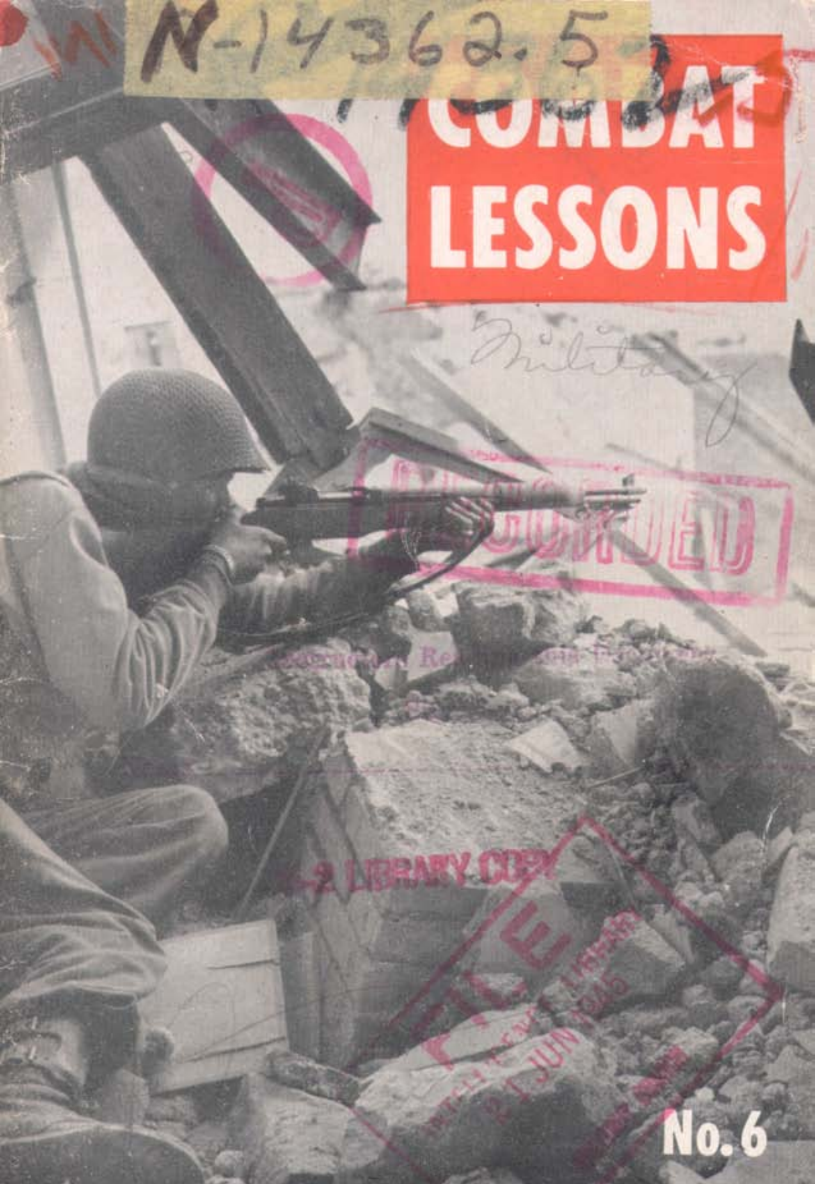
COMBAT LESSONS



No. 6

RESTRICTED

COMBAT LESSONS

No. 6

Rank and file in combat:

What they are doing

How they do it

Introduction

The purpose of "Combat Lessons" is to give to our officers and enlisted men the benefit of the battle experiences of others. To be of maximum benefit these lessons must be disseminated *without delay*. They do not necessarily represent the carefully considered views of the War Department; they do, however, reflect the actual experiences of combat and, therefore, merit careful reading. For this reason, also, no single issue can cover many of the phases of combat; lessons will be drawn from the reports as they are received from the theaters of operation and quickly disseminated so that others may apply them. The suggestions which are made or implied are not intended to change the tactical doctrine by which our Army has been trained

but rather to elaborate thereon. Much of the subject matter has been covered in training literature, but the comments show that shortcomings continue to manifest themselves on the battlefield.

The paramount combat lesson learned from every operation is the vital importance of *leadership*. Our equipment, our supply, and, above all, our men, are splendid. Aggressive and determined leadership is the priceless factor which inspires a command and upon which all success in battle depends. It is responsible for success or failure.

Chief of Staff.

Contents

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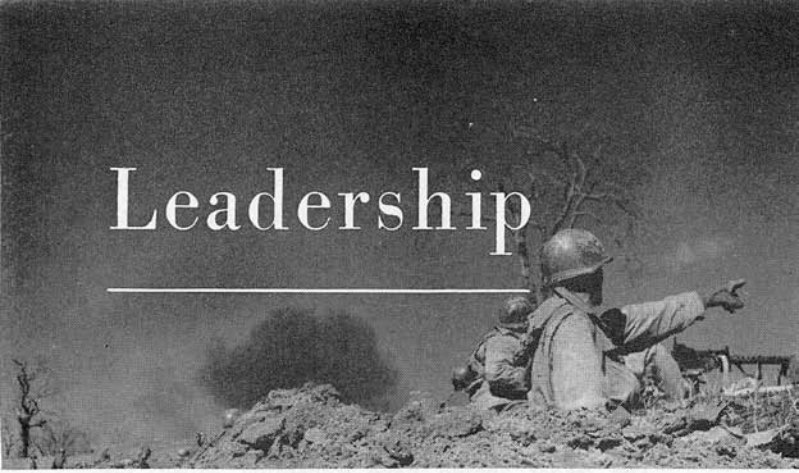


Leadership

There is no typical military leader. Patterns of traits and behaviors exhibited by successful leaders vary infinitely. However, among men of proven leadership ability, certain characteristics seem to be consistently observable; these characteristics, some of which are reviewed in the paragraphs to follow, are worthy of study and cultivation by every soldier who leads or may be called upon to lead men in combat.

What the GI Wants in His Leaders

The men and officers of an infantry battalion on combat duty with the *Twelfth Army Group* in FRANCE were asked this question: "What qualities, in your opinion, make a man a good leader?" Here are the most frequently mentioned leadership qualities as worded in the men's replies:

"A leader must have a thorough knowledge of his job and must see that his men know that he knows it.

"He must rotate duties and missions without partiality, exercising judgment and fairness in all decisions

and never allowing personal feelings to affect the performance of his duties.

"He must think clearly and be able to make quick, sound decisions. He must give orders with an air of confidence even when the going gets rough.

"He should show a cheerful front under even the most trying circumstances and never appear excited.

"He must make the men feel that he is interested in them and doing his best to help them. The men should know that he will stick up for them if need arises.

"The leader should have something called 'personality.' If the men do not feel free to come to him, he is not their leader. He should know each man personally and understand the job of each man under him.

"He must earn the confidence and respect of his men by sharing their common lot; they should be able to think of him as one of them.

"Stick up for your men."

"He must comply with his own rules and regulations and should never ask his men to undertake a mission that he would be unable or unwilling to attempt himself.

"He must be in the fight with his men, but even when setting an example of courage should not expose himself foolishly nor allow or expect his men to do so.

"The good leader encourages; he does not nag.

"The leader should keep his men oriented as to their mission and situation."

Leadership Rises to Emergencies

Says a *Marine Corps officer* after action in the GILBERT Islands: "Leaders of all ranks must be prepared to meet emergencies and sudden changes in situations and to furnish the spark of inspiration when their units have become discouraged. The true leader is the one who takes the men and materials at hand and gets the job done in spite of complications."

The value of a leader of this emergency-tackling variety is well proved in this story of *Staff Sergeant H. L. Schmidt, Combat Infantryman,* during an action in FRANCE: "When his platoon leader and platoon sergeant had become casualties and the platoon had been disorganized by heavy enemy fire, Sergeant Schmidt took command and reorganized the platoon. Then he advanced alone for 100 yards and with hand grenades knocked out two enemy machine-gun nests. This feat reinspired the members of the platoon, and under Schmidt's leadership they pushed forward and captured a strongly defended enemy position. The leadership and initiative of this one soldier not only

saved his platoon but also opened the way for the entire battalion to advance to its objective."

Leadership Exploits Surprise

From the *Battalion Commander, 2nd Battalion, 47th Infantry,* FRANCE, comes a striking example of the value of good planning—in this case based upon the element of surprise: "While going through the Siegfried Line, a platoon was given the mission of

"Surprise saves lives."

knocking out a bunker situated in a clearing on a steep and heavily wooded hill. The platoon worked its way up the hill slowly and stealthily, moving through the woods in line of squad columns on a 50-yd. front. Scouts were out about 20 yards ahead. To facilitate control, the platoon leader and platoon sergeant acted as center scouts.

"The platoon halted at the edge of the clearing only about 75 yards from the bunker. Though they saw three enemy walking along nearby, the platoon leader

and his men held their fire until they were discovered. At that moment, they shot the three Germans and rushed the bunker. Two Germans outside the pillbox surrendered immediately and a couple of grenades thrown into the entrance of the bunker brought about the prompt surrender of the remaining garrison which numbered 22 men. This surprise attack gained the bunker without a single shot from its defenders."

Leadership Means Quick Planning

An intelligence report mentions this instance of quick planning resulting in "mission accomplished": "*Staff Sergeant Robert G. Rhodes, Company B, 315th Infantry, 79th Division,* was in charge of the platoon that had just captured a certain hill position on the Seine River, north of Paris. The inevitable counter-attack was expected at any minute and the sergeant lost no time in preparing for it. He placed one squad close to the crest of the elevation; this group was to serve as a base of fire. The other two squads he distributed, one on the right front and one on the left front, both well forward. The two flank squads were given German machine pistols and German machine guns and were given orders not to fire until the enemy had advanced *beyond* their position.

"As expected, a German battalion attacked in strength, advancing steadily toward the center squad, which kept firing away as per plan. The enemy had almost reached the center squad's position when the two flank squads opened up with the German weapons. The Germans were instantly confused, convinced that they were being shot by their own troops. As a result, this one platoon defeated and pushed back a

whole enemy battalion—a feat that would have been impossible except for the ready resourcefulness and ingenious planning of the platoon leader."

Leadership Is Aggressive

The value of aggressive action even against superior enemy forces is again illustrated by this story of a small group of men from the *502nd Parachute Infantry Regiment,* FRANCE, as recounted by *Private First Class William Rubendael:* "At daylight on Christmas morning, one group of 20 men encountered a German company of about 150 men supported by 4 Mark IV tanks. The Americans had 4 light machine guns, 2 bazookas, and their rifles and carbines.

"The Germans were already digging in when discovered. Their tanks soon opened fire on the farmhouse around which the Americans had taken positions and forced our men back about 200 yards to the edge of a patch of woods. At that point the hard-pressed platoon leader decided that his best defense was bold attack. He borrowed several riflemen from a nearby company and then had his machine guns keep the enemy infantry down and their tanks buttoned up while the two bazooka teams and the riflemen moved around to the German company's flank. This small but aggressive maneuvering force inflicted heavy casualties upon the enemy infantry, knocked out three tanks, and forced the other tank to withdraw to a point where it was destroyed by an adjacent American unit.

"Not content with this accomplishment, the paratroopers moved on to attack a nearby enemy-held farmhouse. The German occupants surrendered,

turning over their weapons to some American prisoners they had been holding in the same building."

Leadership Means Assuming Responsibility

The ability of enlisted men to step forward and take charge in the absence of appointed leaders has in many reported instances saved the lives of comrades, made possible the accomplishment of difficult missions, and prevented the serious disruption of important plans. The following account by the *Chief of Staff, 3d Infantry Division,* FRANCE, describes how one emergency was met through the efforts of an enlisted leader who assumed responsibility for getting the mission accomplished: "One evening, a platoon leader from one company of the 7th Infantry was wounded while returning to his command post with orders for a scheduled night attack. His platoon sergeant, knowing that an attack had been planned and realizing from the platoon leader's absence that something had gone wrong, proceeded to the company command post, obtained the plan of attack, and took charge of the situation. He led the platoon through a booby-trapped minefield to the assigned objective, directed dispersion of the men in spite of heavy enemy artillery harassment, reconnoitered to within 50 yards of the enemy positions, and organized the area of defense. His platoon had already begun to dig in when first detected by the enemy. The sergeant then organized and directed offensive fire so effectively that the enemy withdrew from buildings in the area. This timely execution of pre-attack plans, in spite of the platoon leader's absence, enabled the attack on the town to proceed according to plan."

