

COMBAT LESSONS

NUMBER 2

Rank and file in combat:
What they're doing
How they do it



DECLASSIFIED

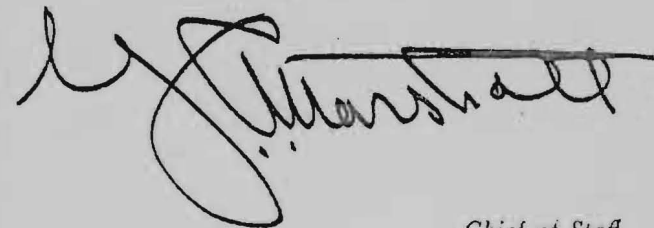
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INTRODUCTION

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.

A handwritten signature in dark ink, appearing to read "L. H. Marshall", written in a cursive style.

Chief of Staff.

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LEADERS vs. INERTIA

Lieutenant Colonel R. E. O'Brien, Cavalry, Observer With Fifth Army, ITALY: "In spite of the fact that I observed many interesting things in the practice of tactics and technique, still the one lesson that stands out in my mind above all others is the one that is so well known by military men that its statement here amounts to little more than a platitude. I mention it, however, because it had such a profound effect upon me. That lesson is the importance of and need for adequate leadership.

"The effect on most men of the impact of battle is to cause them to want to do nothing. A determined effort must be exerted to accomplish even simple tasks, and men are likely to neglect duties which they know must be performed. There is no force other than a driving leadership to overcome this inertia, this tendency to carelessness, and to infuse a determination to succeed in the minds of the individual men. When this spark of leadership is present

the individual knows that others feel it too and that his effort is not alone.

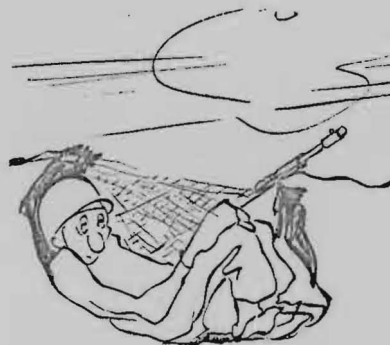
However, I was not a leader in this campaign, so I will quote an officer who is a successful commander in an Infantry regiment, the wearer of a Silver Star, an officer who has a fine reputation in his division:

"Tell your people when you return, that the hardest job they will have here is getting things done. My men know their weapons and tactics thoroughly. My effort is simply to require them to *do* the things they know must be done—posting security, dispatching patrols, seeking a field of fire, retaining their equipment and making sure that it is in working order. You have to check all the time."



DISCIPLINE

The Key to Success in Combat Commanding General XIV Corps, in a personal letter to Lieutenant General McNair: "I would like to mention a few things I consider important in getting any prospective units ready for duty in the Southwest Pacific. The first of all requisites is discipline, with a capital 'D.' I refer to discipline in all its phases—water discipline, malaria discipline, personal appearance, military courtesy, the wearing of the uniform, personal and



Overcome that tired feeling!

collective sanitation, carrying out orders in general, assumption and proper discharge of responsibility throughout the chain of command, etc. There is an inclination for men as well as for some officers to 'go native' in the tropics, to let down mentally on material and spiritual values, so discipline is especially needed here. *Needless to say I consider an aggressive offensive spirit always goes hand in hand with good discipline.*"



Lieutenant Colonel Clifton F. von Kann, 77th Field Artillery, ITALY: "The great stress placed on discipline and the chain of command is not an overemphasis and never can be. We have found again and again that the highest standards of discipline are absolutely necessary in and out of combat. In no other way can you be assured that the individual soldier will carry out orders without supervision, and in combat this is essential.

The Basis of Good Discipline "One of our problems has been to get junior officers and young NCOs sufficiently hard-boiled to exact from their subordinates a meticulous obedience to every order. *We must ingrain in all ranks the realization that orders are not to be treated as suggestions but as concrete facts calling for the utmost effort until they have been carried out.* So many people seem to feel that orders which are inconvenient or unpopular are to be disregarded. This state of mind is a disease and must be eliminated. *On the other hand such an elimination presupposes that all COs and Staffs take care that the orders they issue are consistent, correct, and capable of being carried out.*"

Master Your Job *Lieutenant General Walter Krueger:* "Discipline and the leadership of small units are the things which still require constant emphasis. The enlisted man or officer who does not follow instructions and orders implicitly during training or prior to reaching the combat areas and who cannot do everything every member of his unit might have to do is not properly qualified. The squad leader must know exactly what each member of his squad should do in each type of operation, the platoon leader should have the same knowledge concerning his squads and the company commander of his platoons. Officers must not start worrying about the 'big picture' until they have mastered all the details of the 'little' one."



TRIAL BY FIRE

"—for Gallantry in Action" *Citation, 7th Division, ATTU:* "The company led by *Captain Thomas B. O'Donnel* was thrown into confusion by the strafing of hostile airplanes while it was forming to attack under heavy enemy ground small-arms fire. Seeing the immediate need, Captain O'Donnel moved from squad to squad restoring order and then led his men to the assault, during which he received a severe wound in the neck and shoulder and was evacuated."

"Three days later upon hearing that his company was again scheduled to make an attack he insisted on returning to the fight, although weak and suffering severe pain from his wounds. He led his company in attacks on the enemy until five days later, when he was mortally wounded while moving about in advance positions encouraging his men."



Doubling in Brass *Citation, 37th Division, NEW GEORGIA:* "While *Private Blair F. Hertzsch* was performing his

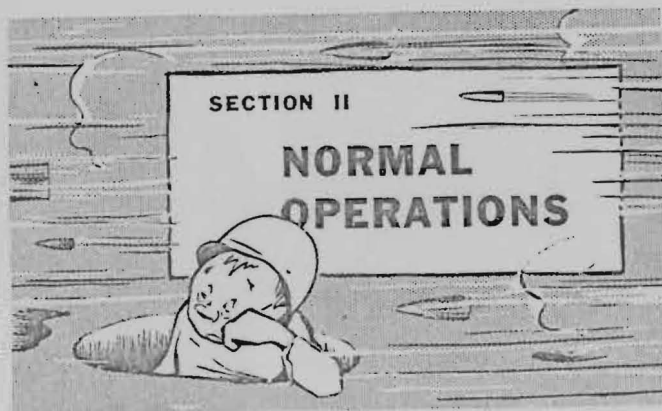
duties with the maintenance section in the vicinity of the unit ration dump they were attacked by Japs who had surrounded them. He grabbed a BAR and advanced on a Jap machine gun that was delivering intense, accurate, and extremely effective fire into the dump. Private Hertzsch was able to silence this machine gun and then continued to aid aggressively in the defense of the position until reinforcements arrived."



Be Brave Intelligently! *Lieutenant Colonel R. E. O'Brien, Cavalry, Observer With Fifth Army, ITALY:* "A prisoner of war, a German light-machine gunner, asked an interrogator whether Americans took stimulants to make them foolishly brave. When asked to explain what he meant, he stated that he and an assistant gunner were in position with a good field of fire one afternoon when a group of American soldiers was observed approaching. He fired several short bursts and began preparation to displace to the rear when he saw the American soldiers rise to full height and start charging toward his position over a hundred yards away. He reloaded his gun and opened fire, killing 11 men. He then withdrew because he was sure the charge was made to conceal an envelopment, but none was made."

"Unit commanders found it necessary to direct their men to make full use of concealment and covered approach. Continued emphasis on the necessity for dispersion and use of cover and concealment is essential."

COMMENT: In the interests of efficiency bravery must be supplemented by brainwork. Dead heroes are of little further use to their units; aggressive fighting men trained to apply the most efficient technique to combat problems, willing to accept any necessary risks, and conscientiously avoiding unnecessary risks are the backbone of the army.



COMBAT IN TOWNS

As major campaigns develop in Western Europe, combat in towns assumes increasing importance. Cities, towns, and villages control the established road nets which must be opened for the movement of the guns, heavy equipment, and supplies necessary to support the advance of infantry.

Recently the German defense of CASSINO has illustrated the importance of towns in tactical operations. CASSINO sits astride the road to Rome. Infantry attacks by-passing the town were limited in effectiveness by our inability to move supporting artillery and supplies forward in sufficient quantity to continue operations to the north. Furthermore, heights held by the Germans beyond CASSINO furnished observation which made attacks on the town difficult.

Not many towns will so effectively block the advance of a large force, but the same problem, in varying degrees of difficulty, will arise again and again. Combat in towns will often be the key not only to our successful advance but to successful defensive actions.

Attack of Towns *Captain W. E. Harrison, Parachute Infantry, ITALY:* "The theory of attack of a small town or village is to work groups around the flanks, cut the retreat, and move in with patrols. In this hilly country, however, we have found that where there is any high ground behind the town which dominates both the town and the line of retreat, the best way is to work the entire force around the town under cover, seize the high ground in rear, and firmly establish ourselves with 60mm mortars on that dominating high ground. We take enough food and ammunition with us to last 24 hours, and the Germans usually pull out during this time. From our position we can prevent reinforcement and inflict heavy losses on them during their withdrawal.

