instructions—
         (a) Time of departure and return.
         (b) Route to be followed.
         (c) Alternate route of return.
         (d) Actions at danger areas.
         (e) Initial formation.
         (f) Actions upon enemy contact.
         (g) Initial rallying point.
         (h) Actions at rallying points.
         (i) Actions at objective.
         (j) Reporting results of patrol (when and to whom).
   d. Administrative matters—
      (1) Arms.
      (2) Ammunition.
      (3) Special equipment (state which members will use this equipment).
      (4) Uniform (to include camouflage measures for men and equipment).
      (5) Rations.
      (6) Method of handling wounded.
      (7) Method of handling prisoners.
   e. Command and signal matters—
      (1) Signals to be used for control within the patrol.
      (2) Communication channels to be used including—
         (a) Call sign.
         (b) Method of reporting patrol's progress.
         (c) Special codes.

soon as possible. Helicopter evacuation should be utilized if available.

During the orientation, a simple tactical situation should be developed. Upon reaching the objective, an officer or NCO should debrief each group or person as they report in. This debriefing should be similar to a patrol debriefing should first be concerned with items of immediate tactical value. Critiques may be conducted for each group as they reach the objective or for the entire unit upon completion of the exercise.

A well-conducted evasion exercise will provide a good yardstick with which to measure individual proficiency and unit combat readiness.

Knowledge of evasion and escape techniques will help to develop self-reliance, a strong sense of duty, and a determination to fight the enemy at all times with every means available.

With its related fields of survival training and Code of Conduct indoctrination, this instruction can be interesting, challenging, and profitable. It is one of the most important leadership responsibilities in our present-day army.

MAJ MARSHALL WHITING has been associated with Army intelligence for the past 15 years. Enlisting in 1941, he was a scout, I&R platoon sergeant and an intelligence sergeant before receiving an OC commission a year later. During World War II, he was an I&R platoon leader with the 25th Division in the South Pacific, later becoming a company commander, battalion S2, S3, and finally a regimental S3. After completing an intelligence course at the Army General School, Major Whiting went to Korea as assistant G2, 24th Division. Returning to this country, he was graduated from the associate advanced course at The Infantry School and in 1954 began his present assignment as an instructor in the Staff Department.

TRAINFIRE I ADOPTED

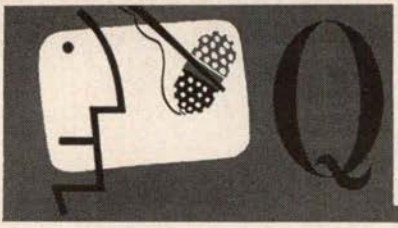
The U.S. Continental Army Command has announced that the Trainfire I method of rifle markmanship instruction has been adopted and will be implemented Army-wide for all rifle markmanship training.

Information on the Trainfire I program has been published in earlier issues of *Infantry*. Details concerning the new method of instruction, the electronic pop-up target, "Punchy Pete," and illustrations of ranges, targets, etc., may be found in two articles, "Trainfire," January 1956, and "More About Trainfire I," April 1957.

Basically, Trainfire I shifts the emphasis in rifle markmanship from the weapon to the man without changing the primary goal: to hit the target. It teaches rifle shooting to trainees under conditions that simulate combat as closely as safety factors permit.

Active Army installations within continental United States will be the first to build Trainfire I ranges with priority going to Army training centers and the U.S. Army Infantry School at Fort Benning.

Contracts for the construction of Trainfire I ranges have already been awarded at Fort Jackson, S.C. It is expected that by 1959 implementation will be complete within continental United States. By 1960 all overseas commands should have Trainfire I ranges and Reserve Forces should have these facilities by 1961.



QUARTERLY QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. Under conditions of atomic warfare the forward battle groups of the division in the mobile defense will normally be deployed in:
   a. A perimeter-type defense.
   b. A form of the position defense.
   c. A mobile-type defense within the battle group, holding the forward edge of the battle position with minimum forces and holding the greater portion of the battle group as a mobile striking force.

2. Atomic warfare places a high premium on dispersion, mobility, communications, morale and leadership. In visualizing what dispersion will be acceptable between units, which of the criteria below is the determining factor?
   a. Specific radii of effects of specified size enemy atomic weapons.
   b. Any formation of two or more company-size units concentrated in a particular area provides a suitable atomic target.
   c. Accept the maximum dispersion that is consistent with the performance of the mission.

3. What are the three principal phases of instruction in the Trainfire I rifle marksmanship course?

4. What is the primary method of fire adjustment with the 76mm gun tank?

5. Is aerial delivery considered only as an emergency means of resupply?

6. What capability for maintenance exists within the battle group?

7. How is maintenance provided for elements of a truck transport company attached to a battle group for an extended period?

8. Communication between the pentomic division headquarters and the five battle groups is established by:
   a. *Direct* radio and wire communication from the division headquarters to the battle groups provided by the division.
   b. Support platoons from the division signal battalion which operate an area signal communication network in the vicinity of the battle groups and provide the communications link between the battle groups and the division headquarters.
   c. The battle groups, by utilizing radio and wire equipment specifically issued for this purpose.

9. Direct lateral radio communication between adjacent battle group commanders is established by:
   a. No particular rule as both comanders are in the division commanding general/command net.
   b. Specific radios issued for this purpose which are mounted in the commander's vehicle.
   c. The calling commander entering the unit FM net of the called commander.

10. What courses of action are open to a commander of an isolated unit?

(For answers turn to page 100)

(3) Challenge and password.

(4) Chain of command.

(5) Location of the patrol leader in the formation.

5. Conducts dress rehearsal to include—

a. Actions upon enemy contact.

b. Actions at danger areas.

c. Actions at objective.

d. Formations.

6. Prior to departure—

a. Conducts test firing of all weapons.

b. Inspects men and equipment for—

(1) Camouflage.

(2) Presence of ID tags and Geneva Convention cards.

(3) Presence of qualified specialists (if required).

(4) Serviceability.

(5) Undesirable noise.

(6) Operative communication.

(7) Completeness.

Adjustment of Artillery Fire

1. Before sending a fire mission, determine—

a. Location of the target, by using one of the following methods—

(1) Grid coordinates.

(2) Shift (right, left, add, drop) from a registration point, reference point, check point, numbered concentration, or any point known by observer and FDC.

(3) Polar coordinates by reporting the direction and distance from yourself to the target. FDC must know observer location.

(4) "Marking volley" method—

(a) Mark registration point.

(b) Mark check point number.

(c) Mark center of sector.

b. Azimuth from yourself to the target—

(1) By compass.

(2) Measurement from a map.

(3) Measurement from point whose azimuth is known—

(a) If shifting from known point to left of a reference point, subtract the angle from the reference point azimuth.

(b) If shifting from known point to right of a reference point, add the angle to the reference point azimuth.

c. Distance to the target in yards (observer-target range).

2. To request fire—

a. Establish communication with the FDC through the forward observer or company commander.

b. Send the following information—

(1) Identification of the observer.

(2) Warning order.

(3) Reference point or coordinates.

(4) Azimuth.

(5) Location of target.

(6) Nature of target.

(7) Control.

3. Use the following form to compile fire request—

a. IDENTIFICATION_____.

b. FIRE MISSION

c. FROM_____ or COORDINATES_____.

d. AZIMUTH_____.

e. LEFT/RIGHT_____ ADD/DROP_____.

f. TARGET_____.

g. WILL ADJUST (FIRE FOR EFFECT)[1]

4. During the adjustment—

a. Base corrections on an imaginary line between yourself and the target (OT line).

b. Send corrections to the FDC in the following order—

(1) Shift the burst onto the OT line by sending a correction in yards right or left (shift computed or estimated).

(2) Request range changes, in even hundreds of yards, to bracket the target. Split successive brackets until a range change of 50 yards is made.

c. Call for "fire for effect."

[1] If the location of the target is accurate (within 50 yards) and the fire requested is expected to be effective without any adjustment, the phrase FIRE FOR EFFECT instead of WILL ADJUST is used.

ANSWERS TO QUARTERLY QUIZ (*See page 90*)

Possible score 100 points, expert 90-100, sharpshooter 70-80, marksman 50-60, recruit 30-40 and bolo 0-20. For detailed discussion of the answers check the references listed.

1. **b.** A form of the position defense. The battle group rarely, if ever, fights the mobile defense on its own, regardless of the type of defense being conducted by division. It participates in the mobile defense as part of the forward defensive forces or as part of the striking force. In view of this, the battle group ordinarily fights some variation of the position defense. (Chap. 7, Sec. IV, Par. 180b, USAIS TT 7-40-2, March 1957.)

2. **c.** Accept the maximum dispersion that is consistent with the performance of the mission. Among other considerations, atomic warfare places a high premium on dispersion. As a criterion, commanders should not use arbitrary figures or the radii of effects of a weapon of a specific size to determine the degree of dispersion. Every echelon of command should consider the following factors in determining within the criterion the degree that can be accepted: mission, terrain, availability of friendly atomic support, enemy air and atomic capabilities, relative mobility of the opposing forces, friendly communications, weather, nonatomic fire support, friendly air defensive capabilities and the comparative reconnaissance capabilities of enemy and friendly forces. (Chap. 5, Par. 91c(1), USAIS TT 7-40-2, March 1957.)

3. The three principal phases of instruction in the Trainfire I rifle marksmanship course are preparatory marksmanship training and 1000-inch firing, field firing, and target detection. The objective of the course is to provide the soldier with the training necessary to permit him to use his rifle effectively in combat. It is based on the fudamental principle that the combat rifleman's targets consist of enemy personnel and that his effectiveness as a rifleman depends upon his ability to neutralize individual targets. To achieve this effectiveness, the rifleman must be skilled in detecting targets, aiming his rifle at detected targets and firing upon these targets without disarranging his aim. (Chap. 2, Par. 3, Instructors Guide for Trainfire I, United States Army Infantry School, November 1956, and *Infantry*, April 1957.)

4. The primary method of adjustment is the burst-on-target, in which the gunner, observing through his direct-fire sight, notes the point on the sight reticle where the burst or tracer appears in relation to the target and, without command from the tank commander, moves that point of the gun-laying reticle onto the center of the target before firing the next round. (Chap. 5, Par. 102, FM 17-80.)

5. **No.** Aerial delivery is no longer considered only as an emergency measure of resupply, but now augments normal supply routes. Improvements in techniques of delivery and increased load-carrying capacity of cargo aircraft have increased the capability of aerial delivery. Supply by air is characterized by freedom of movement over terrain which is inaccessible or impassable to normal means of transportation, or through which normal movement is denied by enemy activity. (Chap. 1, Sec. I, Par. 1, United States Army Infantry School instructional material, "Aerial Delivery Techniques.")

6. The battle group is capable of performing second echelon maintenance on all organic vehicles. For flexibility and efficiency, maintenance throughout the Army is based upon organizing repairs into categories and echelons. The categories are organizational maintenance, field maintenance and depot maintenance. The echelons of maintenance run from first echelon through fifth echelon. Within the Infantry battle group, organizational maintenance normally includes first and second echelon work. Second echelon maintenance is that degree of maintenance performed by specially trained personnel provided for that purpose in the using organization. (Part II, Chap. 1, Sec. III, Pars. 171, 172b, c(2), USAIS TT 7-21-2, January 1956.)

7. When a truck or carrier company is attached to or placed in support of an element of the division or is at such a distance as to make maintenance support impractical from a central location, maintenance support may be provided by one of the following methods: attachment of a truck or carrier maintenance section to the company, provision for maintenance contact teams from the transportation battalion maintenance platoon to visit the units and service the vehicle in position, or coordination with the attached or supported element of the division or the supporting ordnance unit to provide all or a part of the maintenance support required. (Chap. 2, Sec. IX, Par. 37c, USAIS TT 55-37-2, Feb. 1957.)

8. **b.** The major communication support furnished by the division signal battalion is accomplished by direct support from the signal center platoon with each battle group, and by signal installations at the division advance signal center, division main signal center, brigade headquarters and division trains headquarters signal center. Each of these centers is equipped to provide a portion of the division radio, local wire, radio relay, radio wire integration and message center service. In addition, a small signal platoon, capable of providing wire, message center and limited radio facilities, is assigned to the division administration center located in the division rear command post. (Chap. 4, Sec. VII, Par. 68b, USAIS TT 7-100-2, March 1957.)

9. **c.** The division commanding general/command net is intended primarily for radio communication between the division commander and staff and the commanders of all major subordinate units. While specific employment of the net is governed by the division commander's desires, it is usually limited to vertical communications only. Under such circumstances, lateral radio communications between subordinate unit commanders are established by the calling commander entering the unit FM net of the called commander. (Chap. 4, Sec. VII, Par. 69d(1), USAIS TT 7-100-2, Mar. 1957.)

10. (1) Continue to defend on position. This decision should be based on many factors including the probability of relief by friendly forces and the possibility of holding off the enemy and eventually forcing him to withdraw. (2) Break out to friendly territory. (3) Avoid capture using evasion and escape techniques. The term, as used here, is action by an individual or a small group to avoid capture and to return to friendly territory. (4) The most aggressive course of action is for the isolated unit to penetrate deeper into enemy territory while conducting guerilla-type operations. (5) A combination of the alternatives discussed in (1) through (4). In some situations one technique by itself may not be enough to avoid capture. Combining several alternatives may thus provide the best means of remaining free and operational. (pp 4-9, Department of the Army Pamphlet No. 355-6, July 1956.)

LETTERS *(continued from page 5)*

this publication must be financed entirely by the sale of subscriptions (we are not permitted to carry advertising) this is not possible—at least not now. The number of issues might be increased by reducing the number of pages or by increasing the subscription rate or both. None of these is desirable. If the number of subscribers could be increased—substantially —extra issues might be possible. Efforts are being made to develop a wider circulation, and it is hoped that this will provide sufficient revenue to permit more frequent issues to be published.—Editor.

Mortar Training Device

Sir:

In your publication of April 1957, you have an article by Master Sergeant Charles L. Bryant concerning the . . . indoor training of personnel in the use of mortars. As company commander of a Reserve heavy mortar company, I am very much interested in training personnel through the technique described in your publication.

I would appreciate it very much if you can supply me with specifications for a similar device for the 4.2" mortar and a firing table for the 4.2 using the Bryant Mortar Training Device. Any information you can supply me in this matter will be greatly appreciated.

Willys H. Taylor, Jr.
1st Lt, Inf, USAR
Clemson, S. C.

Your letter was referred to the mortar committee, Weapons Department, United States Army Infantry School. Here is the committee's reply in part:

". . . It is felt that the Bryant Training Device can be used to equal advantage in the training of 4.2" mortar personnel as well as 81mm mortar personnel. By disregarding the principle of constant elevation normally used in the 4.2" mortar battery, and having the gunner manipulate the sight for elevation as well as for deflection, the accompanying firing table can be used. For the clamping collar of the device to be adapted to the 4.2" mortar, a wooden plug with a re-

FIRING TABLE
BRYANT MORTAR TRAINING DEVICE
4.2 INCH MORTAR

Range	Elevation	Range	Elevation
1500	1373	2625	1015
1525	1361	2650	1007
1550	1352	2675	998
1575	1343	2700	991
1600	1335	2725	982
1625	1329	2750	974
1650	1323	2775	968
1675	1315	2800	960
1700	1307	2825	953
1725	1298	2850	945
1750	1290	2875	939
1775	1283	2900	931
1800	1274	2925	923
1825	1268	2950	916
1850	1259	2975	908
1875	1251	3000	899
1900	1243	3025	892
1925	1234	3050	885
1950	1229	3075	879
1975	1221	3100	871
2000	1215	3125	864
2025	1206	3150	858
2050	1196	3175	851
2075	1189	3200	844
2100	1175	3225	832
2125	1163	3250	827
2150	1156	3275	821
2175	1149	3300	816
2200	1142	3325	811
2225	1136	3350	805
2250	1129	3375	796
2275	1121	3400	789
2300	1114	3425	782
2325	1108	3450	776
2350	1099	3475	770
2375	1092	3500	761
2400	1085	3525	754
2425	1077	3550	748
2450	1071	3575	743
2475	1062	3600	737
2500	1053	3625	730
2525	1045	3650	721
2550	1039	3675	717
2575	1031	3700	711
2600	1023		

ducer can be fabricated at little or no cost. The plug with the training device attached could then be placed in the muzzle of the mortar making sure that the mirror frame is held parallel to the impact area of the floor. Wrapping the plug with masking tape is an excellent method of keeping it from rotating in the tube. The flashlight must be moved and it can be secured to any convenient place along the extension rod by tape. With the device attached, the instructions as set forth in the author's article ("Mortars and Mirrors" by M/Sgt Charles L. Bryant, Infantry, *April 1957) may be followed to place the mortar in action. The limits of the range or impact area can be marked off with the mortar at its minimum and maximum elevations. With the flashlight on, connect the two chalk-marked limits by a ruler or tape. Mark off each three inches and indicate its range value. Remember that an arbitrary scale of 6 inches equaling 100 yards was established. Smaller graduations on the range scale may be indicated if desired, i.e., 3 inches equals 50 yards, etc. The firing table can be modified to indicate the proper heavy mortar charge to be used for the range used [see firing table]."—Editor.*

Suggestions Offered

Sir:

Your "Quarterly" crosses my desk in routine circulation, and I find it most interesting and informative. Two items in the January 1957 issue have touched on matters which have deeply concerned me for a long time, and about which I have some strong feelings which are at variance with current Army thinking.

The first of these is the article about the driver-training course which has been worked out at the school ["Misguided Missile," page 88]. This course is, I feel, a step in the right direction. I have never been able to understand Army thinking about drivers. As your article points out, there is a lamentable tendency to shanghai eightballs into the motor pool. Considering the importance of transportation in war, and the expenses of the motor pool in peace, this seems to me to eb the wrong approach, to put it mildly.

My own thinking on the matter is that the unit would be best served, and the over-all expense to the Government would be much reduced, if drivers were permanently assigned to their vehicles. Moreover, I feel that they should be given a specialist rating high enough to make each and every man in the unit feel that he wants to be a driver. Then, and only then, when a resupply of willing and eager drivers is assured, can you demand of them the full training and the careful maintenance of their vehicles which will assure the commander that he has competent drivers in available trucks whenever he needs them.

. . . I suggest that in order to qualify for the position of driver, graduation from some such course as you describe be required. In fact I would suggest that your maximum course be the absolute minimum for such positions. More and more intensive training would not be amiss, perhaps a resident full-time course of some 240 to 320 hours, culminating in a stiff examination both in the classroom and on the road.

And then, of course, the student should automatically receive his rating on graduation, and should know that in the normal course of events he will be used as a driver and as nothing else. Considering the hours of work required to maintain a vehicle properly, in addition to the time spent driving it, I would even go so far as to suggest that the driver be exempt from KP and like details, except insofar as a detail may require a vehicle and driver to do its work.

Of course, this sets the driver up as a

special person, with many benefits from his position. This, obviously, will provide both the incentive for the man to do his work to the utmost and the lever by which his commanders can keep him at it. Naturally, failure to accomplish the job would result in transfer to other duty, with accompanying loss of rating and prerogatives.

This approach, I firmly believe, would provide the best of maintenance for the trucks, and would consequently reduce the cost of operation more than the increased salary of the driver; not to mention assuring that the drivers were in fact drivers, capable of taking their truck where it was needed and arriving on time and in good order.

The second item I wish to comment on is the letter and accompanying editorial comments on the "Trainfire" course ["Letters to the Editor," page 96]. Once more, I approve most highly of a step in the right direction. But once more, I feel it is "too little, too late."

No matter if the present problem is getting men to fire their weapons in combat, or supplying adequate skill so that they hit their target, the basic approach to both sides of the question is still familiarity with the weapon, and with firearms in general. Therefore, it seems to me that one of the easiest, cheapest and best approaches would be the intensive use of small-bore firing.

My ideal view of the matter would see the basic trainee given his PRI just as soon after induction as possible, before the issue of uniforms or any like matters if necessary. Then, supply him with a .22 caliber weapon and see to it that he fires not less than 30 rounds each and every day that he remains in the military service; said firing to be on progressively difficult courses until the fundamentals of sight alignment and trigger squeeze are literally instinctive. Of course, additional training with the .30-caliber weapons would be given, and would replace the small-bore work on the days it was given. Experienced men could be allowed to substitute firing with the pistol after proving their proficiency with the rifle. Courses in "Trainfire" and the "Hogan's Alley" for pistol could be mixed with the conventional fixed target courses.

The point to this, of course, is that in the ultimate test, the whole duty of the soldier is to fire his weapon at his enemy, and in so doing, hit and kill or cripple him. All else is secondary. . . . proficiency with weapons comes only from firing them, frequently and often. Instincts developed on the small bore range do most emphatically carry over to the larger weapons, even to crew-served types.

Also, with proficiency comes the confident attitude that will lead to active use of the weapon in combat. A soldier who hesitates to fire on his enemy hesitates for fear of return fire. If he is morally sure that he can hit and kill that enemy, he will also know that the dead enemy will not return fire on him. (This is oversimplified, but you see my point.)

The other suggestion I have on this matter is that all troops be required to carry their primary weapon all during duty hours. Once more, a weapon becomes a part of the man largely by continual use, and having it around and handling it when not needed will lead to the familiarity of an old and trusted friend when it is needed.

Perhaps I'm dreaming, but I'd appreciate hearing your views on these ideas.

Harry R. McNeal
Field Correspondent
PS Magazine

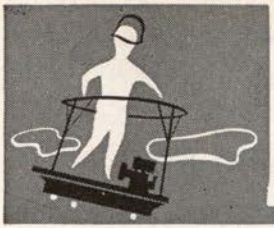
Your letter was brought to the attention of the Ground Mobility Department and Weapons Department of the United States Army Infantry School and the United States Army Infantry Human Research Unit.

In regard to driver training, the Ground Mobility Department feels the ideas you expressed are commendable and, if implemented, would undoubtedly provide the "top-notch" type of driver needed by Infantry commanders. The department points out that it has been standard practice in Infantry units to assign one driver to a vehicle whenever the unit's assigned personnel is at or near authorized strength. This is no hard and fast rule because of the continuous turnover of personnel in field units. Here at USAIS, the Ground Mobility Department advocates a driver training course of from 70 to 130 hours. The course is not the ultimate and is by no means a one-shot affair but a continuing program implemented to the degree warranted by the unit's mission, its need and time available for such training.

Your thoughts on marksmanship proficiency for the soldier indicate your qualified approval of the current Trainfire program. Here are some comments furnished by the United States Army Infantry Human Research Unit which developed the Trainfire concept:

". . . The Army has long been convinced that skill as a marksman is largely dependent upon progressive practice which should naturally be as extensive as time, facilities and other factors permit. The use of reduced-distance small-bore firing has its place in the development of accuracy, one of the major factors involved. However, reduced-distance firing does not involve the problems of distance including target detection and the necessity for offsetting weather and light conditions. Furthermore, since in small-bore firing different weapons and ammunition are used, a direct transfer to the combat situation does not exist, particularly in time-pressure firing. In view of the foregoing factors all possible firing, including reduced-distance firing, is done with the service rifle and ammunition. Caliber .22 firing on small-bore ranges is used, howevr, wherever circumstances make such training more advantageous. . . . Ideas on the development of the rifleman's confidence in his own ability are considered sound. This is one of the major aims of the Trainfire project which . . . has four progressive phases . . . Trainfire marksmanship is the first. It is vital that the confidence developed be based upon sound techniques which transfer directly to combat. Under such conditions . . . confidence . . . will progressively increase as the rifleman realizes his superiority over the enemy. The habitual carrying of the rifle during training is general practice except when the nature of the training involves undue wear of the weapon."

As you point out, the ultimate aim of the soldier in combat is to fire his weapon at the enemy and, in so doing, hit and kill or cripple him. Trainfire is based on this concept. From the beginning, the basic fundamentals of shooting are utilized and regularly reemphasized. The trainee is constantly impressed with the fact that his job is to hit enemy personnel. All of the basic skills taught are those which he can use in combat: target detection, hitting detected targets while assuming combat positions and firing under time pressure. First the recruit is taught to fire accurately. He then engages indistinct or invisible targets on the basis of fleeting indications or likely areas. All his instruction integrates well-established learning principles. The will to fire, of course, can only be started during a recruit's marksmanship training. It must be progressively developed during his career. Such factors as morale, fighting spirit, pride in unit and confidence in leaders which are important in developing the will to fire must be ingrained throughout the soldier's individual and unit training.—Editor.



WHAT'S NEW FOR INFANTRYMEN

DEVELOPED

175mm Gun

A newly developed and extremely versatile field artillery piece, the 175mm gun, incorporates battlefield capabilities which are in many respects superior to the combined features of familiar World War II weapons. The 175mm gun can fire readily in any direction and occupy its firing position quickly with no need to dig recoil and spade pits. Although classed as a gun, its included angles of elevation (0° to 65°) and its selective use of three graded propellant charges, enable the weapon to fire on enemy positions on reverse slopes—a type of firing usually performed by a howitzer. The gun and top carriage of the weapon are balanced on a ball on a center float. By means of a built-in jack located on the track of the center float, the rear of the carriage can be raised off the ground in a moment, thus enabling the weapon to be easily pushed around a full 360° to any desired azimuth. In addition to new elevation sights, the weapon has mechanical counters displaying actual numbers instead of micrometer scales which required interpolation. As with the 280mm gun, the 175 is equipped with two complete recoil systems, operating independently of each other, to absorb the recoil forces and return the recoiling masses to the in-battery position.

Mortar Locator

The development of a new radar mortar locator has been announced by the United States Army Signal Corps. Equipped with an electronic brain that pinpoints an enemy position in seconds, the locator's range is greater than that of any mortar known today.

It boasts a new beam technique which causes the projectile to appear as blips on a screen. By centering hairlines on the blips, the computer will get a direct map coordinate reading of the enemy position which may then be relayed to the artillery battery for counterfire.

Officially designated as the AN/MPQ 4, the new locator is compact and mobile. Except for a power supply, all components are mounted on a two-wheel trailer. The console of the spotter may be operated in a foxhole as far distant as 150 yards from the trailer.

On previous mortar locators, the antenna moved back and forth while scanning. However, the antenna of the new improved set remains stationary during operation, automatically picking up anything in its sector.

Cookset

The Quartermaster Corps has unveiled a new portable cabinet cookset capable of feeding 50 men. It has been designed to replace the field range now in use.

Consisting of a cabinet, utensils and a gasoline burning unit, the new cookset requires only 11 repair parts to keep it in operation as compared to the 49 required for the present field range. The cookset weighs only 114 pounds and the parts can be stored inside the cabinet, thus making it portable and capable of

operation in transit. In addition, the cookset may be operated along with the field range in a group setup as all components are interchangeable.

Dehydrated Rations

As part of the Quartermaster research and development program, new prototype rations have been created to provide better feeding for today's highly mobile, widely dispersed fighting forces. The proposed rations are currently being tested by troops in the field at Fort Benning.

The new rations represent a feeding concept designed to provide sufficient versatility to satisfy the needs of both forward- and rear-area combat troops.

Based on a new food processing technique, the rations reduce the number of food service personnel required in combat zones as well as the amount of equipment required to store, transport, prepare and serve them. In addition, there is a gross reduction in weight of the parcels, thus permitting greater flexibility of use and maximum transportability.

The rations are prepared by the processes of radiation preservation, freeze drying or a combination of precooking with either radiation or dehydration. They were designed with the idea of feeding at least two hot meals a day to individuals or to groups ranging from five to 1000.

Primary among the new group of rations is the *meal, ready-to-eat, individual*. It is planned for the combat man in the forward contact area of the battle zone. It contains items which are highly acceptable in the cold state and require no preparation other than opening packages.

To augment this individual meal is the *ration, individual, combat, meal type*. It may be used either as a meal packet or in multiples of three as a complete ration. It contains a larger selection of food components than is now provided in any current operational ration except the B ration.

Two other precooked meals are the *meal, precooked, dehydrated, 25-in-1* and the *meal, precooked, dehydrated, 5-in-1*, both identical in component parts. Packaging is the essential difference. These two are so designed that a soldier with little specialized food service training can prepare them for a group of men. A typical luncheon for 25 men includes precooked dehydrated chili and beans, instant rice, pasteurized fruit mix with sugar, pasteurized bread, soda crackers, jam, margarine, cookies, instant cocoa beverage. The parcel include collapsible paper cups, plastic spoons, fiberboard serving trays for individual use and wooden ladles for serving.

A descendant of the present B ration is the *meal, uncooked, 25-man*, intended largely for rear area use in the combat zone. It contains uncooked foods preserved chiefly by dehydration or radiation. This ration includes fresh irradiated products and promises to provide a highly acceptable menu for troops in rear areas. Prepared in the zone of interior, it approaches the A ration in acceptability but requires no refrigeration or supplementation. Flavor is preserved by vacuum packing before irradiation.

A typical dinner for 25 men using this ration consists of dehydrated lima bean soup, sweet potatoes, green beans, orange juice, apples and cheese; irradiated chicken thighs; and rolls, shortening, margarine, crackers, sugar, flour, cinnamon, coffee, cream and salt. The meal has a gross weight of 34 pounds and occupies 1.9 cubic feet.

In addition to providing hot meals for more fighting men, other advantages listed for the new ration include fuel and water conservation, fewer personnel required in preparation, increased diversification of diet, greater nutritional value,

no need of refrigeration equipment in combat areas and a greater adaptability to air supply and use by mobile forces.

REVISED

ROCID Problems

Over 90% of Tactical Department problems are being or have been revised or rewritten to conform to the new organization and doctrine. All classes which began after 1 May will receive ROCID instruction.

Two problems portraying the tactical employment of the new rifle company on the atomic battlefield have been rewritten by USAIS Tactical Department. They are "Defensive Operations Under Atomic Warfare Conditions" (2178) and "'Offensive Operations Under Atomic Warfare Conditions" (2179). Basic Infantry officer, officer candidate and associate Infantry company officer classes receive the revised problems.

The defensive operations problem is a two-hour exercise, during which the student acts as the commander of a company in the defense. The student organizes a company defense against enemy attack, including a withdrawal to a switch position. Friendly and enemy atomics are used.

The offensive operations problem is also a two-hour map exercise and is a continuation of the situation as it existed at the conclusion of the defensive problem. Students, still acting as company commanders, solve requirements concerning the preparation for, and conduct of, an attack as the leading element of the battle group moving along an axis against a deep objective.

Both problems stress the friendly employment of atomic weapons and the actions taken to minimize the effect of enemy atomic weapons.

Problem 7305, a two-hour class based on unit organization under the pentomic concept is now being presented to all officer and leader classes at USAIS.

It consists of a conference and practical exercise explaining Infantry and airborne organizational objectives and principles; organization, equipment, capabilities and mission of the Infantry division with emphasis on the battle group. It also includes a comparison of Infantry and airborne pentomic divisions.

Logistical Procedures

The supply and maintenance platoon, organic to headquarters and headquarters company, battle group, is organized into a platoon headquarters, ammunition squad and truck squad to perform logistical functions for the battle group. In combat, the supply and maintenance platoon: (a) operates the battle group supply and service area (battle group trains area) where request, receipt and issue of supplies and equipment are directed and controlled; (b) maintains appropriate supply records and (c) performs first and second echelon maintenance for battle group units within the capabilities of maintenance personnel and available tools.

The medical platoon, organic to headquarters and headquarters company, battle group, is organized into a platoon headquarters, a treatment section and an evacuation section. In combat, the treatment section establishes one or more battle group aid stations and provides the rifle companies and mortar battery with company aid men. The evacuation section removes casualties to the battle group aid station by litter or ambulance.

Within the battle group, requests for supplies and equipment from subordinate units are submitted through supply channels (except for class IV supplies, which are requested through command channels) to the logistical control point (LCP) located in the battle group supply and service area. After unit requests are processed at the LCP consolidated battle

group requisitions are forwarded to the division technical services. Expendable medical supplies are requested informally and delivered through medical channels. Nonexpendable medical supplies, evacuated with casualties, are exchanged on an item-for-item basis at each location where casualties are transloaded.

Normally, the technical services deliver all class I, II, and IV supplies to the battle group supply and service area using transportation from the division transportation battalion (unit distribution). The division quartermaster company delivers class III supplies to the supply and service area. Class V supplies (ammunition) are obtained by replenishment from the nearest Army ammunition supply point using battle group transportation.

Recovery and Disposition

Effective immediately, in all cases where the term "graves registration" is used in units down to and including division, the term "recovery and disposition" will be substituted. For units within the battle group, the term "collection and evacuation" will be substituted for the term "graves registration." During combat a three-man collection and evacuation section, organically assigned to the division quartermaster company, will be attached to each battle group.

Advanced Tactics Exam

In addition to the normal attack, defense and retrograde examinations, advanced level classes at USAIS now receive a tactical examination designated as the advanced tactics examination.

This exam follows instruction presented by the Tactical Department concerning the tactical employment of atomic weapons. It emphasizes the many factors which the commander must consider in operating under atomic warfare conditions.

Instructional Plans

With the publication of TC 7-2, "Combat Formations and Battle Drill,"[1] battle drill became U.S. Army doctrine and will be included in the course of instruction at USAIS. Its concepts will be integrated into other resident problems where appropriate and will be given in Problem 2002, "Combat Formations and Battle Drill."

Troop Education

Following publication of AR 355-5, 20 February 1957, instruction in public and troop information will be presented as an integrated conference and practical exercise emphasizing the organization for and the objectives of both types of information in the program. The information program is a command function and in the ROCID TOE the battle group executive officer has been designated as the information officer. Troop education is to be taught as a responsibility of G1 (S1) as outlined by AR 621-5.

New Names

The Publications and Visual Aids Office, USAIS, has been redesignated the Editorial and Pictorial Office. The sections of the office have been renamed and a new section has been activated. The Training Literature Section is now the Training Literature Editing section; the Visual Aids Section has been changed to the Art and Film Section; the Quarterly Section is now known as the Special Editing and Quarterly Section; and the Publications Section is now the Mailing List and Printing Liaison Section.

The new section is the Army Training Program Development Section. Its functions are the development and preparation of those Army training programs, Army training tests and subject schedules for which USAIS has primary responsibility.

[1] See "Battle Drill," January 1957. *Infantry School Quarterly.*

FIELD MANUALS

The following training literature is being written and edited; publication can be expected during the next year:

FM 7-10, Rifle Company, Infantry Division Battle Group, (revision).

FM 7-21, Headquarters and Headquarters Company, Infantry Division Battle Group, (revision).

FM 7-40, Infantry Division Battle Group, (revision).

FM 21-18, Foot Marches, (revision).

FM 21-20, Physical Training, (revision).

FM 23-5, U.S. Rifle, Caliber .30, M-1, (revision).[2]

FM 23-30, Grenades and Pyrotechnics, (revision).

FM 23-32, 3.5-inch Rocket Launcher, (revision).

FM 23-82, 106mm Rifle, M-40, (revision).

FM 23-90, 81mm Mortar, M-1, (revision).

FM 57-35, Army Transport Aviation, Combat Operations (new).

TM 21-200, Physical Conditioning, (new).

TM 57-210, Air Movement of Troops and Equipment, (revision).

DA pamphlet on Ranger training.

The following manuals have been forwarded to USCONARC for approval:

ROTCM 145-10, Organization of the Army and ROTC.

The following manuals have been forwarded to Department of the Army for approval and publication.

FM 21-75, Combat Training of the Individual Soldier and Patrolling. When approved and published FM 21-75 will supersede TC 17, Battle Indoctrination, and TC 20, Sniper Doctrine.

FM 23-7, Change 2, Carbine.

FM 23-15, Change 3, Browning Automatic Rifle, Caliber .30, M-1918A2.

TC 21, Physical Training.

The following field manuals have been published recently by Department of Army and are available to instructors through normal supply channels:

FM 23-85, Change 3, 60mm Mortar, M-19. This is a fairly extensive change which includes the current fire commands, military signs and symbols and the correction of technical errors.

TM 57-210, Air Movement of Troops and Equipment, 1 February 1957. This is a complete revision of the old manual.

TC 7-2, Combat Formations and Battle Drill, 14 January 1957. A guide for rifle company commanders, platoon leaders and squad leaders in training their squads and platoons in combat formations.

TRAINING FILMS

The following training films have been approved for release to requesting units:

MF 19-8699, Prisoners of War, 22 minutes.

OC 12, The Mission of the United States Army, 37 minutes.

TF 5-2276-80, Water Purification, 4-8 minutes.

TF 5-2361, Demolitions, Clearing Stumps and Boulders, 9 minutes.

TF 5-2362, Demolitions, Placing Charges on Steel, 5 minutes.

TF 5-2406-17, Map Reading, Basic, 5-7 minutes.

TF 9-2329, Automotive Electricity for Military Vehicles, Part I, Principles of Automotive Electrical Circuits, 15 minutes.

TF 9-2330, Automotive Electricity for Military Vehicles, Part II, Principles of Operation of the Generator, 13 minutes.

TF 9-2078, Automotive Electricity for Military Vehicles, Part III, Principles of Operation of the Starting Motor, 14 minutes.

[2]This manual is being revised even though the M-14 and M-15 have been adopted as standard. The new rifles are not expected to be in the hands of troops for three or four years.

TF 9-2332, Automotive Electricity for Military Vehicles, Part IV, The Ignition Circuit, 11 minutes.

TF 9-1559, Automotive Electricity for Military Vehicles, Part V, Principles of Operation of the Generator Regulator, 12 minutes.

TF 9-1531, Automotive Electricity for Military Vehicles, Part VI, Principles of Operation of the Automotive Magneto, 14 minutes.

TF 15-2358, The Special Court-Martial, 56 minutes.

TF 17-2387, Auxiliary Means of Communication, Part I, Light Aircraft Message Drop, 5 minutes.

TF 17-2388, Auxiliary Means of Communication, Part II, Light Aircraft Pickup, 3 minutes.

INSTRUCTIONAL MATERIAL

The following USAIS instructional material is suitable for resident as well as nonresident instruction and may be ordered from the Book Department, United States Army Infantry School, Fort Benning, Georgia, at the prices shown:

Desert Operations, 2272-USAR, 1 hour. A conference on the principles of infantry tactics applied to an Infantry unit operating in desert terrain, stressing tactical movements, attack and defense; comparisons of desert operations to operations in normal terrain including differences in techniques; security, reconnaissance and deception in desert operations. 15¢.

Signal Orders, 3309-USAR, 1 hour. Conference and practical exercise demonstrating the SOI and SSI as an aid for commanders and staff officers. Emphasis is placed on message transmission security devices. 55¢.

Organization and System for Maintenance, 4906-USAR, 1 hour. Conference covering the organization and system for maintenance with emphasis upon second echelon maintenance; purpose, use and disposition of records for the control of vehicle maintenance; command responsibility for first and second echelon maintenance. 20¢.

USAR, 1 hour. Conference and demonstration covering the selection and training of wheeled and tracked vehicle operators; equipment and terrain necessary to produce qualified drivers. 20¢.

Aerial Delivery Techniques, 5678-USAR, 1 hour. Conference and demonstration to teach the commander's responsibility in receiving aerial resupply and familiarization with doctrine, tactics,

techniques and equipment used in aerial resupply. 30¢.

Command and Leadership—Indications of Leadership, 6124-USAR, 2 hours. Conference and practical exercise on the evaluation of leadership results in terms of morale, discipline, esprit de corps and proficiency, using combat examples on methods of developing and evaluating the indications. 20¢.

Counterfire Organization and Technique 6615-USAR, 2 hours. An explanation of counterfire operations to include means and methods of locating enemy weapons, counterfire organization, counterfire weapons, shelling reports and the importance of rendering these reports promptly; map exercise on techniques of locating enemy weapons. 50¢.