Leaders Must Maintain Control

The value of a leader is measured by his ability to keep his men working as a team. While it must be recognized that some situations can be met only by heroic action on the part of individual leaders, the most important function of a leader is to direct and coordinate the efforts of a group. The following remarks by the *Commanding Officer, 6th Armored Infantry Battalion,* ITALY, serve as an excellent commentary on this problem.

"The average platoon leader and NCO are brought up with the idea that leadership means 'leadership from the front.' The fact that casualties of platoon leaders and sergeants are disproportionately high proves that this fallacy is too generally accepted. Actually, the platoon leader's position is a roving one; it is impossible to stipulate any definite position from which he shall operate. At times, he will be as far forward as the scouts, but his normal position should be wherever he can best control his platoon. Casualties among veteran leaders would be fewer if we properly instructed each platoon leader as to what his job is and what is expected from him.

Make Intelligent Use of Junior Leaders

"The shortage of junior officers makes it necessary to exercise judgment in employment of commissioned officers. Leadership of routine missions should be assigned to sergeants whenever possible. Platoon officers should be used only for missions which actually call for commissioned leadership. This policy insures a reserve of capable leaders for the more urgent assignments and serves to develop NCO leaders."

Leadership Involves Personal Contact

Personal contact between a leader and his men is still an important factor, as is reiterated by a *Battalion Commander, 36th Armored Regiment,* FRANCE: "The presence of high-ranking officers—battalion, regimental, and division commanders—well forward, gives men confidence."

"Leadership involves personal contact."

Briefing—A "Must" in Practical Leadership

A *Battalion Commander, 6th Armored Division,* FRANCE, emphasizes briefing: "Unless each man knows not only his own but also his unit's mission, there can be no intelligent continuity of effort when casualties occur. The individual learns his job during training; confidence in command is developed during maneuvers and combat; but knowledge of the mission can be gained only through careful briefing on the ground. Results obtained by careful briefing were shown during a recent operation in which 800 Germans were captured and 200 killed at a cost to us of 16 casualties."

The *Regimental Surgeon, 115th Infantry,* FRANCE, makes this statement: "Battalion and regimental surgeons will manage evacuation problems more intelligently and alertly if they are kept acquainted with the situation. The indulgent doling out of necessary information in response to repeated requests by the surgeon discourages him and causes him to lose incentive and initiative."

COMMENT: In all operations, large or small, not only the medics but all attached units should be kept fully informed as to the mission and situation so that their supporting roles can be efficiently accomplished.

Don't Overdo Example Leadership

The *Divisional and Regimental Staffs* of the *2d, 28th, and 83d Infantry Divisions* in FRANCE and GERMANY agree that: "The constant emphasis on 'example' leadership in our training and teaching has resulted in our losing many valuable leaders—from generals to corporals. Experienced leaders are difficult to replace; the loss is seriously affecting the efficiency of some of our units. Emergencies sometimes arise which require leaders to expose themselves and by personal example get an attack moving or calm down men who are about to break. Some leaders, however, carry their job to the point that their presence is almost standard operating procedure; as a result, their subordinates do not move unless the leader is there. Each officer and NCO and enlisted man should be trained to do his job and then be given the chance and responsibility of doing it."

end.

Street Fighting

These comments are taken from reports of units that have successfully and extensively engaged in village and town fighting.

Boundaries Between Units

From an *VIII Corps* report describing techniques and methods employed by three infantry divisions during action at BREST:

"Streets formed the boundaries between units. In some cases the entire street was included within the zone of a unit; in other cases the boundaries were drawn down the middle of the street. Many felt that responsibility for the street itself was immaterial since no one dared use it anyway."

COMMENT: In village and town fighting, boundaries between units should not be drawn down the middle

Combat engineers search for snipers.

of the street. A street is a natural avenue for approach or for retrograde movement even though not used for either purpose. It is also a natural line of demarcation and as such must be considered a critical area. Our tactical doctrine teaches that in assigning boundaries all natural avenues and lines of demarcation should be made all inclusive to one unit or the other so that there will be no division of responsibility for a critical area. (See Paragraph 475, FM 100–5, and Appendix II, FM 101–5.)

In cities and villages it is feasible to place boundaries along the face of the buildings on one side of a street so that the street itself, together with the buildings along the side opposite the boundary, becomes the responsibility of a single unit. Stream lines, valleys, ravines, etc., are also classed as critical areas; assignment of any one of these should be all inclusive to one unit.

Zones of Unit Action

"Each platoon or squad should be assigned a definite zone or group of buildings within the city block under attack. The city block may be thought of as a hollow square outlined by buildings. When the buildings on the near side of such a square are already held, one unit (squad or platoon) should be assigned to clear the buildings on each of the two sides (right and left) while a third unit remains on the friendly side to give support by firing across the center of the square into the rear windows and back entrances of enemy-held buildings. Such support is very necessary. Bazookas, BAR's, Tommy guns, and the SMG M3 are effective for such support.

Routes of Advance

"Routes of advance for platoons and squads varied. Hallways, stairways, rooftops, and basements were used. Sometimes it was necessary to blow only two or three walls in an entire block of buildings.

"It was found best to cross streets near the center of blocks. To make sure that the doors of buildings across the street were open, the locks were shot away or the doors blasted open with bazookas or AT grenades. The street would then be screened with smoke from WP hand grenades so that the men could dash across under cover.

Enemy Firing Positions

"Sometimes the enemy removed a single brick to provide a loophole for firing from a basement.

"Hostile MG's located in the upper stories of buildings often were able to get effective fire from ricochets on the stone streets.

Entry of Buildings

"One of our front-line leaders felt that it was better to enter the lower floors of buildings so that, if necessary, the building could be burned from the bottom; he was doubtless bearing in mind that the enemy could do the same if our troops were above. This platoon leader found also that after the ground floor was captured, a few AP shots (from an M1 or BAR) upward through the floors would usually bring remaining enemy down with hands in the air.

"When the enemy held out in a basement, a well-tamped charge of TNT on the floor above usually proved effective.

Demolition Practices

"Pole and satchel charges were generally used; they were prepared by the engineers in almost all cases. Care was required in determining the amount of the charge, for it was difficult to estimate the thickness of the walls. The average thickness was about 18 inches. In a few instances, a too heavy charge brought the entire building down into the basement, leaving an unnecessary obstacle. One solution to this problem was to set the charges in fireplaces where the heavier side walls of the fireplace would prevent collapse of the walls.

"Our men were pulled back two or three buildings before charges were set off; this safety measure was always observed.

Machine-gunning enemy positions near Kohlsched, Germany.

Demolition Teams

"Ammunition and pioneer teams were at a premium because the rate of advance depended upon the number of demolition teams available. Sometimes front-line troops joined with the A and P men to form demolition teams. One unit reported that when the A and P platoon sent down a 4-man team, four 3-man teams were formed, using one A and P man in each.

Street fighting in Aachen, Germany.

Burning Buildings

"Some buildings were set afire with 81-mm WP shells; however, this method was used only as a last resort because it left difficult obstacles. Such fires were set at night to avoid interference with daylight combat.

Relief of Units

"One company commander recommended that the relief of forward companies be accomplished during daylight. He pointed out that routes forward led through basements, around buildings, through holes in walls, and over half-demolished walls. If men were brought to their stations during darkness, they lacked proper orientation and could not intelligently anticipate enemy action nor their own method of attack.

Use of 60-mm Mortar Shell

"The 60-mm mortar shell was extensively used for direct fire through windows. The shells were launched from rifles by wiring them to the grenade projector adapter, M1.

Aerial Photographs

"Aerial photographs were in great demand. It was pointed out that aerial photographs should be taken almost daily during city fighting if they are to furnish exact information concerning the buildings yet to be taken."

Rifle-Platoon Employment

From the *Commanding Officer, 329th Infantry,* ETO: "For street fighting, we organize each rifle platoon into two sections—one to assault and the other

to cover. Each section has two automatic-rifle teams and a bazooka team. All the men carry several hand and WP grenades.

"We attack rapidly and aggressively, clearing each building in this order: first floor, second floor, cellar. Each succeeding building is covered by fire from the top floor of the building just cleared."

Principles of Street Fighting

The *Commanding Officer* of a regiment with the *Twelfth Army Group* attributes his unit's success at AACHEN to the following factors: "We employed common sense, normal tactical principles, and maximum fire power.

"We forced the enemy to fight on our terms by attacking at every opportunity from a direction least expected and by isolating small sections which could then be left to small holding groups while other troops worked around to the rear.

"We proceeded without undue hurry, realizing that street fighting requires great physical exertion and considerable time if buildings are to be thoroughly searched and cleared. Our policy of searching every room and closet in every building, blowing every sewer, and thoroughly mopping up each sector paid dividends in later security. Not once did the enemy fire a shot from behind our lines; fighting troops didn't have to worry about snipers in rear, nor were command and supply personnel hindered in their work by remnants of enemy resistance groups.

"We placed tanks, TD's, and SP guns in position just before daylight or at dusk. We would have the engineers and pioneer-platoon men blow holes in the

Firing from bomb craters in street of Aachen.

near walls of buildings; then we would run the vehicles into the buildings and provide apertures for the gun barrels by blowing smaller holes in the far walls."

Tanks in Village Fighting

Officers and enlisted men of a tank battalion that had fought its way from the beaches into GERMANY made the following comments concerning tank participation in village fighting:

—During the Approach "Main roads and crossroads near small villages should be avoided; they are often mined and generally have one or more road blocks.

"The enemy's first defenses, which are usually on the outskirts of the village, must not be permitted to separate the tanks and infantry. Tanks that bypass

these defenses too far ahead of the infantry become subject to antitank fire and cannot fire at the bypassed enemy without endangering friendly troops.

"Some tanks and other direct-fire weapons should act as the base of fire while other tanks circle the village and attack from the flanks.

"Infantry carried on tanks should dismount before entering a village. (However, in one night attack, infantrymen remained on the tanks and fired effectively at enemy on rooftops or in upper stories of buildings.)

—Within the Village "It is not necessary for infantry to precede the tanks into small villages, but infantry should remain abreast of or close behind the

Infantry troops take cover behind tanks.

tanks in order to provide protection against enemy infantry.

"If more than one street is accessible, parallel attacks should be made. Narrow streets, on which only the leading tank can be employed, should be avoided.

"Hand grenades were found to be of great value; without leaving the tank, the tank commander can throw them through windows to force enemy evacuation of buildings. Use of grenades also conserves tank ammunition and is less dangerous to our infantry than use of tank weapons.

"WP can be of great value in village fighting, but its use must be definitely planned and explained to all elements before the attack. WP rounds should hit inside or behind buildings; if they hit in front, the enemy can escape through the smoke undetected. A round of WP will sometimes force surrender or evacuation of a building.

"Where resistance is stubborn, all buildings should be fired upon and either burned or destroyed.

"Enemy soldiers who have taken cover in buildings can be brought out by use of a few rounds of HE.

—***After the Attack*** "To avoid mortar and artillery fire, both infantry and tanks should move out of the village as soon as it has been taken."

Ricochet Fire

Comment from the *Commanding Officer, 746th Tank Battalion*, ETO: "An effective use of HE in villages is to fire with delay fuze, 'skipping' the rounds 50 to 75 yards in front of tank and infantry. This method was particularly effective at crossings of streets and alleys."

Patrolling

PATROL TIPS FROM ETO

Comments from Experienced Patrolmen

The following points were stressed at a conference of officers and men of the *60th Infantry* in FRANCE after a period of intensive patrolling: "Watch out for Krauts coming behind you. German snipers and small patrols often follow our patrols back to our outposts. Patrols working in snow should never leave their lines from an outpost or return directly to one. A German patrol followed our snow tracks to one outpost and shot one of our officers.

"Patrols moving in snow cannot avoid making noise, but they can take advantage of sounds—wind, artillery, mortar fire, etc.—to cover their noise of movement.