"The road through the town or village is always blown, and it can't be used until the Engineers can get to work."



Lieutenant Colonel L. G. Freeman, Parachute Infantry Battalion Commander, ITALY: "We learned at ALTAVILLA to avoid the direct attack of towns. It's too costly. We now work around to the rear with a large force and seize the dominating ground in rear. We did this at CALLO, MACCHIA, FORNELLI, and several other places the names of which I've forgotten. It worked every time. Get yourself within 60 mm-mortar range of the town, on dominating terrain in rear of it, and the Germans won't stay in it."

COMMENT: The fact that Germans have been known to withdraw without a fight from towns in rear of which we hold dominating terrain does not necessarily mean that such will invariably be the rule. However, this possibility plus the fact that seizure of such high ground will greatly facilitate any subsequent attack on the

town proper suggests that commanders should give serious consideration to these tactics where the terrain permits. It also should be remembered that if such high ground is held by the enemy, our attack of the town proper will invariably be costly and the town itself untenable.

In planning the attack of a town proper the following considerations should be borne in mind:

1. Reduced observation and limited fields of fire place heavier stress on close combat.
2. Control of attacking troops will be difficult, and much depends on individual initiative and aggressiveness of small unit leaders.
3. Where possible, towns should be by-passed, isolated, and attacked from the flanks or rear.
4. The use of tanks in actual street fighting is limited by the difficulty of maneuver, the impossibility of employment in mass, and the vulnerability of tanks to ambush and to attack from upper stories of buildings. However, tanks may and have been used to advantage to cover the approach to and entry into towns by infantry troops.



Entering Towns *Lieutenant Colonel F. L. Walker, Infantry Battalion Commander, ITALY:* "When conditions made the envelopment of a town or city impracticable, the system used was for one company to move straight into town to a designated phase line, then immediately break open the doors, put lookouts on adjacent roofs, and send patrols along side streets to the edge of town.

"Patrols remained there for security while buildings were being investigated. As soon as patrols reached the edge of town and reported all clear, the next company passed through to the next phase line and started investigation of its portion of the town. Tanks followed each company to take care of snipers and armored cars.

"Towns here in the NAPLES area, and throughout Italy, consist of all-stone buildings with thick walls, heavy doors



Alert for snipers, our patrols enter an Italian town. The architectural design provides little cover for movement without exposure and requires covering fire from rooftops commanding the street.

and shutters, and usually with a courtyard inside. Most of the streets are quite narrow with a solid wall of two- to four-story buildings on both sides, making it impossible for troops to find cover from snipers without breaking open the heavy doors, which are frequently secured with large iron bars. The unevenness of the rooftops and the inaccessibility of the houses make it slow and difficult to outflank hostile groups firing down the streets.

"There is usually one main through street in each town which is wide and straight. Accurate German artillery and mortar fire was in each case registered on these streets.

Numerous large churches with high domes or steeples provided snipers and enemy observers with excellent observation for several hundred yards down principal streets and side streets.

"It was found necessary to place stationary observers on buildings for sniper protection as the column moved down the streets, since it was impracticable for patrols to parallel the column along the rooftops. It is advisable, in addition to patrols down side streets, to send patrols promptly to investigate church steeples and tall buildings overlooking the route of march, as these were frequently found to be occupied by snipers. It appeared that observers from such points would observe troops entering the town so as to call for prearranged fires when the main body of the troops arrived. Such OPs should be destroyed by artillery fire

Cover your advance
through towns!



before troops enter the streets and should be kept under machine-gun fire to neutralize snipers until patrols can complete their investigation. Such firing, kept up during the march into town, would have the additional advantage of keeping civilians off the streets, under cover, and out of the way of the troops. Locks should be shot off and houses broken open as troops move in, for cover from

artillery fire as well as to allow investigation. However, troops are hesitant to do this in the presence of friendly civilian crowds.

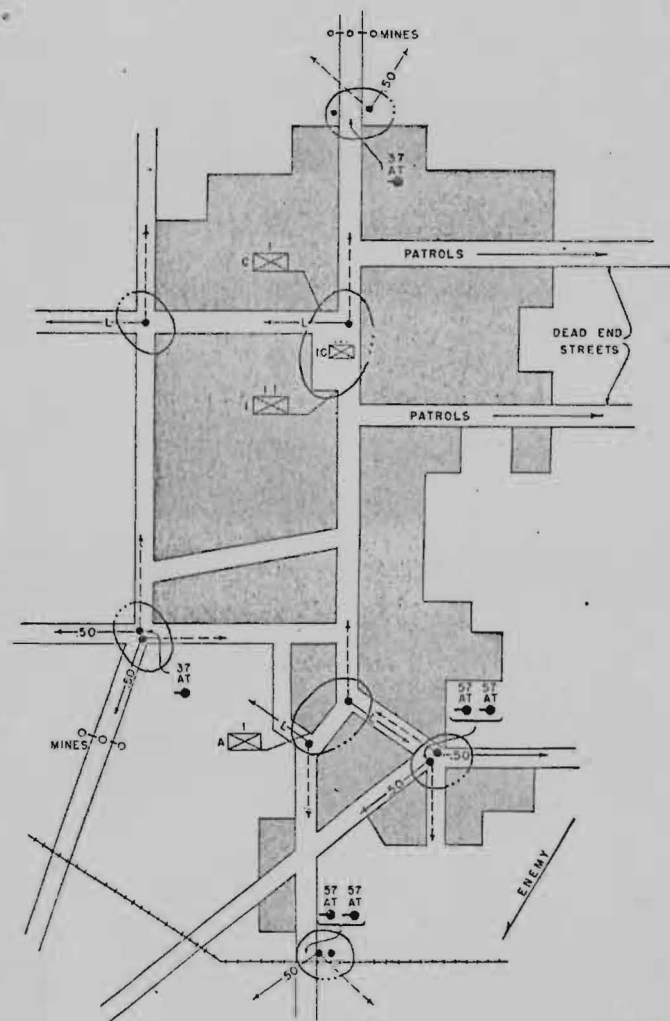
"Hostile armored cars and mortars invariably waited on the far side of town until the ringing of church bells and the cheers of the populace indicated the presence of our troops, whereupon mortars and artillery swept the main streets, injuring civilians and soldiers alike. Main streets should be avoided altogether, except for patrolling, until the town has been thoroughly investigated.

"The greatest problem was the handling of these civilians, who crowded the streets talking and calling to the soldiers, giving them gifts, and clinging to their arms. This misled the soldiers into believing that there was no danger of enemy snipers or shell fire, and made them hesitant about firing into buildings suspected of containing snipers. Our troops are much too friendly with the population and easily distracted from proper precautionary measures by this civilian attention.

COMMENT: It is possible that tactics of flanking, encirclement, and isolation of towns might have prevented some of the German tactics described above by denying them observation and by bringing the exits toward the enemy under our own observed mortar and artillery fire.

Defense of Towns "In small towns, a perimeter defense could be used. The narrow, crooked streets allowed little field of fire or observation within the town. Groups on the highest roof in each company and platoon area acted as OPs as well as antisniper and anti-infiltration security groups. However, towns assigned to be held were usually too large for effective perimeter defense. Therefore the

NOTE.—See illustration showing sketch of actual defense plan of one of numerous small towns captured early in the Italian campaign.



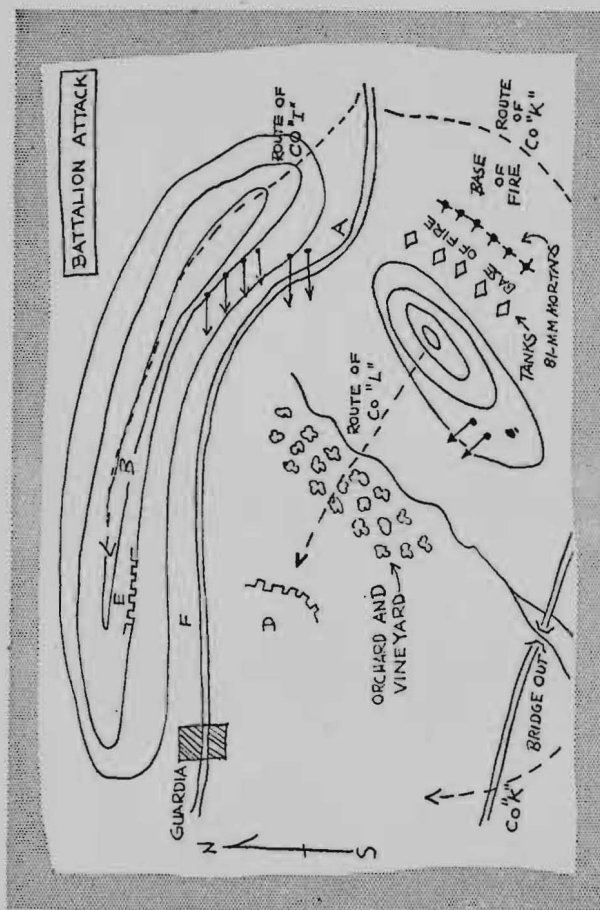
HASTY DEFENSE OF GIUGLIANO

outskirts were merely outposted. Platoon combat groups were organized at the principal street intersections, by occupying two or three adjacent buildings. Machine guns were located at each of these intersections to fire down the streets in all directions. In this way solid bands of grazing machine-gun fire could cover the spaces between combat groups. Also AT guns and mines were used to block principal entrance roads. Reserve units held interior intersections, prepared to counter-attack."