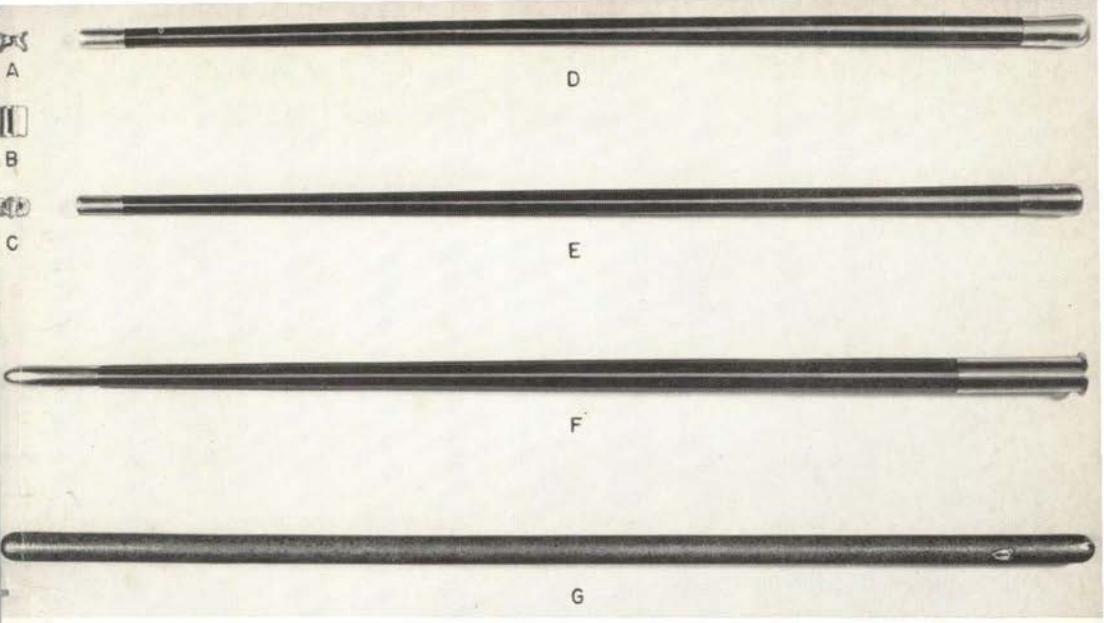
Operations, Techniques, 6910A-USAR, 2 hours. Conference and practical exercise covering operational planning as it pertains to the techniques of graphic representation of operation plans and operation orders; the use of situation maps, operation overlays, and planning maps. Map exercise involving the preparation of an operation overlay stressing the technique of graphic representation. 45¢.

Joint Air Movements, 6967-USAR, 3 hours. Conference and practical exercise covering planning, procedure, air movement forms, determination of aircraft requirements. 50¢.

Preparation and Conduct of a Field Exercise, Rifle Platoon in the Attack, 7251-USAR, 7 hours. A conference on the preparation of field exercises for small units; planning and preparing a field exercise, rifle platoon in the attack. 35¢.

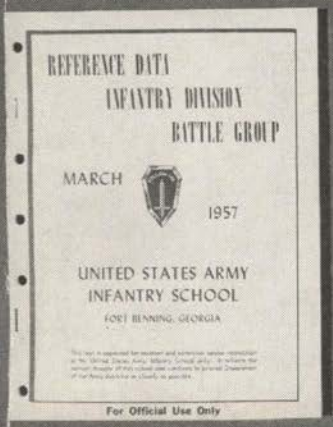
First Aid, 7723-USAR, 2 hours. Conference and demonstration during which the principles of first aid are discussed with emphasis on the control of hemorrhage and the recognition and treatment of fractures. Special wounds and injuries which arise from military situations are discussed. 20¢.

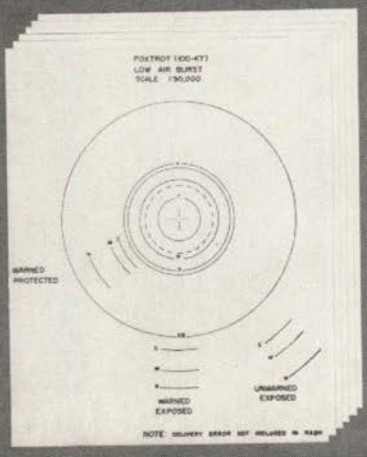
Medical Aspects of Atomic Explosions, 7735-USAR, 1 hour. Conference covering a hypothetical situation depicting casualty information from the use of a nominal mass destruction weapon and the effects of heat (thermal), blast, and radiation on the human body; the psychological effect of the weapon upon personnel and the relation to the medical service; first aid requirements for the individual; the treatment required for each effect of the weapon and the overall effect on the medical service to include treatment, evacuation and medical supply. 10¢.



swagger sticks The smart officer carries the traditional swagger stick. The Book Department has several models: D. Sterling-tipped rosewood, $14.95; E. Brass-tipped walnut, $8.35; F. Chrome-tipped hickory, $5.25; G. Leather-covered wood, $3.05. Miniature insignia are available for the hickory and leather sticks at $ .50 each. Your name can be engraved on metal-tipped sticks for $ .05 per letter. All prices include mailing.

data and templates *Reference Data* for the pentomic Infantry division battle group is now available. This text contains tables of organization, charts, reference data and other valuable information. $ .90. Training templates are available for plotting damage and casualty effects on equipment and troops from nuclear air bursts. The templates come in sets of six. Each template shows radii of effects for a different-size weapon. The set for maps 1:50,000 costs $1.40; for 1:25,000, $1.60. All prices include mailing.





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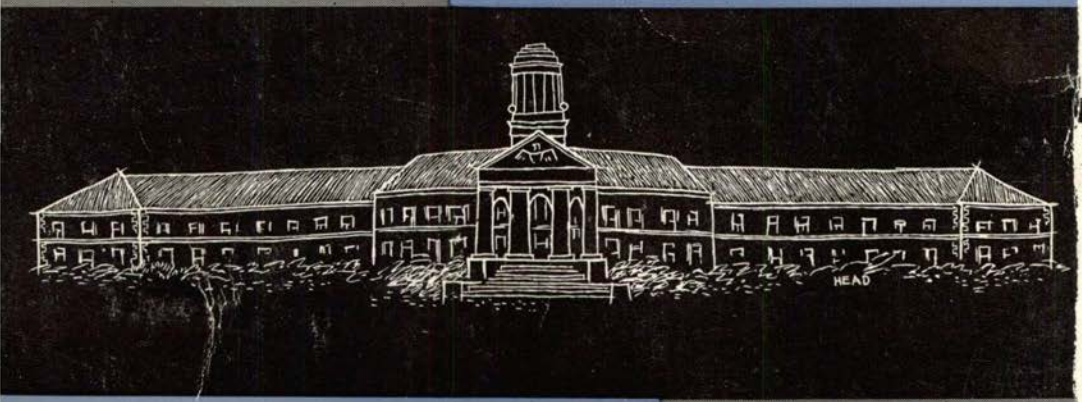


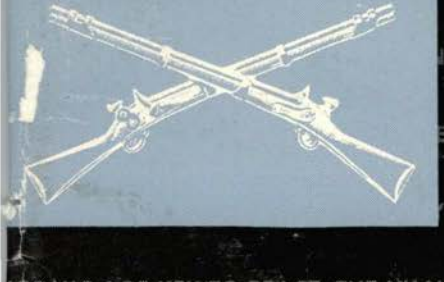
In this issue:

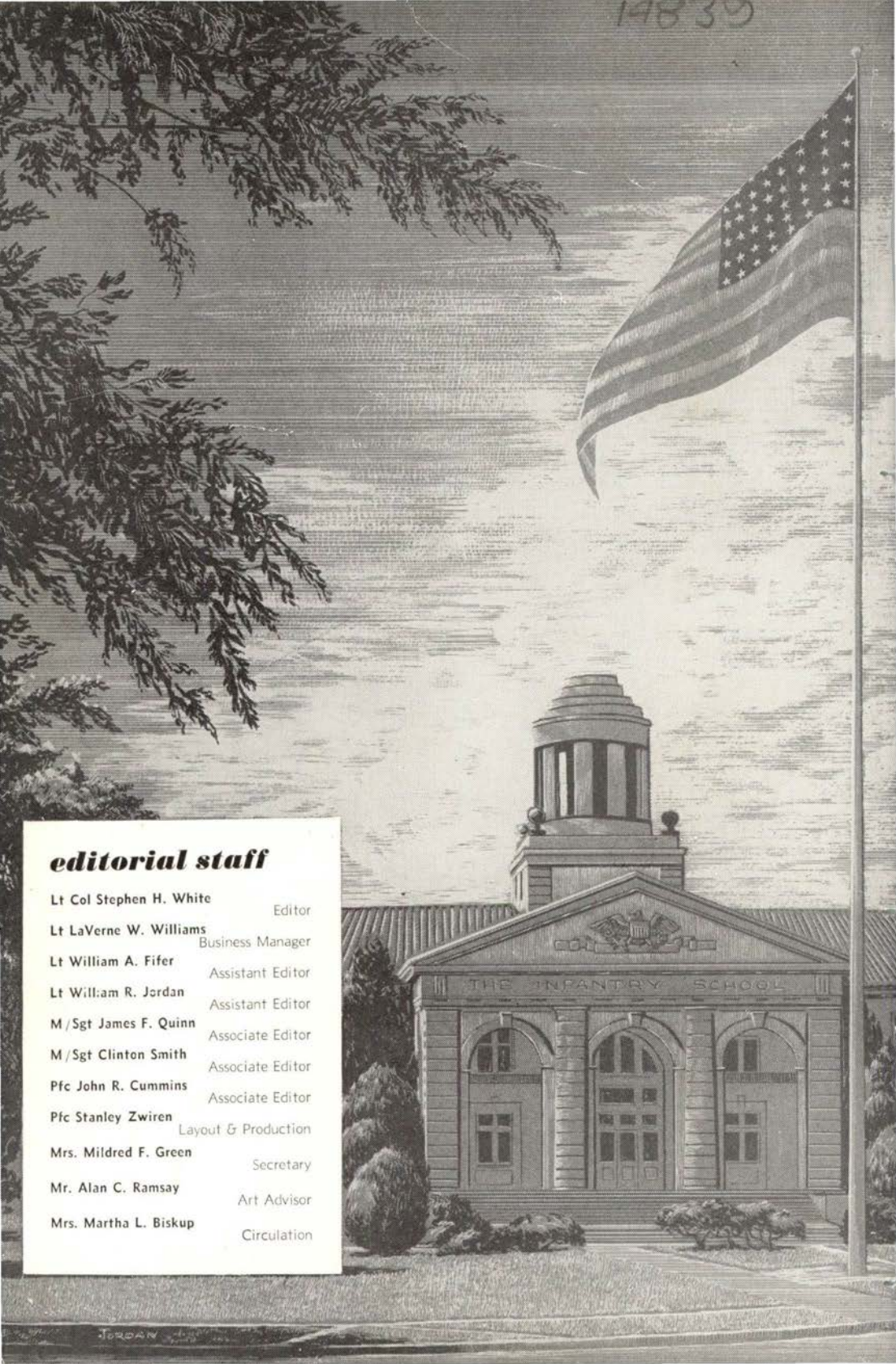
- **The Pentomic Infantry Division**
  Tactics . Firepower . Mobility
- **Parachuting from Army Aircraft**
- **Evasion and Escape - Part II**
- **Preventive Maintenance Indicators**
- **Ground Navigation**
- **Survival**
- **Tips for ROTC Cadets**
- **Decision**

Infantry

the magazine for infantrymen

october 1957





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Infantry

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articles

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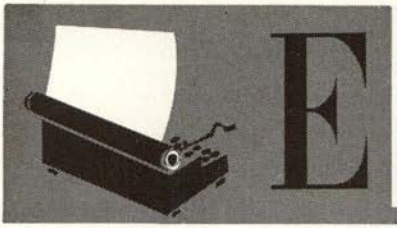


EDITOR'S PAGE

DEAR READER:

Spectacular technological advances and dramatic theories, claims and counterclaims concerning the military forces required for success in any future war sometimes seem to obscure the primacy of Infantry as the conclusive element in combat. However, this vital capability of the Infantry is ever present and must not be lost sight of by the public or by the other arms and services that support the Infantry. The Infantry always has been and still is the dominant combat force in the Army and the instrument of ultimate decision in any kind of warfare. Secretary of the Army Wilber M. Brucker has pointed out that, "The final decision in any conflict must be obtained where man lives—on the ground. No technological advance has changed that." The Infantry, more than any other arm, has the versatility, flexibility and experience to utilize and exploit, in any combination, the support of all technological developments and all supporting arms and services to achieve victory at any specific point, at any precise moment and under any condition of conflict. The Infantry of today is a different kind of Infantry from that we have known in the past. While it retains its capability of decisiveness in conventional warfare, it is designed to live and to destroy the enemy on the atomic battlefield. With armor-protected carriers that will "swim" and that can be airlifted, the Infantry is the most mobile force in the Army today. It can move over land and water or through and from the air to apply the exact amount of decisive force required, anywhere in the world. Every Infantryman, in thought, action and bearing, must reflect this dominant role of which he is a part.

THE EDITOR

This is the Army's new Hawk, a missile system which is lethal to low-flying aircraft at long ranges. Coupled with the Nike system, it beefs up our antiaircraft defenses. **See page 105.**


US ARMY

LETTERS TO THE EDITOR

Wants Pentomic Details

Sir:

I have recently sent in my renewal for *Infantry,* a publication I wouldn't miss. I am going to make a concerted effort to get every officer and EM in my National Guard unit to subscribe. I believe it should be a must on the reading list for every Infantryman whether on active duty, in the National Guard or in the Reserves.

Inasmuch as there has been quite a bit published in narrative form concerning the new pentomic division and the battle group, I would like to suggest that *Infantry* publish one of the new TOEs for the various groups. I would like to see a detailed breakdown showing ranks, weapons, compositions of teams, etc., for the new rifle companies, headquarters and headquarters company and mortar battery. We all "hear so much but actually know so little" and since the actual TOEs won't be out and available to units for some time, I think you would be doing all National Guard and Reserve units a big favor by doing so. . . .

John J. Arkels
Captain, Infantry, ALASNG
Fairbanks, Alaska

All TOEs for the new pentomic Infantry division are still classified "For Official Use Only" and cannot be published in Infantry. *The TOEs are being distributed on a need-to-know basis to units presently undergoing reorganization. Until such time as they are given Army-wide distribution,* Infantry *will present all releasable information on organization, weapons and tactics, for the battle group and lower units. For the answers to many of your questions, see the packages of articles on the new division in the July and October issues.—Editor.*

Foreign Subscribers Benefit

Sir:

I subscribed to *Infantry* last year through La bibliothèque du Ministère de la Défense Nationale, Brussels.

I am now serving in the Third Battalion, Parachutist Commando, Kamina-Base II, Belgian Congo, and would like to renew my subscription to *Infantry* personally, if possible. I would like to receive also the binder. . . .

I will not finish this note without taking the opportunity to tell you how much I have enjoyed reading *Infantry*. In my opinion and to my knowledge it is the most interesting contemporary military magazine. It is "a necessity" for every Infantry officer who wants to be up-to-date.

H. J. G. Depoorter
Kamina-Base II
Belgian Congo

We are always pleased to hear that Infantry *is interesting to Infantrymen of other countries. Military personnel of free world nations may subscribe to* Infantry *by writing to The Book Department, U. S. Army Infantry School, Ft. Benning, Georgia.—Editor.*

Instruction Aid

Dear Sir:

I enclose payment for the renewal of my subscription and also express my desire to take the permanent plan.

After my graduation from O.C.S. (National Guard Class #1) at Fort Benning I was appointed a second lieutenant in the Puerto Rico National Guard. I have made a great deal of use of the up-to-date information in *Infantry* in the preparation of instruction. . . . For example I used the January 1957 issue to prepare a combat training drill for summer camp. . . . I would say that *Infantry* is the best supplement to old or new manuals that I have ever seen. I am making arrangements in my company to have every NCO subscribe to *Infantry*. Some of them are already acquainted with the magazine and some have expressed to me the desire of becoming subscribers. . . .

Sergio Hugo Charon
2nd Lt, C.E., P.R.N.G.

We hope that other National Guard officers, and reserve officers too, will encourage their noncommissioned officers to subscribe to Infantry. *We will always endeavor to provide information that will be helpful in your training.—Editor.*

Winning Team

Sir:

I feel that *Infantry* magazine is one of the finest military publications of today. Although I am an artillery officer with much pride in my branch, I realize that the combined arms team, properly employed, leads to success in combat. Today's army officer, both regular and reserve, must be a specialist in his field and also must be versatile to the point of understanding the problems confronting the other branches of the service. Since the ground-gaining arm, assisted by the fire support element, is a winning team, the sooner I understand the Infantryman's problems the sooner I will become a fully qualified artillery officer. . . .

John Pearson
1st Lt, Artillery, INDNG
Indianapolis, Ind.

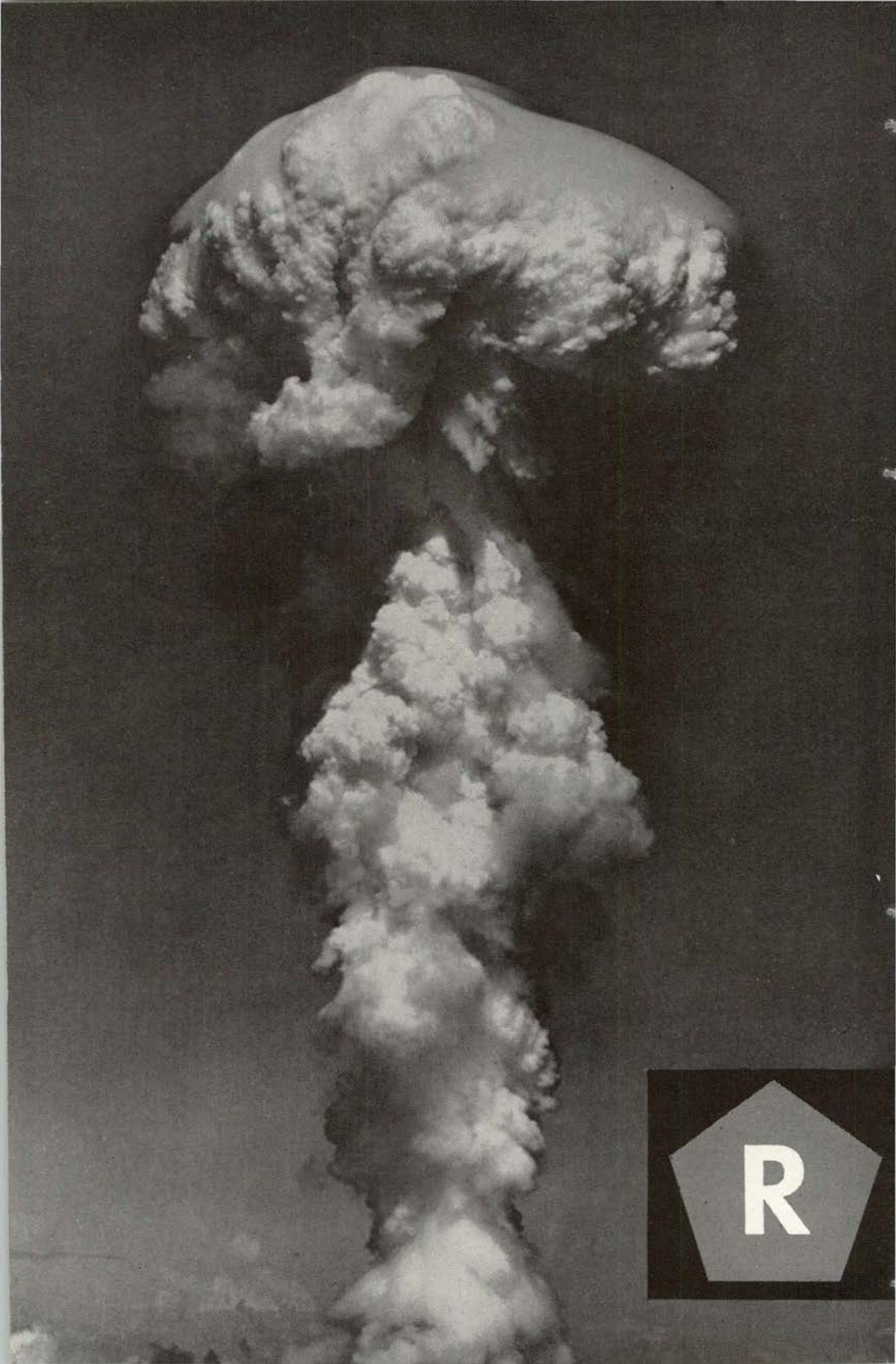
One of the primary purposes of Infantry *is to assist active army, National Guard and reserve officers and non-commissioned officers of all brances to keep up with the organization, tactics and techniques of the Infantry. This will help to insure the teamwork needed when the chips are down.—Editor.*

Battle Drill

Sir:

Here at Fort Ord we have started to teach "Battle Drill" to our basic trainees. . . . There seems to be a difference of opinion on the actions of the maneuver element in a problem we have set up for teaching *maneuver left.* The terrain in the problem area is such that there is concealment all the way up to the assault line. We have manzanita brush over waist high. One opinion is that the maneuver element should advance in a series of rushes or by crawling, without firing, until the assault line is reached. The other opinion is that the maneuver element should advance with two men rushing and three men firing and vice-versa. The argument in this particular case is whether the men should fire while advancing or move up to the assault line before taking up the fire. I talked to the men who were acting as the aggressor. They said they couldn't spot the maneuver element until the men raised up to fire. When they did raise up the aggressor could keep track of how close they were getting to the objective. I contend that if the maneuver element can get up to the assault line without firing, terrain permitting, it should not fire. The principal job is to get up to the objective while the support element keeps the

Continued on page 102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WHY FIVE? PART III

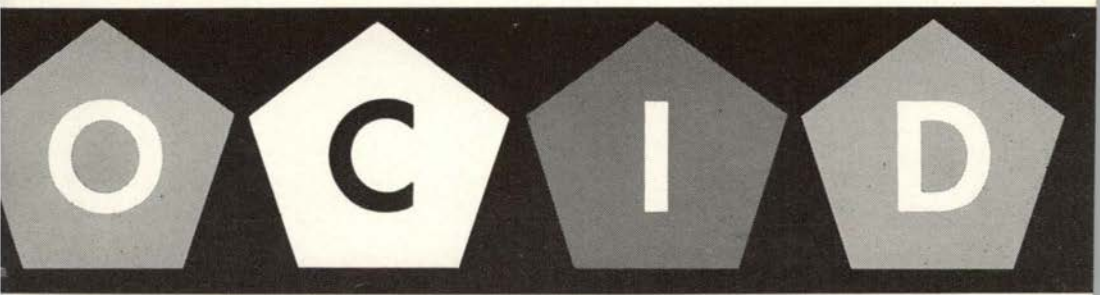
This is a continuation of the "package" of related articles on the new pentomic

INFANTRY DIVISION

The two past issues of *Infantry* discussed basic organization, offensive tactics, firepower and mobility, both air and ground, for the pentomic Infantry division. In this issue we continue the "package" of material on the new division with articles on defensive tactics for the battle group and rifle company, communications and medical support.

To review briefly the highlights of previous discussions for the reader who may have missed them, here are a few of the important changes which have taken place in the Infantry division. Total strength of the division has been cut from 17,460 men to 13,748; yet, the foxhole (riflemen in squads) strength has been increased by more than 450 men. Instead of three regiments, the pentomic division has five battle groups, each of which is composed of 1427 officers and men. The battle group has a headquarters and headquarters company, four rifle companies and a field artillery heavy mortar battery. The division artillery has an atomic capability. There is no organic antiaircraft unit. All logistical and administrative support units are grouped under a new division trains headquarters. For other changes see the organization chart, Figure 1.

Reorganization of the division requires many major revisions in tactics. The division is designed to conduct operations in active atomic warfare or under conditions in which the threat of atomic warfare exists. The tactical mission of the new battle group and rifle company is the same as that for the regiment and rifle company of the triangular division: *"To close with and destroy or capture the enemy"*. Dispersion, mobility and atomic fire support become important tactical considerations. It is necessary to



consider tactics for both mounted and dismounted operations.

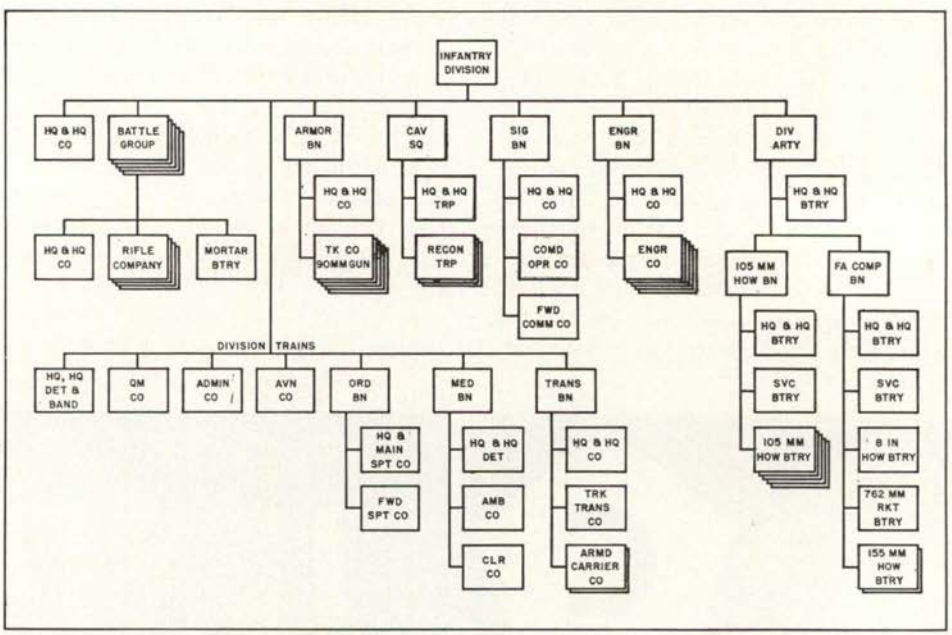
Over-all firepower of the division has been increased. The 60mm mortars and 57mm rifles in the rifle company of the triangular division have been dropped but in their place there are three 81mm mortars and two 106mm rifles. The new rifle company has eight M-1919A6 machineguns and 12 rocket launchers. In addition, there are 453 more riflemen in the squads of the pentomic division — 51 more in the new rifle company. New weapons recently adopted include the M-14 and M-15 rifles and the M-60 machinegun.

Ground mobility in the pentomic Infantry division has been increased even though there are fewer vehicles than in the old triangular division. This has been accomplished by the 22% reduction in personnel strength in the new division, the functional assignment of vehicles on a "need" basis and by the pooling of vehicles for centralized control. Further, the division now has a transportation battalion, composed of a truck transport company and two armored carrier companies.

Air mobility has also been increased, giving the new division greater capabilities in the concentration and dispersal of combat forces. Organic aviation has been increased from 26 to 50 fixed and rotary wing aircraft, located in a new aviation company.

This series of related articles on the pentomic Infantry division is scheduled for completion in the January issue of *Infantry*. However, future issues will continue to discuss various aspects of the division with articles on the tactical employment of small units, supporting fires, logistics, organizational changes and modifications in concepts. *Infantry* readers will continue to receive up-to-date and accurate information on the new division as rapidly as it becomes available for publication.

Figure 1. The new Infantry division



ROCID

Tactics-Defense

PENTOMIC INFANTRY DIVISION

By Lt Col James W. Hungate

Defensive operations on the atomic battlefield are characterized by flexibility, dispersion and the necessity for defensive localities disposed in great depth. The defensive localities occupied by and within the battle group may be linear or circular in nature; in either case, provision will be made to reduce, to the minimum, vulnerabilities to enemy atomic weapons through maximum dispersal, and provision will be made for all-around defense of defensive localities. With atomic weapons in his own arsenal, the defender can take advantage of every opportunity—and create opportunities—to regain the initiative. Defensive operations must be conducted aggressively to destroy the enemy and maintain high morale. Nuclear weapons give the commander a greater capability to utilize the offensive to accomplish his defensive mission.

Enemy atomic capability favors broad and deep dispersion of a defending unit, but the dispersion must not jeopardize accomplishment of the defensive mission.

Lt Col James W. Hungate received a direct commission in 1942 and served in the Pacific Theater. He accepted a regular commission in 1947 and became an instructor at the Infantry School. He then spent two years as a student at the Infantry School and the Command and General Staff College. Following a three-year tour of duty in Austria, he returned to his alma mater, Washington State College, as an instructor. In 1955 he went to Korea where he commanded a battalion in the 7th Division. Later he became commandant, I U. S. Corps NCO Academy. Last September, Col Hungate returned to the Infantry School where he is chairman, Battle Group Committee, Tactical Department.

Dispersion also increases problems of surveillance and in controlling the large area assigned.

With atomic weapons at his disposal, the defender must attempt to force the enemy to mass or concentrate into an atomic target either forward of or within the defensive position. At the same time all precautions, both active and passive, must be taken to protect defending troops —who, by the very nature of defense, are more static than in the offense. These measures include camouflage and concealment, barriers, dummy positions and other deceptive measures realistic enough to make the enemy expend his atomic fires on false positions. All positions must be dug in as time permits, and underground shelters as well as overhead protection for emplacements are constructed whenever possible.

Dispersion, the resultant gaps between units, the enemy's use of atomic weapons, and the threat of airborne, guerilla and infiltration action increase the importance of all-around defense at all levels.

Some of the basic concepts in defense under atomic conditions are:

Defense in depth is designed to prevent the enemy from gaining free access to rear areas after breaching forward positions.

Attached or organic transportation means, i.e., armored personnel carriers or trucks, greatly increase a unit's effectiveness either in a forward-echelon role or in a reserve role.

Under certain circumstances the commander may find it necessary to adopt a linear-type disposition of forces in the forward defense area. When this occurs, such forces retain only an extremely limited capability to stop hostile troops short of a specific line or area and are most profitably employed to slow, delay or disorganize the enemy.

Great emphasis is placed on rapid reorganization. After an enemy atomic strike, the success of the defense may well depend on the speed with which the defending forces are reorganized and disposed to destroy the enemy or contain his attack.

The eight fundamentals of defense—utilization of the terrain, security, mutual support, all-around defense, defense in depth, coordinated fire planning, coordinated barrier planning and flexibility —are as valid in atomic warfare as they have been in the past. There may be some variation in emphasis on any one or several of these fundamentals in any given situation.

Two additional considerations in atomic warfare are of such importance that they may be added to the fundamentals of defense.

One has been termed *maximum use of offensive action*. The defender must possess an aggressive desire for offensive action and troops must be psychologically conditioned to change without hesitation from the defense to the offense. The counterattack supported with atomic fire is the means by which the defender may most frequently accomplish his mission.

The other has been mentioned already:

Figure 1. Types and variations of defense.

maximum dispersion consistent with the performance of the mission. This probably will be the commander's most difficult decision when assuming the defensive—how to dispose his troops to gain some protection from enemy atomic strikes and yet retain sufficient strength to deny the enemy the opportunity to defeat his command in detail. If the commander is forced to concentrate to a degree which would present a likely atomic target, he must increase his efforts, both passive and active, to deny the enemy intelligence of his unit's location.

Commanders at division, corps or army level have two basic types of defense which they may prescribe: position defense or mobile defense. Mobile defense is a fluid defense where forward areas are lightly held by forces which block, impede or canalize the enemy while the bulk of the command is held in reserve to be used in offensive action. Principal reliance is placed on bold and vigorous offensive operations within the over-all depth of the position to destroy the enemy. Position defense is a more compact defense in which the battle area is organized into a series of mutually supporting positions. A majority of forces are positioned forward, with smaller reserves withheld which may be utilized either to block enemy penetrations or to counterattack when the enemy penetration has been slowed or stopped. Decisive combat is planned to take place in front of or within the forward battle group positions.

These two types lie at opposite ends of a scale with a wide range of variations between (Figure 1). It is important in the defense that rigid patterns or rigid types of ground organization be avoided as they may cause failure of the mission.

Since no unit smaller than a division has the capability of conducting all aspects of a mobile defense, forward battle groups in divisions fighting either a position or mobile defense along the forward edge of the battle area (FEBA)[1] will be disposed in some variation of a position defense.

It may be assumed that battle groups occupying the FEBA of a division conducting position defense will generally have narrower fronts than forward battle groups of a division conducting the mobile defense. This variation in frontage will affect the battle group commander's decision as to disposition of his troops on the ground, as well as their subsequent actions within the defensive sector once the enemy has committed his attacking force.

Defense, regardless of type, consists of three echelons: the forward forces, which engage the enemy in decisive combat or stop, slow, canalize or disorganize him; the security echelon, which provides early warning of the enemy advance and delays and deceives him as to the true location of the battle position; and the reserves, which are designed to limit penetrations and to destroy or eject the enemy by counterattack. The battle group may be utilized in any one of these three echelons. In this article only the various dispositions of the forward battle groups will be discussed.

[1]This term replaces "main line of resistance" (MLR).

Battle Group

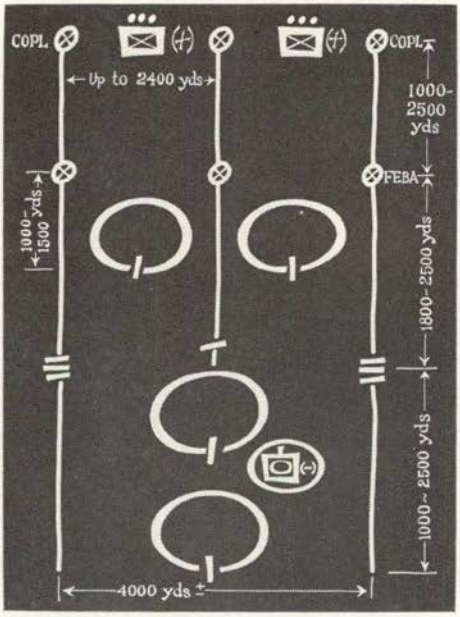
By Lt Col James W. Hungate TACTICS FOR DEFENSE

Note: The guide figures for frontages and depths in the text and illustrations of this article are considered desirable in view of weapons and equipment currently available. However, anticipated future conditions undoubtedly will result in a substantial increase in the scale of limits for deployment of the pentomic Infantry division, battle group and rifle company. Anyone concerned with the employment of these new units must habitually think in terms of wider frontages and greater depths than those which are considered normal.—Editor.

We are now ready to look at tactics for the battle group in defense. As a guide, the battle group normally executes the position defense on a 4000 to 6000 yard frontage; however, future conditions undoubtedly will require assignment of larger sectors. Frontages beyond 6000 yards will be discussed under Mobile Defense. Figures 2 and 3 show a battle group in two different schematic diagrams, both utilizing two companies forward and two back. In both instances the frontages are less than 6000 yards and the over-all depth of the battle group is approximately 5000 yards. In Figure 2 the battle group is organized to retain some blocking capacity, and in addition to have a counterattacking capacity utilizing the rearmost company. In Figure 3 the blocking capability has been emphasized rather than the ability to counterattack although a limited counterattack ability may remain. The increased depth of the reserve companies from the front line companies reduces the vulnerability to atomic attack in this disposition.

In Figure 4 the battle group has been assigned a frontage of 6000 yards which in most instances would be beyond the capability of the unit to defend with two companies forward under the concept of a position defense. In such an organiza-

Figure 2. Position defense. Variation 1 (Schematic)



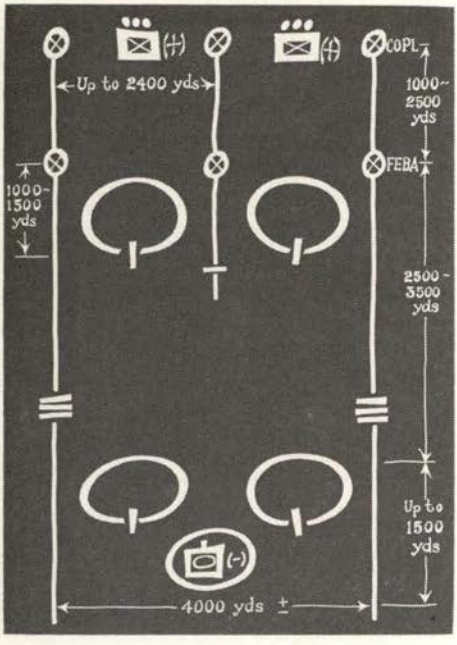
tion of the ground the battle group has considerable dispersion and retains a blocking capability although it has virtually lost any ability to counterattack. While counterattacks would be planned in defensive situations such as depicted in both Figures 3 and 4, it is considered more likely that, other than in exceptional cases, counterattacks would be actually implemented by higher headquarters.

As indicated in the schematic diagrams, the battle group's defensive sector is governed by boundaries and limiting points assigned by the division commander. The battle group commander further subdivides his area according to his plan of defense into company defensive sectors using boundaries and limiting points to define the front line company's areas. Criteria for the selection of boundaries and limiting points are the same as those under current defensive concepts.

Company boundaries are extended forward of the battle area. When the combat outpost is controlled through the battle group reserve commander, the boundary is terminated short of the combat outpost line. When the combat outpost is controlled through the front line company commanders, the boundary is extended through the combat outpost and forward to the limit of effective ground observation. The boundary forward of the battle area assigns the responsibility for an avenue of approach to one unit. Boundaries between forward companies are extended to the rear to provide adequate areas for the companies to organize their defense.

The battle group commander assigns frontages to his forward companies according to the natural defensive strength and importance of their defensive areas in such a manner that the companies have relatively equal defensive tasks (Figures 2, 3 and 4). Companies on exposed flanks usually are assigned narrower frontages than interior companies. Companies should in all instances be assigned sufficient frontage to allow adequate dis-

Figure 3. Position defense. Variation 2 (Schematic)



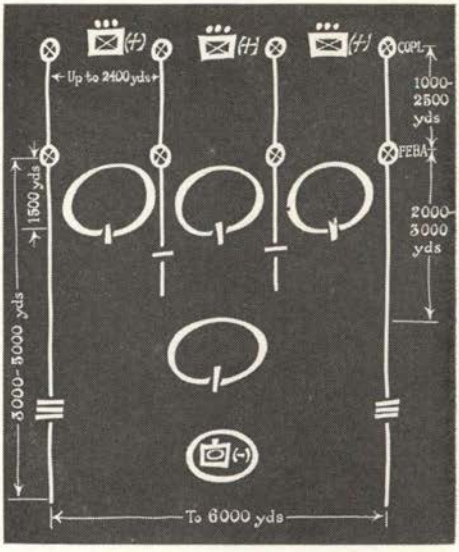


Figure 4. Position defense. Variation 3 (Schematic)

persion for protection against enemy atomic attack.

The battle group commander designates blocking positions in the rear of the battle group sector to be prepared by his reserve company or companies. These positions are located on or protecting critical terrain to block penetrations from the front or flanks. In addition the commander will indicate alternate and supplementary positions to be prepared if time permits. When not occupied in other duties, reserves will normally occupy blocking positions which have the highest priority.

The combat outpost is located in front of the battle area, and is a responsibility of the battle group commander. It is located on the terrain which best provides long-range observation and fields of fire and, ideally, should be 1000 to 2500 yards forward of the FEBA. It has the missions of providing early warning of the advance of the enemy and, by providing a counterreconnaissance screen, of denying him close ground observation of the battle area. It is made as mobile as possible and, when armored personnel carriers and tanks are attached, it has a limited capability of delaying, deceiving and disorganizing the enemy.

The combat outpost in front of each forward company area usually consists of not less than one reinforced rifle platoon with attached tanks when available. It is preferable to have the combat outpost controlled by the front line company commanders. It also is desirable that troops manning the combat outpost come from the front line company. When the strength of the combat outpost must be increased, it may be necessary to take troops from the reserve and attach them to the front line company for combat outpost duty.

In view of the dispersion resulting from atomic warfare and the greater gaps which will be found between units, local security and flank protection have an added importance. Commanders at all echelons must constantly supervise and check the actions of their subordinates to insure that these vital precautions are not overlooked.

Fire support plans, including atomic weapons are closely integrated with other portions of the defense plan. Atomic and nonatomic fires are coordinated to complement and supplement each other. Nonatomic fires are planned for delivery on the enemy if his forces are so dispersed as to render the use of atomic fires uneconomical or if his troops are so close to defending units that the use of atomic fires is unsafe. On-call atomic fires are planned on avenues of approach where it is likely the defender can force the enemy to concentrate. Final protective fires are planned across the front of the battle area. Since the distances make it doubtful that these final protective fires can be continuous and unbroken across the front, particular attention is paid to the most likely avenues of approach. Antitank fires are prepared to cover all armor approaches into the battle area. They are tied in with other types of fires and with the barrier system,[2] and are prepared in depth.

It will be normal for forward battle groups to have a tank company attached. Some of the tanks are employed within the forward companies under battle group control for antitank defense. The remainder are held in reserve to add depth to the antitank defense or participate in counter attacks. Tanks assigned for use on the combat outpost should be taken from the reserve, and revert to the reserve when the combat outpost withdraws.

The mortar battery is normally em-

2A barrier is an integrated series of obstacles (swamps, rivers, thick jungle, demolished bridges, craters, minefields, etc.). A barrier system includes all the integrated barriers pertaining to the operations of a particular unit either in offense or defense.

ployed in general support to facilitate massing of fires in any area of the defensive sector. When possible the mortars are emplaced in the vicinity of a reserve unit for protection. When distances preclude coverage of the entire sector from a battery position, when defilade or covered positions are limited or when elements of the battle group (such as the combat outpost) are beyond supporting distance of the battery position, the mortar battery may be employed by platoons.

In the defense the tanks of the assault gun platoon will thicken and add depth to the battle group's antitank protection. They should be used in general support except when the assault gun platoon (or a section of it) is located in the area of a forward rifle company and is covering a tank approach of primary concern to the company. In this situation they may be attached. When tanks from the division armor battalion are attached to the battle group, the assault gun platoon normally will be positioned in the area of the forward rifle companies.