"Walking in the footsteps of the man ahead helps conceal the number of men in the patrol and reduces the chances of setting off booby traps.

"Ravines are easy terrain features to follow, but experience has taught us to work on the ridge or halfway up the slope, guiding on the ravine but not following its bottom; the enemy will normally cover the natural approaches with fire.

"Simply warning the men on the outpost line that friendly patrols are operating to their front is not enough. They should be told where and during what time the patrols will be operating."

Outstanding patrol leaders of the *99th Infantry Division,* FRANCE, add these suggestions: "Brief the assistant patrol leader as well as the leader; two heads are better than one, and the assistant will assume more responsibility if properly briefed.

"A warm, lighted dugout in each battalion should be reserved for exclusive use of patrols. Assemble the men of a patrol there about an hour and a half before starting on a mission so that they can be warmed and given hot coffee. This procedure allows time, too, for such chores as field stripping, cleaning, and drying each weapon. During this time the mission should be thoroughly explained and each man's duties carefully reviewed. Maps and aerial photographs should be studied in detail. All these things help to form the men into a team; they are the inci-

"Walking in the footsteps of the man ahead helps conceal the number of men in the patrol."

dentals that pay off later in more effective performance of the patrol's duties.

"In wooded country, have the men carry only armor-piercing ammunition; it will go through trees if the enemy uses trees as cover. A few thermite grenades are handy to have along, too. They can be used to destroy gun barrels and to start fires.

"Make sure that each man has his first-aid kit. Have some men carry morphine syrettes in a designated pocket so that all the men know where to obtain them. All the men should be given instruction in the use of the syrette. Another wise precaution is to have every man carry cough tablets.

"Prior to departure, work out with the artillery three or four easily recognizable base points. Arrange to communicate directly with the artillery by means of SCR–300 so that you can get rapid action on requests

for smoke (for orientation) and supporting fire.

"All patrol members should study the field manuals on scouting, patrolling, use of weapons, and small-unit tactics. The statement frequently made that 'over here, you throw the manuals away' is absolutely wrong. Study of the manuals is essential, not only for getting the job done, but also for self-preservation.

"When you run into automatic fire, don't hit the ground and 'play ostrich.' Keep your head against the ground but look about you. You can often see where the bullets are flicking the trees or snow and generally can get a fair idea as to where the enemy guns are."

Make Patrol Gains Permanent

Colonel M. Kammerer, 34th Infantry Division, ITALY: "In training in the States, emphasize again that ground once gained, however cheaply, *must be held.* Time after time, patrols sent out to determine enemy strength find the hill or other objective unoccupied. Almost invariably the whole patrol comes back to report. Then some other unit is ordered forward to occupy the reconnoitered area, only to find it alive with enemy who smother the attacking unit with fire from machine pistols, light machine guns, and mortars."

Transmitting Patrol Information

A comment concerning the same problem comes from a regimental S–2 in GERMANY: "When a patrol reaches its objective and finds no enemy, it should radio the information back so that the position may be quickly occupied in strength. When we crossed the

Moselle River, a patrol sent into Koenigsmacher found the town clear of enemy, and a company was moved up immediately to occupy it."

A report from a unit of the *Twelfth Army Group*, FRANCE, further emphasizes holding patrol gains: "When we patrol toward important terrain features, we send either an SCR–300 or an SCR–536 (choice depending upon required range) with the patrol. If the patrol reaches an important location, we can direct it to remain while we decide whether or not to reinforce it. As a result, we have never had to fight for an important point that has once been taken by our patrols."

Says *Major H. C. Crye*, an *Infantry Battalion Executive*, ITALY: "We learned something from an incident that happened near OLIVETO, Italy. A strong patrol, accompanied by a liaison officer (with his radio) was to be sent up the high ridge on the left to hunt for artillery OP's and knock them out. The patrol was to move ahead of the main body so as to have the OP's wiped out before our main advance up the slope to the pass commenced.

"The patrol went out as planned—but the liaison officer was not sent with it 'because too many men would have been needed to carry his radio.' This patrol located and wiped out 3 OP's from which the Germans had been directing their artillery fire. The patrol stayed there for 3 days and located 12 enemy batteries as well as 10 to 15 tanks—but having no means of communication by which to direct counter-battery fire, it could do nothing about these tempting targets! Any patrol of that type should carry proper means of communication at all times."

Sgt. John E. Meredith arranges rope in his one-man boat which he used for night patrols into German lines.

Patrol Method for Noiseless River Crossing

121st Engineer Battalion: "Here's how we help infantry raiding units cross a river noiselessly. Have a small party swim across carrying one end of a half-inch rope. They can then pull the boats carrying the infantry across, thereby eliminating the noise of a motor or of rowing. If more than one trip is necessary, attach ropes to each end of the boat and let the far-shore and near-shore parties pull it across in turn. Don't forget to provide an infantry security detail for the far-shore party."

Locating Method for Night Patrols

Reported by a *Battalion S–3* of the *143d Infantry,* FRANCE: "Night patrols are often unable to report

exactly where they have been. One solution of this problem is to have the patrol leader, just before returning, drop a colored smoke grenade with delay fuze, and have observers take azimuth readings on the smoke. A 45-minute delay fuze permits patrols to get safely out of the area."

COMMENT: By using the US Chemical Delay Fuze MI, delays of from 5 minutes to several days may be obtained. The use by night patrols of this fuze with colored smoke grenades or explosive charges offers many possibilities. Enemy installations encountered by patrols can be marked by colored smoke set to go off at an approximate time after daylight; FO's could then be alerted to watch for the smoke. These fuzes can be applied similarly to demolitions to allow the patrol time to return to friendly lines.

Demolition Men on Patrols

Commanding Officer, 2d Battalion, 405th Infantry, FRANCE: "Whenever possible, we send a man from the ammunition and pioneer platoon with our patrols. It is reassuring to any patrol to have with it someone who is experienced in handling mines, booby traps, and explosives."

Booby-Trap "Baton"

Patrol experts from the *99th Infantry Division,* FRANCE, report effective use of a "magic wand" when it was necessary for small units to cross known minefields not covered with snow: "We had considerable success in detecting the boobies by having one man precede us through the minefield holding a small stick

lightly in his hand at an angle of 45 degrees with the end about 2 inches off the ground. Pressure of the trip wires against the stick warned him of eight booby traps in 1 day.

"Some trip wires are neck high, others only 6 inches or less from the ground. Remember that if you find one booby trap, there probably are more around."

Preventing Wear and Tear

Commanding Officer, 2d Battalion, 405th Infantry, FRANCE: "Our men have found knee and elbow pads very helpful during patrols over frozen ground."

Foregone Conclusion

"In unfamiliar country, any night patrol not preceded by daylight study and reconnaissance is doomed to failure."—*Headquarters 81st Cavalry Reconnaissance Squadron (Mechanized).*

JUNGLE PATROLLING

Jungle Patrol Pointers

These methods were stressed by the *1st Infantry* in reports of their SANSAPOR experiences: "When encountering enemy on the move, our combat patrols had more success and suffered fewer casualties by opening fire and rushing through than by trying to take cover and envelop the enemy group.

"We have learned to inspect foliage closely. Broken leaves, twigs, etc., often indicate when and in what direction the enemy has passed and how many were in the group.

"Patrols should not become too dependent upon native guides. They should learn in the beginning

to rely upon their own ability to maintain direction and ferret out the enemy. Native guides should be used only to supplement their own information and ability.

"Excessive ammunition only tires the men and hampers their movements. One bandoleer of ammunition is ample for the normal mission here. BAR men make makeshift suspenders to ease the weight of the belts from their hips. Officers' field suspenders serve the same purpose excellently."

Jungle Patrol Errors

1st Infantry Headquarters in the SOUTHWEST PACIFIC lists the most common errors made by patrols operating in jungle:

"a. Patrols have tried to reach objectives too quickly, moving too rapidly through the brush and needlessly endangering themselves.

"b. Intermediate objectives and assembly points have not been properly established. These should be well-defined terrain features along the route of advance. Use them as rallying points for reorganizing, for checking on casualties, and for issuing supplementary instructions.

"c. Patrols have carried too many rations and then, by throwing away the excess, have revealed their presence and routes. They have left debris along trails, at resting places, and in bivouacs. All indications of patrol activity should be obliterated; any equipment which must be abandoned should be buried and camouflaged.

"d. Members of patrols have smoked while on patrol duty; this has in many cases proved fatal.

"e. Patrol reports have often been exaggerations of actual happenings. Commanders or interrogators (intelligence officers) must question patrol members in order to obtain true facts.

"f. Briefings of patrols have been held in exposed positions such as OP's.

"Patrols sometimes exaggerate."

"g. Some members of patrols have lacked alertness and have overlooked obvious signs of enemy movement. Foliage cuttings indicate, by the amount of sap oozing from the fracture or cut, the probable length of time since the enemy passed by. Yellow telephone wires always lead to Jap establishments. The Japs sometimes string vines between trees and shrubs to mark the way to some installation; when these are encountered, both wire and vine should be cut.

"h. Patrols who encounter the enemy have frequently forgotten the six f's (finding, fixing, fighting, fending, fooling, finishing) and the five elements of offensive combat (finding force, holding force, supporting fire, maneuvering force, and the reserve).

"i. Patrols have neglected to carry individual medical kits or have not familiarized themselves with the contents of the kits.

"j. Patrols have turned in reports with the mere statement that results were negative. Reports should enumerate negative features.

"k. Patrols have traveled too much on trails. Japs use trails as fire lanes and ambushes. Avoid travel on trails in territory known to be hostile."

PATROL COMMUNICATIONS

Radio Check Calls

1st Infantry Headquarters comments as follows after experience in the SANSAPOR Operation, SWPA: "Radio-equipped patrols should make check calls at the discretion of the patrol leader instead of at set times. The battalion radio in this net should operate on a listening basis only. This system makes for greater security when the patrol is on the move and helps to conserve the battery.

"A company on patrol should have two SCR–300's for communication between the lead and tail elements, which are often a half-mile apart.

"Use of sound-powered phones by patrols has proved highly effective. We needed more of these phones than were available."

Patrol Control by Telephone

The *1st Ranger Battalion* in the MTO worked out a system for telephone control of patrols: "Communication between each patrol and the parent unit and between patrols operating at the same time was provided by field telephones and light field wire on half-mile spools carried by each patrol.

"At dusk, each of the patrols would hook into the battalion switchboard and proceed along the prescribed route to the end of the first spool. Each patrol would then check in, using prearranged identification numbers, to receive any further orders. Similar calls would be made for each successive half-mile point. Patrols could thus communicate with each other and coordinate their movements to take aggressive action against enemy groups or installations in the area. This increased the confidence of the men and facilitated longer periods of activity by each patrol."

Wire-Communication Method for Patrols

Headquarters, 99th Infantry Division, ETO, advises that it is not too difficult to provide wire communications for all patrols: "By using W–130 wire on the ½-mile spool, it is very practical to keep a wire head with the patrol leader at all times. This requires only one trained wireman. Extra wire is carried by members of the patrol.

"In most cases, a large part of the wire can be reclaimed on the return trip by cutting out 600- to 700-yd. sections and rolling them onto the reel.

"If communication is vital to the patrol mission, a radio should also be taken to provide an alternate channel in case the W–130 wire goes out."

Communications Caution

From the *Commanding Officer, 1st Battalion, 116th Infantry,* FRANCE: "Carry an extra SCR–300 handset, if available, to insure radio contact in case the one in use fails because of mud, rain, or moisture from the operator's breath."

Reducing Receiver Noises

Commanding Officer, 3rd Battalion, 378th Infantry, FRANCE: "When using the SCR–536 on patrols, we keep the antenna as far down as possible, except when transmitting. This reduces receiver noises which might be overheard by the enemy."

COMMENT: The practice of operating the SCR–536 with the antenna down as far as possible is somewhat hazardous inasmuch as it reduces the ability to hear transmissions from other stations. The sensitivity of the radio set is reduced in approximately the same proportion as the receiver noises are reduced.

Night-Patrol Use of Luminous Watches

From *S–3, 60th Infantry Regiment,* FRANCE: "Luminous watches or compasses are used for communication by members of night patrols. The watch or compass is strapped to the inside of the hand, and signals are given by opening and closing the hand."