COMMENT: The defense of a town must be prepared to meet the methods of attack which may be employed by the enemy. Since this must include the possibility of flanking attacks and encirclement, it follows that an all-around defense must be the rule.

The following points, not covered in the experiences quoted above, should be borne in mind in planning the defense of a town:

1. Avoid if possible placing principal centers of resistance close to landmarks or at edge of town where enemy adjustment of artillery or mortar fire will be facilitated. Positions either outside of or within the town should be chosen.
2. Where practicable, form salients by organizing outlying buildings to cover perimeter of town with flanking and enfilade fire.
3. In addition to a central reserve within the town, provide if possible for a concealed mobile reserve (preferably strong in armor) to be held outside the town to counter enemy flanking maneuver.
4. Wherever adjacent terrain features dominate the town they should be secured. This use of high ground may be the key to successful defense.
5. Within the town, the construction of street obstacles or barricades to impede enemy movements, and the organization of groups of buildings into strong points should be carried out as extensively as the time available will permit.
6. In delaying actions the defensive use of towns will prevent the attacker from determining the strength of the forces opposing him.
7. It is normally not advisable to organize a town as an isolated strong point except under terrain conditions which prevent the enemy bypassing it.



Plan for the double envelopment attack by the battalion which took Guardia.

BATTALION ATTACK—ITALY

Mission *Lieutenant Colonel Earl Taylor, Infantry, Battalion Commander, ITALY:* "On 11 October my battalion was ordered to make a night march, pass through the 2d Battalion (which was then about 3 miles east of the Italian town of GUARDIA, north of the CALORE RIVER), and seize the high ground in the vicinity of GUARDIA. We were then to continue the advance.

Contact "As we approached GUARDIA our leading company made contact with the enemy at A. (See sketch.) It enveloped with one platoon but was stopped by heavy machine-gun and direct 88-mm. fire from points E, F, and D, and was unable to advance. I immediately moved to the high ground 200 yards north of A where I could observe the enemy position.

Plan of Maneuver "The enemy had all of the high ground to the front, and I could see it would be impossible to advance frontally. So I decided to make a double envelopment, sending Company I over the hill to the right and Company K on a wide envelopment to the left. Contact was to be maintained visually with Company I and by the 536 radio¹ with Company K. Actually the 536 radio did not carry the distance Company K had to travel and it was necessary to send a 511 set² later to maintain contact, which was absolutely necessary in such a movement.

Base of Fire "Five tanks were available for the attack. Realizing that the tanks could not move down the road to GUARDIA, which was the only tank approach due to the

¹ A 5½-pound "handy-talkie" transmitter-receiver.

² A 20-pound battery-operated, short-range transmitter-receiver.

streams and high mountains, and because the enemy had 88s and armored cars at F, I decided to emplace the tanks along with my eight heavy machine guns and six 81-mm. mortars, as shown on the sketch, as a base of fire to enable Company L to advance frontally on D.

Results "The attack was successful. By order, the tanks and other supporting weapons opened fire 5 minutes before Company L started its advance. Fifteen prisoners were captured and 25 of the enemy killed. Our casualties were approximately 10 killed and 15 wounded.

"The enemy strength as determined from prisoners was two rifle companies, each reinforced, one at D and one at E, supported by tanks, armored cars, and 88s along the road at F. These prisoners stated that their force was so completely disorganized and demoralized by our volume of fire and the scheme of attack that it was impossible for them to make a counterattack to regain their positions.

Planning "It took about 2 hours to make plans for this attack, which was very carefully studied, planned, and coordinated. It effectively utilized the terrain features. Every weapon available to the battalion was used.

"In such an attack, maps must be prearranged with critical points and phase lines marked for the enveloping units, so that the commander can be informed as to their location at any given time and effect coordination by radio or signal without disclosure of the transmitted information to the enemy.

"Once an attack is started the basic plan cannot be changed. It must succeed.

"Estimating the situation and *planning* should be emphasized in training."

COMMENT: This account is a good example of "fire and movement" on the battalion level. However, it should be pointed out that a double envelopment is a rather ambitious scheme of maneuver for a single battalion and should be used with caution.

No mention is made of the constitution of a reserve force. Such a reserve must be retained under the control of the commander to enable him to counter unforeseen enemy reaction as the attack progresses. Troops committed to a plan of action can not be considered as available for this purpose.

The division of the battalion into approximately three equal attack forces is open to criticism—but it worked in this case. A scheme of maneuver should include a determination of the direction of the main effort, and the preponderance of force should be available to support this effort. In the case cited above a reserve might have been constituted from Company K (the encircling force) and Company L (the frontal attack force), and the attack of Company I might have been considered the main effort, since it was directed toward a terrain feature, seizure of which would render the whole enemy position untenable. A clear conception of the relative importance of the separate efforts is necessary to facilitate subsequent decisions based on enemy reactions to the attack.

Factors contributing to the success of this attack were:

1. Prompt estimate of the situation by the commander, including a study of the terrain, based on personal reconnaissance.
2. Development of a definite plan of maneuver based on the seizure of key terrain and the outflanking of enemy positions.
3. Detailed planning and specific orders.
4. Utilization of maximum fire power available.
5. Maintenance of control over all elements.



This panoramic view, looking toward Avellino, is characteristic of the terrain along the Italian battlefront.

FIGHTING IN WOODED TERRAIN

Lieutenant Colonel F. L. Walker, Infantry Battalion Commander, ITALY: "The area in which my battalion operated was covered with thick scrub trees and fruit orchards, interspersed with frequent farm houses, many stone walls 6 to 8 feet in height, and numerous sunken roads. Fields of fire were greatly restricted. Average observation was only 50 to 100 yards.

"Enemy delaying groups with machine guns were widely scattered and impossible to locate until arrival within 100 yards or less. It was found necessary to place heavy

weapons in the front line, or very close up, to avoid hitting our troops. After encountering hostile fire, it was found very effective to spray the entire woods ahead with a rapid concentration of mortar and machine-gun fire for about one minute, followed by a rapid advance of rifle platoons using assault fire to cover all trees and house windows where snipers might be hiding. In each case Germans pulled out rapidly, leaving weapons and ammunition behind, although we had been unable to locate them previously. However, the tendency of troops is to wait for definitely located targets before they will open fire, which results in allowing very small groups of enemy, who shift position frequently and keep up a demoralizing rate of machine-gun fire, to cause great delay.

"The continuous rapid fire delivered by our heavy machine guns had a particularly demoralizing effect on the Germans."

COMMENT: The remarks of this battalion commander emphasize the importance of barrage covering fire. The fire power of available weapons in this instance substituted for an artillery barrage, but the principle remains the same: losses will be minimized by following closely the massed fires of available weapons delivered on areas from which enemy fire is expected.



INFANTRY NOTES

The Importance of Speed Regimental Commander, —th Infantry, SICILY: "I believe that the individual soldier now realizes that a relentless, steady advance saves casualties, and that he is now imbued with a knowledge of the importance of speed. Every man in this regiment is firmly convinced that the speed of our recent operations

saved us from huge losses. Down to the lowest private the feeling exists that we would still be at CANICATTI if we had not pushed the enemy off balance and kept him that way."



The Herd Instinct *Major Robert Wilson, Observer with 4th Division, ITALY:* "Our troops showed a decided tendency to bunch up under fire. This was observed on several occasions. One prisoner of war, a German forward observer for an 88-mm. battery, was interrogated concerning his technique of adjustment. It seems he had been told that American troops congregated when under fire. When he saw American troops advancing he was to call for one or two rounds in their vicinity and to observe the area in which they congregated. Fire was then to be shifted to this area. This prisoner stated that he had conducted very effective fire in this way on several occasions in Italy."



German Registered Fires *Private First Class Dorycz, Infantry, SICILY:* "Our battalion advanced beyond the main body and took a high hill position. There we waited for reinforcements. The enemy—as he often does when he is about to retreat and does not want to haul back his ammunition—threw all of his available ammunition at the crest of the hill. The proper procedure as we learned later should have been for us to disperse down the side of the hill part of the way, which would have preserved our position and also would not have presented a 'pin point' for their artillery.

"Just at dusk on another occasion our battalion stormed and took an area. Under cover of darkness we withdrew. During the night the Germans bombed and shelled what

they thought was our new position. Our observers, properly placed, noted the enemy gun positions and they were knocked out the following day."



Base of Fire *Lieutenant Colonel J. M. Finn, Infantry Battalion Commander, ATTU:* "It was found that so long as the Japs could keep us ducking from aimed fire their position remained secure. But once the Jap was made to keep his head down and the American could get to his feet the attack was merely a matter of walking up to the position and tossing in grenades. To make this possible required the coordination of fires down to and including the riflemen. It is important that commanders and leaders realize this. Otherwise, troops will remain down when it is not necessary.