In atomic warfare, the rapid changes in the situation, frequent exposure of the flanks and wide frontages place increased emphasis on complete reconnaissance of the area. The reconnaissance platoon is the battle group commander's tool for this purpose. Initially the reconnaissance platoon works with the combat outpost either under battle group control or attached to one of the companies manning the combat outpost. It screens forward of the combat outpost and maintains contact with the general outpost. When the general outpost withdraws, the platoon maintains contact with the enemy until he reaches the combat outpost. Upon withdrawal of the combat outpost, the platoon reverts to battle group control and is given any appropriate mission such as maintaining lateral contact, screening a flank or providing rear area protection against airborne, guerilla and infiltration action.

Counterattack plans are made against assumed penetrations which seize or threaten critical terrain. They are implemented when the penetration has been stopped or slowed, and when the counterattack has a reasonable chance of successfully destroying the enemy or ejecting him from the battle area. In general, the same considerations which apply to any limited objective attack are applicable to the counterattack. All available forces, including atomic fires if their use does not threaten friendly troops, are used to support the counterattack.

Reserve battle groups of a division conducting position defense may be assigned the following missions:

Limiting penetrations from blocking positions designated by the division commander.

Occupying flank positions.

Taking part in a division counterattack.

Preparing a rear battle area.

Organizing and occupying the general outpost.

Defending the division rear or portion thereof against airborne attack, guerilla action and infiltration.

When a reserve battle group is a part of a division counterattack force, particularly when the attack is supported by atomic fires, it most likely will have armored personnel carriers attached, and will operate similarly to the mounted operations discussed under offense in the July issue of *Infantry*.

Mobile Defense

When a battle group is occupying a portion of the forward area of a division conducting the mobile defense, a variety of factors, exclusive of the terrain involved, will influence the commander's plan of organization of his battle group sector. These include:

The width and depth (usually greater in both dimensions than in position de-

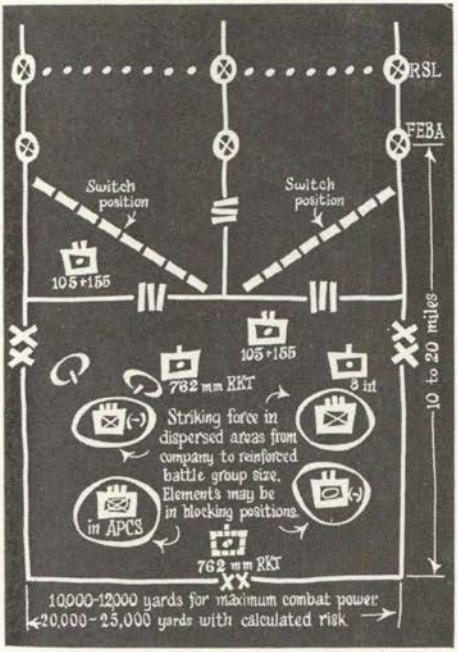


Figure 5. Mobile defense. Variations for organization of the forward battle group areas are shown in Figures 6, 7 and 8. (Schematic)

fense) of his assigned defensive sector.

The over-all plan of the higher commander. The division or higher commander's plan for canalizing the enemy may dictate how the forward battle group's position will be organized, particularly as to subsequent action once the enemy has been engaged. This would apply in particular to the plan of supplemental positions throughout the depth of the defensive sector, and would vary according to the mission assigned the battle group by division.

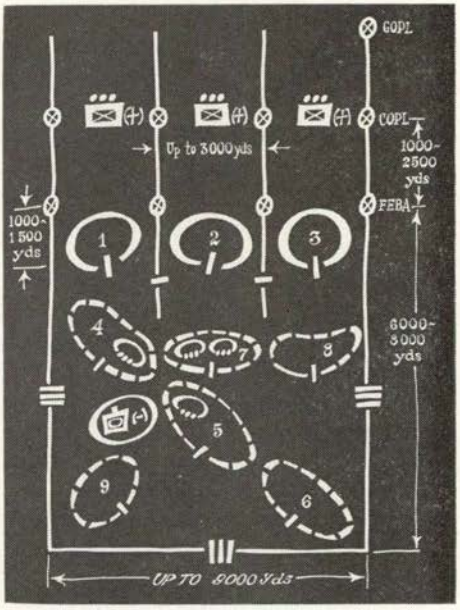
The relative mobility of the battle group compared with the mobility of the enemy. The presence of equal or greater mobility of the battle group as compared with the enemy will influence planned supplemental positions in depth in the defensive sector, as well as the plan of conduct once the enemy has made contact.

In mobile defense the Infantry division may defend on frontages of 10,000 to 12,000 yards. However, the mission, enemy atomic capabilities and battlefield risks may result in the division's conducting the mobile defense on frontages ranging from 20,000 to 25,000 yards. Again, future conditions could require an increase in these figures.

Depth of sectors also will vary greatly. Assignment of a large frontage does not necessarily mean that the front be completely occupied since a company normally will organize for defense not more than approximately 2400 yards of the frontage which it is assigned. Unoccupied areas are controlled by fires, including atomic fires, and security forces.

A schematic diagram of a division conducting the mobile defense with two battle groups forward is shown in Figure 5. If the division front were great, gaps

Figure 6. Mobile defense. Variation 1. Switch positions are included in the plan of organization. The companies physically occupy no more than 1800 yards. Positions are organized between limiting points which are specified by division. Positions 4, 5 and 6 are organized along the switch position as specified by division. Positions 7, 8 and 9 are organized as blocking positions by the battle group commander. (Schematic)



between battle groups might be indicated by the division commander, with these gaps covered by the cavalry squadron organic to the division. Two items in this diagram are of particular interest to the battle group commander. By indicating "switch positions" in his forward battle group areas, the division commander has shown his plan of canalizing the enemy. These switch positions will influence the battle group commander's plan for organization of the ground, and he will include in his plan supplemental positions along this switch position. The switch position normally will be along good defensible terrain.

The second item of interest in the diagram is the RSL or reconnaissance and security line which is shown in front of the forward edge of the battle area.

The RSL performs missions prescribed for the general outpost and combat outposts within its capability. It is used in the extended variation of position defense, in all-around defense and frequently in mobile defense in place of a general outpost. It is used also when the area of responsibility is large. Under atomic warfare conditions, the division may use the RSL more often than a general outpost because of the more extended and multidirectional nature of the defense.

The RSL consists of a series of lateral outposts, road blocks, observation posts and reconnaissance detachments. Forces for the RSL are provided by the front-line battle groups and/or other divisional units.

The RSL usually is controlled by the forward battle groups. Depending on the strength and composition of the reconnaissance and security forces and the terrain, it may be anywhere from 1000 to 4000 yards in front of the forward edge of the battle area.

In Figure 6 a forward battle group is shown schematically with supplemental positions planned for the occupation of

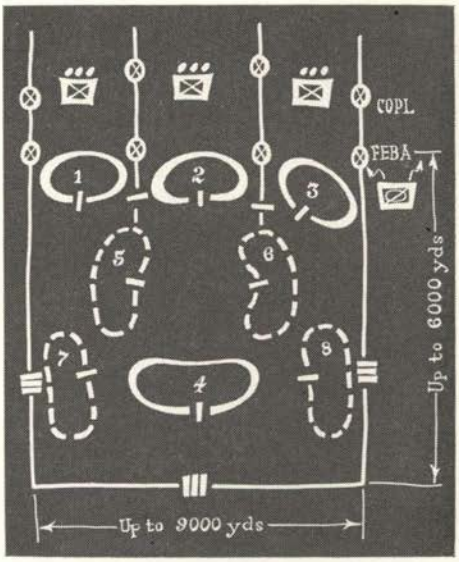


Figure 7. Mobile defense. Variation 2. The battle group is prepared to move into a strong point. The right flank is protected by a reconnaissance unit but may become exposed; the flank is refused. Positions 7 and 8, prepared to extend the flanks, will be occupied by the battle group reserve if required. Position 4 is prepared so it can face to the rear in the event the perimeter is occupied. Positions 5 and 6 are prepared to permit use of the perimeter. (Schematic)

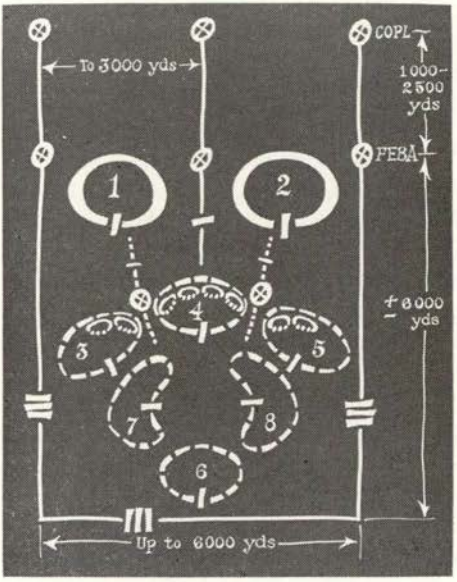
a switch position. The battle group will occupy the sector with three rifle companies forward and one in reserve. Positions shown with solid lines will be occupied (including platoon positions for the reserve company in positions 4, 5 and 7). Numbers within the company positions refer to priority of preparation. Positions 4, 5 and 6 are organized along the switch position. Positions 7, 8 and 9 are blocking positions to be occupied if necessary. To organize, occupy and fight an operation as indicated in Figure 6, the battle group should have mobility equal or superior to that of the enemy.

When the battle group lacks mobility and has exposed or lightly held flanks, it may be unable to plan for movement to switch positions. In addition, if the enemy is mobile, it must face the fact

that it may be outflanked on each side, and eventually surrounded. Figure 7 schematically shows a battle group with three companies up and one in reserve. Positions 1, 2, 3 and 4 are prepared and occupied. Positions 5 and 6 are supplemental positions to protect the flanks, and supplemental positions 7 and 8 are prepared in case the battle group is forced to move into a strongpoint type of defense.

Figure 8 is another variation of a forward battle group of a division in mobile defense. Suitable terrain for delay along the forward edge of the battle position, and suitable strongpoint terrain in the rear of the sector are desirable for this variation. This defense is most effective if the frontage of the battle group does not exceed 6000 yards. The two forward companies in positions 1 and 2 are prepared to fight a delaying action, and as a minimum should have mobility equal to the enemy. The remainder of the battle group constructs supplemental strongpoint positions in the rear of the battle group zone, indicated by positions 4, 6, 7 and 8. In addition, positions 3, 4 and 5 are prepared and occupied to cover the withdrawal of the companies in positions 1 and 2.

Figure 8. Mobile defense. Variation 3. Another formation in which the battle group is prepared to move into a strong point. The forward companies fight a delaying action to the strong point. Positions 3, 4 and 5 constitute positions for the forward companies of the strong point when it is occupied. Position 6 is a reserve position for the strong point. It is constructed so that it can face to the rear if the perimeter is occupied. Positions 7 and 8 are used if it is necessary to occupy a perimeter. They may be occupied simply to reduce a flank. The battle group reserve initially occupies covering positions at 3, 4 and 5 to cover delay of the forward companies. When withdrawal to the strong point is completed, one company occupies position 6. (Schematic)



It should be stressed that the schematic diagrams in Figures 6, 7 and 8 are guides, and that an infinite number of other variations may and should be devised to fit a particular situation and particular terrain. Under all conditions commanders must strive for flexibility, and conduct the defense so that the enemy cannot detect our intentions from previously utilized patterns or repetitions.

A realistic commander must be prepared for any situation. In the fluid type of action anticipated in atomic war, units will frequently find themselves isolated, surrounded or for other reasons forced to be prepared to fight in all directions simultaneously. In such cases, it will be necessary to assume a perimeter defense.

The commander prescribes a perimeter which is as large as possible considering the terrain, mobility of friendly forces, and the availability of fire support, particularly atomic fire support. Vulnerability to enemy atomic weapons will be reduced to the absolute minimum consistent with accomplishment of the mission. Companies on the perimeter should be mutually supporting, and the equivalent of one company or less should be retained as a reserve. If tanks are available they should reinforce the reserve. The perimeter may be organized with three or four companies on the outer circumference.

However, in the latter case the commander must place a string on a portion of one or more companies for his reserve. Because of the length of the circumference, it may be impractical to utilize a combat outpost; in this event a reconnaissance and security line should be employed. Figure 9 is a schematic diagram of a battle group in one type of perimeter.

Rapid reorganization after an enemy atomic strike is so important to successful defense in atomic warfare that it bears re-emphasis and repetition. The defense must be so organized that the loss of any single unit or portion of the battle area will not result in the defense becoming ineffective.

When a company or a major portion of a company located on the forward edge of the battle area is destroyed by an atomic weapon, the battle group commander takes immediate action to restore the position with reserves if the area of induced radiation permits. If induced radiation denies the opportunity to restore the entire position, he reoccupies that portion which is within allowable safety limits. Plans are made to cover the remainder of the sector by observation and fire. When none of the position can be reoccupied, reserves may occupy alternate primary positions, supplementary positions or preplanned blocking positions. If an atomic strike hits an adjacent unit, the battle group commander may have to occupy positions which refuse his flank. Since the enemy probably will exploit his atomic strikes as rapidly as possible, speed in reorganization and preparation to stop his advance is vital.

Nonatomic Warfare

The battle group acting as a forward element of a division in defense under nonatomic warfare conditions will organize and defend its sector in most instances in a manner similar to that discussed under position defense. Gaps between units may be smaller, and the necessity for wide dispersion is lessened when operating only under the threat of use of atomic weapons. Dispositions of companies are similar to those shown in Figures 2, 3 and 4. The battle group defends most effectively on frontages of from 2500 yards in close terrain to 4500 yards in open terrain; however, assigned missions will often require defense of appreciably greater areas and improved nonatomic firepower and mobility means will enable battle groups to defend larger areas successfully. On these frontages, the battle group retains both a blocking and a counterattacking capability. The depth of a battle group sector in nonatomic defense should seldom exceed 4000 yards.

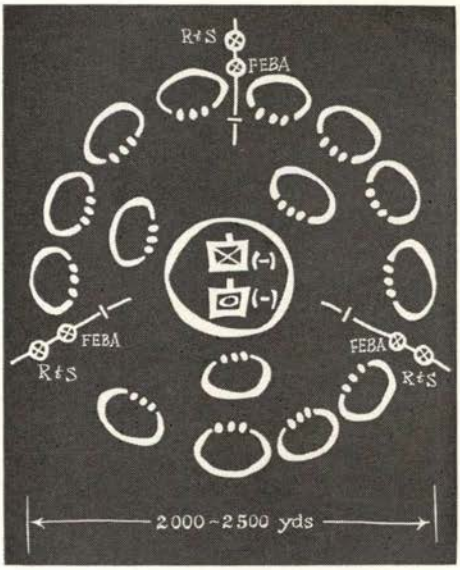


Figure 9. Perimeter Defense. Three companies forward. (Schematic)

While it will not be as normal for a pentomic Infantry division to conduct a mobile defense in nonatomic warfare as it is in atomic warfare, the operation of the front line battle group in mobile defense will be essentially the same as in the mobile defense previously discussed.

Rifle Company

By Capt Thomas H. Jones TACTICS FOR DEFENSE

Note: The guide figures for frontages and depths in the text and illustrations of this article are considered desirable in view of weapons and equipment currently available. However, anticipated future conditions undoubtedly will result in a substantial increase in the scale of limits for deployment of the pentomic Infantry division, battle group and rifle company. Anyone concerned with the employment of these new units must habitually think in terms of wider frontages and greater depths than those which are considered normal.—Editor.

The same fundamentals that were considered in battle group defense apply to the pentomic rifle company. If anything, their application becomes more vital at this level where the Infantryman physically organizes and defends the forward edge of the battle area (FEBA).

Normally, in atomic warfare, it is desirable that the rifle company be assigned frontages which do not exceed 2400 yards to defend and frontages which do not exceed 3000 yards to organize for delay. However, anticipated future conditions undoubtedly will result in a substantial increase in these figures. While extended frontages will provide dispersion against atomic attack, they also require skillful fitting of men and weapons to the ground to cover enemy approaches and to protect critical terrain.

Maximum use must be made of natural and artificial barriers. The need for cover and concealment to guard against the effective use of enemy atomic weapons frequently conflicts with the need for long range observation and fields of fire required to cover these frontages. Once the primary positions have been organized making maximum use of the terrain, the troops may be kept in dispersed assembly areas, used for security missions, or used for the construction of blocking, switch, supplementary and dummy positions until enemy action forces the complete occupation of the primary positions.

Dispersion has other effects on organization of the defense. Separation of platoons or companies reduces the degree of mutual support they can offer each other. Adjacent platoons may provide only partial flank protection. Reserves have wide areas of concern and are consequently less effective in assisting forward units. Under conditions of reduced visibility, redisposition of the company may be necessary to insure effective mutual support. This same dispersion and the fluid nature of the atomic battlefield creates a constant threat of enemy attacks to the flanks and rear. The preparation of supplementary positions and plans for the employment of the company to meet the enemy in any or all directions is vital.

Maximum utilization of offensive action will characterize the defense in the tactics of the pentomic Infantry division. At company level this will normally be expressed through participation in higher echelon maneuvers. The

rifle company itself seldom executes a counterattack. It does, however, participate in counterattacks by battle group and higher echelons, and blocks and canalizes enemy forces to create opportunities for the use and exploitation of atomic weapons. The rifle company, or elements thereof, may participate in task forces, in conducting spoiling attacks in conjunction with the use of atomic weapons and in making reconnaissance in force. Flexibility obtained by use of helicopters and armored personnel carriers will further the utilization of offensive action in conduct of the defense. The company must be prepared to execute any of a number of possible operations initiated by fragmentary orders.

Atomic warfare has placed added emphasis on the coordinated fire plan. The rifle company commander still plans the fires of his organic weapons and requests fires from battle group. However, knowledge of the effects of atomic weapons and considerations concerning their employment is essential. The company commander must insure troop safety by controlling the movement of his men and by ascertaining that individual safety precautions are carried out. While we now have considerable dispersion and gaps between units, we also have weapons of sufficient power to cover the gaps. The company commander may recommend areas for on-call atomic fires, or request atomic fires on targets of opportunity during the conduct of the defense. Nonatomic fires are planned for use against all likely target areas since atomic fires may be unavailable when needed, or targets may appear which would not warrant use of atomic weapons.

The atomic threat emphasizes all passive and active security measures. The need for camouflage and concealment greatly affects the positioning and movement of the company. Movement is restricted and is often accomplished at night or under other conditions of low visibility. The enemy will frequently use night attacks to avoid destruction by atomic weapons; company defenses are planned with this in mind. The reserve platoon may have night positions filling gaps between forward platoons to prevent enemy infiltration. Full use is made of night illumination, infrared equipment, warning devices, listening posts and patrols. The company assists the deception plans of higher headquarters by constructing dummy positions and placing skeleton forces thereon. Protection for supporting weapons, logistical installations, command posts and supply convoys may be provided by the rifle company, particularly when it is part of the reserve. The combat outpost is usually provided and controlled by the forward rifle company. Elements of the company perform reconnaissance and security missions for the battle group to front, flanks and rear, and provide the company's own local security. The preparation of supplementary positions enables the company to meet an enemy threat wherever it occurs.

Position Defense

The decision of the division or higher commander to conduct a position or mobile defense will dictate the deployment of the rifle company. The battle group commander will assign the company a mission and frontage consistent with the type of defense being conducted. The position defense is relatively compact, and is designed to stop the enemy forward of the battle area and eject or destroy him if he penetrates. Desirable frontages will be up to 2400 yards and depths will be 1000 to 1500 yards. However, in the future, the company may be assigned frontages of greater size; in such instances, larger gaps normally will exist between companies. When the company controls the portion of the combat outpost forward of its position, the

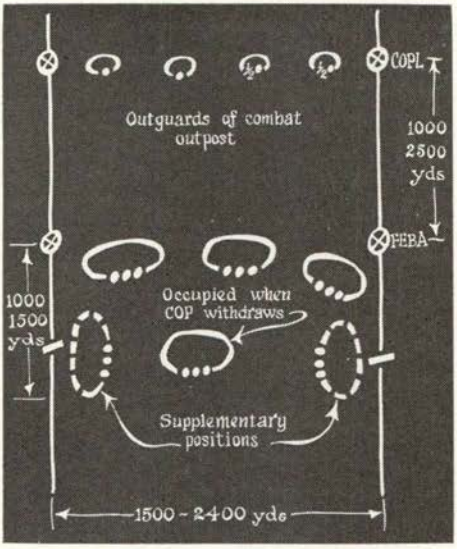


Figure 1. The company in defense. Variation 1. (Schematic)

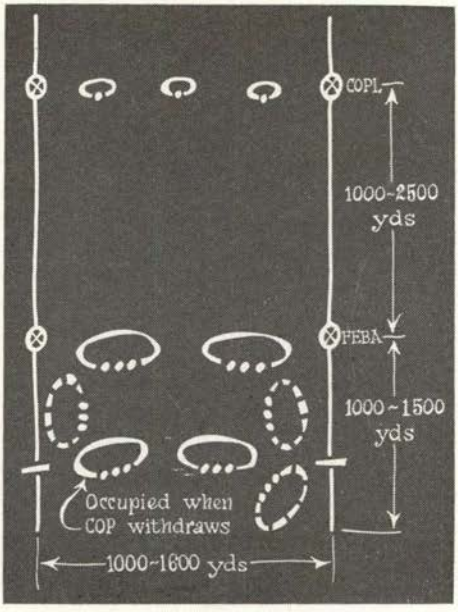
boundary extends to the limit of effective ground observation forward of the COP. As guide figures only, rifle platoons occupy up to 450 yards, defend up to 800 yards and have depths up to 200 yards. The reserve platoon is positioned to fire in gaps, block penetrations and protect the flanks and rear from supplementary positions.

Figures 1 and 2 show likely dispositions for the forward rifle company in the position defense. The company commander bases the disposition of the rifle platoons on the width of the area assigned, critical terrain in the area, observation and fields of fire, cover and concealment, likely enemy avenues of approach, obstacles and enemy capabilities. At times there may be gaps which are ineffectively covered by forward platoon fires; these gaps are covered by organic and supporting fires.

Guide figures for frontages occupied and covered by the rifle company are shown in Figure 3. The "four platoons forward" column in Figure 3 is applicable when the company is given a delaying mission such as might be the case in mobile defense. For effective defense of an area, the rifle company needs at least one platoon in reserve. The disposition shown in Figure 1 affords effective antiatomic dispersion but limits the blocking capability of the company. The disposition depicted in Figure 2 is more vulnerable to atomic weapons but provides an increased blocking capability.

The 81mm mortars of the weapons platoon are usually kept in general support from a centralized position in the company rear area. Supplementary positions are used as necessary to support the combat outpost or take distant areas under fire. Each mortar may be assigned a separate barrage or the three mortar squads may fire a single barrage. The 106mm rifles cover likely tank approaches and are usually kept in general support for greater flexibility. They are frequently employed separately to insure necessary antitank coverage. Supplementary positions are chosen to cover other likely tank approaches. Elements of the battle group's assault gun platoon

Figure 2. The company in defense. Variation 2. (Schematic)



CLOSE TERRAIN			
RIFLE COMPANY	TWO PLATOONS FORWARD	THREE PLATOONS FORWARD	FOUR PLATOONS FORWARD
Occupies	600 yards	900 yards	1200 yards
Occupies and covers	1000 yards	1500 yards	2000 yards

OPEN TERRAIN			
RIFLE COMPANY	TWO PLATOONS FORWARD	THREE PLATOONS FORWARD	FOUR PLATOONS FORWARD
Occupies	900 yards	1400 yards	1800 yards
Occupies and covers	1600 yards	2400 yards	3000 yards

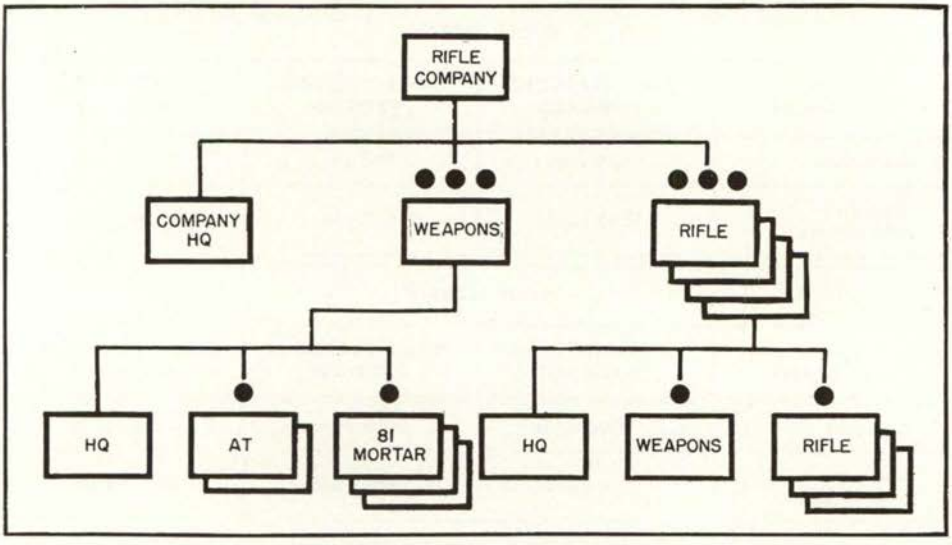
Figure 3. Guide figures for rifle company frontages in the defense.

may be employed in the company area for antitank purposes; coordination is effected between the weapons platoon leader and these elements.

A section or platoon of tanks may be attached to the company for use on the combat outpost, but will frequently revert to battle group reserve for counterattack use when the combat outpost withdraws. Tanks may be attached to or employed in the area of forward companies for AT protection. Armored personnel carriers also may be provided for use with the combat outpost to provide mobility, firepower and light armor protection. The APCs will often revert to battle group reserve upon withdrawal of the combat outpost.

At least a reinforced platoon, usually provided from the reserve of the forward company for better control and coordination, mans the portion of the COP forward of each company. If no reserve is available, or additional COP strength is desired, the platoon guarding the least dangerous avenue of enemy approach is used on the COP. The combat outpost is positioned on terrain providing long-range observation and fields of fire and good routes of withdrawal. It is located, as a guide figure, 1000 to 2500 yards forward of the battle area. This combat outpost consists of a series of outguards disposed laterally across the front. These outguards normally range in size from a fire team to a reinforced squad. The primary mission of the COP is to provide early warning and deny the enemy close ground observation of the battle area. Within its capabilities it also delays, disorganizes and deceives the enemy, and may recommend the use of atomic weapons if suitable targets appear. The COP avoids close combat with the enemy and withdraws on order or in accordance with previous instructions. The battle group commander must approve the withdrawal of the COP.

The rifle companies in battle group reserve prepare blocking positions to counter enemy penetrations to the front, flank or rear; perform reconnaissance and security missions for the battle group; and participate as part of the maneuvering force in counterattacks. They also may construct dummy positions as part of the deception plan. The rifle platoons work on these positions in



Organization of the rifle company.[1]

the priority described by the battle group commander. Platoons remain well dispersed during this construction. When not working on positions they may remain in concealed assembly areas near their primary positions or perform rear area surveillance.

The 81mm mortars of the reserve company are positioned in a centralized location near a primary position of a rifle platoon of the reserve company. The mortars participate in fires forward of and within the battle area. Supplementary positions are chosen to enable the mortars to fire well forward of the FEBA and to support the reserve company when it occupies various combinations of blocking positions. The 106mm rifles occupy positions in or near rifle platoon primary positions and cover dangerous tank approaches into the rear area. Supplementary positions are chosen in or near other rifle platoon blocking positions to cover additional tank approaches. The positioning of the 106mm rifles is coordinated with tanks and other antitank weapons in the area. The antitank squads are usually employed singly because of the reserve company's wide area of concern.

The reserve company occasionally may provide the combat outpost or may attach elements to the forward companies for use with the combat outpost. These elements return to the reserve company upon withdrawal of the COP.

The reserve company may have tanks and armored personnel carriers attached. The tanks participate in any counterattacks and are used to extend the depth of the antitank protection of the battle group or to protect the flanks until a counterattack is imminent. The use of armored personnel carriers, particularly in conjunction with tank support, greatly increases the mobility, firepower and shock action of the reserve company in a counterattack and provides a rapid means for moving to blocking positions.

The battle group commander formulates counterattack plans to eject or destroy possible enemy penetrations. The reserve company commander assists in this planning; reconnoiters the routes and objective areas; and coordinates with

1. When this organization chart was first published on page 22, July 1957 issue of *Infantry*, only one antitank squad and one 81mm mortar squad were shown in the weapons platoon. This was an artist's error.

attachments, fire support agencies, other components of the maneuvering force and blocking units. The company commander avoids concentration of the company and attachments, and plans a smooth, continuous movement of the dispersed platoons into the desired attack formation to effect a timely and coordinated launching of the attack. Atomic and nonatomic fires support the counterattack.

The reserve companies may act as a covering force for the daylight withdrawal of forward companies. Primary or other blocking positions may be suitable for the performance of this mission; if not, additional positions must be planned and prepared for this purpose.

The rifle company as part of a reserve battle group is concerned principally with the preparation of blocking positions and the planning for and participation in counterattacks. The company remains dispersed, working on widely separated positions or performing reconnaissance and security missions. The company may be part of the general outpost of the division, or it may act as a ready force to combat enemy guerillas or airborne forces.

Mobile Defense

The mobile defense is a fluid defense initiated by division or higher echelons. Forward areas are held by forces which attempt to block or canalize the enemy. The larger portion of the force is held in reserve to be used in offensive action. Decisive combat usually occurs within the battle area. This type of defense, with its dispersion and flexibility, is better suited to atomic war; but a high degree of mobility is required, particularly if the enemy has the same capability.

The same general principles and techniques discussed for the rifle company in position defense are applicable to the mobile defense. There are, however, certain variations in the actions of the company in this type of defense that need amplification: notably, the preparation of and possible withdrawal to switch and blocking positions. Forward companies also may be organized for delay. Figure 6 of Battle Group Defense (page 16) shows a typical mobile defense.

In this type of defense, the forward company may organize to hold key terrain or to delay. Certain terrain, particularly that which is essential to the successful execution of counterattack plans, may be tenaciously defended as in the position defense, and is organized as in position defense. The forward company also may deploy to delay and disorganize the enemy and cause him to mass into lucrative atomic targets, then withdraw to switch or blocking positions. For delay, platoon positions providing long-range fields of fire and good routes of withdrawal are chosen; these positions are often near topographical crests. A company given a delaying mission may have a frontage requiring the use of four platoons on line.

The bulk of tank support is held in reserve in the mobile defense for counterattack purposes. However, tanks may be attached to a forward company for use with the COP and to provide antitank protection. To conduct the stubborn delaying actions required by this defense, mobility is required, particularly if the enemy is highly mobile. The forward company frequently has armored personnel carriers attached to provide complete or partial mobility. The COP has priority for the use of these vehicles.

If the company has only partial APC mobility, the reserve platoon has priority for the use of APCs following the COP withdrawal. If no reserve platoon is used, the platoons covering the most dangerous avenues of enemy approach normally receive the APCs, providing the terrain permits efficient utilization of these vehicles. APCs remain in concealed

Capt Thomas H. Jones enlisted in the Army in 1943 and was an intelligence scout with the 78th Infantry Division in Europe. He received an OC commission at Fort Benning in 1945 and was a reconnaissance platoon leader and company commander with the 1st Cavalry Division in Korea. In 1952 he served in the G3 Section, OCAFF, and then completed the advanced course at the Infantry School. Next he served with the military advisory group to Saudi Arabia. Capt Jones is now in the Tactical Department, the Infantry School.

hull-defilade positions near the squad, command group or other group which they are assigned to carry. Fires of the APC mounted .50-caliber machineguns are used to reinforce fires forward of the battle area or to protect flanks and rear. At night, APCs may be moved within squad areas for protection, more effective utilization of their fires and speed in loading.

The forward company plans day and night withdrawals to blocking and switch positions which they may have to occupy. Routes to these positions and the positions themselves are carefully reconnoitered by key leaders. Composition and location of the covering force for a daylight withdrawal and the detachments left in contact for a night withdrawal are determined. The company withdraws only on order from higher headquarters. Atomic weapons may be used to assist withdrawing units.

The reserve company in a mobile defense prepares blocking, switch and dummy positions in the priority assigned by battle group; performs reconnaissance and security missions; and prepares to participate in counterattacks. Primary platoon positions disposed across the battle group rear area, are selected to block shallow penetrations and cover the withdrawal of forward companies. The reserve company is prepared to take over the mission of a forward company or occupy company-size blocking or switch positions. As compared with a reserve company in position defense, the reserve company in mobile defense has a larger number of positions to prepare, is less likely to counterattack and places increased emphasis on its role as a covering force for daylight withdrawals. The great frontage and depth of the battle group in mobile defense increases the reconnaissance and security requirements of the reserve company and requires greater dispersion and mobility.

In attack or defense, if the company or a portion of it is struck by enemy atomic weapons, surviving leaders take charge in accordance with the established chain of command. Battle group is informed of the extent of the damage and, if able to do so, the company continues on its mission. If the company is too badly shattered to perform its mission, another company is assigned the mission and surviving members of the stricken company are attached to other units, held back for reorganization or sent to replacement agencies for later reassignment.

The fluid nature of the tactics described, the large areas over which the company operates and the size and power of the pentomic rifle company place great demands on the knowledge, initiative, energy and over-all leadership of the company commander and his subordinates. As units separate the demands placed on the leaders of those units increase. In the past, when men fought shoulder to shoulder, rank behind rank, they sustained, encouraged and supported one another mentally and physically. As the man and the unit becomes more isolated amidst the confusion, complexities and horrors of battle, the greater is the test of character, ability and leadership.

ROCID Communications

PENTOMIC INFANTRY DIVISION

By Maj Oliver M. Smith and Capt James B. Hobson

Today every news story, magazine article and staff study pertaining to the modern or future army is filled with words or phrases such as mobility, firepower, combat effectiveness, flexibility, dispersion and operations over extended distances. Every one of these denotes a factor which has an effect upon communication — an adverse effect. Each demands a greater communication capability. Without communication — the "voice of command" — these factors are mere words. Communication is the key which unlocks these potentials.

While it is apparent that the pentomic Infantry division has better communications than the old triangular division, final conclusions cannot be drawn until the new organization has been thoroughly tested. This may take time. However, by analyzing the division's tables of organization and equipment and methods

MAJ OLIVER M. SMITH has had considerable communication experience to back up the writing of this article. He entered the Army as an enlisted man in 1941 at Indiantown Gap, Pennsylvania, and received his commission from OCS the next year. After completion of the communication officer course at The Infantry School, he became communication officer of the 387th Infantry Regiment. He also served as battalion S2 and headquarters company commander with that regiment in both the European and Pacific Theaters. After four years of civilian life, he was recalled to active duty in 1950. He was assigned as communication officer and later as S3 in the 112th Infantry Regiment. He completed the advanced course at The Infantry School in 1955 and was then assigned to the school where he is now an instructor in the Communication Department.

CAPT JAMES B. HOBSON was graduated from the United States Military Academy in 1946 and completed the basic airborne course the next year. He then served as a platoon leader and company commander with the 34th Infantry Regiment in Japan and with the 511th Airborne Infantry Regiment at Fort Campbell. After a three year tour in the G2 Section, Office of the Chief of Staff, United States Army, Europe, he was graduated from the advanced class at the United States Army Infantry School in 1956. He then began his present assignment with the Training Literature Editing Section, Editorial and Pictorial Office, United States Army Infantry School.

division administration center. It has a company headquarters, a rear-echelon operations platoon, a trains-area operations platoon, two command-signal-center platoon headquarters, a telephone section, a message center section, a radio section, a radio terminal and carrier section, an air support signal team and an installation section.

The *forward communications com-* consists of five battle-group-area support platoons. Each of these platoons installs and operates a forward signal center which supports a particular battle group and provides communications for all units in the division forward area. To do this, the platoon headquarters maintains close coordination with the signal officers, commanders and staffs of the units which it supports.

Each battle-group-area support platoon has six sections: radio, installation, forward repair, message center, radio terminal and carrier, and telephone.

The *radio section* operates an AN/VRQ 2 radio set (Artillery) and an AN/VRQ 3 radio set (Infantry) as a radio-wire integration station in the division radio-wire integration systems. The station must be located in the immediate vicinity of the manual-telephone-central-office set to facilitate operation.

The *installation section* in each platoon is organized as a five-man field wire team and is equipped with one ¾ ton truck and trailer. This section installs interconnecting cable for components of a forward signal center. It is responsible for laying wire and maintaining and furnishing instruments to the following units: the platoons of the forward sup port company of the division ordnanc battalion, elements of the ambulance an clearing company of the division medic battalion and those companies located the division forward area, collecting a evacuation sections of the recovery a disposition platoon of the division qu termaster company, forward sup points (if established by the quarterm ter company), truck and/or perso carrier squads of the division transp tion battalion, traffic control point established by the division militar lice detachment), general suppor toons of the division combat av company and companies or compa ments of the division combat en operating in the forward divisior

Since the installation section has many responsibilities and limited personnel and equipment with which to perform its mission, a priority should be established for connecting units into the system. Priorities will depend on the immediate situation, and are coordinated with the battle group staff. An SOP should be established to dictate the number of lines each unit will receive initially. The necessary augmentation can be accomplished at a later date, if time and equipment permit.

The section has organic to it 3.5 miles of five-pair cable. However, this is not a maximum load for the section since additional wire and cable will be available from the signal battalion or other wire sources.

In some cases the organic five-man wire teams will not be physically capable of installing the total circuits within the time limit prescribed. Personnel and equipment for this situation can be augmented by attaching all or a portion of an eight-man installation team from the signal battalion headquarters and headquarters company to complete the initial installation.

The *forward repair section* performs organizational and limited field maintenance of equipment for the battle group area and field signal maintenance for all other elements of the division within its area.

The *message center section* provides, on a 24-hour basis, message center, cryptographic and teletypewriter service for units and unit elements located in its area. This service supplements the unit's organic capabilities. The section is not equipped to provide messenger service. Serviced units will normally pick up and deliver their messages as required. Three teletypewriter terminals, two with cryptographic facilities, are provided at each center. This section is manned and equipped to operate in echelon only (i.e. the entire section displaces at the same time).

The *radio terminal and carrier section* operates the terminals of the radio relay system and associated carrier equipment at its own forward signal center as well as the terminals for forward switches[1] at battle group headquarters, if required. The section's forward signal center is usually located in the vicinity of the battle group CP, but its location is not determined by the location of the CP. This section operates one 12-channel radio relay set and two four-channel radio terminal sets. Each four-channel relay set is equipped with two SB-22 switchboards which can establish forward switch or patching points on extension links from the forward signal center.

The *telephone section* operates a mobile manual-telephone-central-office set. It can establish a forward switch, for a limited time, when command posts displace. The section also is responsible for communications control functions in the respective signal centers, including patching and termination of trunk lines, circuit testing and direction of circuit maintenance.

Battle Group

Communication in the battle group is provided primarily by the communication platoon of the headquarters and headquarters company. This platoon consists of 45 enlisted men as compared to the one officer and 77 men of the triangular division's regimental communication platoon. It is similarly organized with a wire section, message center section and a radio and visual section. The battle group signal officer is a Signal Corps officer. Since there are no battalions in the battle group, the three bat-

1A location at which communication facilities of different types can be coordinated into one system.

talion communication platoons of 36 officers and men (total of 108) no longer exist. This, of course, accounts for the 75% reduction in communication personnel.

New concepts and personnel reductions have necessitated major changes in equipment.

The location and functions of much of the battle group communication equipment (some of which is new) are shown in the accompanying radio and wire nets (Figures 3, 4, 5). Let's take a look at some of the new items:

The radio set AN/VRC 30 is a combination of four different radios designed to provide great flexibility of ground and ground-to-air communication. The radio sets are the AN/PRC 9, AN/VRC 14, AN/TRC 7 and AN/ARC 27.

The AN/PRC 9 is the Artillery version of the Infantry set AN/PRC 10. They are identical with the exception of frequency coverage, the AN/PRC 9 covering the spectrum of 27 to 38.9 mc.