A variation of this expedient is reported by the *99th Infantry Division,* FRANCE: "Wire crews and small patrols working at night tied wrist compasses to the rear of their cartridge belts. The luminous dials served as guides and eliminated the need for audible signals."

Popular Mechanics Battle-Front Style

Shoes for War Dogs

The jungle is hard on a dog's "dogs" too. When it was found that long hikes over jungle terrain cut dogs' feet badly enough to put them out of service, GI's devised custom-made shoes. The accompanying photo shows a war dog happily modeling the latest in dog footwear fashions.

Hang your shower to the nearest tree.

Collapsible Shower

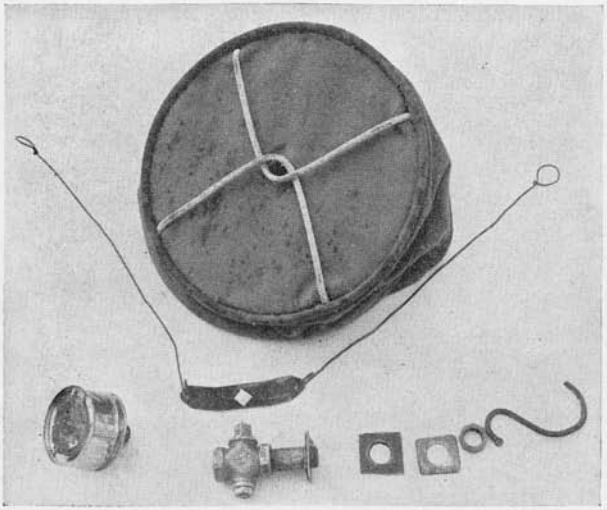
You can carry your bath in your duffel bag if you take this tip from a quartermaster in ITALY: "First, try to borrow the following tools: blow torch, soldering iron, solder, two pipe wrenches, a twist drill, hammer, chisel, shears, and a nail. Then get these materials: an 18-qt. canvas bucket, two ½-in. pipe nipples about 2 inches long, a C-ration can, a stopcock (or gate valve), two 1-in. nuts, two washers, 2 feet of wire, a 6-in. strip of 1/16-in. metal, and an S-hook.

"After you have gathered all the materials, hammer out a 1-in. round hole in the bottom of the bucket. Insert one pipe nipple through the opening and reinforce with washers. Use the two nuts to hold the washers against the canvas, inside and outside. Next, cut a C-ration can to about 1½ inches in depth and punch holes in its bottom with the nail. Now, drill a

hole in the loose lid of the can and solder the other pipe nipple to it. Solder the lid to the can. Screw the free end of each pipe into the gate valve or stopcock.

"Drill a hole in the center of the strip of metal and file it square to fit over the protrusion of the stopcock or valve. Fasten a length of wire to each end of the metal strip. A tug on one wire opens the valve; a tug on the other wire closes it.

"This shower's chief advantages are the collapsible canvas water bucket and the stopcock or gate valve. In areas where water is scarce, an ordinary bucket or barrel shower wastes water. With the valve to control the flow, the 18 quarts the bag holds are enough for wetting, washing, and rinsing several men.



Collapsible shower broken down.

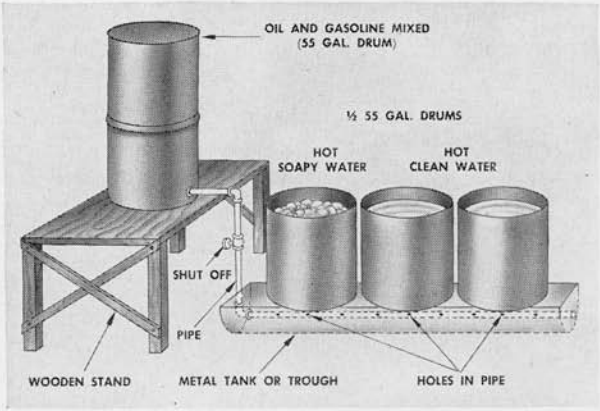
The model pictured here ran continuously for 9 minutes on one filling."

Bamboo Pipe Line

Captain Walter T. Anzoni reports an improvised water line used successfully in the SOUTHWEST PACIFIC: "Water was carried from the hillside to the company area by means of bamboo pipes made by splitting poles of 3-inch and 4-inch diameters, overlapping the split poles, and wiring the joints. This 'pipeline' was raised on forked supports; poles nearest the water supply were raised higher."

Water Heating in the Jungle

Sergeant J. R. Kaspe, Service Company, 169th Infantry, BOUGAINVILLE, forwarded this sketch of a successful water-heating system made from material at hand.



Method of heating mess kit water.

Home-Made Water Trailer

From the SOUTHWEST PACIFIC comes an idea for improvising a water trailer: "Four heavy-type gasoline drums were cleaned and mounted on a 1-ton trailer. The drums were connected by short sections of 2-inch pipe with a tap on the drum nearest the tailgate."

Improvised Gas-Lantern Mantles

Lieutenant Colonel W. H. Honnold, Air Base Quartermaster, Hill Field, UTAH, tells how to make a mantle for a gasoline lantern from materials usually available at the nearest aid station: "Materials required are some surgical gauze (preferably wide mesh), epsom salts, needle, thread, and a broomstick or similar piece of wood. Make a form by whittling the stick into the shape of a mantle and stretch the gauze over the end. Use the needle to run a drawstring around the open end of the mantle. Soak the mantle in a concentrated solution of the salts for 15 to 20 minutes. When the mantle is about half dry, remove it from the form and let it dry thoroughly before using.

"Attach the mantle to the lantern carefully so as to avoid breaking the crust of dried salts. In lighting the lantern, open the valve only one-eighth turn instead of the usual quarter turn and apply the flame between instead of underneath the mantles. The mantle burns black and unevenly until the gauze is consumed and the generator gets hot. At this time, the valve may be opened fully. Although this improvised mantle gives less light than a commercially made one

and can be used but once, it does give sufficient light to make it worth while when there are no regular mantles available."

Filtering Gasoline for Lanterns

99th Infantry Division, ETO: "Lanterns will burn longer without failure if leaded gasoline is first filtered through a discarded gas-mask canister."

Front-Line Stove

Reported by *Headquarters, 99th Infantry Division,* FRANCE: "To heat water or rations at the front lines, fill a C-ration can with dirt, saturate it with gasoline, and place the can in a hole about 1 foot deep. Invert a No. 10 tin can with a perforated bottom over the C-ration can to hold the meat container or canteen cup. The larger can serves also to prevent the cup or container from getting black and to conceal the flame. This method is an ideal expedient for front-line use."

Keep It Hot!

Commanding Officer, 2d Battalion, 405th Infantry, FRANCE: "Coffee for men in the front lines can be kept hot for 2 hours if carried in 5-gal. water cans that have been pre-heated in hot water and then wrapped in blankets."

Improvised Map Protectors

Suggested by the *Executive Officer of a Field Artillery Battalion,* FRANCE: "To protect maps used by

our forward observers, we have made coverings from the transparent powder sacks in 155-mm howitzer ammunition. These sacks may be used as they are or made into envelopes by cutting them and sealing the edges with adhesive tape. Infantry units can obtain these powder sacks from the artillery, for every medium battalion receives more than it can use."

De-Mechanized Warfare

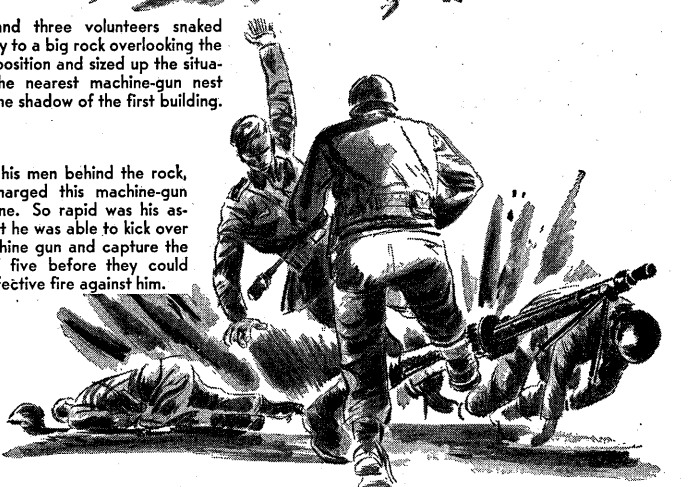
In a gesture of protest against the trend toward complete mechanization, the wire team shown at work in the accompanying photo picked up an idle buggy in a front-line town, conscripted a "liberated" horse, and set off to salvage much-needed wire. The horse is garbed becomingly in an air-ground recognition panel. Despite an enthusiastic report on the project, no change in T/O and E is contemplated by the War Department.

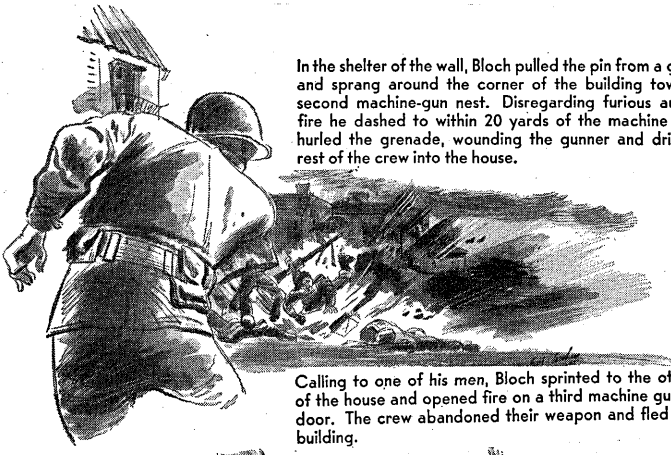
"Beyond The Call Of Duty...."

It happened near Firenzuola, Italy. The advance had been held up by enemy machine-gun fire. Out of the stalemate arose a young lieutenant who was going to get things moving. Orville E. Bloch was his name. Within a day he was to be known as the man who single-handedly captured 19 prisoners and wiped out five enemy machine-gun nests, thus enabling his company to continue its advance.

Bloch and three volunteers snaked their way to a big rock overlooking the enemy position and sized up the situation. The nearest machine-gun nest was in the shadow of the first building.

Leaving his men behind the rock, Bloch charged this machine-gun nest alone. So rapid was his assault that he was able to kick over the machine gun and capture the crew of five before they could bring effective fire against him.

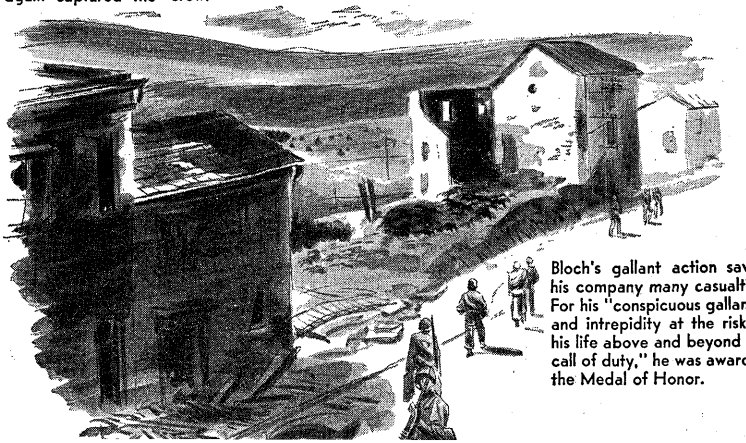




In the shelter of the wall, Bloch pulled the pin from a grenade, and sprang around the corner of the building toward the second machine-gun nest. Disregarding furious automatic fire he dashed to within 20 yards of the machine gun and hurled the grenade, wounding the gunner and driving the rest of the crew into the house.

Calling to one of his men, Bloch sprinted to the other side of the house and opened fire on a third machine gun near a door. The crew abandoned their weapon and fled into the building.

Rushing into the house through a hail of wild small-arms fire, firing his carbine from the hip, he captured all seven occupants. Proceeding to a third house he found one machine gun abandoned and another still manned. The enemy crew of six and Bloch spotted each other simultaneously, but Bloch was too fast for them. Firing his carbine, he rushed toward them in spite of their pistol fire and again captured the crew.