Teamwork "We would have a rifleman point out pill-boxes using tracer ammunition. Then a 37-mm. gun would take them under fire with HE. Oftentimes the pill-box crew would attempt to evacuate to a safer place, and a light machine gun would mow them down."



—in Which the Outposts Were Not "Posted" *Lieutenant Colonel T. F. Bogart, Infantry, Observer with Fifth Army, ITALY:* "One night in the vicinity of AVELLINO the battalion established an outpost line around the high ground to the northeast of the city. Patrols were ordered up several roads leading out of the city. All company commanders were informed of the dispositions. The patrols went out before the outposts were posted. A few hours later firing

was heard at the battalion CP, which increased in tempo and kept up most of the night. Soon reports were sent in that German patrols were operating out in front of the outposts. Next morning it became apparent that our own patrols had been fired on as they attempted to return through the outpost line."

COMMENT: The constant recurrence of such reports indicates the necessity for closer coordination of patrol activity with the outpost system. Positive steps must be taken to insure that the routes of returning patrols are known to the outposts and that recognition signals are arranged.



FIELD ARTILLERY NOTES

Artillery vs. Tanks *Lieutenant Colonel F. Q. Goodell, Field Artillery, Observer with VI Corps, ITALY:* "Direct fire of 105-mm. howitzers is credited with stopping the German armored threat on D+4. One battery knocked out five tanks with six individual rounds at a range of two to three hundred yards.

The Observation Battalion in Action "Location of hostile artillery by sound ranging was highly effective when weather and terrain were favorable. One battery of the division artillery, firing on sound-located targets, usually individual 88-mm. guns, is credited with keeping these hostile weapons on the move and materially aiding the advance of the division."



Lieutenant Colonel R. E. O'Brien, Cavalry, Observer with Fifth Army, ITALY: "Our sound ranging was accurate but usually 3 to 5 minutes too slow. One prisoner reported that his battery always prepared three or four positions. After

firing from one position a maximum of 5 or 6 minutes, his battery was moved to another position. Several times he stated that our artillery fire fell on the old position within 3 to 5 minutes after they had evacuated."



Night Reconnaissance Artillery Operations Report, 3d Division, SICILY: "On August 15 and 16, in order to place



Take advantage of the moonlight!

artillery within effective range of the enemy who had retreated at dark, artillery battalions were displaced to forward positions which were reconnoitered, surveyed, and occupied by moonlight.

Use of Artillery Observation Planes "Observation patrols were maintained in the air during the hours of daylight for the following reasons: (1) it was found that enemy harassing, interdiction, and counter-battery fire was reduced considerably when it was under surveillance from our planes; (2) to insure rapid transmission to higher headquarters of information on counterattacks, blown bridges, routes of advance, and locations of enemy installations; (3) to enable rapid adjustment on targets defiladed from ground observation.

"It was found, however, that circling over friendly troops tended to draw harassing fire in the general area."

Observers on Their Own *Lieutenant Colonel R. E. O'Brien, Cavalry, Observer with Fifth Army, ITALY:* "One division discovered that the worst thing that could happen to the artillery plan was for the observers to become separated from the responsible infantry commanders. When this happened there was always the danger that the observers would bring fire down on their own troops."

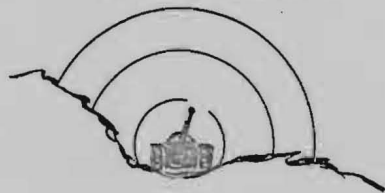
Orientation and Survey "Generally field artillery batteries were fired in, but survey was always completed. Declination of instruments was difficult and unsatisfactory because of the ground metal present in the soil of this area. Fire was conducted satisfactorily from 1: 50,000 scale maps when observation was available, the vertical control being largely approximate from this map."



NOTES FROM OTHER ARMS

Tanks: Keep off the Sky Line! *Lieutenant Colonel T. F. Bogart, Infantry, Observer with Fifth Army, ITALY:* "I witnessed a lone tank approaching the sky line cautiously,

Keep off the skyline!



then pause momentarily right on top of the hill as if observing to the front. At that instant a German shell hit him; and the tank and crew were casualties. An old story but frequently forgotten."

Antiaircraft: Absence Makes the Heart Grow Fonder *Lieutenant Colonel T. F. Bogart, Infantry, Observer with Fifth Army, ITALY:* "The importance of having antiaircraft units present, even though their fire is often ineffective, was impressed on me on 5 October 1943, in the vicinity of MONTESARCHIO. After several weeks of almost complete absence of German aircraft, four Jerry planes appeared over this town and dive-bombed it, coming in very low. They received no AA fire. It was surprising, because almost invariably AA units had kept up close to the front-line units. There were 60 trucks lined up at 50- to 100-yard intervals along the main highway. The Jerries spotted these trucks on the first dive and strafed this column, and bombed the town at leisure for about 40 minutes from very low altitude, until apparently all their ammunition was gone. In all previous air attacks the Jerries had dropped their bombs and left promptly under heavy antiaircraft fire. It was evident that AA units played their part in keeping enemy planes up in the air and on their way."



4.2" Chemical Mortars: Target Practice *Battle Report, —th Chemical Battalion, SICILY:* "Early on the morning of 11 July one platoon of Company B fired on what was evidently an Italian reconnaissance patrol of 15 men approaching GELA from the north. The fire chased the Italians from one draw to another and then to a haystack, where one volley fell directly in their midst. The wickedness of this mortar's HE shell was therewith duly proved. No further movement was observed."

RADIO COMMUNICATIONS

Radio Discipline *First Lieutenant C. E. Place, Air Corps, SICILY:* "Fliers coming into the combat zone had no conception of radio discipline. New pilots used the radio indiscriminately. Men returning from missions used the interplane radio unnecessarily, which jammed up the band for other planes still on a mission."

COMMENT: Failure to observe radio discipline is a major problem for both air and ground units. In combat each individual believes his case a special one not bound by established rules. This tendency must be discouraged by positive action. Radio discipline is established to facilitate essential communication during combat and is not a peacetime plaything to be discarded when action is joined.



Training of AAF Radio Mechanics "Radio contact with the A-36s was very poor. The main trouble was that the radio repairmen did not have a chance to train on the VHF (Very High Frequency) sets (which we used) before they left the United States, and were getting their experience in combat. In their training the radiomen did not get a chance to use the old style aircraft sets because they were locked up after the pilots used them. One or two men were sent to a school to work on those sets, but none had any experience with the radio in the actual planes. The result was that radio communication was bad, though it slowly improved in combat.

"In August 1943, the first week of operation over CAPE BON, radio communications were not used, because the radios did not work. Possibly one or two sets in a formation were operating. Interplane communication was by

visual signals, which was extremely difficult in large formations."

German Countermeasures *Sergeant E. G. Dekett, Infantry, Communications Clerk, SICILY:* "The operating frequency of the transmitters was changed twice every month in Sicily, but the Germans often jammed the band. We had no alternate frequency set up in the event one was thoroughly jammed, because permission was not given to companies to carry the alternate crystal to the front lines."



Second Lieutenant J. L. Hare, Field Artillery, SICILY: "The enemy tried to jam the frequency of artillery fire-directing planes with what sounded like Oriental music, but the frequency-modulated sets had a clear channel and the messages came through."



Sergeant E. O. Erkhilla, Infantry, Message Center Chief, SICILY: "The communications officer warned us that the larger radios intended for communications between the battalion and the regiment would draw fire. Therefore we planned to use these sets only in case of emergency on CW when the phone was out. When I was hit we had bivouacked for the night and used the radio inasmuch as the telephone lines were not yet in. Soon thereafter, the CP was fired on by heavy artillery. Three of our men in the CP were killed outright."

COMMENT: Officers charged with organization of CPs should insist that all the longer-ranged radio sets such as the SCR 245 or SCR 193 are located from 500 to 800 yards from the main CP area. Local telephone lines and runners can be used for inter HQ communication.

INTELLIGENCE

Captured Documents *Regimental Operations Report, VELLA LAVELLA:* "On 4 September a patrol from A Company, led by Lieutenant King, ambushed a patrol of 12 Japanese in the vicinity of Boko Mission. Upon searching the bodies they found a map on the body of a 2d Lieutenant and dispatched it immediately to the regimental command post by a runner. The next day the translation of this map was returned to the 1st Battalion. It showed the Japanese defensive plan of LAMBU-LAMBU COVE and the VALAPATA area and proved very effective in eliminating the Japanese from the area."

COMMENT: Not only marked maps but also documents of less-apparent importance may furnish the key to enemy plans when combined with other information. The necessity for prompt forwarding to higher headquarters of all captured documents must be impressed on all ranks.