The AN/TRC 7, which is optional for use within the AN/VRC 30, is an

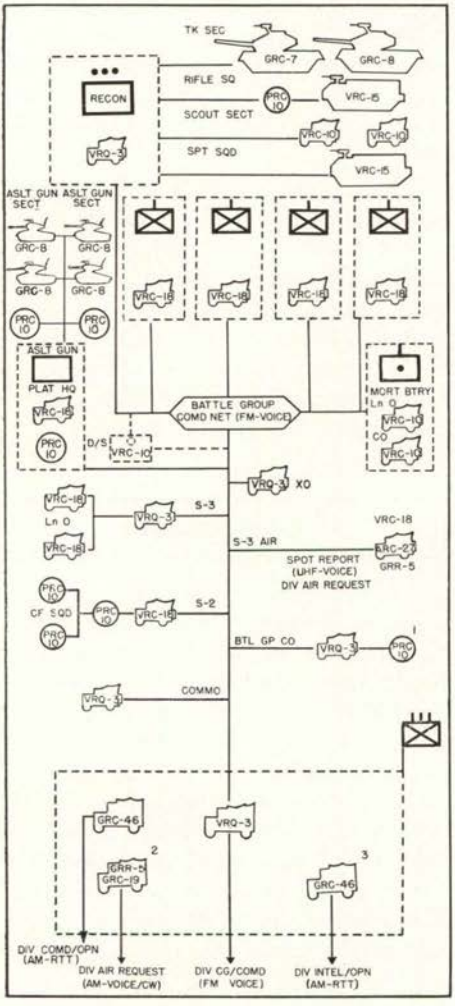
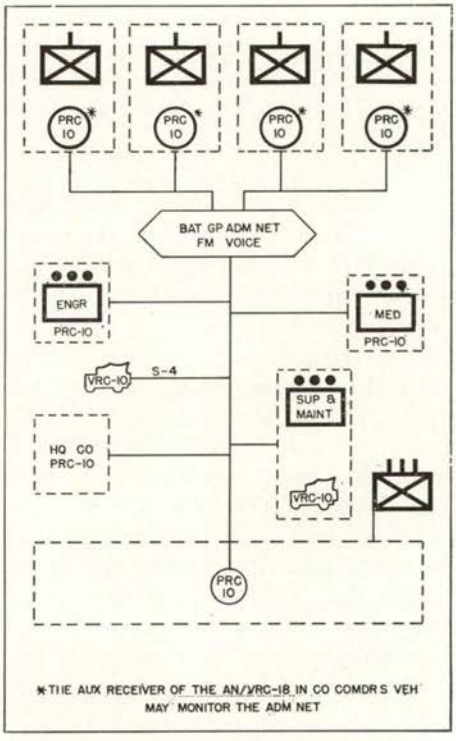


Figure 3. Battle group command radio net. 1. AN/PRC 10 for use when dismounted. 2. Also monitors division warning/broadcast net (AM-voice). 3. Enters division administrative-logistical net (AM-RTT) as required.

Figure 4. Battle group administrative radio net.



amplitude-modulated voice radio. Its frequency coverage is from 100 to 156 mc. The transmitting range is variable, depending upon the height of the aircraft.

The radio set AN/ARC 27 was designed to provide AM (amplitude-modulated) radio-telephone communication within the frequency coverage of 225 to 399.9 megacycles. This frequency coverage is divided into 1750 frequency channels, any 18 of which may be preset and selected from a remote location. The set will communicate from ground to air. Transmission ranges vary with the aircraft's elevation because of the extreme line of sight characteristics of the set. However, ranges up to 130 miles can be expected if the aircraft is at 10,000 feet or more.

Although the table of equipment of the battle group shows the AN/ARC 27 as being used by the S3 air, it is not anticipated that it will be used to contact tactical Air Force aircraft. It will merely monitor for "spot reports" sent by the pilot as to target location, description, extent of destruction, etc.

The AN/GRC 46 is a medium power (100 watts) amplitude-modulated radio set used for transmitting and receiving voice, continuous wave (CW) and radiotelegraph signals. The transmitting range of the set is 50 miles ground wave and 150 to 1500 miles using sky-wave paths. The frequency range of the transmitter is from 1.5 to 20.0 mc, and from 0.5 to 32.0 mc for the receiver. Voice and radio telegraph signals may be transmitted simultaneously.

The AN/GRC 19 is a medium power (100 watts) amplitude-modulated radio set used for transmitting and receiving voice, continuous wave (CW) and, with the addition of certain units, radioteletype signals. The radio set can be operated while on the move or in fixed position and provide transmission ranges up to 50 miles (ground wave) or, using

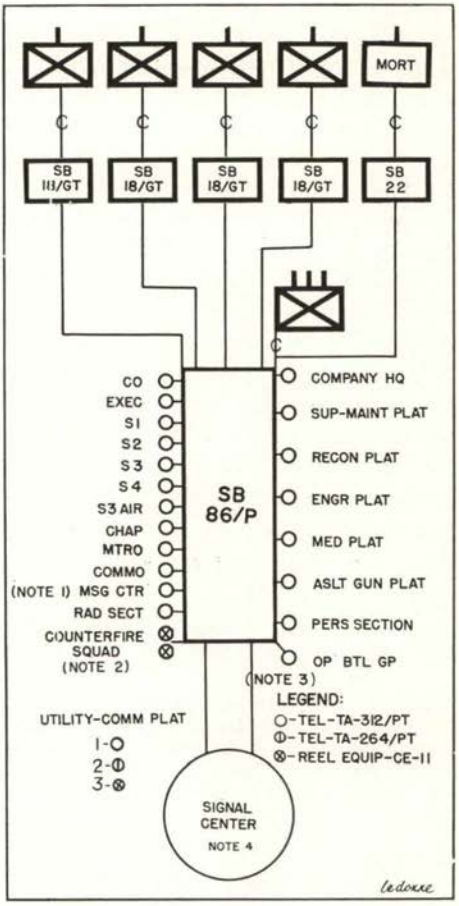


Figure 5. Battle group wire net. 1. Additional line for page printing teletypewriter in battle group message center may be laid to switchboard. 2. Counterfire squad to tie into battle group wire system at nearest switchboard. 3. Number of circuits installed from signal center is based on availability and requirements. 4. Signal center established by the division signal battalion provides cryptographic service, radio relay, telephone and teletype service to battle group.

sky-wave paths, 150 to 1500 miles. With the added equipment necessary for radioteletype operation, plus a shelter, the set becomes the AN/GRC 46.

Another newcomer to the battle group is the telegraph-telephone terminal AN/TCC 14. This equipment consists

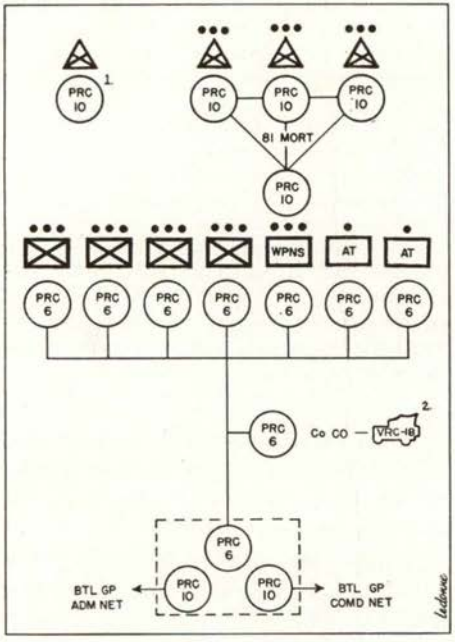
of three separate components. When correctly installed, it permits simultaneous transmission of teletypewriter and voice signal over a speech channel of voice-frequency facilities. The equipment is portable. Power requirements are 115 volts, 100 watts, 50/60 cycles, single phase. The unit is installed in the vicinity of the message center for use of the teletypewriter set AN/PGC 1. Its land line will be laid by the wire section of the communication platoon.

Wire splicing tool TL-582/U is a manually operated device designed to splice field wire WD-1/TT without the use of tape or other tools. The tool contains a magazine which holds 10 connectors, each connector consisting of three sleeves: the outer sleeve is copper tubing, the second sleeve is nylon and the inner sleeve is tinned copper. The connectors are slightly less than one inch in length and approximately 3/16-inch in diameter. On one handle of the tool there is a wire cutter and insulation stripper for use in preparing the wire for splicing. Once the splicing operation is started, the tool will not release the connector until the handles of the tool have been fully closed. This is a safety measure which prevents a faulty wire splice.

Telephone set TA-312/PT, which is standard equipment for field use, incorporates local or common battery operation and allows head and chest sets to be used as well as the normal hand set. In general, it is a modified telephone set TA-43/PT which is now limited standard equipment.

Telephone set TA-264/PT (formerly telephone TP-9) was designed to permit communication over greater distances than those obtained with ordinary local battery sets. These greater distances are made possible by vacuum tube amplifiers in the circuits. Without the amplifiers in operation, the telephone may be used as a local battery set. Care must be exercised in the use of this telephone with VHF radio relay because the amplifying circuits of the telephone may cause faulty operation of the relay equipment.

Figure 6. Rifle company radio net. 1. Used by company commander in battle group command net when dismounted. 2. Company commander enters battle group command net and battle group administrative net.



Rifle Company

The rifle company communication system is part of the battle group system. The company installs, operates and maintains its system as part of the overall battle group communication plan.

The location and functions of the company communications equipment are shown in the radio and wire nets (Figures 6 and 7). A vehicular-mounted radio set is netted with the battle group command net. In defensive situations, and when time permits in attack situations, the communication platoon installs

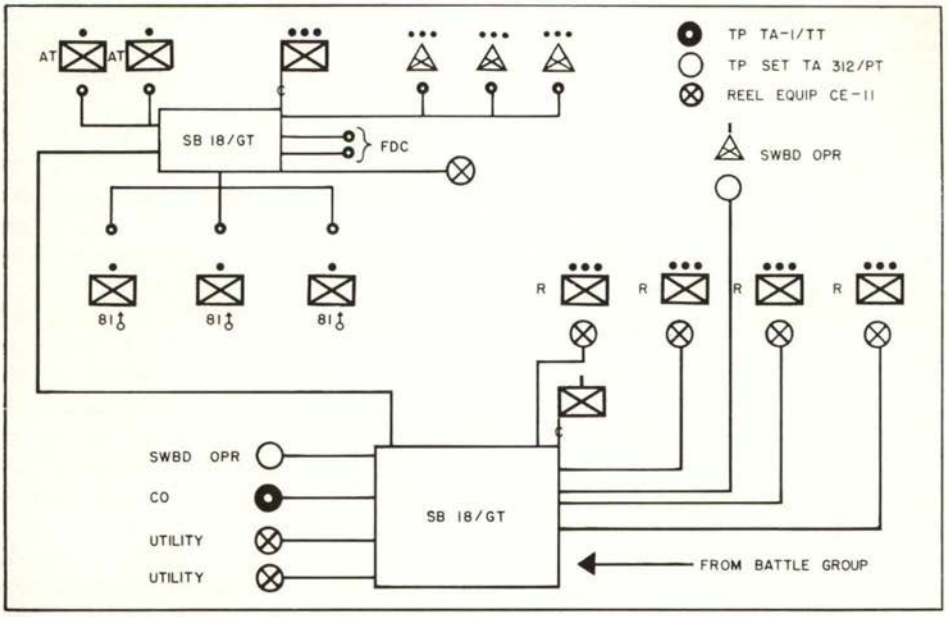


Figure 7. Rifle company wire net.

wire from the battle group command post to the company command post. When the company is conducting an independent or semi-independent mission beyond supporting range of the battle group, communication may be established with battle group by integrating the company system into an area (grid) system of division or higher headquarters.

A radio operator and a messenger habitually accompany the company commander. The company commander may communicate with adjacent units directly or, when practicable, through the battle group command post by radio, messenger or wire.

The rifle company headquarters is authorized one sergeant communication chief, one PFC messenger, two PFC radiotelephone operators and two PFC wiremen. Each of the four rifle platoons is authorized one PFC messenger. The weapons platoon is authorized one PFC messenger and four radiotelephone operators. These 15 men are assisted in the installation, operation and maintenance of the company communication system by other personnel as may be required.

The rifle company is authorized nine AN/PRC 6 radios, seven AN/PRC 10s and one AN/VRC 18 (Figure 6). Four of the AN/PRC 10s are used in the 81mm mortar net from the forward observers to the fire direction center, one in the battle group command net and one in the battle group administrative net from the rifle company command post. The remaining AN/PRC 10 is used either at the rifle company observation post or by the company commander to operate in the battle group command net when the company commander is dismounted. The company commander uses the AN/VRC 18 to operate in the battle group command net and to monitor the battle group administrative net when he is moving by vehicle. The four rifle platoons, the weapons platoon headquarters, each antitank squad, the company

commander and the company command post each utilize one of the AN/PRC 6s.

The forward observer from the mortar battery has an AN/PRC 6 radio preset on the frequency of the rifle company with which he is working. He also has an AN/PRC 9 operating in the battery fire direction net. The forward observer will be in communication with the rifle company commander.

The rifle company is authorized two emergency switchboards SB-18/GT, two telephone sets TA-312/PT, 11 sound-powered telephones TA-1/TT, seven reel equipment CE-11 and nine miles of wire WD-1/TT (Figure 7). Wire communication depends on the time available to install and recover the wire. In fast moving situations, time limitations may limit wire usage to short fire control lines which can be recovered quickly. In defensive situations, a complete wire system is installed for control of fires and of subordinate units.

To establish the system as shown, some incoming lines to the company switchboard must be partied. A battle group wire team normally lays a wire line from the battle group command post to the rifle company command post where it is terminated in an emergency switchboard SB-18/GT.

Mortar Battery

The mortar battery is authorized one sergeant communication chief, two sergeants wire team chiefs, eight wiremen, two wireman helpers, two switchboard operators, 12 radiotelephone operators and one intermediate-speed radio operator.

Wire for fire direction is installed within the battery before or during occupation of position. The system is expanded as time and personnel permit. Enough wire personnel and equipment are available to install lines of all forward observers simultaneously. As more time becomes available, the wire system will be extended, duplicated and improved.

Requests by wire for additional fire support may be submitted over the line to the FDC of the reinforcing howitzer battery, to command switchboards or through the division area communication system. Entry into the latter system, for the mortar battery, is through the battle group switchboard.

The mortar battery uses two internal FM radio nets — one for fire direction and one for command. The command net also is used as an alternate fire direction net for multiple fire missions and when a platoon is operating separately.

Requests by radio for additional fire support may be submitted to the reinforcing howitzer battery over the mortar battery fire direction net or the artillery battalion alternate fire direction net.

Communications in the pentomic Infantry division have kept pace. The division has the latest technological advances in communication equipment. This equipment allows greater flexibility of operations and greater dispersion on the battlefield. New equipment, plus the pooling of highly trained personnel and communication facilities at higher echelons, will undoubtedly increase the division's communication capabilities and efficiency.

Atomic weapons in themselves are inconclusive. In the final analysis, sizeable ground forces must be used if the enemy, his people, and his land are to be brought under control.

GENERAL MAXWELL D. TAYLOR

ROCID

Medical Support

PENTOMIC INFANTRY DIVISION

By Capt Roy L. Bates

The mission of the Army Medical Service in atomic warfare is the same as it has been in conventional war. As in the past, medical support must continue *to conserve the fighting strength* of our combat units.

While the over-all mission remains the same, a few significant changes have been made in the manner in which medical support will be provided in the new pentomic Infantry division. In keeping with other organizational changes that have been made in the division for modern warfare, organization for medical support has been streamlined. Just as some weapons and equipment have been pooled at higher echelons, we find that some of the medical personnel formerly provided in the triangular division are now located elsewhere. For example, there are only three dentists in the entire pentomic division. These dental officers will perform only emergency dental care. All other dental work for the divi-

sion will be handled by personnel from the field army who may be attached as needed.

The medical company of the regiment in the triangular organization has been reduced to a platoon located in the headquarters and headquarters company of the new battle group. The division medical battalion remains with very little change. However, a neuropsychiatric section has been added to the clearing company and a separate medical corps officer now commands the medical battalion. The division surgeon is listed in the division headquarters TOE as a special staff officer, yet he and his staff are organic to the division surgeon section of the headquarters and headquarters detachment of the medical battalion. He functions purely as a staff officer but may assume operational control of all division medical elements not assigned specifically to combat units when authorized by the division commander.

CAPT ROY L. BATES began his military career in 1941 as an enlisted man and two years later received a direct commission while serving with the 34th Division in North Africa. He then served as a battalion surgeon's assistant with the 34th until the end of World War II. At the close of the war he reverted to reserve status but was recalled to active duty in 1949 and assigned as a medical company commander with the 2d Armored Division at Fort Hood. The following year he became a battalion surgeon with the 3d Infantry Division in Korea. Returning to the states in 1951, Capt Bates was assigned as a tactics instructor at the Army Medical Service School at Fort Sam Houston. He served there until 1954 when he became a medical instructor at the United States Army Infantry School. A year later he attended the Command and General Staff College at Fort Leavenworth, and upon graduation returned to The Infantry School.

Before we take a closer look at medical support in the pentomic division we should discuss some of the general characteristics and considerations affecting medical service on the modern battlefield.

It is expected that in atomic warfare, or even in future nonatomic warfare, there will be greater numbers of casualties in shorter periods of time. Treatment of these casualties will tax medical services to the utmost and will require a realistic approach based on the combat mission. If fighting strength is to be maintained and operations are to be successful, close evaluation, in terms of combat effectiveness, must be made of all casualties. Evacuation will be no farther from the parent unit than the physical condition of the casualty demands. Emphasis will be on the saving of life and limb and the rendering of service to the greatest number. Every person, whether he be a commander, medical officer or individual soldier, must screen each injury to determine whether the wounded person can or cannot perform some function in support of the combat mission without jeopardizing his life. If he can, he must be retained in the unit. If not, he should be removed from the combat area as soon as possible so that he will not be a burden to the commander.

Medical support must be flexible. The surgeon must be able to adjust the elements of the medical organization under his control to provide medical service for all of the combat organizations he supports — during either combat or garrison activities. In combat especially, he must be prepared to adjust rapidly when faced with changes and with only minimum warning from outside sources.

The medical unit should be as *mobile* as the unit it supports. It must be able to support effectively any maneuver, whether it be motorized, airborne, am-

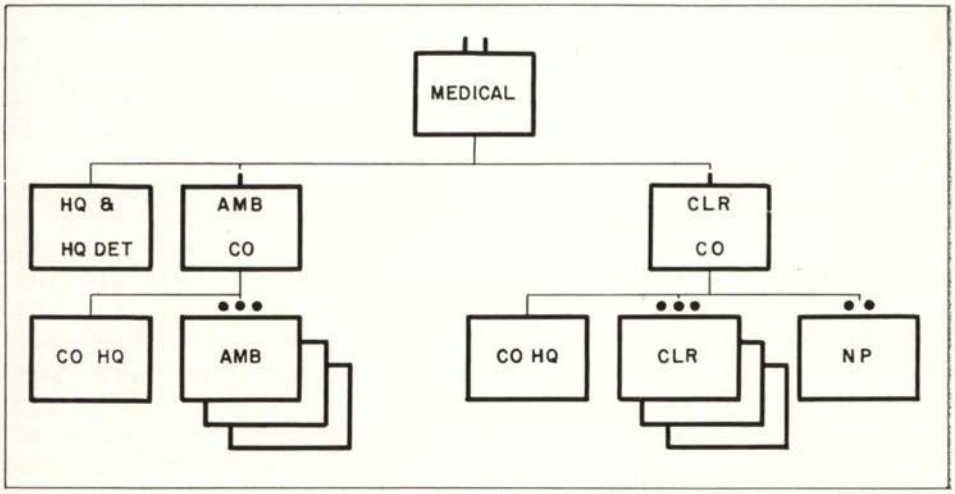


Figure 1. The medical battalion.

phibious or any combination of these. This must be accomplished even though new medical units have less organic mobility than such units have had in the past. However, this seemingly incompatible requirement is made possible by other mobility means — for example by vehicles from the transportation battalion, aircraft from the aviation company or, where the situation demands it, appropriate mobility means from a higher echelon. This, of course, will require adequate advance planning.

Medical service must be continuous. Units must be capable of providing on-the-ground medical treatment and evacuation 24 hours a day, every day, regardless of the status of the supported unit. The unit surgeon must maintain current, flexible operational plans and must be prepared to improvise on short notice to meet emergency conditions.

Tactical units must be well trained in the essentials of personal hygiene and first aid which are vital to survival under combat or epidemic disease conditions. Without such training, effective medical support cannot be accomplished by the medical unit.

With these general considerations in mind, we will take a look at some of the specific changes in medical support for the Infantry division.

At division level we find that the medical battalion (Figure 1) is organized similarly to the battalion in the triangular Infantry division. It has three separate elements: a headquarters, an ambulance element and a clearing element. The headquarters and headquarters company of the triangular division medical battalion has been replaced by a headquarters and headquarters detachment, while the ambulance and clearing elements retain their company status with some internal revisions in personnel and equipment.

Aside from differences already noted, the most noticeable change in the medical battalion is in its employment. Formerly, ambulance platoons had the primary mission of supporting regiments. Each ambulance platoon leader had only to maintain contact with one regimental collecting station and a major part of his mission was accomplished. Clearing platoons had a similar mission and capability. Employment in the pentomic divi-

sion, however, is quite different. The clearing platoons and ambulance platoons will give division-level medical support to areas instead of units. In other words they will support any unit that lies between two predesignated lateral boundaries. They may have to contact all or a part of several units, not just one installation.

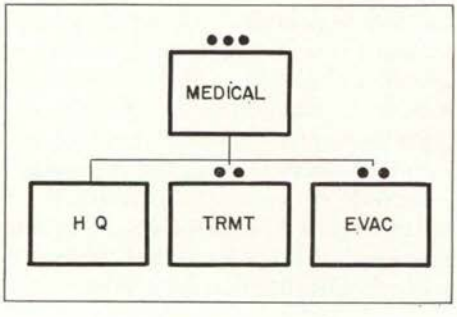
Since we are concerned primarily with unit level medical support, let us examine in some detail the new medical organization for the battle group. The medical company of the old regiment which the battle group replaces has been eliminated. Medical service is provided by a medical platoon (Figure 2) in the battle group headquarters and headquarters company.

The battle group surgeon, a medical corps major, is assigned to the group headquarters and is a member of the commander's staff. He also is designated platoon leader of the medical platoon. A second medical corps officer (captain) is assigned to the treatment section of the medical platoon and serves as section leader.

The platoon headquarters includes three enlisted men who perform the administrative functions of platoon sergeant, medical supply specialist and platoon general clerk.

The treatment section contains two groups of personnel; one group functioning in the aid station and the other attached out as aid men to the units: the headquarters company, the four rifle companies and the mortar battery. The aid station group includes the medical officer who acts as section leader and performs the medical treatment in the aid station and five enlisted men who operate the station. Five company aid men are attached to each rifle company and one each to the headquarters company and mortar battery.

Figure 2. The battle group medical platoon.



The evacuation section is controlled by a section sergeant and has four squads of litter bearers (four man squads) plus four front line ambulances and drivers.

The medical platoon must be tailored to meet each battlefield situation with the highest degree of efficiency. This in effect requires that organization within the basic structure be flexible enough to allow for changes on short notice. For example, a requirement may exist for the surgeon to establish two installations to properly support the combat elements. Each of these installations must be prepared to operate independently as a team, yet must be able to reunite quickly and efficiently into a single unit. The surgeon may be required to split his aid station laterally or in depth to properly support a given combat operation. In some cases, to maintain proper dispersal, he may have to operate on a split status for long periods of time. An example of how this might be accomplished is illustrated in Figure 3.

The two teams should be thoroughly trained to work separately or as one large treatment element. Each member must be thoroughly familiar with his particular function in both cases. Team formation should be automatic, to include breakdown of equipment and supplies as directed by the battle group surgeon. The location of team "A" normally will be in the vicinity of the command post of the medical platoon and will also include the office of the battle group surgeon.

One enlisted man from each of the aid station teams should be trained as a ground helicopter control man in addition to his other duties. He should be an expert in receiving, ground handling and loading of all types of rotary wing aircraft. These aircraft may be organic to the Army Medical Service, the division aviation company or army transportation units. In any case the ground control man must have available and be familiar with all necessary signalling devices and be experienced in choosing and setting up proper landing sites. In actual practice the control man will locate a suitable landing site and mark it for use immediately upon the establishment of each new aid station or section. He must be ready to receive helicopters and supervise the loading of casualties into the aircraft, not only for one or two casualties but for maximum loads over long periods of time.

Litter bearers and ambulance drivers of the evacuation section will assist the treatment team at either or both of the aid stations, depending upon the casualty load.

Also in the treatment section are the company aid men. These men are organized into five operating teams (Figure 3).

Team organization of company aid men is not a new concept. In a sense this method has always been used but, today, team formation is the rule rather than the exception. In the past, these teams, especially the rifle company teams, have been required to operate independently for varying periods and to form small company aid posts under some situations. The need for this type of action probably will be even greater on the modern battlefield.

The most usual employment, however, is attachment of these teams to the rifle companies on the basis of one company

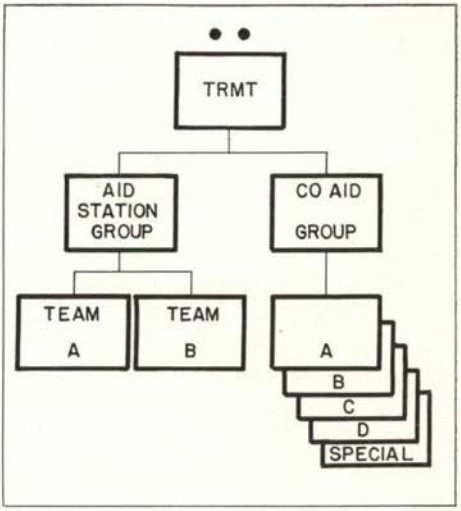


Figure 3. A team organization of the treatment section. In the aid station group Team A consists of the surgeon, the platoon sergeant, the medical aid man and an aid station attendant. Team B consists of the treatment section leader, the section sergeant, the senior aid man and an aid station attendant.

aid man per platoon. Often the senior and most experienced aid man will stay with the rifle company headquarters and will function as team leader.

The special company team will be attached in a similar manner: one aid man to the headquarters and headquarters company and one to the mortar battery. If the need should arise, both men may work with either unit.

All of the company aid man teams must be thoroughly trained, both medically and tactically, to work together as a unit. As a part of their training the aid men should actually support the unit to which they are attached on field problems, road marches, range firing problems and other activities. It is also desirable, and with few exceptions the rule, for an aid man to work habitually with the same unit so that he will become familiar with the personnel, equipment and methods of action. This will enable him to gain a knowledge of each type

of activity which the unit may perform and will help him to provide company aid support on a moment's notice.

Now let us examine the evacuation capabilities of the medical platoon. This function is carried out by the evacuation section through foot evacuation (litter bearers) and motorized evacuation, using front line ambulances. Here again, a team concept of organization within the section takes place to support the combat elements. The team organization is shown in Figure 4.

Team training must be effective to insure maximum flexibility in employment. Any combination of litter bearers or ambulances can be tailored to fit any given operation, i.e. litter bearers alone, ambulances alone or a combination of the two.

These teams should have the same medical training as the company aid men and should be able to handle almost any kind of medical emergency while a casualty is in transit. Careful training in the transportation of wounded is very essential since many lives have been jeopardized, and in some cases lost, through rough or improper handling.

The duties of each team, and for the most part each team member, should be interchangeable. There may be times when all members may be used as litter bearers; others when they may be required to drive ambulances in shifts around the clock.

When the medical platoon has been properly trained, it is ready to support the battle group in training or combat. To further illustrate the necessity for flexibility in organization, let us examine a hypothetical example.

In the situation depicted in Figure 5, we note that two battle groups are attacking abreast. The battle group on the left is attacking in column formation on a single axis while the battle group on the right is attacking along two axes of advance.

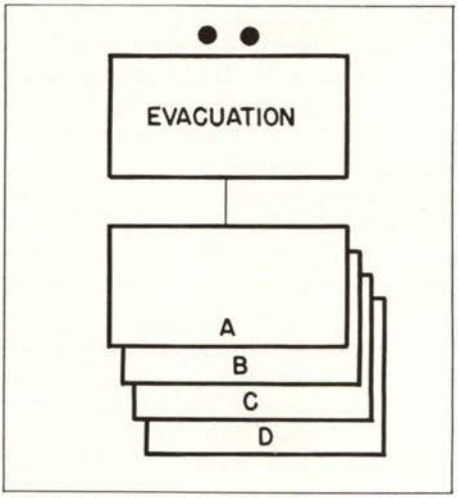


Figure 4. A team organization of the evacuation section. Each team consists of four litter bearers and one front line ambulance driver.

The battle group on the left has a well-developed road which runs directly to the objective. To take full advantage of the road, the battle group surgeon has attached ¼ ton front-line ambulances to each of the two leading companies and has placed them temporarily under the control of the rifle company commanders. It is common practice for this control to be further delegated to the senior company aid man with each of the two companies. Casualties will be evacuated, after initial treatment by the company aid men, to the battle group aid station.

The terrain over which the right battle group must fight is somewhat different. In this area the road net is limited, particularly for the right axis of advance, where there are no roads, trails or areas forward of the aid station which are traversable by front-line ambulances. The left axis is only slightly better. While there are no roads, a couple of trails continue forward of the aid station almost to the objective.

In this situation the battle group surgeon has split his aid station, using team

"A" on the left axis and team "B" on the right. On the left, a complete evacuation team has been attached to each of the two forward rifle companies which provides both ambulance and litter bearer capabilities. Either or both means may be used forward of the aid station operated by team "A". It is visualized that ambulance loading posts will be established as far forward as possible and that litter bearers will work on up to the forward positions.

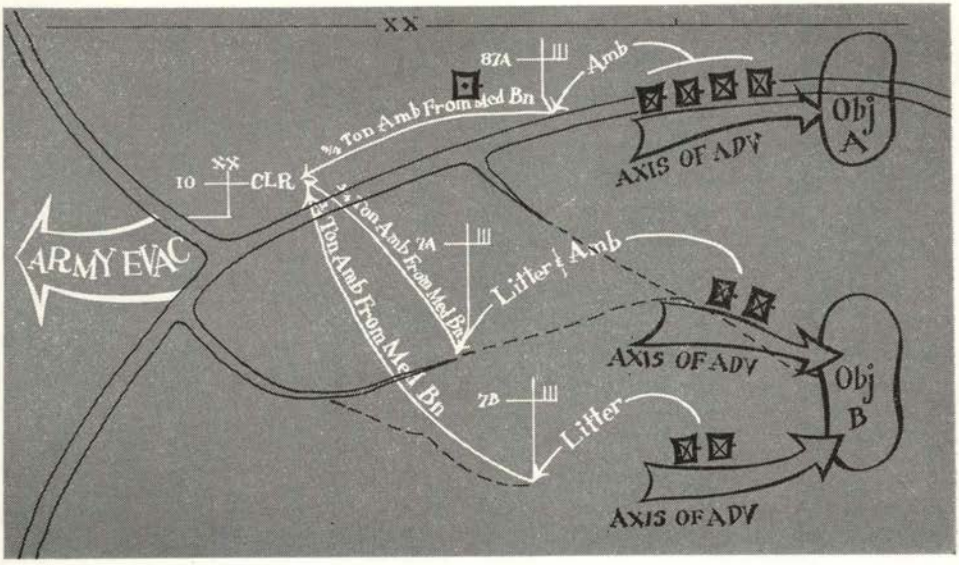
On the right, due to the absence of accessible roads and trails, the surgeon has attached litter bearer teams to each of the two companies which are attacking on foot. Casualties will be evacuated all or part of the way to the battle group aid station operated by team "B". In this situation, medical support will approximate that formerly available in the old Infantry regiment. The litter squads will evacuate only those casualties who cannot walk and will carry them no further than is necessary. Ambulance loading posts must be established as far forward as possible.

In situations where the number of litter bearers are inadequate, it will be necessary to request litter bearers on a pre-planned basis from division and/or army. In some countries native personnel may be available for this purpose. Such personnel have been used in the past.

Although the situation in Figure 5 is schematic it indicates how a properly trained medical platoon can be organized and employed to provide medical support for any kind of tactical situation which the commander might face.

When mass destruction weapons are used and there are large numbers of immediate casualties, the medical platoon will not be able to treat and evacuate all casualties unless it is given assistance. Additional medical personnel must be provided for treatment of casualties, either on an attachment basis or in direct support. In the meantime every means of evacuation available will be used, based upon priorities established by the battle group commander. Any vehicle within the battle group area could be

Figure 5. Schematic situation map.



used for evacuation purposes without modification. Some of these additional evacuation means available and their capabilities are as follows:

¼ ton truck — two litter cases or three ambulatory casualties.

¼ ton truck w/trailer — five litter or six ambulatory.

¾ ton truck — five litter or 10 ambulatory.

2½ ton truck — 16 litter or 20 ambulatory.

M-59 armored personnel carrier — six litter or 10 ambulatory.[1]

It should also be remembered that the impetus of medical evacuation and medical resupply is from the rear. Medical property — litters, blankets, etc. — evacuated with casualties to the rear, must be exchanged at each transloading point so that the level of medical equipment in the forward elements can be maintained.

Feeding patients, formerly accomplished at the regimental collecting station, is an essential part of the treatment of casualties. Since no organic mess is provided for the medical platoon, food for casualties must be provided by some means on a 24-hour basis. Several possible ways of doing this can be considered. At least one cook from the battle group headquarters mess might be placed on 24-hour call. If this is not practicable, the medical platoon personnel in the aid station may have to provide hot soups and drinks using the small gasoline stoves provided in their equipment or possibly by feeding prepackaged, precooked meals.

Weapons disposal has always been a problem, but in the pentomic organization it becomes more difficult. Individual weapons and unit equipment evacuated to the rear with casualties must be returned to the parent unit through normal supply channels as in the past. However, limited medical transportation and the necessity of maintaining flexible operations demand that these items not be kept in medical installations for any prolonged period of time. Also, with less transportation available to the battle group, the problem is intensified. It is visualized that the system of employing a representative of the S4, in constant liaison with the aid station, as was done in the former regimental organization, will continue to be valid. But, to preserve the mobility of the medical installation, pick up of equipment will have to be made more frequently.

The subject of casualty evacuation is not complete without some consideration of aeroevacuation and the manner in which is will be employed. The methods of requesting helicopter evacuation through medical channels will remain unchanged. The number of helicopter evacuation missions is expected to increase markedly for both medical helicopter ambulances and for transportation helicopters. Whereas helicopter evacuation was primarily an emergency measure in the operations of the triangular division, the pentomic concept envisions a much more active use of helicopters in more forward positions, depending upon enemy action and terrain.

Medical ambulance helicopters will be reserved for true emergency cases while transportation helicopters will augment evacuation means when returning from forward supply or troop missions. Despite the increased number of helicopters which will be available, limitations of weather, terrain and other factors make this method less dependable than ground means. Helicopter evacuation must continue to be considered in the auxiliary classification, even when used to the maximum.

[1]This vehicle is organic to the medical sections of the armor battalion and the cavalry squadron of the pentomic division as an armored ambulance. The battle group, however, does not have APCs specially designated as ambulances but attached APCs could be used in emergencies.

In summary, the medical unit must be trained and organized to:

1. Support any tactical formation whether it be mechanized, on foot, air transported or a combination thereof.

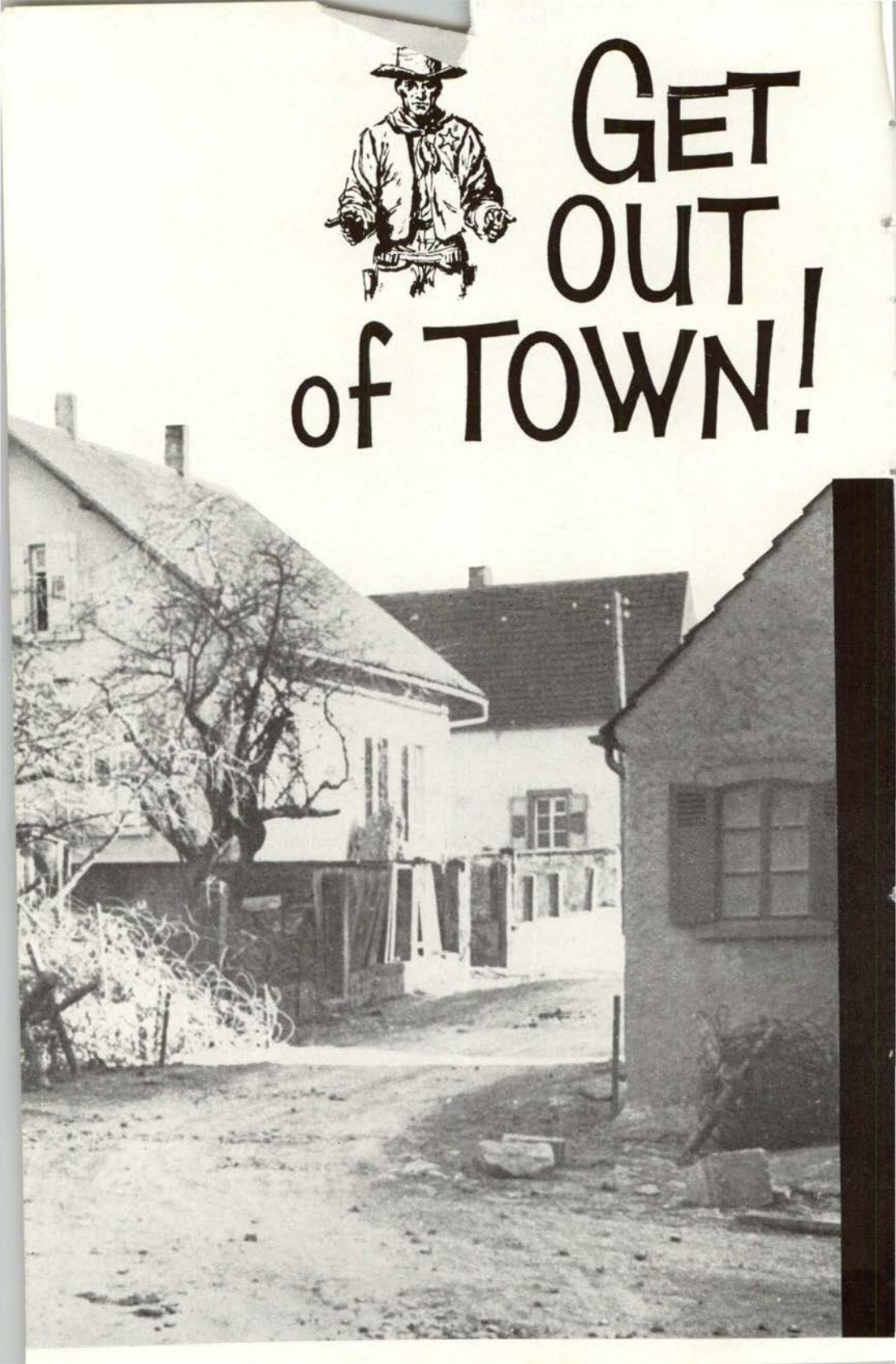
2. Employ any evacuation means: litter bearer, ambulance, tactical vehicle, fixed or rotary wing aircraft and to do it swiftly, with minimum confusion.

3. Accept and coordinate attached medical elements or personnel from division and army in the event of a major disaster resulting from a mass destruction weapon or similar action.

4. Assist in training all personnel within the battle group in the principles and practice of life-saving first aid to ensure that maximum salvage of life on the battlefield is attained.

While medical capabilities differ in some respects from those in the triangular organization, the pentomic division will receive efficient medical service. The front-line soldier can expect and will get immediate life-saving treatment and prompt evacuation when necessary.

The "package" of related articles on the pentomic division will continue. The next issue of Infantry *will discuss logistics, staff procedures, the brigade headquarters, etc. Readers who may have missed the previous series of articles on the new Infantry division may purchase back issues of* Infantry *by writing the Book Department, U. S. Army Infantry School, Fort Benning, Georgia.*


GET
OUT
of TOWN!

A town can be a death trap or a Godsend

to a unit in combat, depending upon how it is used.

Many a Westerner is lying under the sod of "Boot Hill" because he did not heed the ominous warning, "Get out of town!" And many a soldier — of many a nation — is lying under a white cross because he too failed to "Get out of town."

Towns can be deathtraps, especially for small units. Many men have been captured or massacred because they were boxed in and unable to use their weapons in self-imposed traps. Squads and platoons have invited disaster by huddling in cellars for warmth or companionship, with only a guard or two at street level. These guards would be picked off or driven back in upon their comrades. Then the whole unit was helpless, unable to move, shoot or see. Several times I narrowly missed having all or part of my own unit suffer this humiliating fate. And this was not the result of ignorance — it was softness. I simply didn't exercise the self-discipline or toughness required to force exhausted men out into the weather.

It would be foolish to say that towns or smaller built-up areas are indefensible. History contradicts such a statement. Where the terrain and the town permit the primary considerations of observation and field of fire, adequate defense is possible. Also, there are times when the rubble of stone buildings makes a fairly good fortress. Battered hilltop villages in Italy and North Africa proved this. The rubble that may follow in the wake of atomic weapons can also be put to good use, by units of the triangular division or by new, fast moving, pentomic Infantry or Airborne units. However, an inhabited area should not be used unless the unit is large enough (or the town small enough) for most of the

By Lt David J. Daze

houses on the outside perimeter to be physically occupied. And, every man must have a firing port with some field of fire.