Bloch's gallant action saved his company many casualties. For his "conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty," he was awarded the Medal of Honor.

Communications Comments

Conditioning of Personnel

The complexities of modern military signal communication require so much technical training that all too frequently little or no time is allotted to the physical conditioning and hardening of communications trainees. The following extracts from combat reports illustrate the necessity for a rigorous conditioning program for communications personnel.

—***For Mountain Warfare*** *Lieutenant General Truscott* presents some of the difficulties encountered by the *3d Infantry Division* wirecrews in SICILY: "The operation involved a series of enveloping movements, by a regiment at a time, over mountainous terrain impassable by any vehicle and hardly passable by pack animals. In one instance, it was necessary to lay a 5-mile line of W–130 wire over a rocky, trackless mountainside over part of which a man could move only by use of his hands. The next stretch was 15 miles of terrain over which wire could be transported only by pack animals and laid only by hand. One 6-mile wire line, from the coast road to SAN MARCE, required 24 hours to put into operation because the winding, narrow, mountain road on which it was laid was under constant shellfire besides being used by three battalions of artillery."

"Physical conditioning is essential."

—For Landing Operations Says a *lieutenant* of a *Signal Battalion*, SWPA: "The physical training stressed so much by the Headquarters under which we trained—and which caused so much 'beefing' by the men—is not and cannot be stressed too much. Men who cannot come up to a high standard of physical condition should be eliminated from signal units

which must work with combat troops. We don't walk 5 miles with full pack here, but that would be easy compared with some of the work we do. During one landing operation, we were given 6 hours to unload about 500 tons of equipment and supplies. We had 1 day to put in 3 miles of a 5-circuit wire line through heavy jungle. The men who did that job had never seen work of such difficulty at the Signal School—or anywhere else, for that matter. We had to carry wire in from a boat 200 yards offshore through water waist-deep, and then carry it on into the jungle. We had to cut a path with machetes for the entire jungle trek. I worked with the men that day, so I know exactly what it was like. We dropped on our reels when we got to the end, without enough energy left to get back to the boat to sleep."

Projecting Wire across a Stream

A *Lieutenant* of a *Signal Company*, reports the following methods of shortening wire lines when existing bridges would require a detour, or when no bridge exists:

—By Rifle Grenade "The rifle grenade will carry W–110 wire 100 to 125 yards. If the safety pin is pulled, the explosion of the grenade will destroy about 10 feet of wire; if the pin is not pulled, disposal of the dud is necessary.

—By Bazooka Round "Wire can also be projected by bazooka. In this method the round is not removed from the cardboard case; the cap of the case is removed and a slot cut into the side of the case back to

Bazooka shell case slit for wire.

the fins of the round. The bottom end of the case is left in to prevent the round from sliding through. The case is taped to a tree or post at the desired angle. A stick long enough to reach the ground is taped to the lower end of the case to serve as a brace. The wire to be projected is tied to the pipe of the rocket through the slot in the case and is coiled on the ground nearby in figure-8's. The rocket is fired by a battery which, for safety, should be about 10 yards away. With a 30- to 35-degree elevation, the rocket will carry W–110 wire about 180 yards or W–130 wire about 225 yards."

Message to Messengers

From *Lieutenant Colonel J. D. Calidonna, Signal Officer, 34th Division*, ITALY: "Messengers have to be good to do their job properly. They have to use a

"Messengers must use initiative in locating units."

great deal of initiative and common sense in locating units to which they must deliver messages. Because they work alone and have to cover much territory, sometimes in forward areas, they have to exercise enough intelligence to keep from being killed or captured. In addition to all this, messengers must be able to report intelligently on what they have seen while making their runs."

Conference Circuits in Battle

The old party-line hook-up received favorable comment from *Twelfth Army Group Headquarters*, FRANCE: "On one occasion during recent operations, three rifle companies were to attack an enemy position from three sides. Wire communication was already available to each of the three company com-

manders, so it was easy to hook them into a conference circuit. The battalion commander instructed the company commanders that he would monitor the circuit and assist where possible. By use of the conference circuit, company commanders were able to exchange information and coordinate their efforts. This procedure greatly aided the speedy reduction of the enemy positions."

Directional Antenna for SCR–610

Reported by *Staff Sergeant David H. Wainwright, 283d Field Artillery Battalion,* FRANCE: "A directional loop antenna for the SCR–610 can be made from three mast sections MS–53 and one mast section MS–51 and mounted on the mast base MP–49.

"The home-made loop antenna strengthens weak ground signals and does not affect communication with liaison planes."

Stretching SCR–300 Antennas

Comment from the *Commanding Officer, 3d Battalion, 378th Infantry,* FRANCE: "Improved range and reception with the SCR–300 resulted whenever we were able to use local material for antenna extension. Broken telephone or electric lines worked well; water pipes and radiators in houses gave good results, too."

Test Radios under Operating Conditions

The *Executive Officer, 411th Infantry,* FRANCE, gives this experience-proved advice: "Radios that are used between various arms should be tested under operating conditions before being employed in action. For example, radios of forward observers who ride in

tanks should be tested and the crystals set while the tank is in motion."

The Old Chestnut—Radio Security

Twelfth Army Headquarters, ETO, removes one common cause for worry but replaces it with a heavier responsibility: "Inexperienced troops often believe that even the low-powered infantry radio sets will draw fire as a result of being located by German direction-finding equipment. That belief is contrary to facts. Direction-finding equipment of sufficient accuracy to provide information for artillery fire is relatively immobile and must be set up some miles in rear of the enemy lines. The low-powered infantry radio sets do not furnish sufficient signal strength for the enemy to locate them accurately with this equipment unless enemy direction-finding capabilities are supplemented by poor camouflage and radio security on our part. Carelessness in camouflage and in security practices is the real reason that these radio sets are subjected to enemy fire."

The *Commanding Officer, 2d Battalion, 329th Infantry,* FRANCE, reports an interesting instance of German misinformation on this same point: "The possibility of the enemy's locating our front-line radios by goniometric (direction-finding) methods worried us until we learned better; it still seems to worry the Germans.

"In one case, they thought their position had been located by a direction finder when actually it had been exposed by poor radio procedure. A German patrol was picked up on our SCR–536 net. We put an interpreter on the radio, and from the patrol's com-

ments about terrain features, were able to follow their exact course. A trap was laid, and 6 of the 13-man enemy patrol were killed or captured. Those who escaped our trap were heard to request permission to withdraw because of heavy casualties. They stated that they were reorganizing in a chalk mine and gave its exact location. We immediately placed artillery fire on the area they had mentioned. They again called their unit and reported our artillery fire, giving the location of the strike in reference to their position. Our artillery adjusted promptly on that information. The patrol's last report was, 'The Americans are registering on our radio; we are closing down.'

"Later, another enemy patrol using the same radio net came into our area. This group made reference only to numbered positions. We could not determine its positions or route until the patrol happened to run into one of ours."

"Giving Away" Procedure Signals

A *Signal Officer*, with understandable bitterness, passes on an all-too-true story: "One man's breach of security rules in a remote section of the ALASKAN TERRITORY could have given, and probably did give, the enemy a fair idea of our use of procedure signals.

"A radio operator in Alaska began transmitting a 'breeze story,' punctuating it with regular procedure signals. An intercept operator, policing the bands, tuned in and discovered this obvious violation of transmission security. Our intercepting operator had picked up the offender—but so had the enemy! And the enemy had also picked up a good idea of how our procedure signals fit into a message."

Your Secondary Mission

Report All Hostile Weapons

From the *112th Infantry*, ETO: "Troops should report and ask for counterfire against all definitely identified enemy-weapon positions, even though the fire from such positions is not directed against them. The Germans often cross the fires of their artillery, mortars, machine guns, and direct-fire weapons. Men must realize that good teamwork in reporting such information will assist the entire advance."

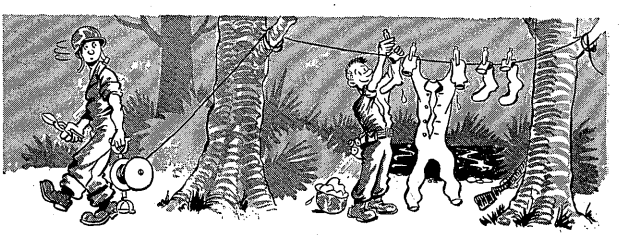
Keep Contact on the March

From the *116th Infantry Division*, ETO: "Keeping proper interval and contact during a forward movement cannot be overemphasized. By the negligence of one individual, several companies may lose contact with each other and be of no use to the unit when the enemy is encountered. One individual's lack of cooperation may cause the mission to fail. Although you may see only a few men in front and a few behind you, several companies may be dependent upon *you* as one link in a chain joining them as a fighting unit."

Police that Wire!

"The *Headquarters* of the *116th Regiment,* FRANCE, comments: "The wires lying in or alongside the road are your buddies; treat them as such. They do a job that helps you accomplish your missions; they are important to you. They may direct your artillery fire, may report the strength of your enemy, may be your means of calling for reinforcements some time when you need help badly. Every wire has many uses, all of which benefit your unit, so do all you can to keep all wire intact.

"It takes only a moment to move a wire from underfoot to the side of or on top of a hedgerow; take that moment when necessary. It may take a trouble shooter several hours to find a break that you caused or could have prevented in a minute. Police the wire when you can, and if that is not possible, don't step on it or catch it on your feet. If you do break a wire and cannot repair it yourself, notify your unit commander so that he may have it repaired. Where possible, mark the break too, so that it can be located quickly. Keep that wire in good shape."



"Police that wire!"

Inform Litter Bearers about Mined Areas

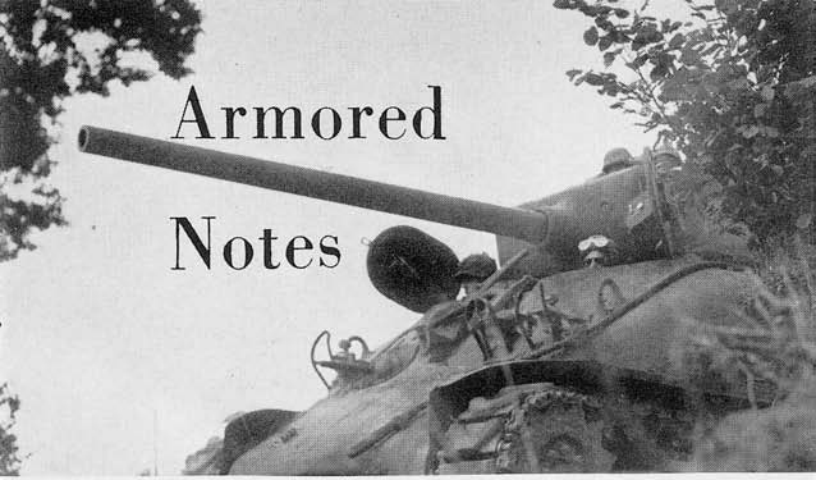
Emphasized by a *Lieutenant* of the *1st Battalion, 333d Infantry*, FRANCE: "If casualties are in a mined area, litter bearers who are sent up should be so informed. A man trained in mine removal can then accompany the litter teams and prevent additional casualties."

Don't Neutralize This Enemy Propaganda

An ETO observer remarks, "The Germans had so propagandized their men with accounts of American atrocities to prisoners that those captured were scared to death. They had been told that they would be shot. Any relaxation of discipline such as failure of our men to show respect to one of our officers or any exhibition of kindness such as an offer of a cigarette convinces prisoners that they have nothing to fear, whereupon they get cocky and refuse to talk."

Importance of Shell Reports

From the *XIX Corps Artillery*, FRANCE: "More flash-reducing elements are employed by German artillery of late. This increases the need for aggressive effort in obtaining and turning in shell fragments and accurate shell reports. A direction obtained from the furrow, from the area of impact, or from the flash is of far more value than one indicated by sound alone. Accurate shell reports enable our artillery to silence enemy batteries."