Overdoing the "Buddy" System *Lieutenant Colonel R. E. O'Brien, Cavalry, Observer with Fifth Army, ITALY:* "It was necessary repeatedly to warn the troops against the incorrect practice of fraternizing with prisoners and giving them cigarettes, which interfered with their proper interrogation. Troops also had to be warned not to remove pay books from the prisoners, because these books furnished a check to the interrogation officer on the prisoner's statements in regard to his organization and previous service."

COMMENT: Successful interrogation often hinges on the nervousness and strain under which prisoners labor when they are brought before the interrogator. Consequently, any action by the troops which tends to reduce this strain and put the prisoners at their ease interferes with interrogation.



Post the sentries with proper knowledge of the password and countersign.

Password and Countersign *Lieutenant Colonel T. F. Bogart, Observer with Fifth Army, ITALY:* "Many sentries were posted without proper knowledge of the use of the password and countersign. For example, the password and countersign one night were Red and River. The soldier challenged, 'Who's there, Red River?' There were several instances also in which the sentry halted a person at such a distance from him that anyone in the vicinity could have heard the challenge and the reply."



TRAINING NOTES

Speed Marching *Report of Commanding General, 3d Division, on its landing in SICILY:* "The importance of physical condition cannot be over-emphasized. Speed-marching proved of great value in developing physical condition, eliminating the unfit, and instilling confidence and pride in the individual. As a general training objective, all units

prepared for a landing on defended beaches and an advance inland of about 5 miles. Speed-marching continued, each unit being required to complete 5 miles in 1 hour, 8 miles in 2 hours, and 20 miles in 5 hours once a week. This training was largely responsible for the speed with which the assault of this Division was executed."



Reports and Messages *Major Robert Wilson, Field Artillery, Observer with G-2 Section, 4th Division, ITALY:* "The 'who, what, when, where, and why' were often not contained in reports, both oral and written. Battalion and regimental S-2s and the men themselves indicated that during maneuvers and in training problems they had thought

Don't make the other fellow guess what you mean in your messages!



that this subject had been mastered, but that in combat it was ignored or forgotten. As to clarity, the axiom 'if a message can be misunderstood, it will be misunderstood' was well proven.

COMMENT: Writing messages during a unit training program is one thing; writing clear, specifically worded messages and orders under combat conditions is quite another. Theoretical training in message writing must be supplemented by constant practice and supervision in the field.

"Change Posts!" *Lieutenant Colonel J. M. Finn, Infantry Battalion Commander, ATTU:* "We had junior lieutenants commanding two of our rifle companies for almost half the battle. All officers of company grade should be given an opportunity to handle the company before entering combat."



Combat Training for Engineers *Commanding Officer, Engineer Regiment, ATTU:* "Engineers should have a good working knowledge of combat tactics, night patrolling, outpost duty, and use of terrain features. This would have saved many of the casualties we suffered and would have reduced firing at imaginary enemy movements. Training of this sort should not be lost sight of in the stress of training for an amphibious operation."



Miscellaneous Notes *Lieutenant Colonel C. E. Brokaw, Ordnance, Observer, ITALY:* "I believe that the following points should be given more stress during training:

1. Penetration deeper into enemy territory by small scouting patrols.
2. More training in night fighting—at least 50 percent.
3. More training in mortar fire and in the establishment of a base of fire of all mortars and machine guns before attacking.
4. More stress on camouflage.
5. Training troops to avoid defiles and advance along the sides of ridges.
6. Training snipers. Their training has been neglected in maneuvers because no credit is given for snipers.
7. Use double foxholes of the V or L shape, since two men together are more confident than two men separated.

COMBAT ZONE MISCELLANY

AA Small Arms Fire Discipline *Major Robert Wilson, Field Artillery, Observer with -th Division, ITALY:* "Seven friendly planes clearly marked with the Allied markings and a wide yellow band around the wings to facilitate identification flew in toward PAESTUM landing strip on D+2 at an altitude of four to five hundred feet at slow speed. Antiaircraft and small arms were discharged at these planes, which even tipped their wings more clearly to display insignia. One infantryman firing a rifle was ordered to cease fire and was asked at what he was shooting. He replied, 'Enemy planes, can't you see?' pointing to one plane which had crashed just about 100 yards away."

COMMENT: The constant recurrence of such reports indicates the necessity for a stricter enforcement of the rule that ground troops, other than those assigned definite AA missions, will not fire on any aircraft unless actually being attacked. Those troops having AA missions must be thoroughly drilled in the identification of friendly planes.



Hygiene: Any Day Is Saturday *Lieutenant Colonel T. F. Bogart, Infantry, Observer with Fifth Army, ITALY:* "One day, in a comparatively quiet area with a mountain stream only about 400 yards away, after 24 hours not over a dozen men had taken advantage of the opportunity to bathe. Company commanders were ordered to have squad leaders march their squads to the river and supervise bathing."

Dirt Breeds Infection "I was informed by a battalion surgeon that over half of the evacuations from his battalion had been due to infections caused by minor scratches that



Don't miss the chance to get a bath!

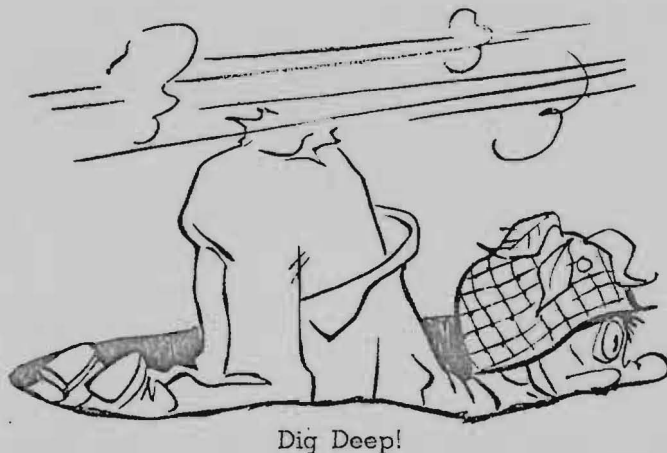
became infected because of lack of cleanliness. There appeared to be a general disregard or indifference to cleanliness, even when opportunity existed to wash."

COMMENT: Fortunately the above is an isolated instance, but it indicates the necessity for constant supervision over the hygiene of troops.



Sandbagging Vehicles *Major Robert Wilson, Field Artillery, Observer with -th Division, ITALY:* "All drivers kept their eyes constantly peeled for burlap sacks with which to sandbag the floors of their vehicles as protection against mines. This precaution saved lives, including that of a regimental commander and his driver, both of whom were seriously but not fatally wounded when the ¼-ton truck in which they were riding detonated a mine."

A Foxhole in Time Saves Lives *Lieutenant Colonel T. F. Bogart, Infantry, Observer with Fifth Army, ITALY:* "Although the average American soldier will dig a foxhole or slit trench when the artillery or mortar shells are falling in



his vicinity, only a few of those I saw would dig them prior to that time. When they did dig them they were usually quite shallow. It was always very easy to tell a German foxhole from the American; the former were always much deeper. Many casualties occurred from shellfire which I believe would have been avoided had proper foxholes or slit trench been dug."



Use of the Compass *Private George Scott, Infantry, SICILY:* "Some of the men performing combat intelligence duties were unable to read the lensatic compass properly. This often made their reports valueless."



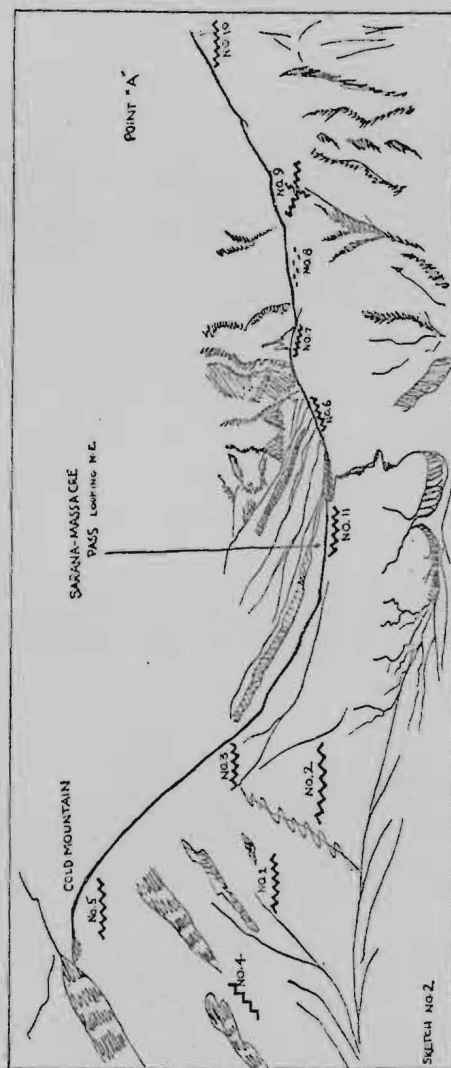
BATTALION ATTACK

From the island of ATTU a narrow, precipitous tongue of land about eight miles long juts southeast and then due east to CHIRIKOF POINT, eastern extremity of the island. SARANA BAY lies to the north and MASSACRE BAY to the south. SARANA VALLEY and MASSACRE VALLEY run generally northwest and southeast parallel to the central ridge of the base of this peninsula, but converge about five miles in from the coast where the central ridge dips to a saddle called SARANA-MASSACRE PASS.