The important point is to make proper use of terrain in establishing the defense position so that maximum advantage is taken of the best observation and fields of fire available. There are very few instances where the immediate countryside would not offer a far better battlefield, assuming the unit had some chance to dig in. It is much easier for the enemy to lob a grenade into a room than into a foxhole. A few ricocheting .30-caliber or 7.62mm slugs can play havoc in stone rooms while they would pass harmlessly over heads elsewhere. Very few roofs give protection against medium artillery and the concussion inside will burst eardrums. Tank fire can turn the occupants of a house into mincemeat.

These things have happened countless times — there is nothing theoretical here. It is the nightmare of a lone guard sitting sleepily at a window, or standing peacefully in a dark doorway while his companions confidently cook, dry clothing or sleep that brings shudders to troop commanders. Men in such a situation simply haven't a fighting chance. One small patrol, or ranger-type element of the enemy can slaughter a larger unit. Or in a general attack, the individual guards at the various houses may be the only ones who can get into action with any real success. The rest of the unit may be helpless. One house can be seized by the enemy, putting a wedge in the entire line and opening a corridor into the vitals of the command. Other occupied houses can be outflanked, cut off, screened or generally made useless. A friendly counterattacking force would operate at a clear disadvantage.

The greatest percentage of urban habitation (United States excluded) is clustered in small villages. All of Europe, North Africa and the Orient where the American soldier has fought and may have to fight again, follow this pattern. But this is not necessarily a liability. Villages can be both a comfort and a joy — if used properly. By properly, we mean "get out of town," especially by sundown, or at least get all or most of the fighting element out. Then, after the unit is dug in, small segments may be allowed to return.

Let us assume a situation which occurred many times in World War II and Korea, and, with greater emphasis on dispersion for the atomic battlefield, can be expected to happen many times again. A reinforced company or task force has seized its objective — a hill or a crossroads straddled by a small village of thirty or forty buildings. The commander's orders are to hold until the situation develops or until neighboring areas are mopped up and orders to move are received. Friendly units are not in physical contact; the enemy in the area is relatively weak but active. Counterattack by the enemy is possible, but the threat is not too serious. The weather is cold, with intermittent sleet and snow.

Such a situation is elementary. The solution also — adequate defense, proper patrolling, etc. — should be elementary. However, several important considerations and principles can be illustrated in this familiar situation. These can be applied with slight modifications to any branch of service, in any town, in any war.

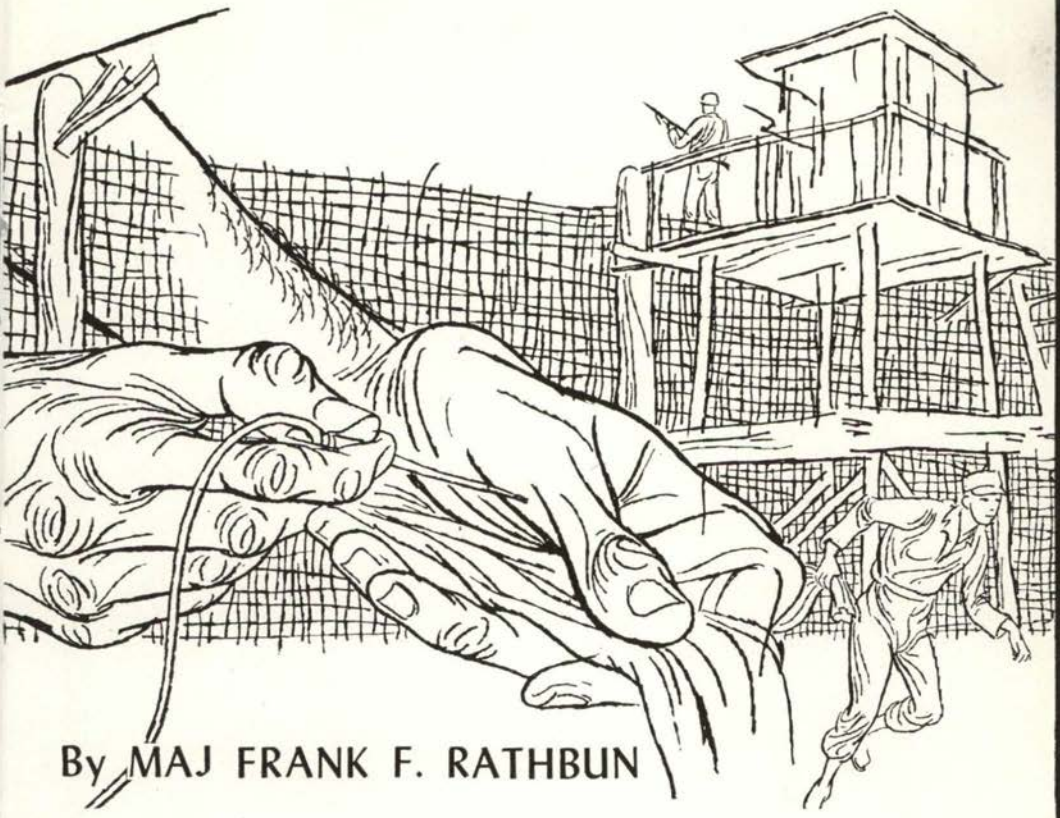
First, the company (task force) commander could insure the safety of that particular night by driving his entire command out into the snow. But this would do little for the morale of men who failed to understand, and would do nothing to end the fatigue of long combat or to save strength for the miserable days ahead. In any event all riflemen and machineguns should be sent outside the perimeter of the buildings themselves (only a few yards may suffice) where a proper defense should be dug in. All tanks, personnel carriers, supply vehicles, mortars, etc., should be emplaced in support among the buildings or in concealed areas (woods) within the perimeter. After the line is secured, outposts established and the usual defense procedures followed, a percentage of the men could be allowed to leave their holes to seek the shelter and comfort of neighboring "warming houses." Some men could be allowed to sleep indoors if their fields of fire from windows or cellar gates support their platoon. Approximately one-third of the men at a time could leave the line. If the weather is particularly foul, and the enemy potential slight, possibly up to one-half could seek warmth, shelter and food. But never, in any tactical situation, regardless of fatigue or supposed freedom from attack, should any commander allow more than 50% to abandon the cover of their holes. And never should noncommissioned officers be allowed to leave their commands in greater ratio than their men.

Commanders themselves must be cautioned. The biggest, richest homes and the large villas are usually on the edge of town or even slightly removed on a nearby hill. Any leader who succumbs to the lure of palatial quarters on the outskirts of his command, where he can be cut off or pinned down, is a fool and a poor soldier as well. Any substantial building or cellar near the hub of the village is his proper place. There the lights and activities of the message center will be masked, patrols can be briefed, the command function can best be carried out and the command post best guarded.

Proper use of a populated area can make it a Godsend. If mishandled, it becomes a trap. But so far as fighting elements are concerned, heed the warning, "Get out of town!"

LIEUTENANT DAVID J. DAZE (Retired) has had considerable combat experience to back up the writing of this article. As a member of the 3d Infantry Division during World War II, he fought both as an enlisted man and as an officer in Italy, France and the Rhineland. During these campaigns he rose through the ranks and received a battlefield commission in October 1944. Afterwards he served as a unit executive officer and company commander before being wounded in the Colmar Pocket in Germany while attached to the First French Army. He began his military career in 1942 following a year of ROTC training at the University of Santa Clara in California. After training and attending the Noncommissioned Officers School at Fort Riley he was shipped to Casablanca and was subsequently assigned to the 3d Division. He returned to the states in April 1945 and was retired in September of that year.


W. PARKER



By MAJ FRANK F. RATHBUN

fit to be untied

Any soldier who is worth the price of the metal tabs on his shoelaces will begin to plan for escape the minute he is captured. The Armed Forces Code of Conduct directs it, our military heritage gives precedence for it, and our pride as a man and a soldier demands it.

But could you do it? Are you — or more accurately — will you be physically able to escape?

Let's face it. Making an escape is a tough job. It calls for all the courage and cunning you can muster. It requires long days and weeks and months of planning and conniving, of seeking ways to break out, of selecting routes to follow once you are outside the barbed wire and of determining where you might go to find friends. Above all, it demands that you keep yourself in the best possible physical condition under the worst circumstances imaginable.

Think of the difficulty you now have — well fed, rested and living among friends — to stay fit. Then imagine what it would be like to stay strong while eating meager quantities of unsavory foods, sleeping in extreme cold with insufficient covers or shelter for warmth and spending your days behind barbed wire in fear, loneliness, mistrust and anguish.

Let's carry this picture a little further. Imagine yourself, right now, striking off cross-country for a hide-and-seek trek of — well, let's say 50 to 100 miles. Could you do it? Could you survive in all kinds of weather, traveling at night off the roads and highways, sleeping in thickets and eating only what you might manage to scrounge? You should be able to make it. But think of trying the same feat in a hostile country after being cooped up for weeks in a POW camp.

The idea of staying physically fit in a POW camp may sound ridiculous to you. That's only because it is. Your score on the PT test is going to drop, all right. Your rippling muscles are going to get a little stringy, and your disposition is apt to be more jaundiced than that of a New York traffic cop during the five o'clock rush hour. So, what are we talking about?

We are talking about the ways and means that you, as a committee of one, can adopt to husband your resources,—to preserve your health, your strength, your clothes, your will—so that when you do make your escape, you can make it stick!

The conditions under which prisoners of war live are so varied that it is impossible to establish a set of rules that would fit every case. You could find yourself in a filthy, slave-type camp where a few shreds of fish floating in a bowl of thin soup — once a day — are considered ample; or you could land in a "model" camp, where the rations are regular and the treatment considerate. Your goal would be similar in either case: to stay in the best possible physical condition until the day you can break loose.

What you'd really need, then, is a plan, a sort of mental checklist, that would guide you in making the best out of whatever the circumstances might be. Here's a simple one that might help: *Economize — Supplement — Maintain.* In case you don't like big words, remember it this way: *Save — Add to — Take care of.*

Let's see how this mental checklist would work. We'll consider each point separately.

What can you *save* in a POW camp that would be helpful? The answer is simple. Save everything! Save your clothing, pieces of metal, cloth, paper, string, twine — anything. You never can tell what little item may later spell the difference between success or failure. Keep a cache of items hidden in your bunk, under the floor or in a hole in the ground. Even if your scheme is discovered, the items will appear so harmless that little or nothing can be held against you. This *has been done,* successfully, and you could do it too.

If you are lucky enough to be in a moderate climate, wear the fewest clothes possible. Go barefoot; save your shoes and socks for the big night when you'll want to travel fast and sure. Save your underwear and shirts and jacket for protection from the elements after you break out.

Save nonperishable items of food — that is, if you are lucky enough to come by any. At least a part of any candy you might get through the Red Cross should be saved. It is a compact source of energy that could be important later. So don't wolf it down in a day. Pieces of cooked meat, nuts, bread and the like, slipped into your pocket and hoarded, may give that added ounce of strength when it is needed the most. One POW, of whom we know, was lucky enough to receive small issues of sugar. Instead of eating it, he boiled it down into a form of hard candy and was thus able to build up a supply of this energy-giving food. Any food you might be given in cans is ready-made for storing. But the enemy may puncture the cans to keep you from

doing just that. If the time is near for your planned escape you might preserve the food for a few days by wrapping the can in a damp cloth.

Hoarded pieces of metal, such as nails and pins, can serve as buttons or fasteners for many field expedients. Old tin cans can be made into improvised cutting instruments, drinking cups or food containers. String and twine come in handy in a thousand instances, substituting for belts or shoe laces, for use in making bundles, repairing or improvising tools, etc. Sound silly? It won't when the barest instrument or necessity could make the difference between success or failure.

Finally, save your strength. Stay active, but do not exhaust yourself. Walks around the compound or in your quarters will help preserve your muscular tone. You will not have the ambition to take strenuous exercise, which is good, because the food you get probably will not sustain it. Stay cheerful and keep active, but don't overdo it. Sleep all you can. You may not get much on the road back.

Supplement. Add to the things you have managed to save. Endeavor to get the little items that you have decided are indispensable to your escape.

How do you do it? This is where your highly-touted ingenuity comes into play —or doesn't. Sometimes you can beg innocent appearing items from sympathetic guards.

One POW made himself a very serviceable knife from the steel arch support of his jump boots. He sharpened one edge of it on a stone and fitted the blade into a piece of wood. Clumsy, but it worked. But if you ever plan something like this be sure you don't ruin the boot in the process. A good boot might be more useful than the knife. If you should happen to get a razor blade, treat it as a jewel. Use it for shaving only. Use it over and over. Devise ways to sharpen it. The lift in morale that comes from staying clean-shaven is worth the trouble.

With the knowledge possessed by any good boy scout, you can sometimes supplement your rations. Every area of the globe offers natural food to the men who can recognize it. Many articles and books have been published on the subject.[1] The Army is presently writing a new manual entitled, "Survival for the Individual Soldier." Get one of these books and read it — now! They won't be available in the *POW Library*. Make a game, a hobby, out of learning to recognize the natural foods — grass, bark, roots, nuts, small animals and even insects — in every area to which you are sent. This is a hobby that could pay off with some flesh on your ribs and a little ginger in your shrinking muscles.

If you are allowed to roam around, as is often the case, gather some of these foods. Cram'em down. They won't bring back memories of your favorite restaurant, but they'll add a little bit to your sub-subsistence diet. They may even provide a source of vitamins or minerals that you are certain to lack. And they could make it possible for you to hoard for the future even from a sub-subsistence diet.

1See "Survival," July 1957 issue, *Infantry*.

MAJ FRANK F. RATHBUN, operations officer, Foreign Military Studies Branch, Historical Division, U. S. Army in Europe, began his military career in 1942. After receiving his commission at Fort Benning, he was assigned to the 6th Infantry Division and served as a platoon leader in Hawaii and New Guinea. In 1946 he became Chief, Library Production Division, Natural Resources Section, Headquarters, Allied Powers in Tokyo. Two years later he returned to Fort Benning where he became training film officer in the Training Literature and Visual Aids Section of The Infantry School. In 1950 he moved to the present Editorial and Pictorial Office and served as assistant editor of *Infantry* magazine. The following year he was assigned to the 25th Infantry Division in Korea as a plans and operations officer. Upon his return to the states he was reassigned to The Infantry School where he became Chief, Training Literature Section, Publications and Visual Aids Office, a post he held for five years. In April of this year he was ordered to his present assignment in Europe.

You can supplement your clothing in a number of ways. A pair of slippers made from a block of wood and a piece of canvas — shower style — will give you a much needed change of shoes and save your boots for the eventful day. Also, rags wrapped around your hands, boxer style, can serve as gloves and, when needed, as bandages.

Now for the *maintenance* angle, the taking-care-of phase of your preparation for escape. As a soldier you have already been taught to take care of your clothing and equipment. As a POW your efforts in this respect must be redoubled. You won't have much to begin with, and there will be no supply sergeant to issue you a new pair of shoes when the soles on your old ones wear out. Also, heading the list of the items to be maintained are your own health and morale. Make friends. Don't sit in a corner and sulk or pick quarrels with fellow prisoners. A small, informal group organized as much as possible along military lines with loyalty among its members is important. You may need help if you become ill or are "done out" of your share of food or other items.

We have already discussed how clothing can be hoarded. To maintain the clothing that you must use, watch for early signs of wear and make any repairs you can with the material at hand. A small raveling or hole in your trousers can mean a tattered and drafty piece of clothing if not promptly mended. Find some way, crude though it may be, to keep the hole from growing. You can, for instance, make a needle from a thorn or splinter. Thread can be unraveled from the inside seams of most clothing.

The life of shoe soles can be prolonged by proper care, perhaps even by binding some other substance such as wood or canvas to the soles to keep them from wearing. If your soles do wear through, make a reinforcing insole from cardboard, bark, canvas or even paper.

The greatest job of maintenance that you must perform is on your own physical being. This is just another way of saying that you must use every means at your disposal — and create others — to keep yourself in good health.

The most important rule in this respect, as in normal hygiene, is to keep clean. If you are given soap and water, use it as often as you can. It is the best preventive medicine in the world. Don't grow neglectful simply because you have no high class social function to attend. If there is no soap, use water. If you have neither soap nor water, rub your body with cloth, grass or even your bare hands. Remember the stunt that you probably used as a little boy of rubbing your hands together to remove excess dirt. You can take a good shower during a rain storm or a "sponge" bath by wetting a cloth or your hands with early morning dew. Pay

close attention to the parts of your body that are particularly susceptible to rash and to fungus-type infections — crotch, scalp, under arms and the spaces between your toes.

Keep your clothing clean as possible, using soap and water when you can. When you can't, hang it out in the sun or open air. If you become infested with body lice, take off your clothing at least twice a day and examine all seams closely for eggs or newly hatched vermin. And while your clothing is airing, take a close look at yourself for these intimate little monsters. If your captors provide disinfecting facilities take advantage of them whether you are infested or not. You may get a good bath or even a change of clothing, on the house.

Don't forget your teeth. A simple twig chewed on the end can be made into a serviceable toothbrush. If you can't find a twig, massage your gums every day with your finger and follow the massage with a mouth wash of plain water. This will go far toward saving your teeth and preventing mouth disease.

Remember, as your rations get skimpier, your resistance to disease also drops. To balance off your lower resistance, you must use whatever crude methods you can think of to carry on with your normal habits of personal hygiene.

In case you become ill, report your condition to the camp authorities and ask for medical care. You may or may not get it, but the chance makes it worth the try. A simple head cold in your weakened condition could quickly develop into something worse. The old adage about an ounce of prevention being worth a pound of cure goes double for a POW.

Another thing you must hold onto with all your strength is your will to survive and escape. This takes guts as well as muscle. We know that many

POWs in Korea died simply because they lost their will to live. We know of other men who survived under incredible horrors and privation, simply because they kept their will to live in top-notch running order. Planning an escape in itself, even though it may never bear fruit, is one of the best ways to hold on to your morale and will to live. The simple act of getting ready gives you something to occupy your mind — as well as your hands — during long, heartbreaking days in enemy hands. Even under normal living conditions, the man who loses his ambition or interest in living presents a sorry picture and generally dies before his time. You can get in this fix much faster in a POW camp if you admit defeat and lose your will to survive simply because the cards are stacked against you.

Play your cards close to your chest. The stakes are high. *Save.* Make a collection of items that would be most vital to escape. *Add to.* Determine what else you might need, then find some way to make or get it. *Take good care of* the few things you do have so they will be ready the night you slip over or under the fence and light out for *home.*[2]

[2]For information on evasion techniques which may help you to avoid recapture after making a break see "Evasion and Escape," April 1957 issue, *Infantry.*

Ride to work

By CAPT PAUL J. MUELLER, JR.

The armored personnel carrier is now organic to the pentomic Infantry division. Infantry unit commanders must be able to employ this highly mobile and versatile amphibious vehicle in combat operations

The development of tactical atomic weapons in recent years has brought about certain basic changes in our tactical doctrine, changes which will permit us to achieve the maximum benefit from our own atomic fires while reducing the vulnerability of our forces to enemy atomic fires. Battlefield mobility is necessary if we are to exploit the effects of friendly atomic fires. As any static concentration of forces provides the enemy with a lucrative atomic target, emphasis is placed on dispersion of units, while movement and deception further reduce the likelihood of enemy atomic attack. Dispersion in itself does not provide the complete answer to the problem, however. A commander must be able to concentrate his dispersed units at the critical point at the critical time to achieve sufficient combat power to overcome the enemy. Further, to reduce as quickly as possible the atomic target formed by concentration of his forces, he must be able to disperse his units rapidly. We see, then, that our underlying requirement in this atomic age is for greater *battlefield mobility*. No longer can we expect our Infantry to conduct a "two-and-a-half mile per hour" war, for foot mobility alone may not permit our Infantry to survive on the atomic battlefield.

This need for greater mobility is partly satisfied in the new Infantry division, TOE 7T (ROCID), for organic to this division there is a transportation battalion consisting basically of one truck transport company and two armored carrier companies. The truck transport company has four platoons of two squads each, with each squad containing ten 2½ ton trucks. Each armored carrier

company has three platoons of two squads each. Each platoon has a total of 19 carriers; one in platoon headquarters (which mounts either an AN/VRQ 3 or an AN/GRC 8 radio), and nine in each squad (two of which mount AN/GRC-8 radios). The standard carrier at present is the M-59, the characteristics of which have been discussed previously.[1]

These figures mean very little until the carriers are examined from the standpoint of the mobility which they give to the division. The M-59 was designed to carry 12 combat-equipped men including the driver, though it can carry up to 16 without undue crowding. Four armored personnel carriers, therefore, will carry one rifle platoon, or 16 will accommodate the rifle platoons of a pentomic rifle company. Giving the rifle company commander an APC brings the total to 17. This just about matches the operational capabilities of an armored carrier platoon when probable combat loses and mechanical breakdowns are considered. Thus the six armored carrier platoons can effectively carry six of the twenty rifle companies in the division. Or, for planning purposes, we consider that the carriers organic to the division will lift one battle group.

The truck transport company provides additional transportation for the division. It can carry about seven or eight rifle companies, depending upon the number of trucks operational and the manner of loading personnel. Also, under certain circumstances, other vehicles of the division may be used to transport personnel. In some situations, Infantry may ride on the decks of tanks. These means of transportation, however, are beyond the scope of our discussion here, as we are concerned principally with the tactical employment of armored personnel carriers.

Because of the characteristics of the M-59, it is desirable that they be attached (or attached for operational control) to the battle groups in contact with the enemy, while those battle groups not in contact utilize other means of transportation. Since there are only a limited number of APCs in the division, the division commander may often utilize these vehicles to mount his reserve, thereby ensuring a highly mobile force with which to influence the action. Similarly, the battle group commander may use attached APCs to mount his reserve, or he may attach all or part of these vehicles to his attacking rifle companies. In any event, the rifle company may or may not have APCs attached. If they are attached, how will they be employed?

Before discussing their employment in specific types of operations, let us consider the advantages which attached APCs will give the rifle company in any type of operation. In general, the attachment of APCs increases the rifle company's capabilities by providing the company with light armor-protected mobility and additional firepower and shock action. Infantry mounted in APCs can move rapidly cross-country in suitable terrain, protected from small-arms fire and shell fragments. They can move with safety through anti-personnel minefields. The armor also provides a degree of protection from the blast, thermal and radiation effects of atomic weapons. Infantry mounted in these vehicles receive considerable protection while moving through chemically, radiologically or biologically contaminated areas. Since each APC mounts a .50-caliber machine gun, this additional firepower can greatly assist the rifle company in all types of operations. In addition, the M-59 has an unlimited fording depth—in other words, with its normal load, it floats. It can cross moderately flowing rivers (with a flow of 4 to 5 mph) and other inland

1See "Chariot for the Queen" in the October 1956 *Quarterly*.

bodies of water, under its own power.

Like the tank, however, the APC does have its limitations which must be considered if the vehicle is to be employed properly. Its size and large silhouette make it easy to detect when operating in the open or on the skyline. Certain types of terrain may restrict or prohibit the movement of APCs. Its weight may restrict its movement in areas of poor soil trafficability or across lightly constructed bridges. The vehicle is noisy, making it easy to detect, especially at night. When the APC is operated with the hatches closed, the driver's and vehicle commander's vision is restricted. Timely maintenance of the vehicle is required if it is to continue operation over extended periods. In addition, under the present organization of the armored carrier company, communication facilities are limited; a rifle platoon leader has no radio communications for the control of the vehicles in which his platoon is riding. While these limitations exist, they certainly do not preclude the use of APCs in most situations; by careful prior planning, reconnaissance and training, the restrictions imposed by these limitations can often be made insignificant or at least greatly reduced.

APCs in the Attack

The fundamentals of offensive action as applied to a rifle company are substantially the same whether the company is dismounted or is mounted in armored personnel carriers. When mounted,

greater emphasis will be placed on frequent and rapid movement, to include continuation of the attack from intermediate objectives. The company can be expected to seize deeper objectives than when dismounted. The attacking echelon will more frequently bypass enemy resistance, which will be eliminated later by reserves. With the advantage of greater mobility, the company may be more dispersed than in a dismounted attack, and may be more widely separated from adjacent units. With emphasis on rapidity of movement comes the related requirement for greater reliance, at all levels, on fragmentary and mission-type orders.

In formulating his plan of attack, the rifle company commander must consider (in addition to those factors considered for a dismounted attack) certain factors relating to the employment of APCs attached to his company for the attack. Some of the more important of these considerations are: the terrain, obstacles, the enemy situation, the degree of mobility of the company, the number of tanks attached and the availability of supporting fires, particularly atomic fires.

The terrain along the axis of advance or in the zone of action may facilitate the use of APCs or it may restrict their movement. These vehicles operate most effectively over relatively open, rolling terrain, where their cross-country mobility can be utilized to the maximum extent. Close terrain, such as woods, may limit the use of APCs, not only because the movement of the vehicles may be restricted, but also because the movement through such terrain with Infantry mounted may unduly expose the APCs to fires of enemy tank-hunter teams concealed by the foliage. In analyzing the terrain, the rifle company commander should not habitually select routes of approach over only the best terrain available for the movement of his APCs. Rather, he should consider the use of

less favorable terrain if this gives a greater opportunity of achieving surprise. In addition to considering the trafficability of the terrain for APCs, he must consider trafficability for wheeled vehicles. Terrain which can be negotiated by APCs may be impassable to the wheeled vehicles which carry supporting weapons and the logistical support necessary for sustained operations.

Obstacles, either natural or man-made, may deny certain avenues of approach to the mounted company. Extensive obstacles may prohibit the use of APCs by the attack echelon until dismounted action permits the breaching of these obstacles.

An important consideration in the employment of attached APCs is the enemy situation. Since APCs are vulnerable to tank and antitank fires, particular emphasis must be placed on the presence of enemy armor, antitank defenses and emplacements having overhead cover. As overhead cover will make air-burst artillery and mortar fires ineffective against enemy personnel so protected, movement of APCs in proximity to such positions will normally expose the vehicles unduly to short-range antitank weapons. In some situations, the presence of enemy armor, antitank defenses and positions having overhead cover may preclude or greatly restrict mounted movement forward of the line of departure until these elements or positions can be destroyed or neutralized. On the other hand, when enemy armor is absent, when antitank defenses are weak and when the enemy occupies hastily prepared positions lacking overhead cover, movement in APCs may be possible all the way to the objective.

When APCs are attached to a rifle company for an attack, it is highly desirable that enough carriers be attached to transport all four rifle platoons, and in some situations, elements of the weapons platoon. It must be recognized, however, that in some instances only enough APCs may be attached to carry some of the dismounted elements. This partial mobility must be considered in attack planning, for care must be taken to insure that the mounted and dismounted elements do not become so widely separated that defeat in detail may occur.

The attachment of tanks to the rifle company for operations will have a pronounced effect on the use which can be made of APCs in the attack. When operating without tanks, the capabilities of the APCs cannot be utilized to the maximum extent because of the vulnerability of the carriers to tank and antitank fires. Through their ability to destroy enemy tanks and antitank guns by fire, friendly tanks provide protection for the APCs. In addition, the tanks will draw fire which might otherwise be directed at the APCs. Consequently, a mounted attack with tanks and APCs may often be possible against enemy defenses which could not be attacked using APCs alone.

The availability of supporting fires, particularly atomic fires, will influence the company commander's employment of attached APCs. Conventional fires may or may not be sufficient to neutralize enemy defenses to a degree where a mounted attack would be feasible. Atomic fires often will destroy or neutralize enemy defenses to such an extent that mounted movement would be possible onto or perhaps past the objective, even without friendly tanks being present.

While attack planning is essentially the same for a mounted and a dismounted attack, the rifle company commander must, when planning a mounted attack, take into consideration specific differences in techniques involved in order to capitalize on the capabilities of the carriers and to utilize them within these capabilities. The following is a discussion of some of these differences.

An attack position is seldom used by a rifle company for a mounted attack. Whenever possible, the movement of the company from the assembly area is so timed that the lead elements of the company cross the line of departure (or initial point) at the prescribed time without a halt, as any halt immediately prior to crossing the LD results in greater exposure to indirect fires and greatly reduces the degree of surprise which may be achieved. It may be necessary at times, however, to halt the company in an attack position to accomplish final coordination or complete other mandatory preparations before launching the attack.

A mechanized rifle company will most often be assigned an axis of advance. Seldom will a zone of action be assigned. The assignment of an axis permits the greatest flexibility in the attack. To capitalize on the additional advantages afforded by the APCs, the company commander should allow his platoon leaders the greater freedom of action consistent with the company plan of attack. Intermediate objectives selected should be only those absolutely necessary for the control and conduct of the attack.

For a mounted attack, the rifle company commander may select a dismount area (or areas) forward of the line of departure where his attack echelon will dismount from their carriers and continue the attack on foot. This area may be short of the assault line, at the assault line or on the objective. The company commander selects the dismount area based upon his estimate of how far forward his attack echelon can move mounted before becoming vulnerable to enemy tanks, antitank guns, obstacles or tank-hunter teams. Consideration is given to the protection afforded by tanks attached to the company, by conventional supporting fires, by the terrain and by the effects of atomic weapons. He plans to move mounted as far forward as possible. In any event, the selection of the dismount area is *tentative* and may be changed during the conduct of the attack should the enemy situation permit or require such a change.

The rifle company commander's plan of attack will include specific plans for the employment of his attached APCs. When sufficient APCs are available to mount all rifle platoons, the company commander normally attaches the carriers for operations to the platoons. Occasionally, enough APCs are attached to permit mounting some elements of the weapons platoon also. However, when the company is only partially mobile, the company commander must determine how best to employ the APCs to accomplish the mission. In this situation, first consideration should be given to mounting the company reserve rather than the attack echelon, as such employment will permit greater flexibility.

In planning for the use of the mechanized reserve, it must be remembered that the presence of APCs with the reserve gives it a greater capability than if it were dismounted. Because of the ability of the reserve to move rapidly, positioning to facilitate probable commitment (such as on an exposed flank or behind a particular platoon in the attack echelon) will often be unnecessary. The accomplishment of flank security missions assigned to the reserve is facilitated by the use of single APCs performing surveillance roles on the flanks. Normally, the company commander will plan to keep his reserve mounted until committed, and as long thereafter as the situation will permit.

The plan for the reorganization and consolidation involves special considerations when APCs are attached to the company. Plans must be made for the timely resupply of fuel, lubricants and ammunition for the carriers. This resupply is accomplished on position if possible, though enemy action may force it to be performed in defilade in rear of the objective. The resupply of ammunition to the rifle platoons is facilitated when APCs are attached, as a considerable amount of ammunition can be carried on each vehicle. Plans are made for the use of APC weapons to assist in the consolidation, either from hull-defilade positions to provide fires to the front or by having them provide security for the flanks and rear. When an enemy atomic threat exists and dispersal of elements of the company is desired, the mobility afforded by the APCs will permit rapid dispersal and also rapid reconcentration of the company should defense of the objective against conventional attack be necessary.

As has been previously stated, when the rifle company has the mobility afforded by APCs, emphasis is placed on rapid continuation of the attack to keep the enemy off balance and maintain momentum. To facilitate this rapid continuation of the attack, preliminary plans should be as complete as possible to minimize delay on an intermediate objective.

Just as there are special considerations in developing the plan of maneuver for a mounted attack, there are additional factors to be considered in formulating the fire support plan. In general, maximum consideration must be given to providing adequate protection for the APCs through the use of supporting fires. When enemy positions lack overhead cover, artillery and mortar time fires and small arms fire may be used effectively to protect the carriers from short-range antitank weapons. Fires are planned on known and suspected enemy tank and antitank gun positions. Smoke may be used to screen the forward movement of the vehicles and the dismounting of the Infantry. As the movement of the mounted maneuver elements will be rapid, thorough planning and coordination of supporting fires are essential to permit the timely delivery, shifting and lifting of fires.

An important consideration in fire support planning is the company command-

er's visualization of the displacement of supporting weapons in relation to the movement of the maneuver elements. For example, if it appears that the maneuver element may move rapidly beyond the range of organic supporting weapons, plans must be made for reliance on nonorganic fire support means during periods of displacement.

During the conduct of the attack movement forward of the line of departure is made as rapidly as the terrain, capabilities of the carriers and use of supporting fires will permit. Maximum advantage is taken of attached tanks by having a mounted rifle platoon follow in rear of the tank platoon in a similar, integrated formation, thus reducing the exposure of the APCs to enemy direct fires. Mounted movement is continued until the objective is reached, until the APCs encounter some obstacle or until enemy fires make mounted movement more costly than dismounted movement.

In some situations, enemy reaction may be less than anticipated and mounted movement may be possible beyond the tentative dismount area. Should this be the case, the company commander would order the mounted movement to continue without a halt. On the other hand, the attack echelon may receive unexpected tank or antitank fire prior to reaching the dismount area. In this situation, the platoon leader involved must determine immediately how he can dismount his platoon under the safest conditions possible. Depending upon the situation, the dismounting may take place immediately, or an attempt may be made to run for cover. In any event, all available fires, including smoke, must be placed immediately on the known or suspected location of enemy weapons. The company commander, forward observers and crews of direct-fire supporting weapons must be alert for situations of this type and must react immediately so that minimum casualties will be suffered by the attack echelon.

APCs in Defense

In the defense, priority for the attachment of APCs will be given to those units requiring armor-protected mobility for the accomplishment of their mission. Most frequently, APCs will be utilized to mechanize those units occupying positions on the general outpost and combat outpost lines, units in reserve, units in the forward defensive area which might be required to withdraw and fight delaying actions and units having extensive security and surveillance responsibilities. Because of the limited number of APCs available within the division, APCs normally will not be attached to a rifle company with the mission of holding terrain.

The advantages of having APCs attached in the defense are obvious. Primarily, these vehicles permit the rapid movement, with a degree of protection, of troops during the conduct of the defense. This mobility results in greater flexibility in the accomplishment of security missions, the defense of areas, the withdrawal of units when required, the movement of the maneuvering element in the counterattack and in the conduct of operations against guerillas, infiltrators and enemy airborne troops. In addition, the carriers may be used to provide protection to troops during our detonation of atomic weapons in close proximity to friendly positions. The fires of APC machineguns supplement the fires of the Infantry in the conduct of the defense. APCs may be used to resupply critical items, to carry ammunition, to evacuate casualties and as command post vehicles.

In determining how best to employ APCs attached to his company, the rifle company commander must consider his

mission, the number of APCs available, the terrain, the friendly and enemy situations and, of course, the requirements for security of the vehicles. By properly evaluating these factors, the company commander can determine if best advantage can be taken of the APCs by retaining them under company control or by further attaching them to his subordinate elements, and, if the latter is so, to which elements they should be attached.

The rifle company may be assigned a mission as part of a security echelon, as a forward company or as a reserve unit. Whatever the mission, first consideration is given to attaching APCs to those elements of the company which may be required to move during the conduct of the defense. Elements on the combat outpost or other security detachments should be provided with APCs whenever possible. Mechanization of the company reserve normally will permit greater flexibility in the conduct of the defense than attachment of all available carriers to the forward platoons. Should the company be given the mission of holding terrain, the attachment of APCs to the forward platoons may not be warranted, even though available. On the other hand, in the mobile defense, if the company mission requires delaying from successive positions, APCs should normally be attached to the rifle platoons rather than retained under company control.

Should enough APCs be attached to the company to provide complete mobility, the company commander will have no problem in determining which of his elements should receive priority. The company may receive only a limited number of carriers, however, in which case this priority of use must be determined. Carriers initially attached to combat outpost elements may revert to company control on their withdrawal or may be attached to the reserve or other platoons. Frequently, the retention of a

limited number of carriers under company control will result in greater flexibility than would attachment of all carriers to elements of the company.

The terrain in the area of operation must also be considered. Certain portions of the company area may restrict the movement of the carriers; the use of APCs in these areas is avoided. Cover and concealment may be so lacking in certain areas as to unnecessarily expose APCs, necessitating the positioning of the vehicles in a concealed area in rear under company control.

In considering the enemy situation, the rifle company commander must pay particular attention to the enemy air, armor and fire capabilities. If enemy air is active, attachment of APCs to rifle platoons may be necessary, as movement of the vehicles in daylight may have to be restricted to emergencies only. The presence of enemy armor may make attachment of APCs to the forward platoons unwise, as the carriers might be

CAPT PAUL J. MUELLER, JR., is currently assigned to the Tactical Department, United States Army Infantry School. Following his graduation from the United States Military Academy in 1950, he attended the basic airborne course at Fort Benning. During the next two years he served as a platoon leader with the 505th Airborne Infantry Regiment at Fort Bragg, the 508th Airborne Regimental Combat Team at Fort Benning and the 17th Infantry Regiment, Schweinfurt, Germany. While in Germany he also served as a tank company platoon leader and as an Infantry company commander. In 1954 he became assistant S3, 16th Infantry Regiment. The following year he returned to the states to attend the Infantry Officers Advanced Course at The Infantry School and in July of last year he received his current assignment with the Tactical Department.

too exposed to tank fires and to limited tank penetrations of the forward platoon areas. On the other hand, enemy atomic and conventional fire capabilities may necessitate the attachment of APCs to platoons to give them additional protection and mobility and to permit dispersion.

The friendly situation also will have a bearing on the company commander's decision on APC employment. An exposed flank may indicate the use of APCs with the flank platoon for additional protection, to provide a means of maintaining contact with the adjacent unit or to maintain surveillance of the gap between units. The presence of friendly tanks and other non-organic antitank weapons in the company defensive area may permit attachment of APCs to forward platoons, whereas the absence of those antitank means unduly exposes the carriers if they are located in the forward platoon areas.

Finally, the company commander must be certain that APCs attached to his company have adequate security. If the carriers are retained under company control in the company rear area, rifle company personnel usually will be needed to assist the carrier drivers in providing the necessary security. This use of rifle company personnel may not be warranted, indicating the necessity for attachment of the APCs to platoons. Proximity of the vehicles to the platoon positions minimizes the need for additional security personnel.

When APCs are attached to a rifle platoon in the defense, the platoon leader must determine where his APCs will be located. He may place them immediately in rear of his position in hull-defilade, from which they can support by fire. He may position them to provide security to the flanks and rear of his platoon area. Or, he may place them in a covered and concealed area in rear of his platoon. When the carriers are placed in hull-defilade firing positions, the fires of the .50-caliber machineguns provide considerable fire support. Supplementary radio communication facilities (normally one of the APCs) are readily available and the proximity of the carriers facilitates control. Ammunition and equipment carried on the vehicles are readily accessible to Infantrymen and the vehicles are available for rapid mounting when required. However, it must be remembered that the primary purpose of attaching APCs to a unit in defense is to provide the unit with an armor-protected means of transportation. Other benefits are secondary. If placing the carriers in hull-defilade might result in unnecessary loss, they should be kept in a covered and concealed position in rear of the platoon.

At night, the platoon leader can ease his vehicle security problem by moving

the APCs to positions within his platoon area. However, this technique may not be practical should the enemy be using extensive illumination.

APCs in Retrograde Operations

The attachment of APCs to a rifle company will greatly facilitate the conduct of retrograde movements. If possible, a rifle company required to make a daylight withdrawal or conduct a delaying action will have sufficient APCs attached to make it completely mobile. For a night withdrawal, only enough APCs may be attached to permit mounting of the detachments left in contact, while movement of the main body is made on vehicles (APCs or trucks) under battle group control.

The advantages of having APCs for retrograde movements are many. Essentially, a mounted rifle company has a greater capability and is less likely to suffer casualties than a dismounted company. The APCs provide the company with an armor-protected means of cross country transportation. With this mobility, the company can safely remain in position longer before withdrawing than if dismounted. Flank security is facilitated by carrier-mounted patrols. The additional firepower of the vehicular machineguns certainly is of great benefit. The mounted Infantrymen become less fatigued and are therefore more effective than they would be if dismounted. Greater amounts of ammunition can be carried. Wounded can be evacuated in APCs with their units when other means prove inadequate. Finally, the river-crossing capability of the APC permits the crossing of bodies of water which would otherwise be obstacles to movement to the rear.

Considerations for the employment of attached APCs in retrograde operations are similar to those for the defense. In a daylight withdrawal or delaying action, APCs normally are attached to the rifle platoons and to elements of the weapons platoon, if available. In a night withdrawal, the company commander usually will attach APCs only to the detachments left in control, retaining additional vehicles under company control in the rear area to facilitate secrecy.