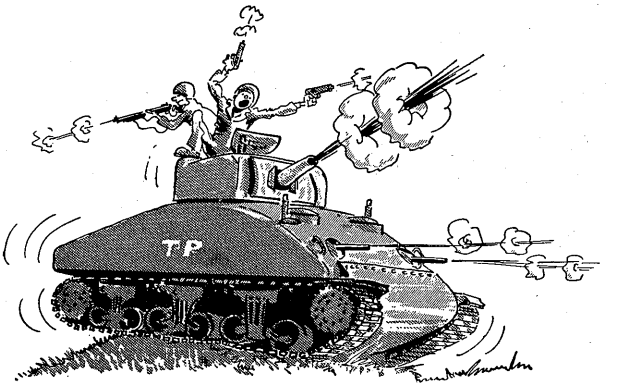
Armored Notes

ADVICE TO TANK CREWS

Don't Take Chances—Fire!

First Lieutenant P. U. Zachman, platoon leader, FRANCE, emphasizes this tip to tankers: "When you are operating tanks without infantry or light tanks in front of you, don't be afraid to fire both your 75-mm and your .30-caliber guns at anything that might be a likely enemy position. A .30-caliber machine gun on the antiaircraft mount comes in handy; it can be operated more easily than the .50-caliber and enables the tank commander to stay lower in the turret while he is firing it. The more plentiful supply of .30-caliber ammunition is an additional advantage."

COMMENT: Ammunition is not always as plentiful as it may seem. It does not take a tank long to burn up several thousand rounds of machine-gun ammunition. For that reason, crews should be instructed to fire at



"Tank crews should fire at suspected targets . . . not at random."

suspected targets or likely antitank positions but not at random.

Stay in Your Tank

Another suggestion strongly stressed by *Lieutenant Zachman:* "During an artillery barrage, it is safer to get into the tank than under it. In some instances, crews inside our tanks have been uninjured even in cases of direct hits by 120-mm mortar shells."

This advice is corroborated by another experienced *Tank Battalion Officer:* "Men are apt to abandon tanks when under heavy artillery fire. They should remember that the tank affords excellent protection against all artillery fire except a direct hit by a heavy shell."

Careful Terrain Study Pays off

An officer who has risen from private to second lieutenant since arriving in the European theater and

has performed the tank duties required of all grades up to and including his present one of *platoon leader, 745th Tank Battalion,* France, makes this comment: "Successful movement of tanks through mud and difficult terrain depends largely upon the driver's ability to judge the terrain. For example, in a recent action it was possible for 3 tanks and 42 men to capture a strongly held fortification because the tanks managed to occupy positions approachable only through heavily wooded terrain. The Germans apparently had considered the area impassable and consequently were unprepared."

Ground reconnaissance is also stressed by a *Tank Section Commander in* ITALY: "One major lesson I have learned during combat is that foot reconnaissance of the ground you intend to occupy as a firing position is essential."

Try to Save Wounded Tanks

Several other pointers from the previously mentioned officer of the 745th Tank Battalion deserve inclusion here: "Before abandoning a tank that has been hit, our men should try to move it out under its own power, if at all possible.

Be Ready for Infantry Role

"Tankers should be familiar with all infantry weapons. Sometimes it is necessary for them to fight as infantrymen from foxholes and slit trenches.

Flares Help Keep Contact

"Red flares are helpful as contact signals between infantry and tanks, especially in heavy woods."

Antidim for Tank Sighting Instruments

From a *Platoon Leader of a Tank Battalion,* FRANCE: "We put regular gas-mask antidim compound on the sighting instruments in our tanks—periscopes, telescopes, and panoramic sights—to prevent their fogging when we go into action buttoned up. The antidim prevents condensation and thus provides clear vision for 6 to 8 hours."

Watch out for This One

A recent report from the *III Amphibious Corps* warns against an improvised tank obstacle first encountered during the PALAUS Operation: "The Japs had suspended 1-in. cables and 3-in. manila hawsers between trees at a height that would catch the tanks' turrets just below the guns. The idea, apparently, was to damage either the turret or the gun seriously enough to make the tank ineffective."

TANK-INFANTRY TEAMWORK

Don't Outrun Your Support

Colonel W. G. Cronk, Armored Group Commander, ITALY, warns emphatically against loss of contact between infantry and tank units: "Tanks should be well forward where they can readily engage pockets of resistance which hold up the infantry, but they should allow the infantry to develop and even point out these pockets. To the infantryman, the tank behind him which can fire over his head or to his side on points he selects is much more valuable than the tank which has gone on ahead and must turn around to fire on

Infantrymen follow tanks into Andernach, Germany.

a hidden gun, or the tank which has been hit by an AT gun and is burning in front of him.

"Too often a successful tank advance is allowed to progress to the point where sufficient foot troops cannot be placed on the ground to hold what has been gained. Tanks may advance through artillery fire and have a field day mopping up the objective, only to find that the friendly infantry which has been held down by that same artillery fire is unable to come up to hold the ground. Gasoline, ammunition, and rations cannot be brought up, and the tanks must withdraw, leaving any disabled vehicles as possible total losses."

Tanks support with indirect fire.

Team Play Requires Effective Control

S–3, Tank Battalion, FRANCE: "In a recent action I followed the attack of one infantry-tank unit. The attack did not work as planned, mainly because of lack of control. At one time the tanks were four fields in front of the infantry. As a result, the tanks could not protect the infantry from small-arms fire, nor could the infantry protect the tanks from AT fire."

TANK DESTROYER TIPS

TD Finesse

From the *Commanding Officer of a Tank Destroyer Battalion,* FRANCE: "Tank destroyer crews should not respond to enemy small-arms fire at night. One night, a TD platoon ignored considerable enemy machine-pistol fire. At dawn, seven enemy tanks were observed in the area from which the firing had been

coming. They were only 200 yards away, ready to engage any answering weapons, and unaware of the presence of our TD's. All seven of the tanks were destroyed."

Air Reconnaissance by TD Leaders

"When preparing for an operation, we try to give our platoon commanders and platoon sergeants a short flight in a cub plane over the area in which the TD's are to operate. This is in addition to ground, map, and table reconnaissance."

Locating Enemy Tanks at Night

Suggested by the *Assistant G–2, 101st Airborne Division*, FRANCE: "At night, we placed a machine gun on both sides of a tank destroyer. When hostile tanks were heard approaching, the machine guns fired tracers until ricochets indicated that a tank was being hit. Both guns would then fire at the tank and the

TD overwatches infantry advance in Niederbronn.

tank destroyer would fire at the point of the "V" formed by the converging machine-gun tracers."

Sneak Approach

Report from an *Intelligence Officer, Tank Destroyer Battalion,* FRANCE: "Artillery fire placed on three enemy tanks caused them to button up and fail to hear our TD's moving up. The TD's knocked out all three tanks without loss."

TD's Lend Helping Hand

Says the *Executive Officer, Tank Destroyer Battalion,* ITALY: "We have saved our wire crews much work by carrying on each TD two poles with hooks

on the ends so that we can quickly lift field-wire lines and run under them."

Camouflaging an M10 TD

First Armored Division, ITALY: "A different type of camouflage has proved very effective on several occasions. We attached supports to the M10 and chicken wire to the supports, then interlaced natural vegetation through the chicken wire so that the whole vehicle except the space necessary for firing is covered. From a distance it is almost impossible to detect a vehicle so camouflaged even when moving, provided that speed is kept slow. Wire screening is preferable to camouflage netting because it will not burn readily. Camouflage hooks and rods, if available, are helpful in applying the vegetation."

More Traction for Tank Destroyers

The *Commanding Officer* of the *773d Tank Destroyer Battalion,* FRANCE, suggests an effective method of enabling M10 Tank Destroyers to negotiate winter roads, icy hills, and slippery slopes: "We cut seven V-shaped notches in the standard-type grousers and then mounted five such grousers on each track. This expedient was of great value to us in combat at Luxembourg."

Armored Battalion Communications

The *Commanding Officer* of an *Armored Battalion* in FRANCE reports: "Attached TD units are added to our command channel by allocating to them one of the three SCR–509 radios of the mortar platoon. The mortars are generally used in battery and therefore have a radio available for this purpose."

Make Way for the Engineers

An *Armored Division Commander* in FRANCE reports: "A reconnaissance party had been sent ahead to check on bridges over a river we wanted to cross. They reported that they had found a bridge lacking one span and had located a nearby ford. To secure the bridge site until we came up, they remained in the narrow winding gorge which was the only approach to the bridge.

"All this was excellent reconnaissance—but when our engineers came up with their vehicles and equipment to start repair of the bridge, an exasperating oversight became obvious. The reconnaissance party's vehicles were blocking the gorge and there was no way of getting out except by turning back to the entrance. The engineers were considerably delayed while the reconnaissance vehicles moved out. The reconnaissance party should have placed personnel and weapons on the high ground above the bridge site to secure it without jamming the gorge."

Extra Smoke for Reconnaissance Squadrons

From a *Cavalry Reconnaissance Squadron, 10th Armored Division,* FRANCE: "We found it well worth while to carry considerably more than the normal load of smoke ammunition. On one occasion, we saved vehicles and many lives because we were able to maintain a smoke screen to cover the escape of one of our platoons which had blown a bridge under enemy fire."

It's Your Life

"Meow" and "Woof"—Never "Tweet"!

From a *Battalion Commander, 180th Infantry,* ITALY: "At night, don't use bird calls as signals. There are no birds in a battle area; they all leave. However, cats and dogs stick around, so dog barks and cat calls are all right."

Put This in YOUR Pipe—

From the *S–3, 398th Infantry,* FRANCE: "On one very dark night, one of our patrols detected an enemy emplacement by a simple, unmistakable clue—the smell of burning tobacco!"

Stay in Your Hole

From *Staff Sergeant H. E. Carlson, 115th Infantry:* "It always pays to stay in your hole when you come under mortar and artillery fire and are not advancing. I've often seen men get excited and run for safer places, but they always ended up as casualties. Just remember these things: Always dig in, and when fire comes down on you *stay in that hole* and 'sweat it out'! That's what you dug in for."

Help the Medic to Help You

Pointed out by *Sergeant Dana F. Knowles, Infantry, 81st Division,* after action on PELELIU Island: "If you

have been wounded by a Jap sniper or by a dug-in enemy, try to roll or drag yourself out of the line of fire before calling for the medic. I have seen Jap snipers concentrate their fire in the direction of a wounded soldier calling for aid—and I have noticed that they keep a wounded man covered until the aid man appears so that they can shoot him also. If our men would realize this, we would have fewer casualties among men who go to the assistance of others."

Conceal Field Glasses

From the *116th Infantry*, FRANCE: It has been our experience that too many officers and men have been using field glasses without thought of concealment. Persons using field glasses on the front line can expect a bullet between the eyes, sooner or later; Jerry seems to be expert in spotting reflections from the glasses. We advise leaders to try to manage without field glasses; and if they must use them, they should make sure that there is plenty of concealment and that the lenses do not reflect light."

WARNING! Before Entering Pillboxes or Caves

From the *Chief Chemical Warfare Officer*, ETO: "Caution must be exercised in entering pillboxes and caves in which blasting or other explosions have occurred. The supply of oxygen may have been exhausted and enough carbon monoxide to poison personnel may have been produced.

"The regular issue gas mask affords no protection against lack of oxygen nor against carbon monoxide."

Heinie Sez:

Experienced German soldiers captured on the ANZIO front similarly criticized Allied soldiers for carelessness and unnecessary self-exposure. One group of PW's said that when they surrendered they still had pistols in their holsters and were carrying a loaded machine pistol. Two Allied sentries sprang out of the bushes, their weapons at their hips, and took them prisoners. "This," the PW's pointed out, "was foolhardy. The guards should have remained under cover, ordered their prospective PW's to advance without weapons, and then exposed themselves at the last minute. Even then, only one guard should have stepped forward, the other providing cover from the concealed position."

"German prisoners criticized Allied soldiers for carelessness."

Camouflage at Night, Too

From the *116th Infantry,* FRANCE: "Men are prone to become careless about camouflage, especially at night, or when they have dug foxholes under trees. One night, German planes flew over such a carelessly camouflaged area and dropped flares that lighted up the area like day. Evidently they saw plenty, for they came back later to bomb and strafe the area, causing about 35 casualties. That taught us a lesson. The next night, and thereafter, all slit trenches were camouflaged and all equipment was out of sight."