For a miserable week the 2d Battalion, —th Infantry, had held wet, soggy, cold positions on high ground in upper MASSACRE VALLEY, southwest of the pass, later renamed CLEVESY PASS, for 2d Lieutenant Samuel W. Clevesy, who died gallantly there.

On the right the saddle led up to POINT ABLE, a conical mountain of bare rock rising 2,000 feet into the Aleutian mist. On the left was COLD MOUNTAIN. (See sketch.)

The Japanese held the dominating high ground; their



Panoramic field sketch of enemy positions between Cold Mountain and Point A
Able used as the basis for planning our successful attack.

positions were often obscured by the heavy mists which enshrouded the mountains. Jap snipers and observers worked from the protection of the lower edge of the cloud layer, pouring devastating fire into the Americans silhouetted against the wet snow in the valley below. No trees or shrubs grew here to furnish concealment; men burrowed into the spongy tundra for precarious defilade. Several determined efforts to clear the flanks of the saddle had been repulsed. Artillery had been brought up, and a coordinated attack was planned for 19 May 1943.

At this stage of the Attu campaign the companies of the battalion averaged 50 men.



—AS SEEN BY THE STAFF

Mission *Report of Battalion Commander, 2d Battalion, —th Infantry, Attu:* "This battalion was ordered to attack the enemy in the MASSACRE-SARANA PASS, commencing at 0600, 19 May 1943. We were located near the top of the 'hog back' in MASSACRE VALLEY, firing northeast into the pass and toward the high ground south of the pass.

Use of Panoramic Sketch "A panoramic sketch of the area was drawn up and distributed to each officer controlling a company or group of supporting weapons. (See illustration.) On this sketch were placed numbers from 1 to 11 to indicate known enemy entrenched positions. All were known to contain machine guns and riflemen except Point 9, which contained a 37-mm. gun and some mortars. Point 11 was believed to contain mortars, and Point 10, in addition to being fortified, was believed to be an OP for dual-purpose guns located in SARANA VALLEY.

Preparatory Fires "The afternoon of 18 May was spent in registering artillery on each of the known enemy positions. In addition to the supporting artillery, the battalion had attached to it six 37-mm. guns (making a total of 10 in all), two 75-mm. pack howitzers, and 3 additional .50-caliber machine guns. The battalion organic and attached weapons also registered on enemy positions.

Communications "A rather elaborate system of communications was established to enable the battalion commander to control the fire of supporting weapons in furtherance of tactical plans. The artillery radio as well as telephone was set up at the battalion commander's OP on top of the 'hog back.' A sound power telephone was run from the mortar OP to the battalion commander, likewise one from the 75s. A telephone was also run from the OP to the officer in charge of all 37-mm. firing. Radio and telephone control was run to all the companies in the battalion.

Tactical Plan "The tactical plan in general was as follows: One company of the regiment on our right moved out at 2400, 18 May for the top of the ridge dividing MASSACRE and SARANA VALLEYS and was in position on top of the ridge ready to attack Point A from the southeast at 0600, 19 May 1943. A patrol from Company I, under Lieutenant Brown, was started from the floor of the valley on the night of 18 May to work up to the top of COLD MOUNTAIN with the mission of enveloping Point 5 from the north. Early the next morning a patrol from Company F, under Lieutenant Smith, was given the mission of moving up the slope of COLD MOUNTAIN and attacking the enemy trenches at Point 4 from the northwest and then working down to 1, 2, and 3 in conjunction with the rest of the company, which would attack from the east. It should be borne

in mind that the average strength of the rifle company in the battalion the day of the attack was 50 men.

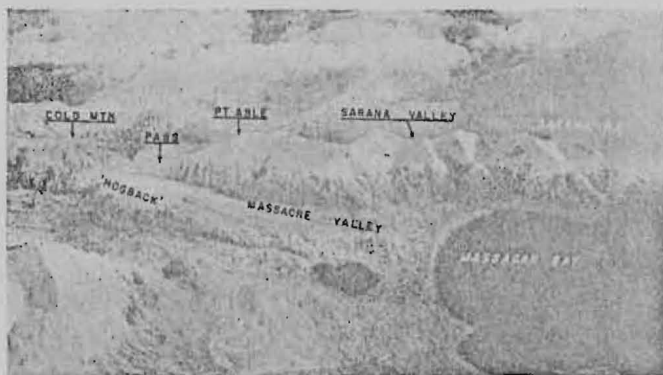
Radio Contact "It was planned to use radio to contact the CO of the company attacking Point A and also to contact the patrol under Lieutenant Brown on COLD MOUNTAIN. Radio was also to be used to contact the platoon attacking Point 4.

The Action "About 1000, a report came in that the force attacking Point A had been held up by machine-gun and mortar fire and was unable to advance. Up until this time no report had been received from the units attacking Points 5 and 4, but shortly thereafter the CO of Company F reported that these units were observed to be withdrawing from COLD MOUNTAIN.

Supporting Fire "The battalion commander at this point decided to attack the positions straight on. The artillery laid down a 10-minute concentration on enemy positions on COLD MOUNTAIN. All other weapons opened fire on positions 6, 7, 8, 9, and 10. Smoke was laid in the saddle, and the wind carried the smoke over enemy positions on COLD MOUNTAIN and greatly aided Company F in its advance.

Orders "Company F was ordered to attack the enemy positions on COLD MOUNTAIN under cover of artillery fire and smoke. Company E was ordered to occupy the saddle and to send one platoon to Point 6. Company G was ordered to take position in reserve just southwest of the mouth of the pass in rear of Companies E and F.

Subsequent Action "Fire was lifted on Point 6, which was taken by the platoon of Company E. Company F succeeded in taking Points 4, 1, and 2, but received fire from

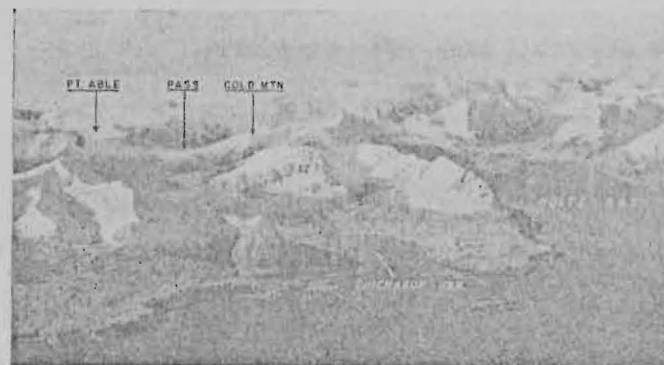


This aerial view along general axis of our advance on Attu (looking northward) shows the type of mountain terrain encountered by the Task Force.

Points 3 and 5. Company E sent one of its platoons to attack Point 3, and Company G was ordered to envelop the left flank, secure Point 5, and aid the platoon of Company E in its attack on Point 3. The actual taking of Point 5 by Company G was not accomplished until the following day.

After taking Point 6, the platoon of Company E was ordered to continue to Point 7, but was unable to advance due to machine-gun fire from the draw to their left front. This machine gun was knocked out by a patrol from Company F, and Points 5, 7, 8, and 9 were taken with the aid of the adjacent regiment. This action was completed about 2200 on 19 May, and the companies established defensive positions for the night."

The attack on the pass was essentially a series of small-unit actions coordinated by an over-all plan. Here as elsewhere the final result depended largely on the fighting ability, initiative, and aggressiveness of the individual soldier.



Aerial view of the Attu combat zone looking south. The enemy was driven into the Chichagof Harbor area and destroyed by our forces advancing from the pass between Point Able and Cold Mountain.

In the paragraphs to follow, some of the men who did the actual fighting describe the action as they saw it.



—AS SEEN BY THE SOLDIER

The Attack on Point 5 *Sergeant Charles Roberts, Company I, —th Infantry.* "The idea of the thing was to envelop both flanks first and then push through the center of the pass. Captain Murphy with Company C of the regiment on our right, strung out practically in single file, was stumbling along the crest of GILBERT RIDGE (dividing SARANA and MASSACK valleys), trying to knock out Point A, a natural rock fortress on the right flank of the pass. Our platoon of Company I under Lieutenant William Brown had the mission of attacking Point 5 on the top of COLD MOUNTAIN on the left flank.

The Approach "It was dark and bitter cold the night of 18 May, when our platoon started out. We knew there were Japs up there, and we knew they had three heavy machine guns at the least which, unless we knocked them out, would be blasting hell out of the men going into the pass when the main attack jumped off.

"The hill was steep, slippery, and rocky; there was ice forming on the tundra as we slowly stumbled up the face of the mountain toward the Japs at the top.