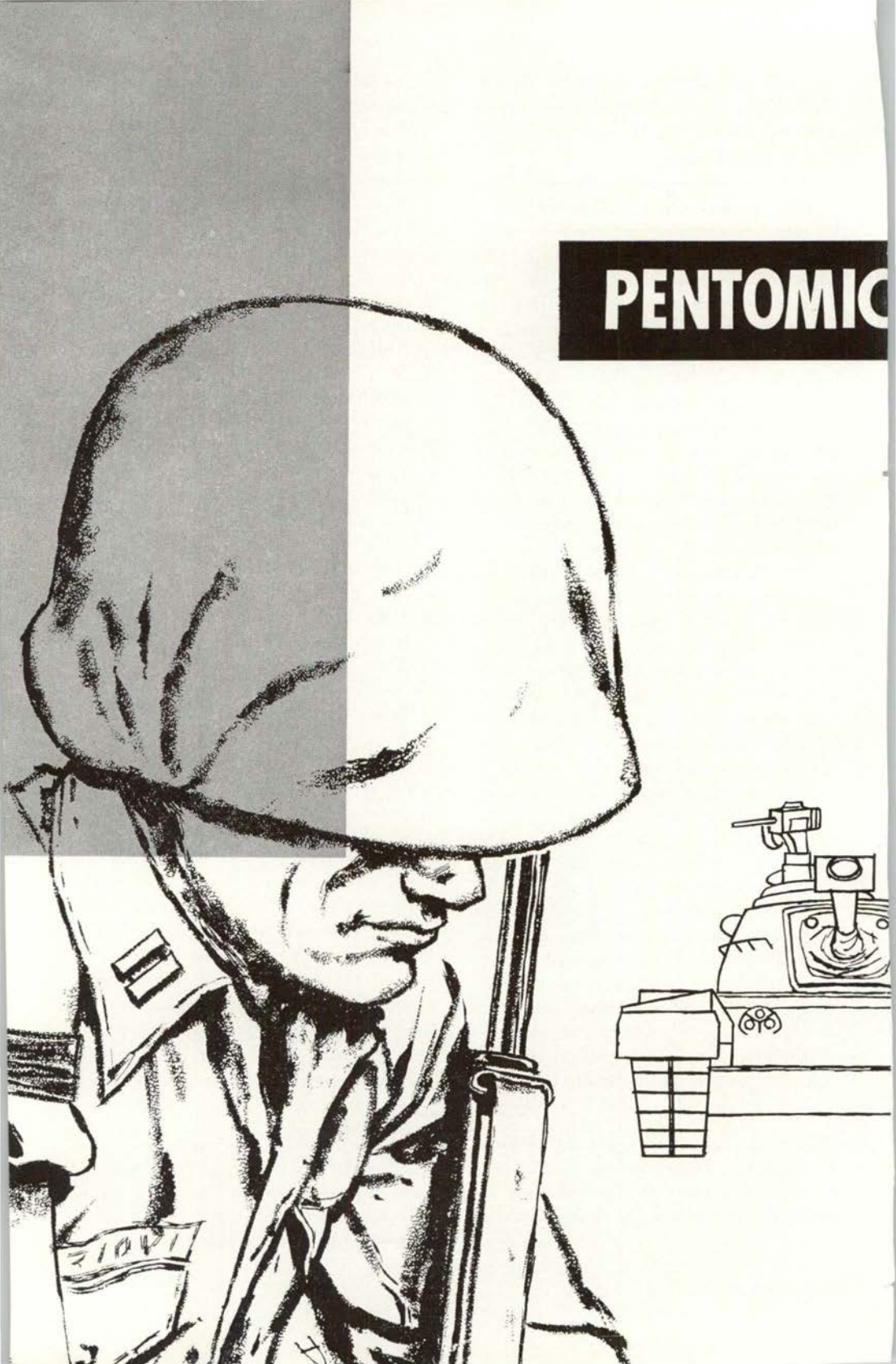
For retrograde operations, APCs are positioned as near to the unit they will carry as the situation permits. It may be possible to place them in hull-defilade. But in some situations it may be necessary to keep them completely in defilade. As in the defense, primary consideration must be given to placing them where they will not be needlessly destroyed.

It is not possible, in such a short discussion, to cover all considerations for the tactical employment of these versatile vehicles. Certainly, much has been left unsaid concerning their use in the attack, defense and in retrograde operations, while discussion of their use in special operations has been omitted entirely. (For additional information on this subject, see TT 7-10-2, USCONARC, dated February 1957, and the new FM 7-10, as soon as it is published). Armored personnel carriers within the Infantry division have considerably increased the capabilities of our Infantry units. No longer must commanders be limited to "two-and-a-half miles per hour" mobility. If properly employed, APCs will contribute to success in combat.

The spectacular advances which have been made in weapons and equipment, have in no measure diminished the paramount importance of man himself as the indispensable element of military strength. No weapons system is better than the men who use it, and none can replace the trained combat soldier — the man of decision.

SECRETARY OF THE ARMY WILBER M. BRUCKER

PENTOMIC



We take a look at the actions of the new rifle company in an attack situation which may be a pattern for the offensive operations of this unit on the atomic battlefield.

COMPANY IN THE ATTACK

By Capt Thomas H. Jones

Statements by political and military leaders and the availability of both strategic and tactical nuclear weapons indicate that such weapons probably will be used in any future war involving major powers. It is therefore apparent that Infantry units, including the rifle company, must be organized and trained to live and fight on the atomic battlefield.

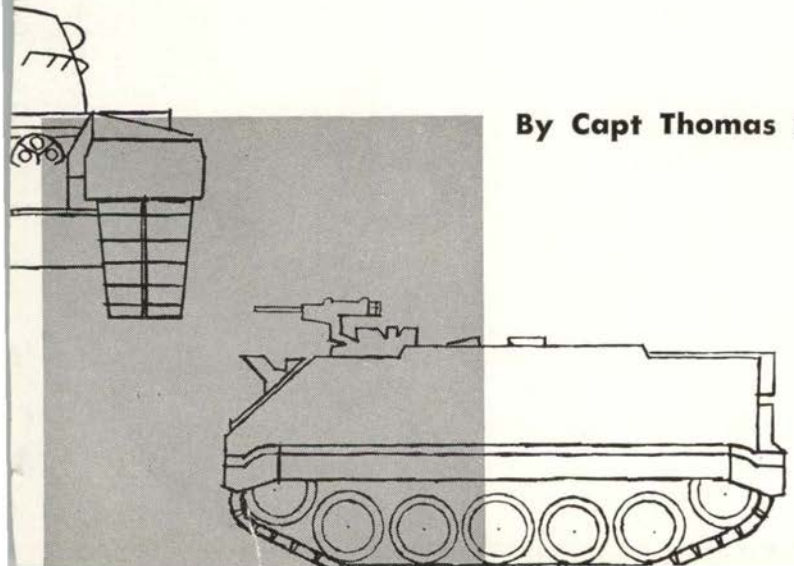
Previous articles in this magazine[1] have discussed both the organization of the rifle company in the new pentomic Infantry division and some of the basic concepts for its tactical employment. Now, we will consider briefly the pattern for offensive operations of this company and we will look at a mechanized pentomic rifle company in an attack situation which could be typical of those to be expected in atomic war.

In discussing the pattern of operations we shall consider fire support, maneuver, mobility and security.

Fire Support

While extremely valuable to the company, atomic weapons are not the complete answer to the rifle company's fire support problems. We may receive lesser effects from planned atomic fire support than expected or local atomic fires may be unavailable. Troop safety, and the

1See "Why Five?" April 1957, "Why Five? Part II, Infantry Division," July 1957 and "Why Five? Part III, Infantry Division," this issue.



danger of creating obstacles along maneuver routes, may make atomic fire inadvisable, as may the time lag required to get atomic support. Therefore, the company commander plans the fires of his 81mm mortars and 106mm rifles on likely enemy locations and requests fires, both atomic and nonatomic, which he feels are necessary to accomplish his mission. The 81mm mortars are used in general support, if possible, to permit effective massing and shifting of fires and to ease resupply. The 106mm rifles are used to engage enemy tanks and, secondarily, to destroy pillboxes, crew-served weapons, grouped personnel or other definitely located point targets. They may also provide antitank flank protection for the company. In employing the weapons platoon to support the company mounted in armored personnel carriers, the commander must consider that the wheeled vehicles organic to the weapons platoon cannot traverse certain terrain which is trafficable to the APCs.

Maneuver

We desire to remain dispersed as long as possible and then rapidly concentrate to the extent necessary to seize the objective. Then we want to disperse again to avoid remaining a lucrative atomic target. One of the most effective measures in avoiding enemy atomic and other fires is to close with the enemy rapidly. To do this, the company is frequently assigned an axis of advance and deep objectives; it uses assembly areas, attack positions and intermediate objectives sparingly, since their use tends to slow the attack and cause unnecessary concentrations. A column formation is often used in the initial stages of the attack due to its flexibility, control and low atomic vulnerability, followed by a rapid development of the attacking platoons to seize the objective. This type of maneuver demands mobility of the type provided by armored personnel carriers. But what happens on occasions when the company attacks dismounted? Dispersion is then limited and the pace is reduced to that of the foot soldier. The company may attack with one, two, three or even four platoons conducting the assault; those not in the attacking echelon constitute the reserve. The mission, enemy, terrain, troops and supporting fires available, distance from LD to objective, security requirements and width of the company zone and/or objective determine the formation selected. For example, a formation of one platoon in the attack echelon might be used when the enemy situation is obscure, where the company has a narrow zone, where a high degree of control is necessary, where one or both flanks are exposed, where the distance from the LD to the objective is great or where lateral dispersion is limited. Two platoons in the attack might be used when the enemy situation is only fairly well known, when one or both flanks are exposed or when fairly close control is necessitated. A formation of three platoons might be used when there is relatively detailed knowledge of the enemy, where the distance from the LD to the objective is not great, where the terrain allows considerable lateral dispersion and/or where the company flanks are relatively secure. A formation of four platoons in the attack may be used to rapidly clear a large objective following a friendly atomic detonation, when attacking at night or when making a river crossing.

The reserve elements of an attacking company may be assigned one or more of the following missions: attack from a new direction, assume the mission of an attacking platoon, protect one or both flanks of the company, maintain connecting group contact with adjacent units, mop up a position, protect the reorganization and consolidation of the attack echelon and/or assist the assault echelon by

the fire of the machinegun teams of the weapons squad.

Mobility

Armored personnel carrier mobility, terrain permitting, allows the company to employ tactics most suitable to the atomic battlefield. The considerations involved in the choice of formations for a dismounted attack are generally applicable for a mounted attack. However, one or two platoons in the attack are often used initially, particularly against deep objectives, since APC mobility allows quick deployment of the platoons to attack enemy positions, preferably against a flank. When APCs are attached to a company, the company commander further assigns them to his platoons. The maneuver plan is designed to take full advantage of the speed, armor protection, and the additional firepower and shock action provided by the APCs. It is desirable for troops to remain loaded in the APCs as long as the terrain and enemy situation permit. When forced to do so, they dismount and attack on foot. The senior Infantryman aboard an APC is in command and also mans the .50-caliber machinegun mounted in the turret. When the troops dismount, drivers or other designated personnel man the guns. The APCs either follow the dismounted Infantry by bounds or move forward to designated positions when called for by the commander of the transported unit. Ammunition and other supplies which are carried by the APCs following a foot attack are essential during consolidation or when the company disperses after seizure of the objective.

Security

To prevent destruction by atomic and nonatomic fires, and surprise by the enemy, the rifle company emphasizes passive and active security measures. The requirement for cover and concealment greatly affects the routes chosen by the company. Movement is often accomplished at night or under other conditions of reduced visibility and by infiltration through both friendly and enemy areas. The night attack is emphasized and smoke is used extensively to cover operations. The increased need for dispersion results in relative isolation of the company and demands that reconnaissance and security measures be stepped up to prevent surprise by the enemy throughout the conduct of the attack.

With these considerations as a background let's look at a pattern of action which the pentomic rifle company seeks to achieve. In a normal operation the company strikes towards a deep objective along an axis of advance. When resistance is met, direct and indirect fire elements are employed to fix the enemy and weaken him for the assault. Sufficient maneuver force is employed aggressively to strike the resistance, preferably on a flank. When enemy positions are more continuous and much stronger, the company depends on greater firepower, frequently atomic, and a hardhitting frontal attack to effect a penetration. Fires are then shifted and the deployed maneuver element shatters the enemy. The company reorganizes quickly and continues on its mission, leaving the mopping up to other elements of the battle group. The company is usually assisted in its operations by tanks, which support by fire and add shock power to the maneuver force and by artillery, including atomic, which vastly increases the indirect fire support available to the company commander. Operations of this kind require mobility — preferably that provided by armored personnel carriers.

We are now ready to take a brief look at the operations of a rifle company on the atomic battlefield (Figure 1, Situation Map, next page).

Company A of the 1st Battle Group,

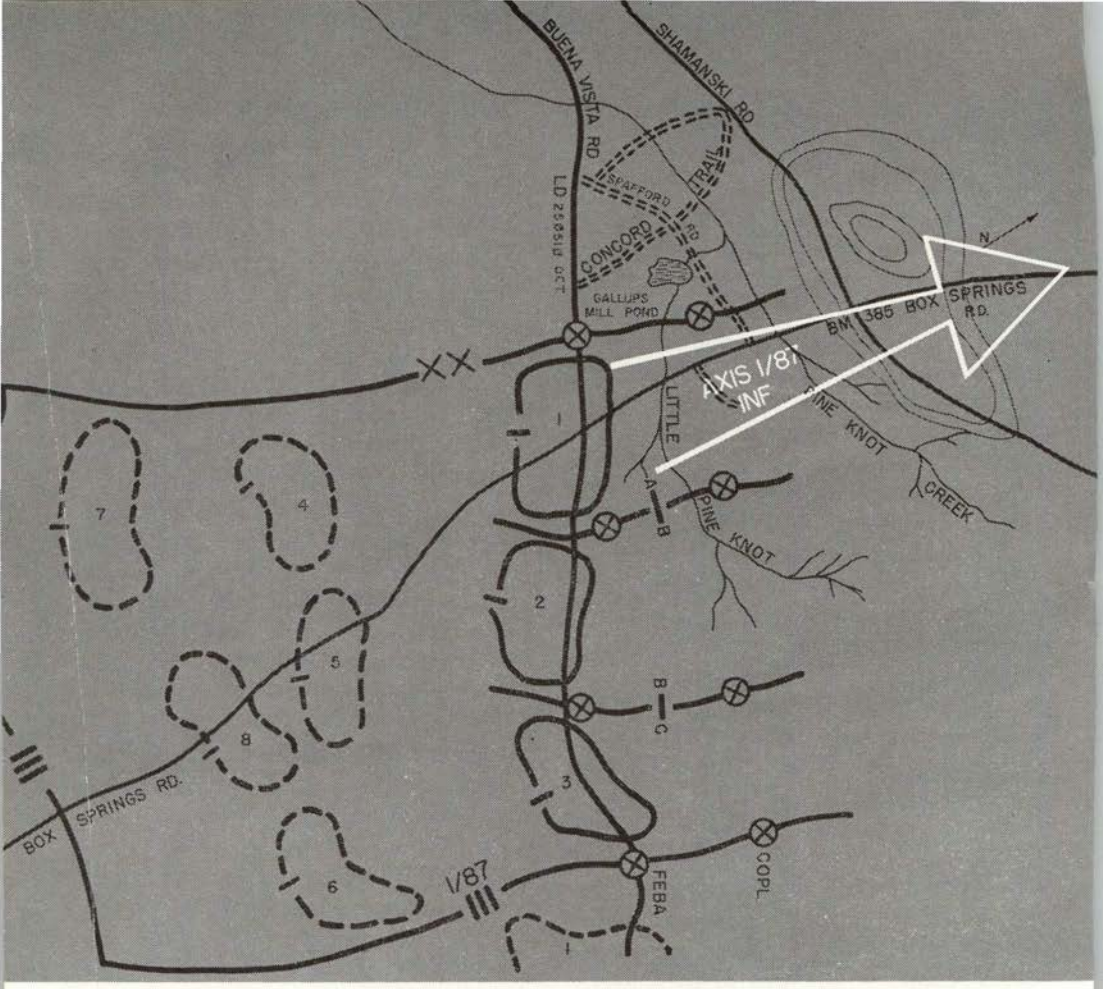


Figure 1. Schematic situation map.

87th Infantry, has recently participated in a successful mobile defense, during which it held position 1 for several hours and then withdrew to position 7 where it is now located. A striking force, attacking in conjunction with atomic and other fires, completed the destruction of the enemy and is occupying positions 1, 2 and 3. The COPL has not been reestablished.

Higher headquarters has ordered an attack to exploit the enemy's weakened condition. As part of this attack, the 1st Battle Group, 87th Infantry, mechanized, will move along axis Box Springs Road to seize an objective to the northeast.

Company A, reinforced with a platoon of tanks and 17 APCs, will lead along Box Springs Road and proceed toward the objective. The battle group reconnaissance platoon will screen the battle group left flank. The line of departure is Buena Vista Road; H-hour is BMNT tomorrow, 0510. Company A, followed by Company B, will leave its present position at 0435 hours and proceed at approximately 10 MPH to cross the LD at H-hour.

It is now 1200 hours. What preparations for the attack must be made by Captain, Company A?

Our established troop leading steps retain their validity. Efficient use of time, coordination, reconnaissance, formula-

tion and issuance of orders and supervision must be accomplished. In this case, the company commander, Company A, coordinates with the commanders of the APC and tank units to be attached so that these vehicles can be met and guided to appropriate points within position 7. He also coordinates with the reconnaissance platoon leader, the battle group fire support coordinator (on atomic and other fires), the commander of Company B, which is to follow Company A, and the battle group staff officers as is necessary.

He then proceeds to his company area from the battle group CP, where he had received the battle group order, and issues a warning order to his executive officer. He has formulated a tentative plan while returning to the company and consequently can give considerable guidance to his executive officer regarding preparation of the company and the positioning of tanks and APCs. He reconnoiters the route to the line of departure and coordinates with the commander of the company in position 1 concerning the passage of his company through this position at dawn. He also obtains additional information on the terrain and enemy situation. He then makes a ground, map, and if possible an aerial reconnaissance. The company commander then plans his attack, meets his subordinate leaders at a predesignated vantage point and issues his order.

Upon his return to the company, he supervises all necessary preparations. These preparations include the setting up of communications for the reinforced company and the issuing of necessary supplies and ammunition.

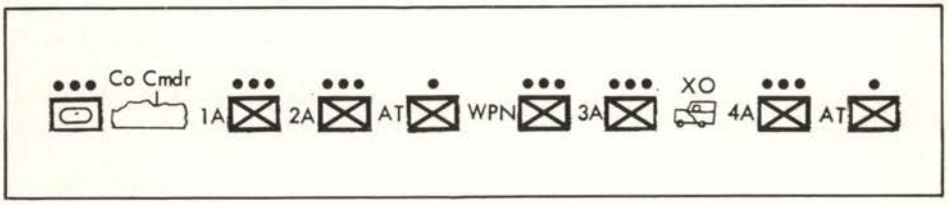
At this time he also determines the loading plan and order of march for his company (Figure 2).

The tank platoon is the leading element of the company. It is utilized in this position so that its firepower, shock action, armored protection and mobility are available to quickly overrun enemy resistance. The company commander, with his command group, is in an APC immediately behind the tanks, but may move as necessary to control his force. The 1st and 2d platoons, each with four APCs, are next in the column, followed by an antitank squad and the three 81mm mortar squads. The 3d and 4th platoons, each with four APCs, come next and an antitank squad trails for rear security. The company executive officer is located between the 3d and 4th platoons to assist in the control of that portion of the company. The company commander and platoon leaders are in APCs equipped with AN/GRC 8 radios.

This loading plan and order of march provide a good balance of tactical integrity, control and security and will facilitate accomplishment of the mission. Another workable arrangement would be to lead with a section of tanks followed by an Infantry platoon, the other section of tanks and then another Infantry platoon. This reduces tactical integrity but increases flexibility, in that two Infantry-tank teams are readily available.

Now let's see how the attack is

Figure 2. Order of march.



conducted (Figure 3). Company A crosses the LD at 0510 as scheduled and proceeds along Box Springs Road. When leading elements of the column are 500 yards past Little Pine Knot Creek, enemy small arms, antitank and mortar fire stop the column. Captain, Company A, quickly decides on a course of action. He opens fire on the enemy position with a tank section and with APC mounted .50-caliber machineguns and calls for artillery and 81mm mortar fire. He sends the remaining tank section and the 1st and 2d platoons, mounted, along the trail leading right off Box Springs Road to strike the enemy left flank. When the maneuver element strikes the enemy position, the remainder of the company lifts or shifts fire and awaits the company commander's order to move forward. Captain, Company A, did not want to overly concentrate his force; he attacked with only those elements which he felt would insure rapid destruction of the enemy. He might have requested permission to by-pass this resistance but in this case the terrain dictates destruction of the enemy as the most rapid means for proceeding along the axis.

The enemy is destroyed and Company A continues its advance. An extensive enemy antitank minefield covered by small arms and antitank fire is encountered approximately 200 yards north of Pine Knot Creek. One tank is disabled; the extent of the minefield has not yet been determined.

In this situation, Captain, Company A, requests artillery and mortar fire on located enemy positions and continues his direct fire from the tanks on the enemy. He also smokes the located enemy positions and the hill northwest of BM 385. He then sends patrols to both flanks to determine the extent of the minefield and routes around it.

A route is found around the minefield to the west, but heavy fire from positions extending along Shamanski Road to either side of BM 385, and from the hill northwest of BM 385 repels the elements attempting to maneuver. Aerial observers report enemy positions as shown in Figure 3.

Here, the company commander realizes that the enemy is in such strength that its reduction would require considerable time, and probably commitment of other elements of the battle group, before it could be overcome. Consequently, he reports the situation to the battle group commander and requests an atomic strike on the position.

The battle group commander approves this request and in turn requests atomic support from division. A 10 KT, high air burst, is selected with a desired ground zero at the Shamanski and Box Springs crossroads. A circle, within which approximately 85% casualties to warned and protected personnel will occur, is shown in Figure 3. The use of a 10 KT high air burst should insure almost total loss of combat effectiveness by the enemy, even if his positions are more extensive than observation indicates. Also, residual radiation from this high air burst probably will not be a serious problem to Company A providing adequate precautions are taken. The atomic weapon is to be detonated in 40 minutes. It could be delivered in less time than this, particularly if it was included in the planned on-call fires, but sufficient time must be provided to allow Company A to move.

The troop safety arc for this explosion extends well beyond Company A's present position. Here, a problem arises. How to get Company A outside this safety arc? Withdrawing along Box Springs Road would be time-consuming and difficult, and would cause Company A and following units to become overly concentrated. Consequently, the battle group commander orders Company A to move west on Spafford Road until the end of the col-

umn is past junction Spafford Road-Concord Trail. This will place Company A outside the danger area of the A-detonation. Following the detonation, Company A is to proceed to Shamanski Road, clear the hill northwest of BM 385 and check radiation at BM 385. Use of Concord Trail would not enable Company A to clear the atomic danger area.

If any elements of Company A are to be east of Concord Trail at A-hour, Captain, Company A, is to inform the battle group commander at least 5 minutes prior to A-hour so the strike may be postponed to avoid danger to these elements.

Company A begins its movements along Spafford Road. As the leading vehicle reaches a point just east of junction Spafford Road-Concord Trail, however, it is discovered that the enemy has felled trees and cratered the road so that passage of vehicles is impossible until a bypass is found. The trailing vehicles of Company A are east of Gallups Mill Pond, within the atomic danger area. Radio contact with battle group has been lost due to enemy jamming. It is 10 minutes prior to A-hour.

What should the company commander do? He makes every effort to regain contact with battle group, using tank, APC and FO radios as well as his organic sets. He continues to search for a way past the obstacle, investigates the possibility of clearing it and dispatches a messenger to the battle group commander. However, he is not sure these measures will work in time. Consequently, he orders the column closed up and has personnel in unarmored vehicles crowd into the APCs. By closing up the column and giving additional protection to his troops, he can avoid damage to his force. In this case, he is justified in concentrating his force, particularly since concealment is available.

This situation also points out the advisability of having an emergency visual

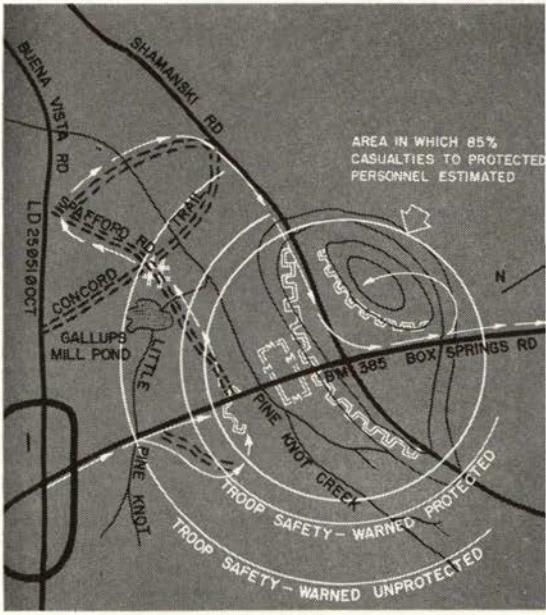


Figure 3. Conduct of the attack.

signal to stop the firing of atomic weapons.

Company A weathers the atomic explosion with only a couple of minor casualties, finds a bypass and proceeds toward BM 385 along Shamanski Road. The radiation along Shamanski Road and in the vicinity of BM 385 is monitored with radiac instruments handled by a trained operator located in the third tank in the column.

The column turns north on Box Springs Road and deploys to a limited degree to protect the movement of the 1st platoon up the north slope of the hill northwest of BM 385. The 1st platoon is to destroy or capture enemy survivors and ascertain the results of the explosion. Personnel avoid dismounting in the vicinity of ground zero as radiation is most intense at that point.

The battle group commander replaces Company A as the leading unit with Company D and proceeds on the mission. The battle group continues its attack and secures its objective.

THE

This new machinegun will replace four of our current weapons.

By Major Lincoln Landis

M-60 MACHINEGUN

The familiar Browning .30-caliber machinegun, which served the Infantry in three wars during the past 40 years, is about to be replaced. Department of the Army has announced the adoption of the M-60 machinegun, a new, lighter weight weapon[1] which fires the 7.62mm NATO cartridge.

While the M-60 is not expected to go into quantity production until after it has been thoroughly troop tested, it has been adopted as standard and should be available for issue to all units by 1960.

A number of the weapons have been produced and current plans call for troop tests to be conducted by the 101st Airborne Infantry Division at Fort Campbell. Cadre from the 101st, who will assist with these tests, are to be given a course of instruction on the M-60 at the United States Army Infantry School starting in January 1958.

The tests will determine what, if any, modifications will be required before quantity production commences.

Because of its intended role as a replacement for the water-cooled heavy machinegun of the old heavy weapons company and for the light machinegun of the rifle platoons, the weapon is sometimes referred to as the "general purpose machinegun." Mounted on the integral bipod or the M-91 tripod (Figure 1, next page), the M-60 will be employed well forward with the frontline rifle platoons and will bring a heavy sustained fire capability to the family of new light Infantry weapons.

Characteristics

Gas-operated and air-cooled, the M-60 is made largely of stamped parts which are easier to produce. Its simple operation and fewer parts facilitate maintenance and simplify training. There is no requirement for headspace adjustment. The gun fires from an open bolt and has a quick-change barrel. The ammunition belt consists of disintegrating metal split-links of a new design.

[1]The general characteristics of the M-60 were discussed on pages 31-33, July 1957 issue of *Infantry*.

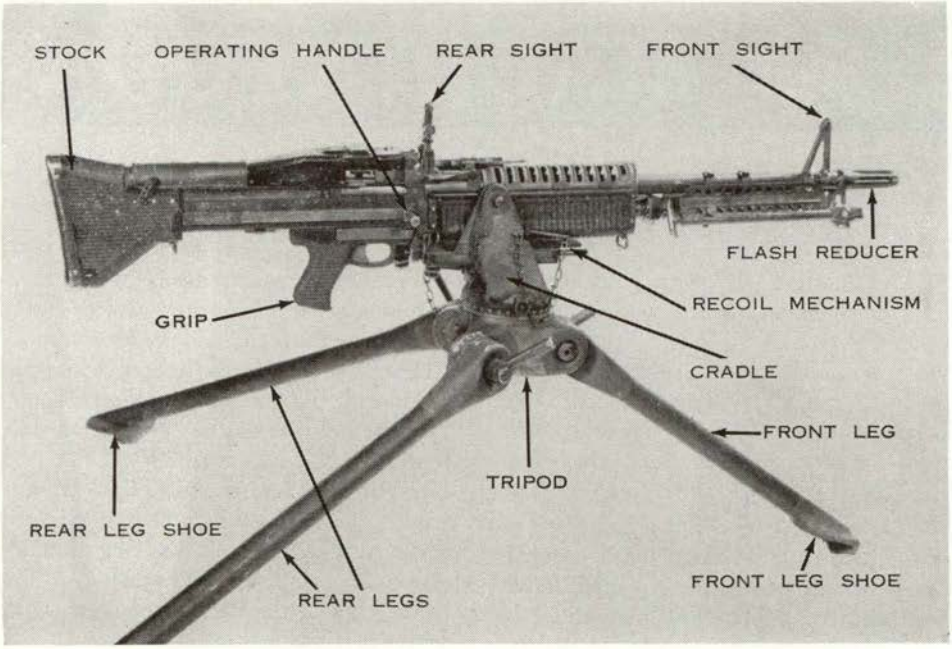


Figure 1. M-60 mounted on M-91 tripod.

Mechanical Training

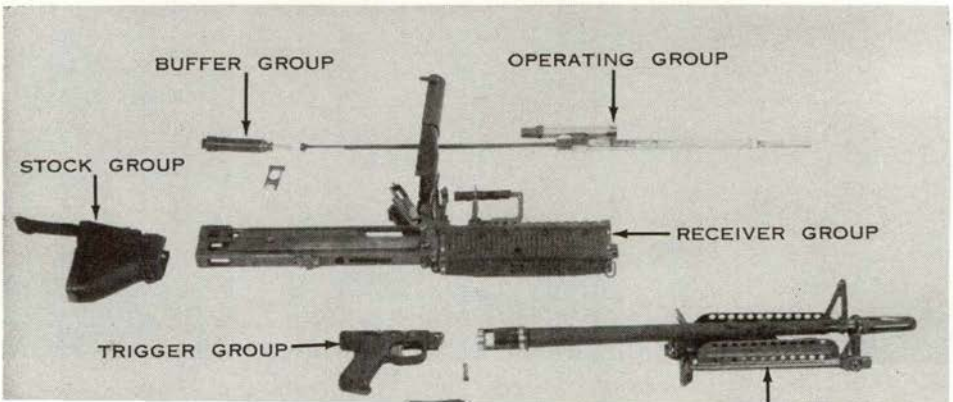
General disassembly and assembly of the M-60 is accomplished by using either a cartridge or a wrench to break the gun down into six groups: *stock, buffer, operating, barrel, trigger* and *receiver* (Figure 2). Detailed disassembly of the various groups requires use of the wrench.

The stock is removed by inserting the nose of a cartridge into the latch hole at the rear of the stock. After the lock plate has been removed the buffer is taken from the rear of the receiver. The operating group is then withdrawn. The barrel is removed by raising the barrel lock and withdrawing the barrel from the front. By drifting out a locking pin, the trigger can be removed. The receiver group, which includes the cover, remains.

Assembly of the gun is performed by replacing the groups in the reverse order of disassembly.

Detailed disassembly in troop units normally will be limited to the operating and barrel groups. The trigger and receiver groups are disassembled only as required for extensive cleaning or replacement of worn or broken parts. If

Figure 2. M-60 disassembled into six major groups.



required, the cover and feed plate would be replaced as a unit. Disassembly of the stock and buffer groups is not authorized.

Operating Group. To disassemble the operating group (Figure 3), remove the spring and the guide. Rotate the bolt, compressing the firing pin spring, and separate the bolt from the operating rod. Disassemble the bolt by drifting out the bolt plug pin and unscrewing the bolt plug. Remove the feed roller body, firing pin spring, firing pin sleeve and the pin. Assembly of the operating group is the reverse of disassembly.

Barrel Group. To disassemble the barrel group (Figure 4, next page), unscrew the front and rear gas cylinder screws with a wrench and slide out the piston. In assembling the barrel group, insert the piston with the head to the rear.

Trigger Group. Disassembly of the trigger group (Figure 5, next page) is performed by removing the sear pin, sear, sear plunger and spring. Depress the sear plunger when replacing the sear.

GENERAL DATA M-60

APPROXIMATE WEIGHT	(POUNDS)
Barrel group	8
Gun without barrel group	15
Gun mounted on bipod	23
M-91 tripod mount	25
Gun mounted on tripod	48
RATE OF FIRE	**(ROUNDS PER MIN.)**
Sustained	100
Rapid	200
Cyclic	600

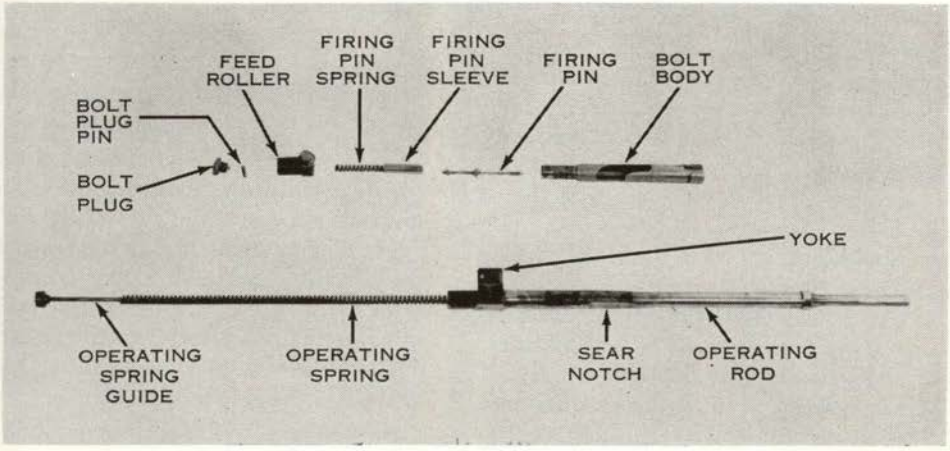
SIGHT GRADUATIONS
100 and 300 to 1200 yards in 100-yard divisions

TRIPOD READINGS INCLUDING
Controlled direction: 160 mils in 1-mil divisions
Controlled elevation: 200 mils in 1-mil divisions
Free direction: 6400 mils in 25-mil divisions
Free elevation (controlled by rear tripod legs): 600 mils above 0 and 400 mils below 0, both in 100-mil divisions.

Loading and Unloading

Loading and unloading procedures for the M-60 differ from those used for the recoil-operated Brownings, since the new gun fires from an *open* bolt. Half-loading is performed with the bolt forward and cover down, by pushing the first round in the belt over the belt-holding pawl.

Figure 3. Operating group disassembled.



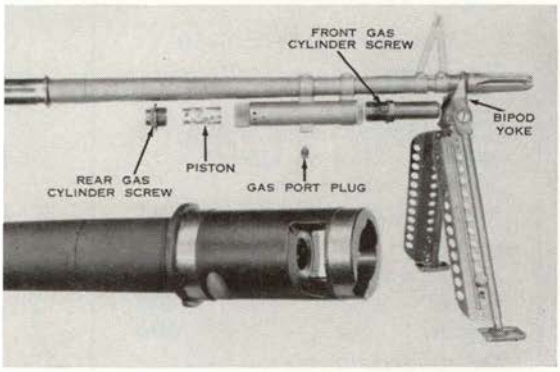


Figure 4. Barrel group disassembled.

To load (Figure 6), the gunner cocks the gun by pulling the operating handle to the rear, causing the notch in the operating rod to hang up on the sear. If the gunner presses the trigger the gun will fire automatically as long as the trigger is pressed.

To unload the gun, raise the cover, clear the feed plate of ammunition and links, lower the cover and press the triger. The M-60 is clear when the bolt is forward and a clearing block is placed in rear of the bolt.

Cycle of Operation

The steps in the cycle of operation should be familiar to anyone who has fired an automatic weapon. They are: feeding, chambering, locking, firing, unlocking, extracting, ejecting and cocking. As with other automatic weapons, several steps of the rapidly repeating automatic cycle are performed simultaneously, but each step must be considered separately to achieve complete understanding.

Feeding begins with the gun half-loaded. The rearward movement of the bolt, which occurs when the gunner cocks the weapon, causes the feed mechanism to move the first round to the right so that it is in the feedplate slot in front of the bolt. In this position the round is in line with and above the chamber and the gun is fully loaded.

Chambering (Figure 7) takes place when the trigger is pressed and the sear is withdrawn from the sear notch in the operating rod. The bolt and operating rod then move forward under pressure of the operating spring. The bolt strips the round from the belt and pushes it forward and down into the chamber.

Locking is achieved as the bolt, in forward motion, is cammed clockwise in the barrel socket. Since headspace in the

Figure 5. Trigger group disassembled.

M-60 is always correct, the possibility of a ruptured cartridge has been greatly reduced.

Firing occurs as the operating spring and firing pin spring join forces to drive the firing pin forward to strike the cartridge primer. However, firing cannot take place unless the bolt is locked in the barrel recess. The operating rod will not allow the firing pin to reach the cartridge until the yoke of the operating rod has rotated the bolt into place.

Unlocking takes place when action

of the gas piston against the operating rod moves it to the rear causing the bolt to rotate counterclockwise out of the barrel socket.

Extracting occurs as the operating rod pulls the bolt to the rear and the extractor, which holds the cartridge rim, withdraws the spent case from the chamber.

Ejecting of the empty case is caused by pressure of the ejector against the rear of the case. This gives a spin to the case as it leaves the ejection port on the right side of the receiver.

Cocking occurs as the operating rod compresses the firing pin spring which is held to the rear by the yoke of the operating rod. The operating rod spring is held to the rear by the engagement of the sear in the sear notch of the rod.

Immediate Action, Malfunctions and Stoppages

Immediate action, malfunctions and stoppages are of particular interest because the M-60 is so different in design from our previous weapons.

Immediate action is applied as follows: Cock the gun, raise the cover and clear the feed plate. Inspect the ejection port and the receiver and remove any obstruction. Then lower the cover and press the trigger. If a round has been partially chambered, the bolt will chamber and fire the round. Load and fire.

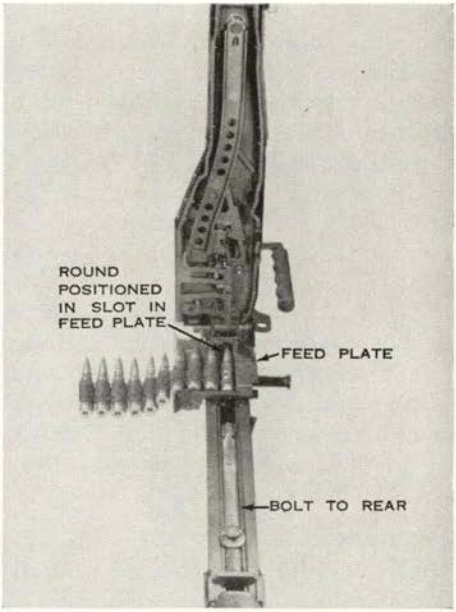


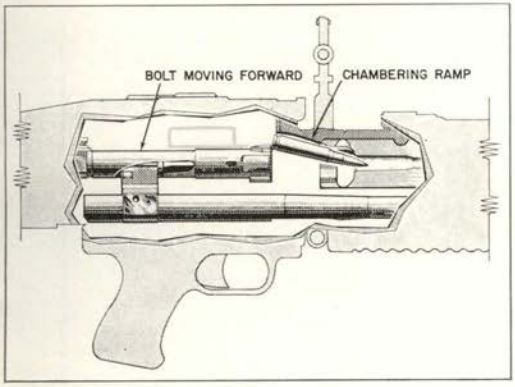
Figure 6. Loaded (Cover Raised).

Malfunctions should be detected immediately and corrected to prevent the development of stoppages. One malfunction is abnormal ejection. Any ejection (Figure 8, next page) which describes a pattern to the rear or front is considered abnormal. A pattern to the rear may be caused by a faulty or dirty extractor or ejector. Forward ejection is caused by too fast a rate of fire, induced by excessive lubrication on the moving parts. If allowed to continue, either rearward or forward ejection will probably lead to a stoppage.

The gun will fire sluggishly if there is excessive dirt or friction in the receiver, or if the gas system is dirty.

Another malfunction which may prove dangerous if not corrected, is a runaway gun or the continuation of fire after the trigger is released. A runaway gun may be caused by excessive wear of the sear, the sear notch or both. It may also be caused by short recoil which results from a dirty receiver or gas system.

Figure 7. Chambering.



Stoppages during fire generally will be caused by failure of the weapon to feed, chamber, fire, extract or eject.