ABC's of Self-Preservation

The *Commanding General* of the *82d Airborne Division* asked his men after their recent operation in HOLLAND, "What important lessons did you learn that made you a better fighting soldier and made it possible for you still to be alive to tell about it?" The three most frequent answers, listed below, indicate that experienced soldiers recognize the value of the principles taught during basic training:

"We learned the value of *cover and concealment*—the need for digging deep foxholes and covering them against air and tree bursts; the importance of preparing well-camouflaged weapon emplacements; and the need for selecting covered routes of approach to front-line positions to keep out of sight of the enemy.

"We found that it is necessary to be *alert at all times,* especially on outpost or patrol; and we learned that we must fight the German soldier aggressively—pressing attacks home with speed and skill before he has a chance to get set.

"We saw the *value of self-discipline;* it is important to stay in foxholes and covered positions during the day; to be quiet and not smoke at night; to obey orders quickly and without question."

Careless Challenging Causes Casualties

Veterans of the fighting in ITALY say that some American soldiers have been killed needlessly because they stood up in their foxholes to challenge approaching persons or remained standing to receive the password. In several instances, the enemy has taken advantage of such carelessness and has cut down our men with automatic-weapon fire.

One veteran advises soldiers, "When challenging at night, say 'Halt,' but stay in your foxhole, keeping the challenged party covered. If you don't get the password, some fast work with grenade or other fire is called for. That way you'll miss a lot of lead."

"We found it necessary to be alert at all times."

Amphibious Pointers

Maintenance of Vehicles and Weapons

A serious problem which follows large-scale landings is pointed out by an ETO officer: "Maintenance is stressed throughout training, yet at the most crucial time it appears to break down completely. Commanders must be alert to overcome the inertia always prevalent once an objective has been attained.

"Except for superficial cleaning and lubrication of small arms and some field-artillery material, the state of maintenance was appalling. Weapons and vehicles which had been landed through the surf on D-day and D+1 had not been touched on D+8. Not one instance of first or second echelon maintenance of vehicles was observed."

COMMENT: When vehicles have been landed through surf, an effort should be made to remove all traces of salt water as soon as the tactical situation permits. This is a first-priority item of drivers' preventive maintenance.

Small Arms Maintenance

"Small arms were provided with pliofilm covers to keep them dry during the trip from ship to shore," reports an observer with the NORMANDY assault groups.

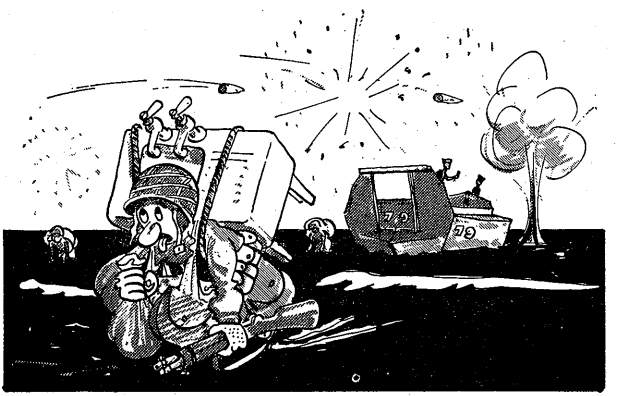
"However, we found that this cover must be removed as soon as practicable to prevent condensation of moisture and the subsequent rusting of the weapon.

"Though the weapons tend to rust when uncovered, periodic coating with preservative oil makes the rust easy to wipe off.

"Most malfunctions were caused by sand and grit which got into the weapon when the rifleman was forced to hit the ground."

Individual Equipment

"The basic needs of troops during the first period of the landing operation are water, ammunition, 1-day's K or D rations (recommend a combination of both), toothbrush and paste, soap, flashlight, and compass. A poncho should be carried in lieu of blankets. Assault troops should not be loaded down with equipment other than these essentials."



"Men must not be loaded with unnecessary equipment."

COMMENT: Excessive equipment carried by assault troops invites waste. In an assault landing, a decisive stage is usually reached within a day or two; after that, additional equipment necessary for sustained land operations can be distributed on a priority basis. The bulk supply of water should be given a high priority in the sequence of supplies sent ashore.

Note that the above recommendations concerning equipment were based on conditions in the CENTRAL PACIFIC; landings in other areas may require changes in the list of individual-equipment essentials.

Priority on Drinking Water

The *Medical Officer, USS Fayette,* after the PELELIU landing, says that heat-exhaustion casualties were serious enough to warrant definite comment: "The troops were fighting in an extremely high temperature. There was little shade because most of the trees had been blown down by artillery fire. The extreme heat, aggravated by an insufficient water supply, reduced the effectiveness of many combat troops. The urgent need for ammunition is obvious, but the need for water should be equally emphasized if depletion of fighting strength is to be prevented."

The water problem was similarly stressed by the V Amphibious Corps after the TARAWA-MAKIN operations: "Since water facilities during the early stages of the landing operation will be meager, two canteens of water should normally be carried by each individual."

Some Experiences in Gapping Beach Obstacles

Officers of a *Provisional Engineer Group* which assisted in the D-day landing in NORMANDY give this

account of their experiences and draw several conclusions that should be considered for similar missions in the future:

—***Mission*** "The mission of the group was to blow sixteen 50-yard gaps through all obstacles within the tidal range of the selected objectives, and later to widen and extend these and clear the entire beach area of obstacles.

—***Organization and Plan*** "The force included two Engineer Combat Battalions, 10 tank dozers, and 21 naval combat-demolition teams. Gap-assault teams were organized, each composed of one navy combat-demolition team subdivided into two mine crews and two demolition crews. The plan was for these engineer units to land just after the infantry; the infantry was to work its way through the obstacles, leaving the task of gapping to the engineers behind them.

"Each gap-assault team was to land at a designated point, prepare a 50-yard gap, and mark it from low- to high-water lines. Support and command teams were to land 5 minutes later to assist the gap-assault teams. Their equipment, all hand-carried, was especially prepared and waterproofed in advance.

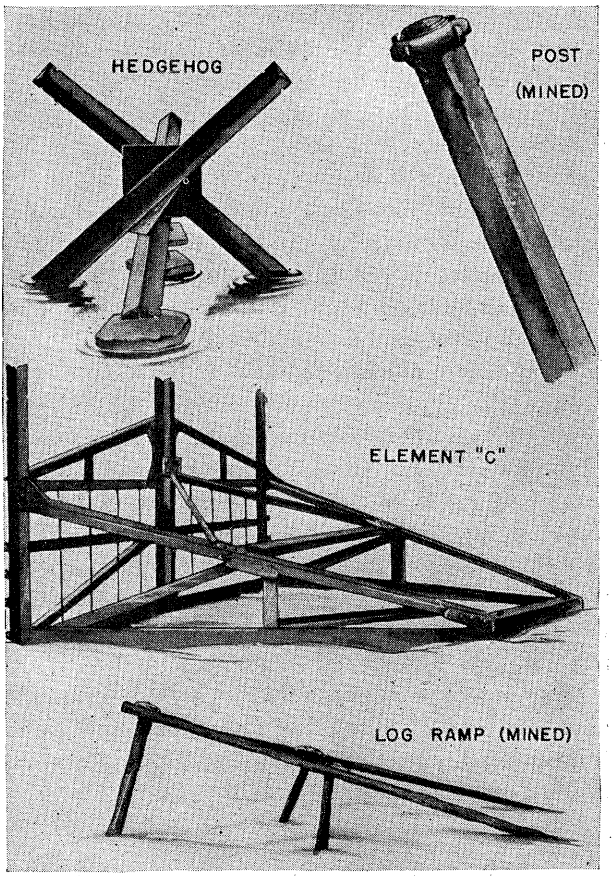
—***Obstacles Encountered*** "Boat teams 7 and 8 encountered the following types of obstacles in the order listed: a line of posts interspersed with log ramps; consecutive bands of log ramps; another line of posts and ramps; and a line of hedgehogs.

"Boat team 6 encountered first a great deal of 'Element C' (see illustration) and then staggered rows of hedgehogs. The hedgehogs differed from the type expected. They were of a lighter material, but bolted together and reinforced in the middle; three sticks of dynamite were not enough to reduce them.

"Other teams found different patterns of obstacles.

"Engineers were scheduled too close behind the infantry."

—Divergences from the Plan "Some of the teams landed simultaneously with or ahead of the infantry, the others very shortly after the infantry. Gapping operations of these crews were seriously impeded by infantrymen who took cover behind or near the obstacles that were to be blown.



Typical beach obstacles found on Normandy beaches.

—Some Teams' Experiences "Boat team 8 landed on time but at a point to the left of its designated landing. The infantry had not preceded them, so these engineers were the first on the beach. Hostile fire was light until the men were actually on the beach; at that time the enemy opened up and the engineers dropped to the sand and dispersed. However, each man tied a charge to the obstacle near which he had taken cover, using his judgment as to the amount of explosive to use. (In most cases, one charge was used on the straight posts, three on the log ramps.) These charges were blown before the infantry landed. On the second tide, the infantry had moved ahead and the hedgehogs were blown; these required one to three charges each.

"Boat team 6 touched down 50 to 100 yards to the right of its objective a few minutes after H-hour. There were no infantry on the beach; enemy machine-gun fire was heavy. However, the charges were ready to explode 10 to 15 minutes after the work started. The first infantry landed immediately after the gap was blown and swarmed through. As soon as they were through, a second series of charges was set off. A complete gap was blown through in about 30 minutes.

"On the second tide, this team went out to widen the gap. The infantry were piling up and milling around; it was necessary to resort to smaller and fewer charges to avoid injuring them.

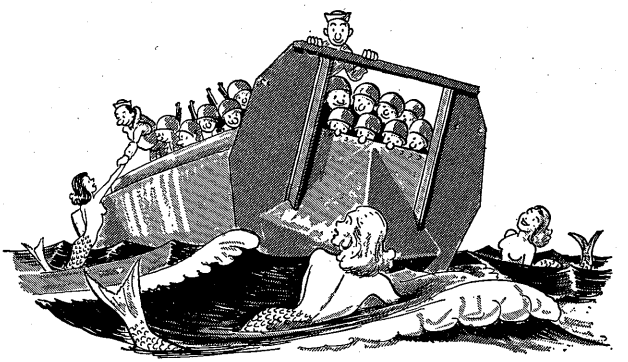
Lessons Learned in Normandy

"1. When Engineer teams are landed close behind the infantry they must expect interference with their work until the infantry moves inland.

"2. It developed in this case that if the mines had been removed, the initial landings would have been just as successful without any demolition work. Mines did most of the damage that was done. The LCT's smashed right through the other obstacles.

"3. Demolition squads which are landed well to seaward of the outermost obstacles are able to accomplish more before the tide interferes with the work.

"4. In landing operations, demolition teams must expect and allow for many unforeseen difficulties which will delay their work."



"Time should be allowed for contingencies causing delay."

OP's and FO's

OP Security—It's Gotta Be Good

The old observation-post rule is restated in adage form by *Major Allison A. Conrad, 135th Infantry,* ITALY: "Less movement at the OP means less work for the Graves Registration Officer.

"Control of movement in and around an OP must be continuous. It is fatal to relax on this point for one moment. Even in a unit as battle-schooled as this one, I have seen excessive movement around OP's bring down immediate enemy fire. (In one instance, the same thing happened at a CP.) Each time the result was the same—a tragic number of unnecessary casualties.

" 'Visiting firemen' who insist upon driving up to your front door, instead of parking at a reasonable distance and advancing on foot under cover, are the worst offenders. Vehicle-dismounting points must be clearly marked, and guarded 24 hours a day."

COMMENT: A guard placed at a suitable point on the route to the OP with instructions to discourage unnecessary visitors and to point out the location and a covered route to authorized visitors, will help a lot to control movement at the OP.

Packboard for FO Radios

A Field Artillery Battery Commander, FRANCE: "Our forward observers usually required 10 or 15 minutes

Observation post in Nennig, Germany.

to remove their SCR–609 (or 610) radios from the jeeps and set them up. We eliminated that cause of delay by mounting the radios and batteries on pack-boards. The only modification necessary was the changing of the antenna to extend upwards."