Contact "We saw the first one at 0430 in the morning. He was a sentry, and we were within 50 yards of him. He stood up against the skyline and was shaking out a grass mat. Lieutenant Brown motioned us to get up under a little ledge to our front, then he shot the Jap. The shot must have awakened others, and as we worked up over the ledge a Jap machine gunner began firing at us. We stayed down until the first excited bursts had gone over, then we raised up and returned the fire. Several Japs had holes near the edge of the ledge we were under and they began to throw grenades over, but the hill below was so steep that most of the grenades rolled down and exploded out of range below us. The machine gun was firing again but several of our men were close enough to the ledge to lob grenades over. The machine gun itself was out of grenade range, but some of the Japs near the edge caught hell from the grenades.

Jap Counterattack "Over our heads the Japs began to shout, and then four of them with bayonets and an officer waving his saber rushed over the crest at us. Private Paul 'Goat' Smith, the BAR man, saw them coming. He was lying on the ground slightly to the side of where the Japs came over. He raised up on his knees and fired three quick bursts, and the Jap bayonet assault was over. From some-

where back to our left another machine gun opened up, and we withdrew down the hill to reorganize.

The Radio Fails "Lieutenant Brown tried again and again to contact battalion headquarters or the artillery with the radio, but the set refused to function. The radio man worked with it, and tried again, but failed. The platoon was reorganized, and we started up again. We got as high as the ledge once more, and had started over the top on to the table above, when the Jap opened up with machine guns again. We needed artillery and needed it bad. Every time we stuck our noses up, a hailstorm of bullets cracked across them. The radio man was trying frantically to contact anybody in the valley below us, but the set remained silent. Several men had crawled around to the left and threw grenades at the Japs near the edge of the table, but the machine guns remained out of range. Our men were driven back to the cover of the ledge, several with wounds. Artillery, if we only had artillery! We could observe the fire; we knew where the guns were. If we could only get some fire we'd walk over the damned mountains. The radio man was desperate. He tried the set again, but it was silent. In a rage he threw it down the hill.

Our Attack Repulsed "We tried once more to move around the flank and get to the Jap guns. It had been broad daylight for some time, and the big attack was to push off before long. But as we appeared over the hill where the Japs were, an impossible stream of bullets drove the men back. Again we withdrew down the hill. Lieutenant Brown sent messengers down the mountain. Then a few minutes later we heard the guns in the valley begin firing. The attack was on. We had failed, and we felt bad about it. They had the drop on us."

The Main Attack *Sergeant Walter Moesch, Company H, -th Infantry:* "On 19 May our section of heavy machine guns was attached to Company F for the attack up COLD MOUNTAIN on the left of CLEVESY PASS. It was called SARANA-MASSACRE PASS then, but I was with Lieutenant Clevesy when he was killed there in the pass, and the pass was named for him. The attack had moved across the flat ground in front of COLD MOUNTAIN without much fire except long-range mortar and some 37-mm. fire. We got to the first Jap position almost without opposition. But when the attack moved up the hill, hell began to break loose. Company F was driven back with lots of casualties, and Company G had moved through them and around to the left; they too were getting all shot up. Then Company F of the regiment on our right came through on our right flank, heading right out into the pass itself. They combined two of their platoons with the remainder of our Company F and we started up again.

"The Japs were holding the pass on the high ground on both sides and to the front too. The ones on the right could fire into the backs of the attackers on the left and vice versa; it was rough going. Our first section was in position right below where we had first entered the lowest Jap position, and the second section was around to the right, into the pass about 150 yards.

"Lieutenant Clevesy got me and we went around to the second section to get them started up the hill. The attack was going okay, but it was awfully tough; bullets were flying all over the hillside. Just uphill from the second section was a Jap 37 mm. We had watched them fire from that position several days before, and we knew there were Japs in that trench. The main attack was moving around to the left as we started up the hill. Finally the fire got so heavy that the machine gun squads took cover

in a little draw until we could grenade the trench above us and clean it out. Then they were to come on up. Sergeant Tom Kovick, Private First Class William Marshall, and I started up with Lieutenant Clevesy. We had crawled on our bellies to within about 25 yards of the trench, when a sniper raised up and shot Marshall in the ear. We shot at the sniper, and threw grenades into the trench. We crawled up rapidly then, ready to move in behind our grenades and another sniper popped his head up out of a hole above us. Lieutenant Clevesy fired his carbine, just as the Jap fired. The Lieutenant toppled over a little bank and lay still. He was dead. I was just bringing my rifle up as the Jap ducked.

"Then, from across the valley, the Japs spotted us, and they gave us hell. Machine guns, rifles, and a 37 mm. began pounding the area.

"Finally the intense shelling slowed down and we dashed for the open end of the Jap trench we had grenaded. The trench led around the point of the hill. We crawled down the trench and found where the Japs were located when we stuck our heads up right in the face of a burst of machine-gun fire.

"Some men from Company F had come over to help us, but we were stymied. We couldn't raise up long enough to fire, and we couldn't get close enough to throw grenades. Finally we decided to see if we could get some mortar fire on the position some way. Corporal Alfred Hehman started back to check up on the mortar possibilities, while we waited and rested. The Jap position was slightly below us and about 100 yards further into the pass. They were firing almost constantly at troops we could see moving out in the valley and on the opposite side of the pass. We were quite high up on the side of COLD MOUNTAIN.

"After nearly 2 hours of lying in the trench and waiting, we heard one of the men behind holler, 'Here Hehman, up here.' Hehman and a man from Company H, -th Infantry were crawling along up a little ravine, laying wire. They had found a Company H mortar and had a line right to it. The big fight up on the mountain had gotten almost to the top, but the forces across the pass were getting hell from the guns below us.

"We got the phone all set and carefully poked a little hole in the dirt side of the trench so that one man could see the whole Jap position below. Then we called the mortar and the fun started. We were only about 100 yards from where the shells were striking and the ground shook. They fired several rounds close and then they began to drop right in the position. Finally we called and told them we were moving in, and not to fire.

"The position was a big wheel-like affair, with holes all around it, and the spokes were connecting trenches with a big center installation at the hub. Two Jap machine guns and the 37 mm. that had fired at us during the previous week were captured and destroyed there. We tossed six dead Japs out and then brought our guns up and set them in the Jap holes. There we sat that night, just daring the little so and so's to come up. Man! What positions they had!"

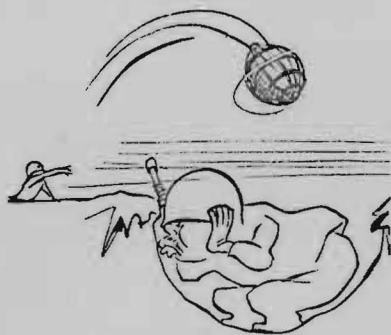


Sergeant Anthony Pinnelli, Company E, -th Infantry Regiment: "It was shortly after 1000 on 19 May when Lieutenant Bellas waved 'follow me' and started around the front end of the 'hog back' and turned toward CLEVESY Pass. The Japs began firing at us from two long trenches on the right side of the pass. That was our objective. Mortar shells were bursting through the company as we

worked down into the deep draw that cut across the pass from left to right. Then one by one we crawled over the big snow bank and wormed our way closer to the Japs on the high rise in front.

"It was afternoon before we got to the lowest Jap position on the right of the pass. It was vacated by the Japs so we moved in. Above us, from time to time, we could see the round helmets of the Jap soldiers as they changed positions in the trench and we exchanged shots back and forth. Somewhere to our left was a strong Jap emplacement. We couldn't see it but we knew it was there; and it would be impossible to get the Japs high on the ground above us, without getting the ones on our left first. Sergeant Truffelli and I argued about the exact Jap location. From time to time I had seen a large puff of white smoke rise from behind a small knoll, as the Japs fired their trench mortar at us; and I was sure that the position could be grenaded. Finally we asked for volunteers to go over and try it, but there were none; it would be a rugged job. It was my idea, so I asked Truffelli to look after my squad, and give me some covering fire, while I went up and tried the thing myself.

"It was tough all right. I moved as far down in the defilade as I could get from the Japs up above, then I started crawling straight up the hill at the little knoll, behind which I had seen the smoke. I made it to the knoll without being seen. The Japs were behind it, like I figured and they were watching down the hill toward our left flank. I crawled up on the rise of ground and threw a grenade. The first one was short. I tried another, and it fell into the Jap hole, but they threw it out. They still hadn't seen me. I threw several more grenades into the position; and one of the Japs spotted me and tried to throw one of my grenades back. He grabbed the thing and was ready to throw it when it exploded by his ear and blew his head



Make the enemy keep his head down!

cut them down. Then the whole company moved forward into the new Jap position and the fighting was pretty hot for a while. We accounted for about 50 Japs there in a few minutes. When I jumped up over the little knoll to move up with the company a Jap sniper up on POINT ABLE shot me in the leg. The bullet went into the muscle like a hot needle, up near my crotch. It bled and stung but it wasn't bad enough for me to have to go back.

"In the evening the Japs began to retreat over the whole right flank of the pass; everywhere but at the top of POINT ABLE. It was sometime after 2000, and the Japs were firing furiously and falling back.