Failure to feed usually is the result of short recoil due to a dirty gas system. Other causes may be a dirty or excessively dry receiver. Failure to chamber will be caused by a bent cartridge case or short recoil. A broken firing pin or faulty primer are the reasons for failure to fire. If the weapon fails to extract the trouble is generally a sheared cartridge rim or broken extractor. Failure to eject may be caused by several things: ejector and/or extractor binding due to carbon, dirt, lack of oil or short recoil, or by a worn or broken ejector.

Maintenance

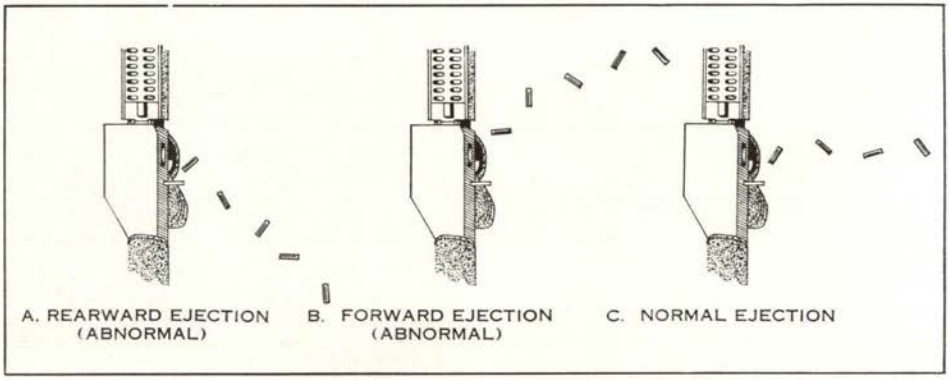
The M-60 presents less of a maintenance problem than other machineguns because it has many stamped parts with relatively large tolerances and fewer parts to wear out and replace. However, like any other automatic weapon, this gun must be cared for in a competent manner. Certain specific maintenance checks must be made before, during and after firing.

Before firing, a check must be made for cleanliness and proper operation of major parts. Run a dry patch through the bore, then remove the barrel group. Check the locking recesses of the barrel socket for cleanliness and coat them with graphite. Dry the chamber. Next, check the feed mechanism to see that the feed plate is dry and that other parts are clean and lightly oiled for free movement. Lubricate the feed roller and feed cam with graphite. Then check for a coat of oil inside the receiver and on the bolt. Using a spent case work oil into the recesses of the bolt face to free any carbon which may not have been removed during cleaning.

During firing, check the gas cylinder lock washers for tightness. Watch for malfunctions; particularly observe the ejection pattern. When a malfunction is noticed its cause should be corrected immediately. Maintain oil on the moving parts if friction is indicated and oil the bolt face if it becomes dry. Change barrels after firing the rapid rate (200 rpm) for two minutes, or the sustained rate (100 rpm) for ten minutes. Barrels should be changed frequently even when these limits are not reached to maintain equal wear on all barrels and to develop crew proficiency in making the change. Keep dismounted barrels clean and lubricated.

After firing, disassemble the gun for detailed cleaning. Clean and oil the feed roller. Check the sear notch for wear. Clean the barrel group to include the bore, chamber and gas system. Oil all parts except those of the gas system.

Figure 8. Types of ejection.



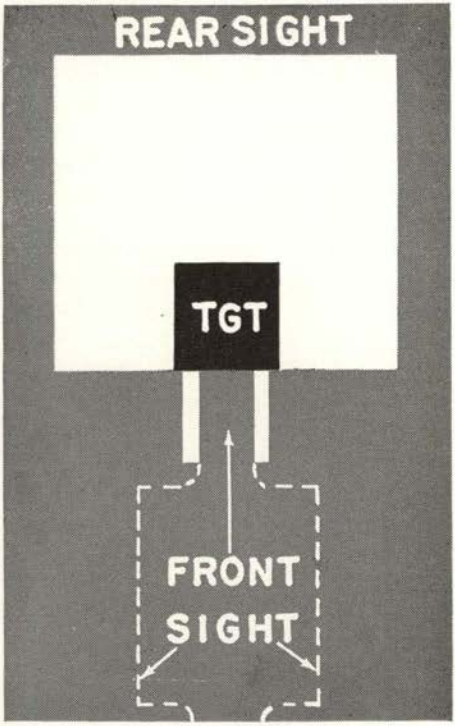


Figure 10. Correct sight alignment and picture.

Clean the gas port only if the gun has been firing sluggishly.

Ammunition

Ammunition has already been produced in the following types: ball, tracer and dummy. Blank ammunition, to be fired in conjunction with blank firing attachments, will be provided later. The ammunition is packaged in 220-round belts in the conventional type can and in a new 100-round belt packed in a rectangular, light cardboard carton which, in turn, is fitted in a bandoleer. This carton will fit in a magazine attached to the left of the receiver for use in the assault role.

Sights and Mounts

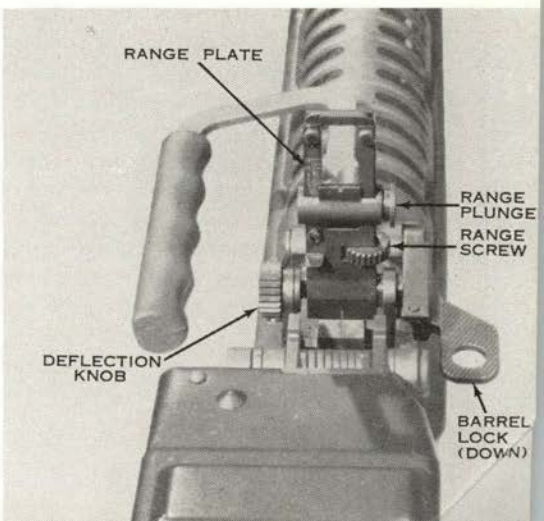
The leaf-type rear sight (Figure 9) can be folded forward when not in use. Graduation marks on the sight start at 100 yards. Skipping the 200-yard mark, it is graduated in 100-yard intervals between 300 and 1200 yards and has a deflection knob and range plate which are adjusted for zeroing. The front sight is fixed and rigidly attached to the barrel. When barrels are changed zeroing adjustments may be necessary. Sights are properly aligned (Figure 10) when the front sight blade is centered in the open square notch of the rear sight and the upper edge of the blade is level with the top of the notch. To complete the correct sight picture the base of the target sits on the top edge of the front sight blade.

The bipod mount is integral to the barrel and consists of two extendible, folding legs which can be adjusted for height by depressing the foot locks and sliding the legs up or down.

The M-91 tripod incorporates a recoil-isolation system to achieve stability with lightness of weight. The traverse knob and the search knob, which are turned with the left hand, change the direction or elevation of the muzzle ten mil-clicks for each revolution. However, it is expected that the traverse knob will be redesigned to yield two mils with each click.

The direction dial, used for major readings, is movable and has a fixed index directly in front of the gunner. The direction scale, which can be centered by turning the traverse knob, is located on

Figure 9. Rear sight.



the mount to simplify obtaining data.

The elevation scales are placed on the left of the cradle for easy reading by the gunner. The left scale indicates readings of "free" elevation and the right scale is centered by turning the search knob. The knobs cause the muzzle to follow the direction of movement of the thumb when they are turned.

Crew Training

There will be two M-60 machineguns in the weapons squad of the rifle platoon. Each weapon has an assigned gunner and assistant gunner. Two ammunition bearers supply both machineguns, plus the two 3.5-inch rocket launchers also in the weapons squad. It should be pointed out that there were two ammunition bearers for each machinegun in the weapons squad of the triangular division weapons platoon and in the machinegun squad of the old heavy weapons company. It is expected that the machinegun ammunition supply problem will be alleviated by issuance of the 100-round bandoleers to all crew members and to riflemen.

Crew training with the M-60 is now organized with crews of three men each; two crews are under the control of the squad leader. Conduct of the training is very similar to that with the .30-caliber water-cooled heavy machinegun on the M-74 tripod and the light machinegun on bipod.

An addition to crew training with the M-60 is "barrel changing." To conduct this exercise, the squad leader commands "change barrel," after the gunner has indicated he has correctly gone into action. Upon receiving this command, the gunner cocks the gun, puts the safety on and raises the barrel lock. The assistant gunner secures the spare barrel from its case, removes the old barrel from the gun, positions the spare barrel in the gun and inserts the old barrel in the spare barrel case. The gunner locks the barrel, takes the safety off and calls "ready."

Equipment carried by squad members with the gun on the tripod is as follows: *squad leader:* cleaning rod and binoculars; *number one (gunner):* tripod mount and clinometer; *number two (assistant gunner):* machinegun, canvas gun cover and wrench and *number three (ammunition bearer):* two ammunition containers (one containing dummy ammunition) and one spare barrel in case. Squad members using the M-60 on bipod carry the following items: *squad leader:* cleaning rod and binoculars; *number one (gunner):* machinegun, canvas gun cover, wrench and clinometer (although the clinometer is not intended to be used with the bipod gun); *number two (assistant gunner):* two ammunition containers (one containing dummy ammunition) and one spare barrel in case and *number three (ammunition bearer):* two ammunition containers. The ammunition containers mentioned here are the 220-round metal cans. When the 100-round bandoleer becomes an item of issue, it is likely that two or three bandoleers will be carried for each container now carried in crew training.

Marksmanship

The marksmanship training will continue to include preparatory exercises and 500-inch and transition firing. Several new firing positions may be used when employing the M-60 machinegun. These will be used when the sitting position with the tripod or the prone position with the bipod are not suitable. These new positions, from which familiarization firing only may be conducted, are: prone with the M-91 tripod in the "low" position, standing, hip, kneeling and sitting positions without a mount.

Instructional and record firing courses for the M-60 are the same as the courses designated for the .30-caliber Browning guns. However, a few changes have been

made to adapt these courses to the new weapon. For example, Table I of Course A is fired by the M-60 on tripod as in the present course. Table II is fired by the new gun on bipod only. This change is harmonious with doctrine for pentomic units which calls for emphasis on employment of the machinegun on the bipod well forward in the rifle platoons. Time allowed for firing Tables I and IV and qualifying scores for Courses A and B are the same as for the heavy machinegun.

Familiarization firing courses have been added for firing the new gun without a mount from the standing, hip, kneeling and sitting positions. Training of this type will be undertaken only after machinegunners have completed instructional and record firing. The most important of these positions is hip firing. This is expected to prove effective for use in the assault role, against enemy paratroopers and against low, slow-flying aircraft. In the assault the new magazine, which can be attached to the left of the feedway, will do the job of the assistant gunner.

In adjusting fire when firing at field targets with the gun on the tripod, gunners will continue to employ the mil relation for determining the necessary changes in direction. For changes in range they will apply their knowledge of the length of the beaten zone and range shift in the center of impact caused by a single mil change in elevation. When the target area is approximately level and the range to the beaten zone is 100 to 700 yards, 1 mil of elevation will shift the center of impact 100 yards. For ranges 700 to 1200 yards two to three mils of elevation will be required to shift the center of impact 100 yards. To shift the center of impact 100 yards over ground sloping upward and away from the gun, a few more mils are required. Over ground sloping down and away from the gun, fewer mils are needed.

Figure 11. Barrel changing.

"Holdoff" will be the primary method for adjusting fire when using the bipod.

Zeroing the M-60 machinegun on both tripod and bipod is similar to the conventional methods for the heavy machinegun and the light machinegun, but it requires knowledge of the range shift in the center of impact over level terrain as applied in fire adjustment. The steps in zeroing with the gun mounted on the tripod and bipod are identical. The gunner does his own manipulation of the sight.

For firing at 700 yards (which corresponds to the sight setting for 500 inches), the gunner mounts the gun correctly and assumes the correct position, sets the sight at "700," lays on a target at 700 yards range (or 500 inches) and fires a burst; estimates the lateral distance from the center of the burst to the target in mils and turns the deflection knob to move the rear sight in the direction in which the burst should be moved. (Four clicks of deflection equal one mil.)

When firing at field targets, the gunner estimates the range in hundreds of yards from the center of the burst to the target; when firing at 500 inches, he estimates the elevation distance in mils

MAJ LINCOLN LANDIS received his commission upon graduation from the United States Military Academy in 1945. After completing the Infantry Officers Basic Course at Fort Benning he served as a company commander with the 30th Infantry in Germany and in 1948 he became operations officer with the U. S. Constabulary in Germany. Three years later he served as a company commander with the 8th Infantry at Fort Benning and later in Germany. During this second tour of duty in Germany Maj Landis also served as an operations officer in Seventh Army headquarters. In late 1954 Maj Landis entered the advanced course at The Infantry School and upon graduation he was assigned as an instructor with the Machine Gun Committee, Weapons Department.

from the center of the burst to the target. He then turns the range screw the correct number of mil-clicks so the sight slide moves in the direction in which the burst should be moved, fires a confirming burst, loosens the set screws, moves the range plate until the sight slide is opposite the graduation "700" and tightens the set screws. Zeroing at any range is accomplished by using the same procedures after setting the appropriate range on the sight.

Technique of Fire

Employment of machineguns in pairs so a continuous volume of fire can be maintained on the target will be normal whenever the frontage permits. However, it is expected that tactics for pentomic units will require the guns to be employed separately more frequently than were the .30-caliber weapons of the triangular organization. When guns are paired, each gun will fire faster and cover the entire target while the other gun changes barrels.

Some of our machinegun techniques have been revised and will become effective upon delivery of the M-60s. The maximum effective range, which has always been considered to be 2000 yards for the Browning guns, will be 1200 yards for the new weapon. This reduction is not due to any limitation of the M-60 but is being made because a gunner or observer simply cannot adjust fire effectively, under average weather conditions, at ranges over 1200 yards.

The technique of firing from position defilade, when the gunner cannot see the target because of the mask to his front, is to be deleted. Firing from position defilade, which can be accomplished only when an observer is able to adjust fire, is applicable only for targets appearing at ranges approximately 900 to 1200 yards over level terrain. The somewhat flatter trajectory of the NATO cartridge means that positions would have to be selected with masks farther out from the gun. Gunners can engage a much wider range of targets, quicker and more effectively, by direct laying from partial defilade. However, maximum advantage must be taken of cover and concealment in preparation of the position.

The conventional gunner's rule, leader's rule and the tables of corresponding ranges which have been used in determining troop safety limits and in controlling the delivery of overhead fire are to be discarded. These rigid guides have such a great element of safety built into them that over gently rolling terrain troops attacking an objective at 900 yards range must advance several hundred yards without overhead fire support when they need it most. The more realistic technique is to fire overhead fire only when, in the opinion of the unit commander, troop safety is obvious. This same commander is responsible for exercising vis-

ual control in lifting or shifting these fires when the troops are about to mask the fire in their assault. Closer support will be provided in this manner.

Laying from Prepared Data

The M-60 mounted on the M-91 tripod can be laid by conventional means for engaging targets under all conditions of visibility. Two methods are used: the dial and clinometer and the dial and scale. These methods provide maximum accuracy but have the disadvantage of requiring a light source at the gun position. The base stake method of defining the sector limits, the stake-notched-stick-parapet method and the use of aiming stakes continue to be valuable expedients for use at night without requiring light at the gun.

Since there are no suitable flat surfaces on the M-60, the clinometer must be used in the following manner: raise the cover of the gun and allow the bolt to go forward. Place the arc to the rear, if the muzzle points above the horizontal; place it to the front if the muzzle points below the horizontal. Position the long mounting surface of the clinometer on the right receiver rail just forward of the lockplate and hold firmly. Determine readings or lay the gun in the normal manner. Do not use the flat surfaces on the barrel as they do not provide a firm contact with the clinometer.

The dial and scale method is similar to the traversing-bar-elevating-screw method of the light machinegun in that the tripod itself provides all the devices for determining data for direction and elevation. In construction the direction dial resembles the traversing dial of the M-74 tripod for the old heavy gun. The direction scale and traverse knob provide fine readings between the 25-mil divisions on the direction scale. The left elevation scale is graduated for major changes in elevation which are obtained by loosening the search clamp and turning the gun in elevation. The right elevation scale is used in conjunction with the search knob to obtain readings between the 100-mil graduations for elevation. Readings in elevation obtained by the dial and scale are recorded on the range card as "S + 245" or "S — 57."

The stake-notched-stick-parapet method is the conventional method used with the heavy machinegun, but the notch, which is cut away to fit the collar of the grip, must be more rounded to obtain close contact.

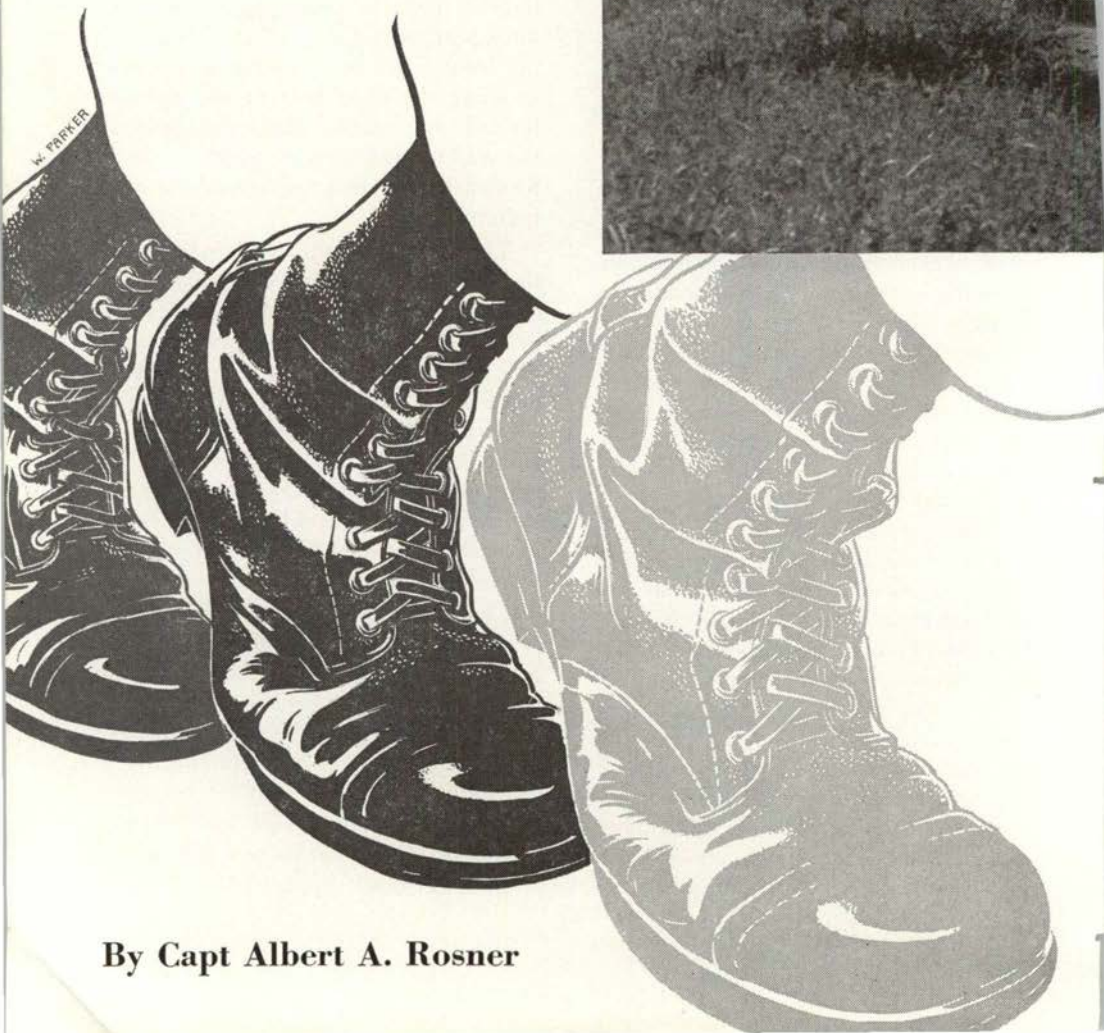
The aiming stake technique remains unchanged in application except for the method of sighting. To obtain a steep line of sight which will enable positioning of the stakes close to the muzzle, sighting must be accomplished by using some portion of the gun itself other than the front sight. Such a solution is found in using the right half of the aperture formed by running the sight slide all the way up and sighting over the corner formed by the front sight and the flash reducer.

The aiming stake method, being easier to apply than the conventional method of laying on smoked or hidden targets by the use of auxiliary aiming points, will be employed instead of the latter method with the M-60. Auxiliary aiming points can be used only when the aiming point is near the gun-target line and the point will not be obscured when the target becomes hidden. This method normally cannot be used in darkness and it is difficult to teach.

Teaching the M-60 presents no new problems. Students should be able to grasp the fundamentals quicker and more easily than with the light and heavy .30-caliber machineguns. Training with the new gun promises to be more effective if instructors appreciate that it is a completely new weapon from flash reducer to butt plate and that its new design will mean better close support.

WE STILL MAY WALK

In spite of our increased mobility
Infantrymen may not always ride;
we must be prepared to walk faster
and farther than in the past.



By Capt Albert A. Rosner

Infantrymen march to the front in Italy during World War II.

MOBILITY is a term widely used in discussions and articles dealing with atomic-age tactics and organization. There is a tendency to associate this term solely with mechanized transportation. We visualize swift task forces mounted in wheeled vehicles, armored personnel carriers and tanks. We plan for bold helicopterborne and airborne assaults. We think in terms of battle groups roaring up to the objective on tracks and wheels.

Pentomic organizations and tables of equipment will provide many fast and highly mobile means of transportation. In the new pentomic division we have a transportation battalion with two companies of armored personnel carriers and a company of trucks. By using all of the vehicles (wheeled and tracked) organic to this new division, two battle groups can ride. If only the armored personnel carriers are used, only one battle group can ride. But what of the other three or four? Certainly they will not be held out of combat until these vehicles can return to lift them to the battlefield.

In mobile warfare, more than ever before, we must be ready to move on foot. We must be trained to do so rapidly, over long distances and to arrive at our destination in fighting trim. And we must be able to do so continually, until the battle ends.

Atomic tactics certainly have not decreased the need for foot marches. If anything, they have increased this need until it approaches mileages formally limited to forced marches. Initial dispersion, as passive protection, followed by rapid concentration for the exploitation of friendly

atomic blasts will require units to move long distances. Many of them will have to do so on foot. The vulnerability or unavailability of vehicles, maintenance or supply difficulties, inadequate road nets, a desire for secrecy, enemy air superiority and many other conditions will contribute to the necessity for foot movements.

Can you stand the pace of atomic warfare? Will you be able to make the long, fast marches that may be required in future operations? Can you do so hour after hour, day after day? The ability to cover long distances in a short period of time by foot is more than a simple matter of physical endurance. Successful forced marches are a result of prior planning and adequate training. At a time when we are stressing training in motorized movement, we must not forget that the Infantryman is the man with his feet on the ground. We must plan and train for long, fast foot movements.

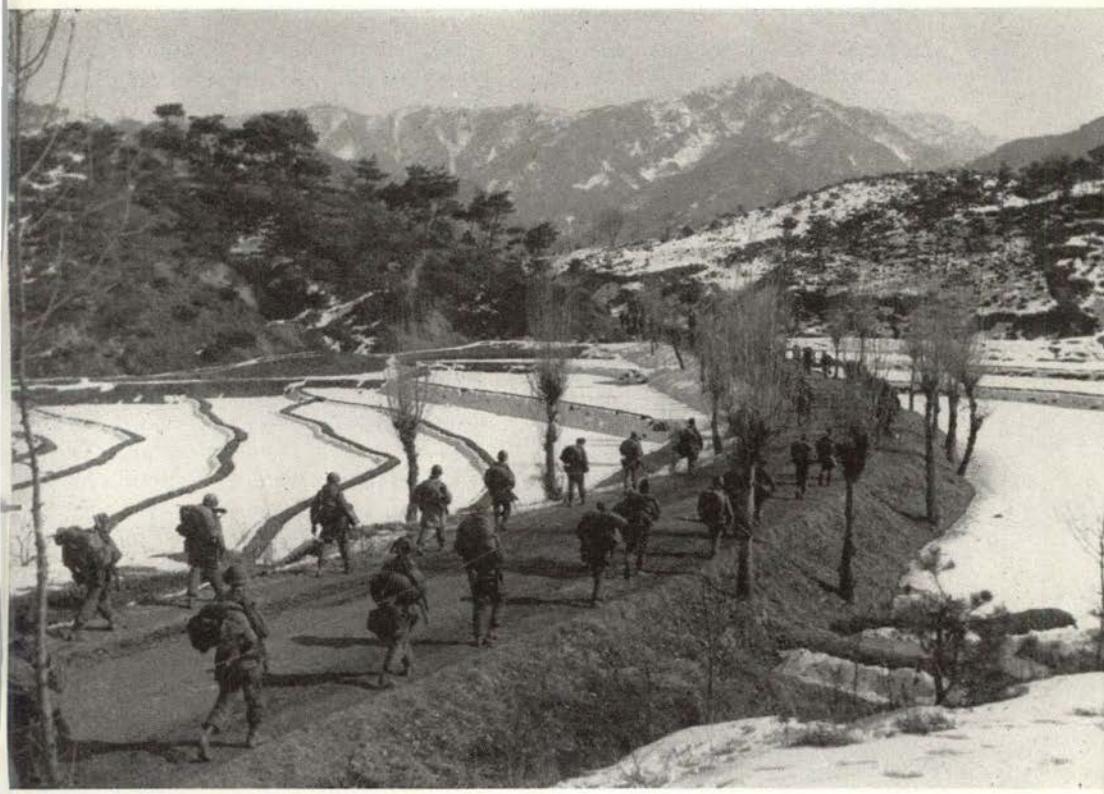
Current Army doctrine[1] teaches that forced marches seriously reduce combat efficiency and are to be used only in an emergency. The dictionary of military terms defines a forced march as one requiring the expenditure of more than normal effort either in increased speed, increased exertion, increased number of hours marched or a combination of these. By increasing the number of marching hours per day but not the rate of march, maximum specified distances are 35 miles in 24 hours; 60 miles in 48 hours; or 80 miles in 72 hours. The field manual states that at the end of such marches troops will require considerable rest and that march casualties may be high.

Forced marches of these distances may, of necessity, become more commonplace in future operations. Many foot movements may have to be made at the faster rates previously restricted to speed marches. Our training must prepare us mentally and physically to consider such marches as being well within our capabilities. March casualties must be kept low. Proper training can obtain the desired results.

Planning for such movements must be thorough. The available time must be divided into periods of marching at specified rates and periods for meals and rest. In planning for a march of 33 miles in 22 hours, FM 21-18 suggests the following divisions: first stage starting at daybreak, 12½ miles at 2½ miles per hour (5 hours), noon meal and rest for two hours; second stage, 12½ miles at 2½ miles per hour (5 hours), supper

[1] FM 21-18, July 1950, pars. 25 and 42; SR 320-5-1, Nov 1953.

Marching up to the front in South Korea.



Airborne troopers of the 187th RCT march to head off Chinese Communist forces in Korea.

meal and rest for six hours; the final stage, 8 miles at 2 miles per hour (4 hours). If the unit left its original position at 0700, it will be at its objective 33 miles away by 0500 the next morning. This system can be altered by changing the rates of march and length of rest periods. Each forced march will vary depending on the distance and terrain to be covered, the time allowed, the presence or lack of enemy interference along the route and the task to be performed upon completion of the march.

Military history is full of examples of successful forced marches that resulted from proper training and leadership. While training in Louisiana during World War II the 351st Infantry Regiment conducted several forced marches. On 12 July 1945, the regiment left its bivouac site at 0600 and by 2230 hours had reached its first objective 37 miles away. On the second day the regiment marched 25 miles to the final objective, reaching it at 0010 hours 14 July. This unit had moved 62 miles in 42 hours, much of it being crosscountry over difficult terrain. On the first day only 33 men were march casualties; on the second only 34.

Lt Gen L. K. Truscott, Jr, a widely experienced World War II commander, felt that forced marching was one of the most important aids in physical and psychological preparation of men for battle. While in command of the 3d Infantry Division in North Africa, General Truscott directed that all officers and men

CAPT ALBERT A. ROSNER began his military career during World War II as an enlisted man with the 82d Airborne Division and received his commission after completing the OCS program at Fontainebleau, France. He then served as civil affairs officer, Trieste, and as commanding officer of the 572d Translator Detachment, Fort Riley. Following duty as a platoon leader with the 11th Airborne Division and later as a company commander with the 351st Infantry in Trieste, he was assigned to the 3d Infantry Division at Fort Benning. He then completed the advanced course at The Infantry School and remained at Fort Benning as an instructor with the Operations Committee of the Staff Department.

train constantly in the technique of speed marching. The goal for each battalion was a marching speed of five miles in one hour, or four miles per hour for 20 miles, or three and a half miles per hour for distances up to 30 miles.

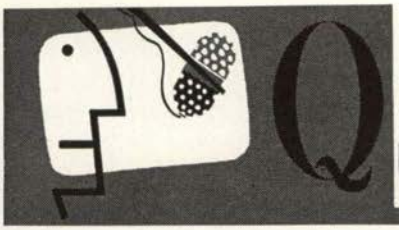
Full advantage was taken of movements to and from training areas and of movements in all tactical exercises to train individuals and units in forced marching. Each individual was required to march five miles in one hour twice each week and eight miles in two hours once each week. The purpose of this training was twofold: first, to develop physical condition and stamina; second, to determine standards which units can attain. Attaining these standards presented no difficulty and almost every battalion reported greater speeds during the first two weeks. All battalions eventually reached their goals. An average of less than four percent of the men were unable to complete the marches because of physical weaknesses or defects.

Notable among the many forced marches conducted by the 3d Infantry Division during World War II was the grueling march by the 3d Battalion, 30th Infantry, on 20-21 July 1943 during the Sicilian campaign. This battalion was directed to move on foot, across mountainous terrain, from Aragona to San Stefano Quisquina to participate in a coordinated attack on that town. This unit made the march of 54 miles crosscountry in only 33 hours. Two hours after arrival they jumped off in a coordinated attack on San Stefano Quisquina which resulted in its subsequent capture.

Looking back to the Korean conflict we can learn much from the enemy. The Communist forces were without air support for all practical purposes, yet they managed to move large groups of soldiers and their equipment over long distances to the front. In some cases they outmarched, cut off and annihilated UN forces. They did not rely on motor transport or railroads; their soldiers moved over long distances in the face of modern weapons of war, often over some of the most difficult terrain in the world.

If we want our soldiers to be able to undertake long hard marches we must train them. The present Army training program does not allow time for marching itself. This type of training is left to the discretion of each individual commander. This provides for no standardization in Infantry units. Because not all commanders see the necessity for fast-marching Infantry, some will depend greatly on mechanical means of transportation. We must concentrate more on the one means of mobility which is inherent to the Infantry soldier. A soldier, besides being a master of his weapons, must be well disciplined and vigorous in body and mind.

The Infantry commander cannot afford to rely solely upon mechanical means of transportation. He must train in peacetime for the foot mobility requirements he will have to meet in war.



QUARTERLY QUIZ

Answer the following questions to determine whether you are a bolo, recruit, marksman, sharpshooter or expert. Each question is worth 10 points.

1. During mounted operations under atomic conditions, what are the basic elements of the battle group commander's plan of attack?

2. What is the difference between *scheduled* atomic fires and *on-call* atomic fires?

3. What are the various ways in which tanks may be used in the defense when attached to the forward battle group?

4. How can Infantry units communicate with tactical aircraft? (select the correct answer):

a. There are no means available.

b. By means of radios organic to the Air Force.

c. By means of radios AN/ARC 27 and AN/VRC 30 organic to the Infantry battle group.

d. By means of the family of frequency modulated radio sets.

5. The regiment of the triangular division had an officer and five enlisted men in the service company to perform the graves registration function. Where are the personnel who will perform this function for the battle group of the pentomic Infantry division?

6. What are the most important terrain characteristics to be considered when selecting axes of advance for the battle group in the attack during fluid operations?

7. What is the primary mission of the reconnaissance platoon of the battle group?

8. A target analysis must be accomplished for each target to be attacked with atomic weapons. At battle group level, which staff officer has primary responsibility for target analysis and what recommendations does he make to his commander as a result of his target analysis?

9. How will the new pentomic Infantry division effect supply point and unit distribution of supplies?

10. Organic transport of the Infantry division battle group is approximately 69% less than that of the current Infantry regiment. How will the Infantry division battle group be supported, transportation wise, within the pentomic division?

For answers turn to page 98

By
Lt Gen Bruce C. Clarke

THE CREATING OF SUPERIOR UNITS

The problems of polishing ordinary units until they emerge as Superior *are primarily the problems of raising individual performance and capabilities to a superior level.*

I have found that there are four basic principles which apply to the problem of creating Army units which are considered *Superior*.

✳ The *Superior* unit must be created from the ordinary run of personnel.

✳ Classified according to ability, the men in a unit fall naturally into three nearly equal sized groupings — upper, middle and lower. The excellence of a unit depends upon the ability of the commander to bring the men of the lower group to a degree of proficiency which makes them an asset to his unit team.

✳ All men desire to do what is wanted of them. When they do not, it is because they have not been adequately motivated and instructed.

✳ The best unit in an organization is always the one which is excellent or better in *all* things.

If you agree with the four principles listed above, let us analyze and apply them to the basic problem of the commander who is striving for a *Superior* unit.

Probably no agency of the United States Government is made up of personnel who so closely approach a typical cross section of our country as is the Army. This statement holds true even in comparison with our sister services. Although there are a few "elite" or special units in the Army, the bulk of our units are made up from the great cross section of America in the so-called "military" age group. This should be a challenge to us. It draws us close to the people of our country, adding to our strength, but magnifying our responsibilities.

The problems of polishing ordinary units until they emerge as *Superior* are primarily the problems of raising individual performance and capabilities to a superior level. The many truly outstanding units which have been produced in our Army give ample evidence that these problems can be solved.

Based upon their General Technical Scores, the men in the Seventh United

States Army fall naturally into the pattern of the three nearly equal groupings previously mentioned:

UPPER:	GT Group I	5%
	GT Group II	27%
		32%
MIDDLE:	GT Group III	39%
LOWER:	GT Group IV	25%
	GT Group V	4%
		29%

The following is a breakdown of the personnel in the Seventh Army by grades in the three groupings:

	Percentage falling in each grouping						
	E7	E6	E5	E4	E3	E2	E1
UPPER:	55	37	31	33	29	27	15
MIDDLE:	36	45	42	40	38	36	38
LOWER:	9	18	27	27	33	37	47

The higher percentages of personnel in the upper grouping are found in the upper grades and in the lower groupings they are found in the lower grades. This fact greatly increases the emphasis required to be given those in the lower grouping in the lower grades. The middle and lower groupings within the grades E4 through E1 become even more important in the development of the *Superior* unit because men in those grades represent the reservoir from which the future top three graders will develop.

Those in the upper grouping are the best educated, are quickest to learn, can be well motivated, but need to be challenged to develop their full potential.

Those in the middle grouping are the average run of American youths. They are easily controlled, take well to discipline, learn easily, respond to good leadership, but are usually capable of more than they try to do and must be pushed.

In the lower grouping are the ones who need special attention. The disciplinary problem in this group is higher than average. These individuals require special motivation and instruction. Their attitude constitutes a special barometer of the esprit de corps of the unit. This group contains also many of the misfits who, if they cannot be assimilated, must be eliminated.

A single squad, crew or section will probably contain men of all three groupings—certainly they will appear in any platoon or company. This presents a practical problem in the handling and instructing of men and in perfecting the teamwork of the squad, crew, section or platoon.

The leader can afford to adopt only one approach to handling his men. He must assume that they all want to do what he wants done. When any number do not respond to this assumption, the fault is more probably his than theirs. He should check his procedures, instructions and subordinate leaders to determine wherein lies the trouble. When only one or two individuals are involved, punitive action or elimination may be indicated.

We arrive now at the fourth precept which is based upon the premise that no unit commander has enough time to make his unit superior in all things at all times. How, therefore, should he spread his efforts? It is obvious that his unit must be proficient in marksmanship, communications, supply, administration, tactics, physical fitness, techniques, movements, maintenance, etc. If his unit is not proficient in any one of these things, his team is not sound and will fail him when the test comes. How, then, must he manage?

First, he should avoid putting too much stress on any one thing so as to overemphasize it in order *to make a show of it.* If he practices this method he will do so at the expense of other im-

portant things. This is a common error.

Second, he must stress adequately all of the many facets of the training job. Even though he is not an expert in each, he must direct a subordinate to be an expert and the commander must then supervise and check this subordinate's work. This latter is important.

Woven into the entire pattern are the threads of motivation. This motivation is manifestly important because from it comes esprit, enthusiasm, morale, effort, competition and accomplishment. The people in each of our three groupings need to be motivated in different ways and in varying degrees.

In encouraging students to learn, we motivate them by one or more of the following:

1. Showing a need.
2. Developing an interest.
3. Maintaining interest.
4. Encouraging early success.
5. Giving recognition and credit.
6. Using competition.
7. Giving rewards.
8. Awarding punishments.

These same things may be used to incite a body of men or a military unit to action.

Undoubtedly every commander, sometime during his career after being assigned a difficult mission, has soon thereafter considered how he would present this task to his subordinates, how he would appeal to them to get the job done — in short, on what he would base his efforts to motivate them to tackle the job with the will necessary to attain the goal sought.

He will probably use many factors to motivate his unit. Some of them may be specifically mentioned and some of them may be implied. For instance, except as a last resort he would not mention punishment in case of failure. His men should know him well enough to know that he will not stand for failure.

Lt Gen Bruce Cooper Clarke, Commanding General of the Seventh U. S. Army in Germany, was commissioned in the Corps of Engineers upon his graduation from the United States Military Academy in 1925. Prior to World War II he served in various engineer assignments in the states and in Hawaii. During the war he served as commanding officer of Combat Command "A", 4th Armored Division, assistant division commander, 7th Armored Division and commanding general, 4th Armored Division. After the war he served in engineer posts in the Pacific before returning to the states to become chief of staff of Army Ground Forces and later assistant commandant of The Armored School at Fort Knox. In 1949 he was ordered to Germany to command the 2d U. S. Constabulary Brigade. He returned to the states in 1951 to assume command of the 1st Armored Division at Fort Hood. Two years later he was sent to Korea where he first commanded I U. S. Corps and later X U. S. Corps. General Clarke then served as commanding general, U. S. Army in the Pacific, after which he assumed command of the Seventh U. S. Army.

The real art in motivating a group of men to accomplish a common mission is *to reach each man* in such a way that *all men* in the unit are incited *to the extent of their several capabilities.* Of course, the kind of mission to be performed by the men will determine the motivating factors used, but there is one element that must be kept in mind, and that is that no amount of motivation will incite a man to undertake zealously that which he knows is manifestly beyond his capabilities.

In the Army we use freely a system of awards or prizes in order to motivate men. Too often these go to the men in the top of the upper group. They provide no incentive for improvement to those in the lower group and little for those in the middle group, because the

men know that the award is beyond their ability to achieve. These prizes make good articles for the unit papers but their over-all effect on the unit is negligible.

It is well to recognize the outstanding men, and we do this through our promotions; however, our system of awards must go beyond this and set the stage for awards to units, teams and crews in such a way that the effort of the men of all groupings plays a part in the winning.

Another method is to set a standard of excellence against which any man can compete and, upon attaining it, receive recognition. Marksmanship badges, Expert Infantryman awards, Master Tank Gunner and Tanker certificates are examples of this effective system.

In conclusion, the job of those of us who are privileged to command is to create *Superior* units from the ordinary run of manpower made available to us. This manpower falls into upper, middle and lower groups about equal in strength that have different capabilities, present different problems and need to be handled differently. All of the men in a unit must be assumed to desire to do what is wanted, and when they do not, they have not been properly handled and instructed. The best and most reliable unit is usually the one that is "excellent" in all things, even though it may not be superior in many.

Throughout the whole job runs the problem of motivation. This problem is not solved unless the steps made to motivate the unit are carefully thought out and applied in such a way that their effect is *felt by all men in the unit*. Finally, the excellence of the unit is measured by the extent to which those of the lower third of the unit are developed to play their part on the unit team.

ANSWERS TO QUARTERLY QUIZ *(See page 93)*

Possible score 100 points, expert 90-100, sharpshooter 70-80, marksman 50-60, recruit 30-40 and bolo 0-20. For detailed discussion of the answers check the references listed.

1. The battle group's attack plan is based on division orders. Its two basic tactical elements are the plan of fire support and the plan of maneuver. The plan of fire support assumes great importance because of the power of atomic weapons. The plan of maneuver uses available friendly fires to the maximum and, at the same time, aims at reducing the battle group's vulnerability to enemy atomic weapons and other countermeasures. (Chap 6, Sec II, Par 100, TT 7-40-2, March 1957.)