Phone for FO Radio Operator

Commanding Officer, 339th Infantry, 100th Division, FRANCE: "We have found it profitable to supply each forward-observer radio operator with two sound-powered phones and a small reel of W–130 wire. This equipment enables the observer to remain at his vantage point while the radio operator transmits from the position most suitable for his radio."

"Undue exposure shows that you are just a bloody fool."

British Comment on OP Security

The *Commanding Officer* of a *British Field Artillery Regiment,* ITALY, forcefully voices the same observation-post "do's and don'ts" that are constantly being stressed by American officers and closes his exhortation with: "More care in occupation and use of OP's must be exercised. Undue exposure and carelessness do not show bravery—they show that you are just a bloody fool. You may get away with it for days and then find that just when observation is vital, the Boche will neutralize your OP."

Control of Forward Observers

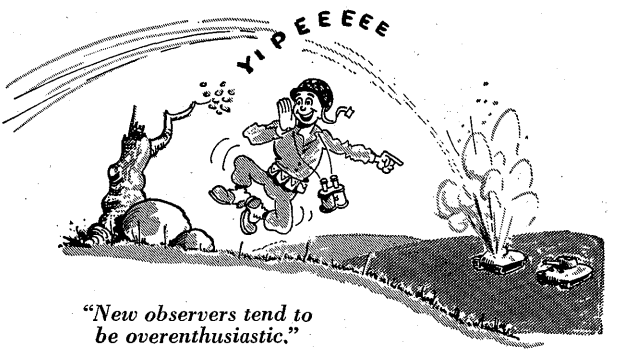
Field orientation and supervision of FO's are stressed by *Captain Woodrow M. Smith, 34th Division Artillery,* ITALY: "The artillery observers must

be centrally controlled. We found it advisable for the battalion S–2's to coordinate observation within their own combat-team sectors in order to eliminate the possibility of duplication of effort.

"The S–2's should instruct the new observers carefully to obviate their common tendency to overenthusiasm. Inexperienced observers should also be warned against the danger of wandering off on patrol missions and otherwise getting separated from their supported infantry. FO's *must* keep in touch with the situation."

An ETO observer similarly emphasized centralized control: "The battalion liaison officer should control the zones of observation. Don't let the forward observer become an assistant infantry platoon leader."

COMMENT: Whether the battalion S–2 or battalion liaison officer is to coordinate the FO's is a matter for the battalion commander to decide. The point is that one individual must be responsible for the coordination of all observers so that complete coverage of the zone of operations is insured.



"New observers tend to be overenthusiastic."

Use NCO's as Observers

"Count on having a minimum of 12 forward-observer parties per battalion," advocates the above-mentioned ETO observer. "Trained sergeants and corporals can do this work as well as officers."

Don't Pin Down the FO's

"Forward observers should be permitted to leap-frog from one point of observation to another when operating with assaulting echelons. They should not be required to stay with the foremost elements of the rifle companies, where the observer is frequently pinned down and not able to perform his function of adjusting artillery fire," recommends *Lieutenant Colonel Charles J. Payne, Commanding Officer, 19th Field Artillery Battalion,* FRANCE. "Another disadvantage to keeping the observer with the foremost elements is the fact that the observer's radio antenna often draws additional enemy fire which hinders the advance of the infantry.

FO Security

"Supported infantry units should provide local security for the forward observer when he is occupying points of observation not included within the perimeter of infantry defense."

COMMENT: FM 6–135, which has been issued to all theaters, discusses in detail the proper use of FO's.

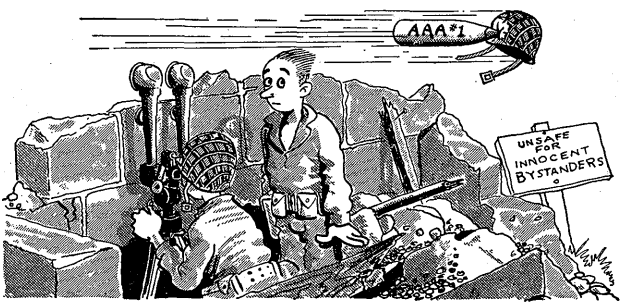
FO Responsibility

A *Captain* of a *Field Artillery Battalion,* FRANCE, points out: "One of the FO's most important jobs is to

get across to infantrymen the types of targets on which he can give them maximum support. After a little combat experience, the infantryman learns the true value of artillery and doesn't call for support unless the target merits it. He learns not to waste valuable ammunition that he may need later on a more urgent mission."

Warning to OP Kibitzers

Says a *Captain* of a *Field Artillery Battalion,* FRANCE: "Well-meaning infantrymen who crowd about the OP to observe the results of the firing or to steal a look through the BC telescope should be warned that they are inviting fire from the enemy. OP's are high on the priority list of enemy targets. The importance of OP camouflage discipline cannot be overemphasized."



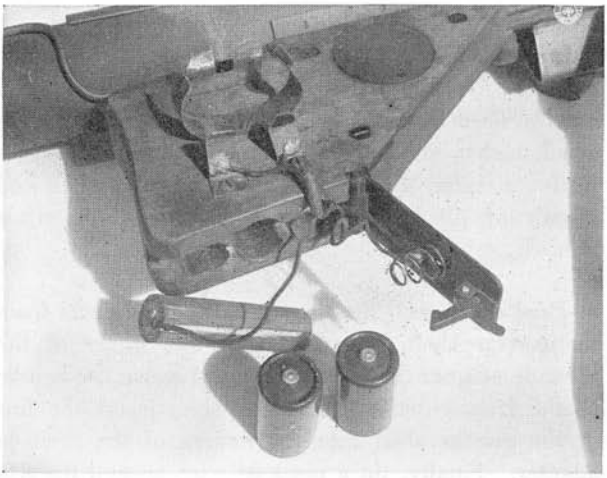
"OP's are high on the priority list of enemy targets."

The Gun Shop

More MG Ammunition at Hand

This innovation was reported from ETO: "Three 30-round magazines, taped together as shown in the photo, give the user of the M3 submachine gun 90 rounds of ammunition immediately available for use. Any one of the magazines can be inserted into the gun without being untaped from the other two."

GI innovation on M–3 submachine gun.



Flashlight batteries replace weakened dry cells in bazooka.

Ersatz Bazooka Batteries

Sergeant Quintin J. Vahldick, 129th Infantry, 37th Division, BOUGAINVILLE, has worked out details of a device for using ordinary flashlight batteries to replace weakened dry cells in 2.36-in. AT Rocket Launcher M1A1 (bazooka) when replacements are not available: "Strips of 37-mm shell casing serve as a battery holder and as contact points on the stock. One strand of a double wire is attached to the end of a wooden block that fits into a battery compartment and the other strand is attached to the battery spring on the hasp. The contact point on the wooden block is made from a safety pin taken from a 60-mm mortar shell.

"The batteries are placed in series; that is, inserted into the holder so that the top of one and the bottom of the other are in contact."

Use of 60-mm Mortar as Rifle Grenade

From the *Twelfth Army Group,* ETO: "An infantry regiment has found that the 60-mm mortar shell HE may be fired from the M1 rifle by means of the grenade launcher M7 and the fragmentation-grenade projection adapter M1. Six inches of wire per shell and a pair of pliers are the only additional materials needed.

—***Preparation*** "First, remove the increments from the mortar shell. Bend outward the finger of the grenade adapter that is designed to receive the handle of the fragmentation grenade. Then insert the fins of the mortar shell into the fingers of the grenade adapter. Finally, tie a piece of wire around the tips of the fingers of the grenade adapter, thus securing the shell to the adapter.

—***Method of Firing*** "The rifle normally is fired from the kneeling position with butt resting on the ground. An angle of 45 degrees will give a maximum range of 100 to 110 yards; 60 degrees will give 85 yards range; 70 degrees will give 60 yards range.

"Low-angle fire can also be used and is especially effective when firing into thick hedgerow foliage to produce tree bursts.

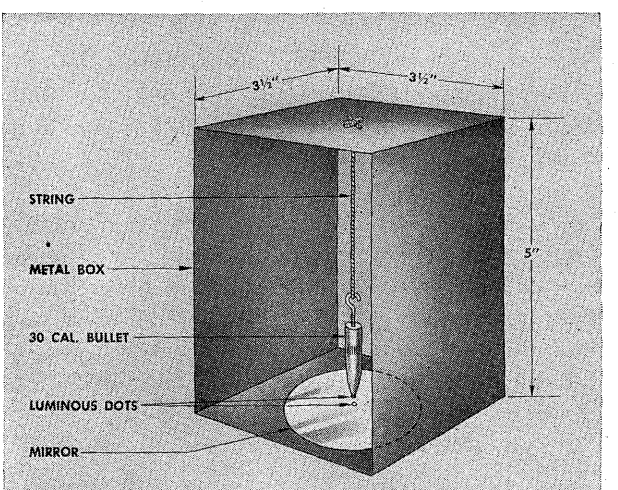
"CAUTION! Grenadier must pull safety pin before firing."

COMMENT: War Department TB–9–1985–2 describes this method also and states that the round should be projected in this manner only in cases of emergency and then only at the discretion of ground force com-

manders. It should not be fired over the heads of friendly troops.

Night Device for Mortar Leveling

An improvised device (see sketch) to aid in accurate firing of the 60-mm mortar at night when the regular leveling glasses cannot be seen was designed by *Sergeant Melvin C. Brown, 180th Infantry, 45th Division,* ITALY: "A brass-plate box, about 3½" x 3½" x 5" and open at two sides, was welded to the mortar sight. From the center of the top of the box a .30-caliber bullet was suspended on a string to serve as a plumb bob. Directly under the suspended bullet a small glass mirror was fastened on the bottom of the box. With the mortar sight in level position a luminous dot was painted on the mirror directly



Improvised device to aid firing mortar at night.

under the point of the bullet plumb bob which was also painted with luminous paint.

"In using this device at night the mortar-leveling adjustments were manipulated until the luminous dot on the improvised plumb bob was exactly over the luminous dot on the mirror. When the two dots coincided, the mortar was known to be absolutely level on both horizontal and vertical planes.

"A steel box would probably be an improvement over the brass one, since hard wear causes the brass to bend, thus throwing the plumb bob off center."

COMMENT: This device should be checked daily during daylight to make sure that the plumb-bob dot and the dot on the mirror coincide when the mortar sight is level.

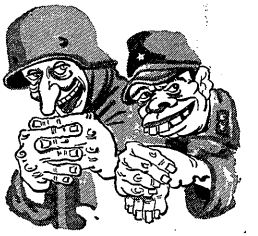
Night-Sighting Stake

First Lieutenant Bruce H. Gilbert, 180th Infantry, 45th Division, ITALY, reports construction of a night aiming stake from a steel rod on which fine lines were drawn with luminous paint.

Night Firing

Reported by *Sergeant M. T. Venniville, Section Chief, 227th Field Artillery Battalion, 29th Infantry Division,* FRANCE: "Painting the breech ring and breech lever of the 155-mm howitzer with phosphorescent paint greatly simplified the problem of loading at night."

Get Wise to Their Wiles



The following items, extracted from various field reports, indicate that the Japs and Germans are still up to old tricks, not to mention a few new ones:

Firecrackers

"In SWPA as well as in ETO, enemy troops have used firecrackers for diversionary purposes, especially when trying to deceive our troops as to the positions of snipers."

Hiding Out

"When outnumbered, the Japanese appear to be willing to have our troops overrun their positions; evidently they believe that they can inflict maximum damage by attack from within our lines."

Playing Dead

"A German, lying between two dead American soldiers, rose up and fired at one of our men who had passed; he missed and immediately dropped to the ground to resume his pretense of being dead. Another American, who in coming up from the rear had observed this little 'play,' cooperated by making the 'death role' real. This German, it was found, had smeared himself with blood not his own, in his effort to play 'dead' convincingly."

AAF (10); AGF (10); ASF (10); T of Opns (10); AAF Comds (2); Arm & Sv Bd (2); Def Comd (2); Tech Sv (2); SvC (10); Area A SvC (2); PC&S (1); Gen & Sp Sv Sch (10); USMA (20); ROTC (1); A (10); CHQ (10); D (2); B (2); R (2); S Bn (2); Bn (2); C (2); AF (2); W (2); G (2); S (2); F (2).

Refer to FM 21–6 for explanation of distribution formula.

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