2. *Scheduled* atomic fires are those prearranged for delivery at a specific time related to the maneuver or operation of the supported force. *On-call* fires are those planned for delivery when requested. The actual times of proposed detonations are established and announced for *scheduled* atomic fires. Also, specific allocations of atomic weapons must be available to meet the requirements for *scheduled* fires. Since the announcement of the time definitely commits a weapon for use, at least one weapon must be specifically allocated for each *scheduled* atomic weapon to be fired. *On-call* atomic weapons are planned to be fired if required at a time to be determined later. The number of *on-call* tar-

gets which are planned is limited only by the availability of time and personnel to compute the necessary data. Since the weapon may never be required, it will be normal to plan more *on-call* atomic fires than the actual allocation of weapons will permit. Target analysis and necessary calculation of technical data is completed for both *scheduled* and *on-call* atomic fires; however, the proposed time of detonation is determined only for *scheduled* fires. (Chap 9, Sec II, Par 268a, b & c, TT 7-40-2, March 1957.)

3. At least one tank company is normally attached to a forward battle group. A portion of tanks, usually not exceeding one platoon for a forward company, is employed within the areas of the forward companies under battle group control for antitank defense. The rest of the tanks are usually held as part of the reserve, either being attached for operations to a reserve company or being held initially under battle group control. Their primary mission is to support the counterattack. At least a platoon of tanks is employed on the combat outpost, being attached for operations to companies responsible for the combat outpost. The tanks on the combat outpost may come from those within the reserves; if so, they revert to the reserves when the combat outpost withdraws. The tanks which are part of the reserve have as their secondary mission adding depth to the antitank defense. They prepare positions to execute this mission. (Chap 7, Sec V, Par 194, TT 7-40-2, March 1957.)

4. **c.** The battle group S3 Air is equipped with a vehicular-mounted radio set, the AN/ARC 27, an ultra-high-frequency, air-ground radio receiver-transmitter which monitors Air Force air support missions flown for the division and which may also be used to monitor Air Force reconnaissance missions flown for the division. In addition, the battle group air control team, located in the mortar battery, is equipped with radio set AN/VRC 30, an assembly of transmitting and receiving equipment arranged for vehicular operation. It provides a mobile radio system that is capable of operating within different radio frequency ranges, either separately or simultaneously, to increase the flexibility of ground and ground-to-air communications. (Sec III, Pars 23 & 24; Sec IX, fig 74, Special Text 7-24-3, July 1957, and TOE 7-11T, April 1957.)

5. Recovery and disposition personnel are located in the division quartermaster company. This company has a recovery and disposition platoon containing a five-man collection, identification and evacuation section to operate the division collecting point. The platoon also has five three-man collection and evacuation sections available for support of battle groups and/or task forces. Each section is equipped with organic transportation composed of two ¾ ton trucks and trailers. (Chap 5 Sec XII, Par 123d, TT 7-100-2, March 1957.)

6. In selecting axes of advance, the battle group commander must consider terrain which (1) permits rapid movement and maneuver of both foot and mechanized units, (2) shows an absence of obstacles which might force the unit to mass, (3) contains an adequate road net and (4) permits control of dominating features that give observation over the area of operation. It is essential that high ground overlooking the area of operation be either seized or neutralized. The requirements for speed of movement and the seizure of high terrain are often in conflict. In this event, the battle group commander may attack the enemy on the high ground with atomic weapons and

then seize it with a small exploiting force such as a combined arms task force while the bulk of the battle group proceeds through the area where speed of movement is facilitated. He may also bypass the high terrain, neutralize it with atomic weapons and assign its seizure to the reserve. If the terrain is so dominating that its occupation by the enemy will endanger the mission, and if other measures will not suffice, the battle group commander includes the high ground in the axis and commits the forces necessary to seize it. (Chap 6, Sec II, Par 108, TT 7-40-2, March 1957.)

7. The primary mission of the reconnaissance platoon is to collect information of the enemy and the terrain. In the accomplishment of this mission, the platoon operates under the staff supervision of the battle group S2 and employs either stealth or firepower to gain the desired information. Reconnaissance objectives may be a route, zone or specific target such as a bridge, town or obstacle. (Chap 3, Sec I, Pars 56, 58, 61 and 63d (1), TT 7-21-2, January 1957.)

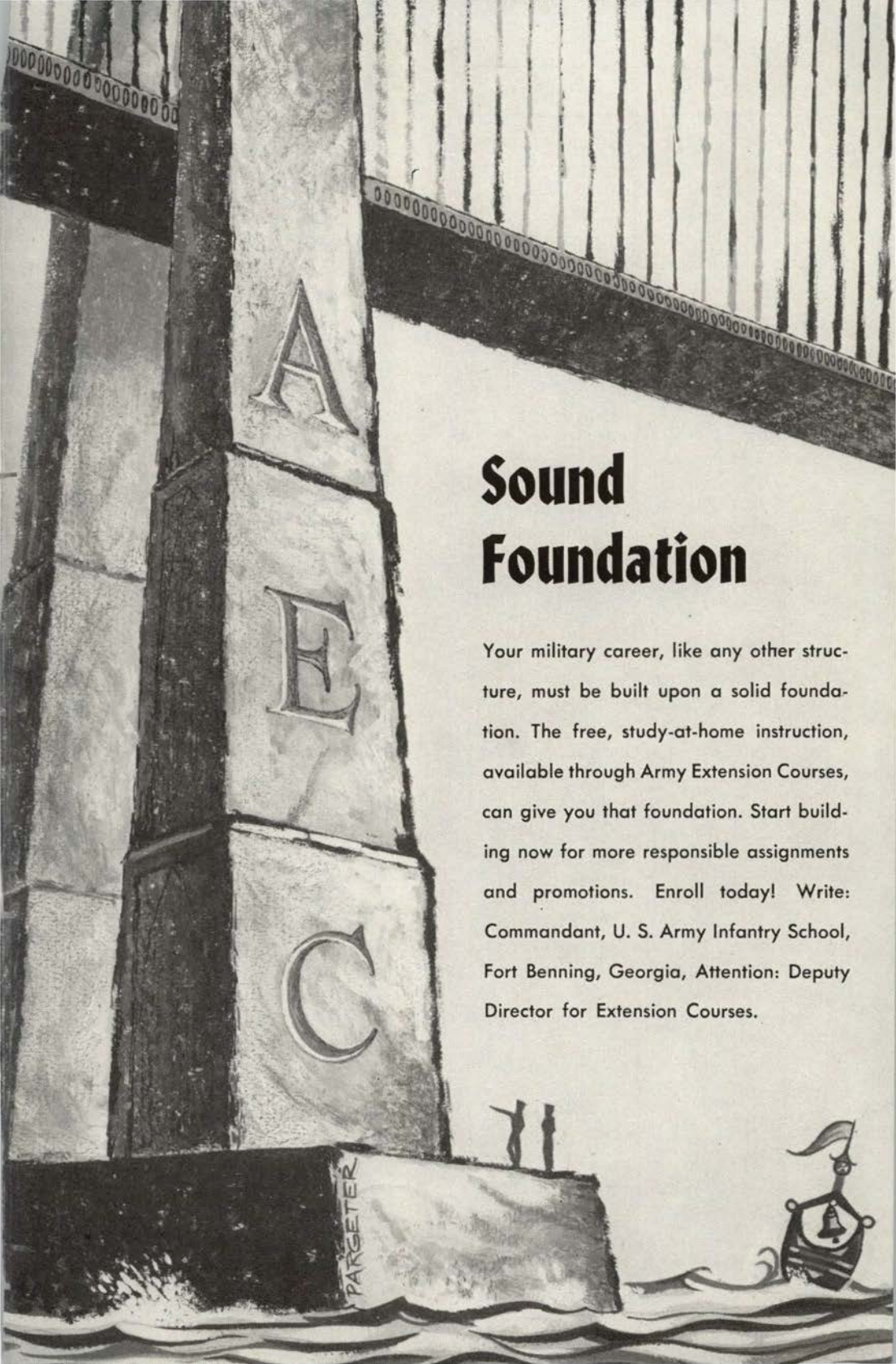
8. The battle group S3 has primary staff responsibility for atomic target analysis. His recommendation for the employment of atomic weapons will be a part of the operations estimate and will include: quantity, type and yield of weapon(s); desired height of burst(s); delivery means; desired ground zero(s); time(s) of burst(s) and troop safety precautions. (Chap 8, Par 106, FM 101-31.)

9. In the implementation of the pentomic concept there will occur a "reversal of roles." Unit distribution will receive more emphasis than supply point distribution. In normal situations, unit distribution will be employed by the technical service utilizing the vehicles of the transportation battalion. In this manner, all class I, II, III and IV supplies will be delivered to the battle group. A one-day reserve of rations for each unit is carried on the kitchen trucks. The battle group does not have the capability to effect its own resupply by supply point distribution, except for ammunition and emergency class I supplies. Ammunition (class V) resupply is obtained by replenishment from army ammunition supply points utilizing the transportation organic to the battle group. (Part 2, Chap 1, Sec II, Par 163c, TT 7-21-2, January 1957.)

10. An organic transportation battalion has been added to the pentomic division. The battalion consists of a headquarters and headquarters company, a truck transport company with eighty 2½ ton trucks and eighty 1½ ton trailers and two armored carrier companies with 57 personnel carriers per company. The mission of this battalion is to provide tactical mobility to assault elements of the Infantry division for pursuit, exploitation and other tactical task-force type requirements and to provide the division with a pool of vehicles for logistical movement of personnel and supplies. (TOEs 55-75T, 55-77T and 55-78T.)

The graduated variety of weapons with which the Army is equipped today gives it the means of applying at any specific point, at any precise moment, the exact amount of force required—from the silent thrust of a bayonet in the hands of a determined combat soldier to the burst of a missile-borne nuclear warhead.

SECRETARY OF THE ARMY WILBER M. BRUCKER.



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LETTERS *(continued from page 5)*

enemy occupied by fire. If the maneuver element, in the process of moving, runs into enemy naturally they will fire to eliminate him. Also, if the enemy exposes himself they will fire at him. A little clarification on the maneuver element will help a lot.

Robert R. Ratoff, M/Sgt
5th Battle Group, 2d Brigade
Fort Ord, California

Your letter was referred to the Tactical Department, United States Army Infantry School. The department's comments are as follows:

"M/Sgt Ratoff's opinion that the maneuver element in question should not fire initially is basically correct; however, there are some points to be considered in favor of the other opinion as well.

In support of M/Sgt Ratoff's opinion there are four basic methods of movement which can be utilized by the fire team when advancing under effective enemy small arms fire and/or enemy observation: running, using the technique of assault fire, using individual rushes or crawling. The decision as to which method to employ is made by the leader. This decision is based on the availability of cover and concealment and the enemy situation. If necessary, men in the maneuver element will fire while advancing. This would probably be true in those cases where the maneuver element is advancing over open terrain. In those cases where the cover and concealment renders enemy fire ineffective it would be unnecessary.

In support of the other opinion, concealment without cover may necessitate every man firing whenever possible in an effort to maintain fire superiority. In the point in question the enemy might be able to stop the advance even though the men are moving in the concealment of the manzanita brush. The solution to this particular case, all other things having been considered equal, probably rests on the enemy situation. For example, if the enemy could place automatic weapons fire on the maneuver element, then the maneuver element should fire in order to gain and maintain fire superiority. If it were a situation involving only several enemy riflemen the maneuver element should move rapidly through the concealed area without firing. In the final analysis it is difficult to say that there is only one solution to a problem in tactics. There may be many ways to solve the problem. All of these should be brought out in the instruction."—Editor.

The Army Way

Dear Sir:

I have just finished your latest edition of *Infantry* and, in particular, the article by Lt Col Percy South, entitled "Cracking The Thought Barrier." The article brought out many fine points and showed much clear thinking on the part of the author. I would like to offer my views on the subject from the eyes of a "young lieutenant" and, maybe, provoke a little discussion on what I feel is an important topic.

I have spoken to many officers who have been "RA" and resigned after their three year "trial" period and also to many enlisted men who, after years of honorable service, have decided to get out. From my observations, the biggest single cause for their disinterest is that all too often their contemporaries and their leaders have asked them not to "fight the problem." In other words, repulsive words to me I might add, don't think for yourself and there's no "sweat." To be disciplined is one thing, and a good thing, but to be subservient is another — where does one end and the other begin?

Part of the problem may be explained somewhat in the statement by Colonel South where he speaks of the indi-

vidual truly trying to understand the reason behind an army procedure before deciding that it is one full of red tape and impractical. I feel that this is also a true statement and, even if a person did as he suggests and examined the reason from the higher levels, there would, granted, always be someone who would decide that his way was still better for him and the Army "be damned." However, again, this doesn't seem always to be the case. If the Army is honest in its attempts to point out that there are specific and sound reasons for certain procedures then something ought to be done on a higher level to insure that the men down at the platoon level understand that they are sincere. Intentions may imply just exactly this but by the time it gets to the foot soldier in the rifle squad it is often construed to mean, "Do it the Army way and you're all right."

Going further, I feel personally that there is much to be said on the structure of the Army itself, personnel-wise, that has a very great effect on the situation as it stands. In another *Infantry* article one author sought to induce men to Army careers on a materialistic basis and, in a very good letter, one reader answered with an argument for the idealistic approach. *Infantry* answered the letter with a suggestion to a middle-of-the-road policy on the basis that idealists were not plentiful enough to fill our needs and, therefore, we must appeal to good people who may be looking for other things and instill them with idealism after we get them. I am not qualified to say that the latter won't work or isn't a good idea, but my unqualified opinion is that there aren't enough good people in the *right* places to make such an idea work. I have met only a few persons of high rank. These few have impressed me with their dedication to the country and to the Army. However, at my level I have met plenty of officers, like myself, who become thoroughly disgusted with many officers who profess to be professional soldiers and are as thoughtless and unidealistic as they come. Are these the people with whom *Infantry* expects the dedicated patriot—a word of little value these days because there isn't a war — to remain as he is? Under the system as it now stands, the Army (and maybe the other services) loses many, many good men. These good men leave the service less idealistic than when they came in and enter a truly materialistic world to lose even more. This is the realism of the situation and it's high time that someone either did something about it at this level as they profess higher up, or stop professing higher up if they have what they want, and I'd like to believe that they don't.

I could write endlessly on this subject, but I feel defeated before I even begin. The way I feel at the moment is to accept the fact that the Army is full of the wrong kind of people and to bide my time, doing my job as best I can, until I am really in a position to do something active and not so passive as this letter. I am a career officer who wants a professional Army of men dedicated to their profession — men who are always ready to defend their country because they owe their life to its propositions. To say they would all have to be heroes and willing to die in glory would not be true; to say they are human and willing to try to defend that in which they believe, is what I expect from such a group. But are there enough of those at the level necessary, who would expend such effort? Here I tend to lose some idealism and face the facts.

Keneth M. Pitman
2d Lt Infantry
1st Armored Division
Fort Polk, La.

Throughout its long history the Army has developed procedures and ways of doing things which have been successful

—at least they have been successful in defending the nation in every war that has been thrust upon us. Regulations and prescribed methods have always been a necessary part of the Army. Within proper limits it is essential for military personnel to "conform" and "not fight the problem."

If we credit experience, the methods developed by great leaders and the intelligence and abilities of our superiors, most of the "Army way" at any given time, is valid. It should be followed even though an individual, in his own little bailiwick or under certain circumstances, may disagree with the "Army way."

The point made by Colonel South is that we should not conform blindly. *We must think, or as he puts it, we must crack through our thought barriers. Only by doing so will the Army continue to progress and to improve.*

We do not agree that the Army discourages thinking or that conformity demands subservience. New thinking and better techniques are not only sought by the Army but invariably become a part of the Army way — a way that is constantly changing. But to merit change, thinking must be sound and procedures must be valid. They must be sound and valid from the standpoint of the total Army not just from the viewpoint of the individual or a segment of the Army. The young officer who becomes disinterested and "quits" after a three year "trial" period because he is asked to follow procedures which have been developed by the combined brains of the Army over the years or because his thinking does not result in the immediate changes, probably does not have the stuff we need. If his thinking is really good and if he has the qualities which make for success in any profession, he will find ways to be heard in spite of temporary setbacks, local resistance or other barriers.

We do not agree either that the Army "is full of the wrong people," that you should feel defeated before you begin or that all you can do is bide your time. The Army has a reasonable share of the good people of this nation. General Taylor, in speaking to the graduating class of the United States Military Academy last June, very wisely counselled new career officers on the nature of the Army. He said, "The Army is a cross-section of America, an unconditioned environment neither better nor worse in its individual members than the nation from which they are drawn. The virtues taught at West Point are the virtues of the good people whom you will find in the Service. In an ideal world they would be the ideals of all people. In the world-as-it-is, they are in desperate need of propagation. It is a desertion of a great cause to put aside the ideals of West Point simply because they feel like an out-of-season hat which makes the wearer feel uneasily conspicuous."

The Army, for the most part, is made up of the right *people. Since the service is physically, mentally and morally selective and since those who cannot measure up are constantly being weeded out, it undoubtedly has a higher percentage of good people than the nation as a whole. To wait for the Army to be made up entirely of idealists would be to wait forever. The person who adopts a defeatist attitute, loses his idealism or does nothing because he runs into a few wrong people in the Army probably would adopt a similar attitude anywhere.*

There is no doubt that you have high personal ideals and that you are serious in your concern about the welfare of the Army. These qualities must be put to work to combat the situation you deplore. There is much you can do to help the Army today and every day. By thinking, by setting the example and by sticking to high purposes you can exert a tremendous influence on those with whom you come in contact and they in turn can influence others.—Editor.

WHAT'S NEW FOR INFANTRYMEN

DEVELOPED

Hawk Missile System

A versatile air defense missile system designed to reinforce the low-altitude capability of our air defenses has been developed by the Army.

Designated the "Hawk," the new weapon system carries a lethal warhead and is capable of destroying aircraft flying at the lowest altitudes from long ranges. The new missile will complement the defenses against high-level air attack now provided by the Army's NIKE system.

Utilizing a solid fuel propellant, the HAWK system employs guidance techniques which are unusually successful in hunting down and destroying an attacker. The missile is approximately 16 feet long and 14 inches in diameter. It is capable of operating in the continental United States air defense complex and with fast moving combat troops of the field army. It can be transported over highways by using a minimum of vehicles and can be airlifted by helicopter or plane.

Mechanical Mine Planter

A mechanical mine planter has been developed by the U. S. Army Corps of Engineers Research and Development Laboratories.

Designed to reduce the amount of time required to lay an antitank type minefield, the machine carries the mines in a "lazy Susan" type magazine which automatically feeds them into the planting mechanism. This device consists primarily of a large side elevating plow which opens a trench to receive the mine, and a mechanism to arm the mine and drop it into the trench. The plow lifts the turf or soil on its side and, after the mine is dropped into the trench, the soil falls back into place.

The planter is mounted on pneumatic tires and can be pulled by any large crawler tractor during operation. It may be towed by standard military trucks at regular highway speeds for transport.

New Flame Thrower Gun Group

The U. S. Army Chemical Corps has announced the standardization of a new gun group for the portable flame thrower.

Officially known as the M-7, this new item marks the first major development in flame weapons since the end of World War II. It is the first of what is expected to be a complete line of new equipment to replace present items now beginning to show signs of age and wear.

According to Chemical Corps officials, the M-7 is lighter and easier to handle than the older M-2A1. The gun group weighs only 4½ pounds as compared to seven pounds for the M-2A1, and it is nine inches shorter.

The M-7 like the M-2A1, consists of three basic components: a fuel valve assembly, a barrel and valve body and an ignition head assembly.

Aside from the reduction in weight, the most significant improvement in the M-7 is the hinging of the fuel valve lever at the bottom. On the old gun group it was hinged at the top making it necessary for the gunner to exert a great

M-7 gun group

deal of pressure with his hand to overcome the resistance of the valve needle spring and fuel pressure. For men with small hands, this often proved an impossible task. Now the fuel valve lever can be depressed without difficulty.

Another feature of the M-7 is the addition of a safety for the ignition lever which decreases the possibility of premature ignition. The M-2A1 had no such device.

Although the new gun is easier to handle, the heat from the flame is much hotter for the gunner, especially when using unthickened fuel. Consequently, gunners must be cautioned to pull the fuel valve all the way to the rear when firing the new gun so that the heat will be kept as far from the hands as possible.

The method of operation of the new gun group remains the same as for the M-2A1.

Sun-Powered Radio

Combat troops may soon be using sun-generated power to operate the Army's revolutionary helmet radio transmitter-receiver. Experiments at the U. S. Army Signal Engineering Laboratories have proved that solar batteries, which convert sunlight to electricity, are practicable to operate the helmet housed radio —the world's smallest set.

Fitted to each side of the crown of the helmet will be long, narrow clusters of minute solar cells. These silicon wafers will power the radio for normal daylight operation and will charge four small storage batteries for peak current in daytime and for sending or receiving at night.

Dry batteries now used with the helmet set last less than 24 hours. The solar cells with rechargeable storage power pack are expected to provide sufficient current for more than a year.

The sun-operated version of the radio is as light as the present dry-battery set, which weighs less than one pound. With solar batteries, power converter and nickel cadmium cells, the sun-powered radio and helmet combined weigh only two pounds, 11 ounces.

New Assault Boat

The U. S. Army Corps of Engineers Research and Development Laboratories has developed a rugged, inflatable assault boat. Capable of carrying 15 men, the new craft is currently undergoing troop tests.

The boat can be carried by six men; and with a 25 hp outboard motor, it is able to move in the water at speeds up to seven miles an hour. It may also be hand paddled at better than three miles an hour.

Constructed of neoprene-coated nylon, the craft weighs only 255 pounds and is capable of being air-dropped. It is divided into six compartments of which as many as four can be damaged without putting the boat out of action.

The new boat is 17 feet long, five feet wide. It is equipped with two large and one small inflation-deflation pumps, a repair kit and 11 five-foot paddles.

TESTED

Armed Helicopters

Infantrymen may soon receive close aerial support from armed helicopters. Rotary wing aircraft armed with .30- and .50-caliber machineguns and 80mm rockets are being tested at the Army Aviation Center at Fort Rucker.

The types of helicopters being used include the smaller single-rotor and the larger twin-rotor type of the H-13, H-19, H-21 and H-25.

Organized into a "Sky Cavalry" platoon, the 'copters' use tactics employed by the Infantryman: pop up and strike by firing machineguns or rockets, take cover and swing up again in a different position.

Army officials said the firepower presently being used on the H-13 reconnaissance helicopter alone is equivalent to a reinforced Infantry squad. Throughout the tests, the armed helicopters have worked effectively against simulated enemy troop tactical movements on a battlefield, dug-in positions and road blocks.

Protective Face Mask

A revolutionary protective mask designated the E-13R9, which will guard troops against chemical, biological and radiological (CBR) agents, is undergoing service tests by the U. S. Army Infantry Board at Fort Benning, Georgia. The new mask is designed to afford troops over-all protection against inhalation of deadly war and germ gases and airborne radioactive fall-out. It offers superior vision, better speech transmission and lower breathing resistance. However, the mask will not screen against direct radiation.

The new mask uses new lightweight, pliable gas-aerosol filter pads which are inclosed in cavities molded into the rubber facepiece. The protruding canister now in use has been eliminated.

Irradiated Food

Foods preserved by ionizing radiation will be introduced to troops this winter in acceptance tests at Fort Lee.

Conducted by the U. S. Army Quartermaster Research and Engineering Field Evacuation Agency, the tests are expected to show that irradiated foodstuffs are palatable and acceptable to soldiers. Exact dates of the tests will depend upon the availability of the foods.

A single item of irradiated food will be served several times during a 30-day period as a part of a regular meal during the initial tests. The same dish in non-irradiated form will also appear on the menu during the period. Troops participating in the test will not be told when the preserved version of the food item is being served so that they may make an impartial choice.

The foods to be used in the test will be selected and approved by the Quartermaster and Surgeon Generals of the Army. Approximately 300 troops will participate in the test.

For several years, the Quartermaster Corps has conducted research in the field of food irradiation in cooperation with other Defense agencies, the Department of Agriculture, the Atomic Energy Commission and various industrial and educational institutions.

New protective face mask

CHANGES

Metric Scale for Weapons

The traditional linear scale in measuring distances for artillery and rifle fire will be discarded for the metric system.

According to a new regulation (AR 700-75, dated 14 May 1957), existing survey, fire direction equipment and data for Army weapons will be converted from feet, yards and miles to the standard European system with the "least practicable delay."

Reasons for the changeover are (1) to establish a common unit of measurement with NATO nations, (2) to permit greater use of allied or captured enemy war materiel, and (3) to simplify firing procedures for indirect-fire weapons.

Equipment will not be modified if it is to be replaced by items being developed or scheduled for use before 1 January 1966, the date the changeover is to be completed. Known distances for firing data, the new regulation states, will be redesignated to the nearest 10 meters and new ranges will be built in "round hundreds" of meters.

All new Army weapons and related equipment, including sighting and fire control systems, will be designed to employ the meter as the unit of linear measurement.

Staff Sections Combined

An intensive study of the organization of the United States Army Infantry Center has resulted in streamlining and integrating certain functions of various staff sections of the Infantry Center and the United States Army Infantry School.

The reorganization combines the office of the Deputy Assistant Commandant with the functions assigned to the Director of Instruction. Personnel functions which formerly were performed by the Secretary, USAIS have been transferred to the office of the Assistant Chief of Staff, G1, USAIC. The office of the Assistant Chief of Staff, G3, USAIC, has assumed supervision of the funding operation of USAIS which previously had been performed by the Secretary, USAIS.

These changes were made in an effort to increase efficiency and curtail operating costs. The changes are designed to eliminate areas of duplication and permit academic offices and departments of USAIS to devote full time to primary work.

Pre-Commission Courses

The United States Army Infantry School's Department of Non-Resident Instruction has been assigned the mission of supervising the entire U. S. Army precommission extension course program. At present the courses are conducted by eight Army branch schools: the Infantry, Medical, Signal, Provost Marshal General, Adjutant General, Chemical, Engineer and Army Security Agency Schools.

Leading to qualification for a reserve commission as a second lieutenant, the courses are open to enlisted men on active duty, to those in the reserve components, and to civilian employees of The Department of the Army.

Tentative completion date for the transfer of all courses to USAIS was scheduled for late this summer. Meanwhile, representatives of USIAS have visited the other schools to make arrangements for the integration of the mammoth program at USAIS.

Leadership Doctrine

A new concept in the teaching of leadership has been instituted by the United States Army Infantry School. Designed specifically to arouse student interest, the procedure consists of filmed problem situations which must be solved by the individual student.

The films seek to reduce the intan-

gible leadership theory to facts by dealing with everyday leadership situations. They portray unit problems at every level and emphasize good versus poor leadership. Students are able to view all facets of a problem before proposing a solution.

During the month of July, the Infantry School's Leadership Committee was host to leadership experts from the major Army service schools throughout the continental United States. During the conference plots were worked out for 29 projected films. Production of two series was scheduled to begin in September by the Army Pictorial Service. The entire series is expected to be completed in 18 months.

The Scorpion

New Name

The Army's 90mm self-propelled antitank gun, previously called the SPAT, has been named "The Scorpion." Officially known as the M-56, the "Scorpion" is a light highly mobile, hard-hitting antitank gun for use in the assault phase of airborne operations.

ROCID Problems

Since the innovation of the ROCID program, all Tactical Department problems at the Infantry School have been or are being revised or rewritten to conform with the new pentomic organization and doctrine. All classes which began at the school subsequent to 1 May 1957 have been receiving ROCID instruction.

Recently included in the program of instruction are two revised problems: problem Nr. 2310 (Battle Group in the Attack — River Crossing) and problem Nr. 2550-A1 (Role of the Infantry). In addition, a new problem (Nr. 2945, Helicopterborne Assault — Rifle Company — Pentomic Army) has been added to the POI for the advanced course.

Problem Nr. 2310 is an eight-hour integrated conference, demonstration and map exercise covering techniques of crossing water obstacles using expedient means and TOE equipment. It explains the factors involved in Infantry-Engineer planning and in the execution of deliberate and hasty river crossings and illustrates the planning for a deliberate river crossing in armored personnel carriers. The problem is conducted under atomic conditions with the student acting as a battle group commander who makes recommendations on the utilization of atomic weapons. Particular emphasis is placed on the assistance engineers can give in aiding units to cross rivers.

Problem Nr. 2550-A1 is a 25-minute lecture covering the importance of ground forces, the character of future warfare and the status of the Infantry now and in the future. It emphasizes the ability of the Infantry to seize and hold ground and its resulting decisive role in warfare. The problem considers the effect of new developments on Infantry tactics and techniques. The problem stresses the need of the Infantry to move, shoot, communicate and protect itself, as well as the requirement for Infantry to be prepared to fight in any type war, general or localized, with or without mass destruction weapons.

Problem Nr. 2945 is a one-hour demonstration emphasizing the problems of ground combat on the atomic battlefield and current developments in solution of these problems, particularly in fields of firepower, mobility and battlefield surveillance. The demonstration includes photo missions by drone reconnaissance aircraft, air and ground reconnaissance by a SKYCAV type unit, supporting fires (both atomic and nonatomic) and delivery of pathfinders by helicopters. The problem portrays the helicopter-borne rifle company in assault landing and the attack to seize an objective and shows Army aviation in various supporting roles.

VISUALIZED

Flying Jeeps

A vehicle with the versatility of the conventional jeep, but with the capability of hovering and propelling itself above the ground is visualized by the Army.

Three contracts have been awarded for the design, construction and testing of flying vehicles to be used in the development of an aerial jeep.

The Army's interest in a flying jeep has been encouraged by recent developments in the research of vertical take-off aircraft. Development of an aerojeep to replace the reconnaissance helicopter is considered the next necessary step in developing aerocavalry.

Ultimately, the Army hopes for a general utility vehicle which can travel at least 50 mph, stay aloft several hours and carry as much as 1000 pounds of equipment or weapons. The vehicle will have to be capable of operating without clearance for landing strips.

FIELD MANUALS

The following training literature is being written. Publication cannot be expected until late next year:

FM 23-( ), 90mm Gun, Full tracked, M-56, (new)

FM 72-20, Jungle Operations (revision)

The following manuals have been forwarded to USCONARC for approval.

FM 7-10, Rifle Company, Infantry Division Battle Group (revision)

FM 7-40, Infantry Division Battle Group (revision)

TC ( )-( ), Part I, The Anti-tank Guided Missile (Dart) Platoon (Organization and Operational Concept) (new)

TM 21-200, Physical Conditioning (new)

TM 57-220, C3, Technical Training of Parachutists (change)

The following manuals have been forwarded to Department of the Army for approval and publication:

FM 7-21, Headquarters and Headquarters Company, Infantry Division Battle Group (revision)

FM 21-20, Physical Training (revision)

FM 21-( ), Survival (new)

TM 57-220, C2, Technical Training of Parachutists (change)

DA Pamphlet Nr. 21, Ranger Training (revision)

DA Pamphlet Nr. ( ), Instructor Guide, Rifle Marksmanship Course, Trainfire I (new)

The following manuals have been published by Department of the Army and are available to instructors through normal supply channels:

FM 23-7, C2, Carbine Caliber .30, M1, M1A1, M2, M8 (change)

FM 23-15, C3, Browning Automatic Rifle, Caliber .30, M1918A2, (change)

TC 21-3, Physical Training (revision)

TM 57-220, C1, Technical Training of Parachutists (change)

RAINING FILMS

The following training films have been approved for release to requesting units:

MF 10-8720, Self Service Supply Center, 24 minutes.

MF 20-8776, Stay Alert: Stay Alive (Safety), 13 minutes.

MF 20-8777, One to a Customer (Safety), 10 minutes.

MF 20-8778, Stop Them Before They Start (Fire Prevention), 15 minutes.

MF 55-8769, Safe Driving in Bad Weather — Part I — Light Vehicles, 17 minutes.

MF 55-8770, Safe Driving in Bad Weather — Part II — Trucks and Tractor-Trailer, 15 minutes.

SFS 5-135, Demolitions — Calculations and Placement of Charges, 18 minutes.

TF 3-2431, Radiological Surveys, 25 minutes.

TF 5-2334, Emplacements, Intrenchments and Shelters — Part I — Introduction, 17 minutes.

TF 5-2449, Explosives in Combat, 10 minutes.

TF 7-2434, The 106mm Rifle — Part II — Duties of the Crew and Service of the Piece, 7 minutes.

TF 7-2435, The 106mm Rifle — Part III — Crew Drill on Vehicular Mount, 6 minutes.

TF 7-2436, The 106mm Rifle — Part IV — Dismounting and Mounting the Rifle, 6 minutes.

TF 9-2331, Automotive Electricity for Military Vehicles — Part III — Principles of the Starting Motor, 12 minutes.

TF 10-2454, Unit Messing in the Field — Part II — Field Operations, 14 minutes.

TF 21-2197, Camouflage for Scouting and Patrolling (in color), 33 minutes.

TF 30-1896, Technical Intelligence in Action, 24 minutes

TF 33-2509, Guerilla Warfare, 22 minutes.

TF 55-2348, The Motor Vehicle Driver — Traction Aids and the Winch, 29 minutes.

INSTRUCTIONAL MATERIAL

The following USAIS instructional material is suitable for resident as well as non-resident instruction and may be ordered from the Book Department, United States Army Infantry School, Fort Benning, Georgia, at the prices shown:

Mechanical Training, 106 and 105-mm Rifles, 1707B-USAR, 4 hours. Con-

ference, demonstration and practical exercise covering the disassembly, assembly, functioning, stoppages and immediate action for 106 and 105mm rifles. 10¢.

Coordinated Barrier Plan, 2109-USAR, 2 hours. Conference and map exercise covering considerations of barrier planning to include plans, principles, priorities, responsibilities, employment, types of natural and artificial barriers which concern Infantry combat companies in the defense; plans and locations of emplacements, wire, mines and other obstacles in coordination with other plans. 20¢.

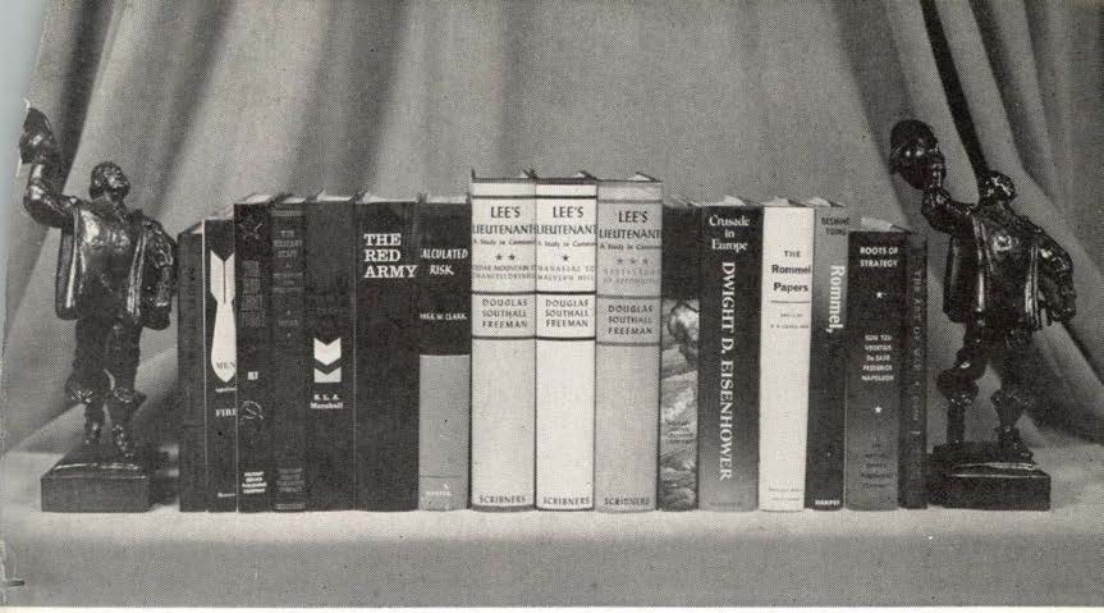
Rifle Company in Night Withdrawal, 2149-USAR, 4 hours. A terrain exercise covering collection of intelligence, issuance of warning and fragmentary orders, reconnaissance of routes, assembly areas and delaying positions; composition of and orders to detachments left in contact; utilization of supporting weapons during the night withdrawal; use of guides, measures for identification, and security and conduct of a night withdrawal, including occupation of delaying positions. 40¢.

Defensive Operations Under Atomic Warfare Conditions, 2178-USAR, 2 hours. A conference and practical exercise outlining concepts of friendly employment of atomic weapons in the defense; the impact upon defensive combat of enemy use of atomic weapons; and the derivation of effects circles based upon such variables as size of weapon, height of burst, weather and terrain. 40¢.

Characteristics and Effects of Atomic Explosions, 6991-USAR, 2 hours. A resume of past atomic explosions; types of bursts, characteristics of bursts, effects and medical aspects. 40¢.

Introduction to Military Instruction and Training, 7161-USAR, 1 hour. A conference covering the fundamentals of learning to include their application to military instruction; introduction to the stages of instruction. 25¢.

Military Hygiene and Sanitation, 7727-USAR, 2 hours. A conference in which the principles of military hygiene and sanitation are discussed in detail and the necessity to enforce these principles to prevent transmission of disease in a unit is presented. The measures necessary to control communicable disease are discussed. Command responsibility for the training of unit personnel in military sanitation and for the provision of adequate sanitary facilities under field conditions is established. 15¢.



Recommended Reading

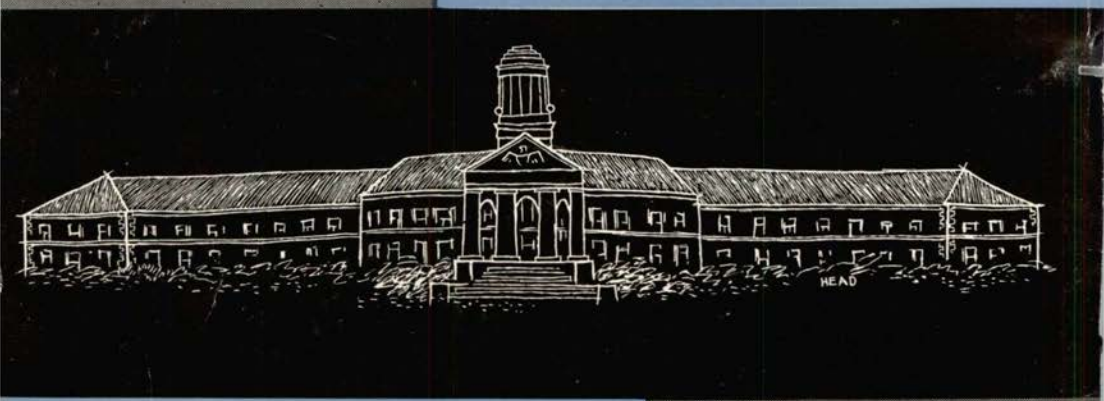
Infantrymen, particularly officers and noncommissioned officers, should devote a part of their reading time to professional books and materials. To assist the *Infantry* reader in selecting worthwhile and beneficial reading, the U. S. Army Infantry School publishes a "Recommended Reading List." The following books selected from this list are available, at the special prices listed, from the Book Department, U. S. Army Infantry School, Fort Benning, Georgia.

Battle Studies, Ancient and Modern, by Col Ardant Du Picq.....$2.45
Men Against Fire, by S. L. A. Marshall.....$2.25
The Red Army Today, by Col Louis B. Ely.....$3.60
The Military Staff, by Lt Col J. D. Hittle.....$3.25
Pork Chop Hill, by S. L. A. Marshall.....$4.50
The Red Army, by B. H. Liddell Hart.....$5.40
Calculated Risk, by Gen Mark W. Clark.....$5.40
Lee's Lieutenants, by Douglas Southall Freeman
Vol. I, Manassas to Malvern Hill.....$7.40
Vol. II, Cedar Mountain to Chancellorsville.....$6.75
Vol. III, Gettysburg to Appomattox.....$6.75
Atomic Weapons in Land Combat, by Col G. C. Reinhardt & Lt Col W. R. Kintner.....$3.55
Crusade in Europe, by Dwight D. Eisenhower.....$3.35
The Rommel Papers, edited by B. H. Liddell Hart.....$6.10
Rommel, The Desert Fox, by Brigadier Desmond Young.....$3.55
Roots of Strategy, edited by Brig Gen T. R. Phillips.....$4.50
Jomini's Art of War, edited by Lt Col J. D. Hittle.....$2.15

If the order is less than $5.00, add 25 cents to cover postage. For orders of more than $5.00, add five percent of the total amount of the order.

In every issue:

- *tactics*
- *doctrine*
- *techniques*



In this issue:

- **The Pentomic Infantry Division Tactics - Defense • Medical Support • Communications**
- **Pentomic Company in the Attack**
- **The M-60 Machinegun**
- **We Still May Walk**
- **The Creating of Superior Units**
- **Ride to Work**
- **Fit to be Untied**
- **Get Out of Town**