"One heavy machine gun squad out of Company H had made it up the hill with us and was firing into the Japs. Robert Greene, the gunner, started the belts through full on one side, and they were pulling them out empty on the other side and then shoving a new one in. The gun got so hot that we poured canteens of ice water on the mechanism to cool it off. Lieutenant Tommy Hindman let out a terrific rebel yell and we took off to assault the last Jap position on the pass. As we started Corporal Flynn saw a Jap setting

completely off. The platoon heard the commotion and began to advance up the hill. The company's light machine guns opened fire on the trench as the platoon advanced. Several of the Japs jumped out and tried to run back but the machine guns

up a light machine gun. He opened up on it and drove three crew members away from the gun.

"We made it all right. Company E of the -th Infantry moved into the center of the pass. My leg was getting stiff and the medic wanted to send me back, but there is something about being with the boys up there where they're fighting their guts out that makes laying in a hospital a hell of a thing. I stayed with them, too, until a grenade shook me up. Then they sent me back."

The Taking of Point "A" *Corporal Anthony Simonie, Company C, -th Infantry:* "POINT ABLE was rough. It is a big pinnacle of rock that crowns a barren hill at the inland end of GILBERT RIDGE, named after Lieutenant Gilbert of Company G, who lost his life in a valiant effort to move up the coverless slope of POINT ABLE. At its foot lies CLEVESY Pass. The day before, troops fought through CLEVESY Pass. The Japs holding the Point were isolated, but they fought like cornered weasels against Company C on the ridge, against Company G moving up from the SARANA side, against Company E on the MASSACRE side; they had been pounded by artillery and mortars; but they hung on.

"Lieutenant Gilbert's platoon, whittled down to a single squad, was working up on the right. Lieutenant Stanley Wolczyk went to the left. Machine-gun fire grazed the tundra from the big rock 800 yards ahead of us and up the slope. We moved farther to the left where a shoulder of the hill jutted out and shielded us from the machine guns. Then we started to climb. We got to within 150 yards of the Jap trench before they stopped us. Jap rifles were snapping from the trench, and a machine gun rattled off a burst.

"'They've got a machine gun in there too,' someone said. Parker said, 'There's gotta be one. The Japs have always got a machine gun.'

"We were lying under some small rocks at the edge of a big bank of snow. Out in the snow were several jagged boulders, and George Parker began to work his way out across the snow to a big one in the center. We covered him as he crawled. He seemed to take an hour to get out there about 75 yards, but he said he didn't think he had been gone 10 minutes when he came back. He had tried to get close enough to see how many were in the trench. He said he figured there were about a dozen. Lieutenant Wolczyk sent back for a mortar.

"It took a long time to get it up to where we were hanging onto the slippery mountain side, but eventually it arrived. They overshot the first couple of rounds; then they cut the range down to 125 yards and began to drop them right in. They dumped six shells right into the Jap trench.

"Then Lieutenant Wolczyk hollered, 'Drop one more in and we'll assault.' He began to place us. There were eight of us in all, me to the left, Parker to the right. Victor Rakuson wanted to go to the right and get the Jap who had been shooting at him as he covered Parker. The mortar crew hollered, 'We'll drop two, just for luck.' Lieutenant Wolczyk said, 'Check your bayonets.'

"When the second round burst in the trench we jumped up and started across the snow. As soon as we got to our feet the Japs opened up. The BAR man was doing his best to cover us, but they were throwing everything, mortars, rifles, grenades, machine gun. I'll never understand how we got as far as we did. Rakuson got his sniper and one other; Parker was yelling his head off and had killed two; I got one I'm sure of and maybe another; and little Jose Benovidecz, who had come up with the mortar 'just for the ride,' had gotten two. I glanced to the right and saw Parker holding his rifle like a pistol and shooting, while he pulled the pin on a grenade with his teeth, just like the movies.

A grenade went off right behind me and a piece of it cut the handle off my shovel. I remember thinking for just a second, 'May God curse them, my mess kit's been ruined.' Somebody hollered, 'Parker, you're taking too much time with them.' He replied, 'I am, like hell. I want to be sure they're dead.'

"We got to within 30 yards of the trench, to a row of big jagged boulders, and ran into a nest of snipers. It was fast, desperate work, and it was more trouble than we could handle. We fell back.

"In the dark the following morning at 0300 the Point was finally taken, the machine guns were silenced. It had cost lives and energy, but the big thorn in our side was out."

COMMENT: These accounts bring out some of the characteristics of mountain warfare, in which "success depends more upon proper adaptation of available means to the terrain than upon their power. Maneuver of small units and the initiative and leadership of subordinate commanders are of the highest importance in mountain warfare. . . . The actions of small semi-independent units in seizing or defending heights . . . or in fighting to seize or block passes . . . become of increasing importance." (FSR, Mountain combat.)

The use of patrols and small units to outflank enemy strong points and reduce them in detail was the keynote of this attack. However, it must be remembered that the situation must permit covering fires which can pin the enemy in his separate strong points and prevent the successive movement of his reserves to the threatened points.

Note also the formulation of a definite plan of maneuver, the provision for preparatory and covering fires, the use of smoke, and the preparation of panoramic sketches for control and intelligence purposes.

The communication plan, although well considered, failed during the attack and resulted in costly delay. Possibly the failure of radio communications might have been obviated by testing or by better maintenance. Whatever the cause in this instance, it serves to emphasize the necessity for careful planning of communications, adequate maintenance of equipment, and the advisability of establishing alternate means.

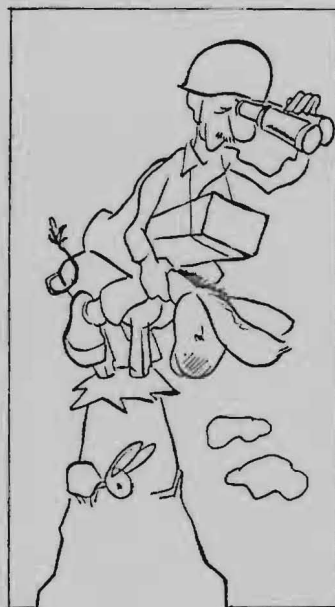
FIELD ARTILLERY NOTES

Use of Artillery-Spotting Planes in Mountainous Terrain *Artillery Report, -th Division, SICILY:* "In terrain where airfields are readily available the assignment of at least one plane to the battalion would be recommended, but *where airfields are hard to find centralized control is the only solution to the problem.*"



Get a Horse! *Lieutenant Colonel G. E. Brokaw, Ordnance, Observer With Fifth Army, ITALY:* "On numerous

Don't miss the chance
to observe fire!



occasions an artillery observer was sent to the highest point in the mountains with two mules to carry his radio and a two-days' supply for himself and the animals. These points were inaccessible with a jeep. In many instances the Germans withdrew immediately as soon as observed artillery fire was directed against their positions from these observation points. It was easy to feed the mules with grain packed in and with the abundance of natural forage available."

ENGINEER OPERATIONS

The "Engineer War" in Italy *Lieutenant Colonel F. Q. Goodell, Field Artillery, Observer with VI Corps, ITALY:* "Since 20 September, the current Italian operation has been definitely an 'engineer war.' All other arms would be hopelessly neutralized without them to build and rebuild roads, bridges, and airfields. The Germans are experts at demolition, and in the mountainous country through which the Fifth Army is operating all advance must cease until bridges are built and roads repaired."

Paving The Way *Artillery Report, 45th Division, SICILY:* "It was the excellent work of the Division engineers that made it possible for the artillery to keep in supporting distance of the infantry regiments. One of our battalions was to follow an infantry regiment marching on CALTAVUTURO. This route was over some very steep mountains following an old Roman road, now only a mule trail. A company of engineers did excellent work in making a road through the mountains for this battalion."



TANKS

Ideal vs. Practicable An officer who has led a battalion of Infantry of the 1st Division through the TUNISIAN and SICILIAN Campaigns has this to say with regard to the attachment of armored units to infantry in mountainous terrain: "We infantrymen would rather see the tank battalions used in mass if ever that should be possible, because we know that the tanks achieve their maximum effect that way. But also, we want the tanks with us as much as possible. The solution is to attach the tanks according to the terrain, striving to get as much mass as possible."



INFANTRY NOTES

Formations *Informal Report, XIV Corps, SOLOMON ISLANDS:* "Wherever terrain permitted, normal formations prescribed in current field manuals were used. It was possible to advance small units in skirmish lines, lines of squad columns, etc., through open terrain and open coconut groves. However, most of the fighting was done in jungle areas where advance had to be made in column of files, often with units as large as a battalion confined to one trail. Offensive tactics found most successful were the advance on a broad front with units in column, echeloned to a flank, and deployment was held as long as possible. Difficulties of control in the jungle suggested close formations. Japanese centers of resistance were bypassed and isolated. Frontal attacks were uniformly successful when assisted by a flank attack. On many occasions the flank attack preceded the frontal attack, coming into Japanese positions from the rear and completely disrupting their defense plans. In almost all cases the maneuver

used by units of all sizes from division to squad was the envelopment of one or both flanks. Resistance was bypassed, encircled, and reduced later.

Automatic Weapons "Long-range supporting fire of automatic weapons could not be used in jungle or coconut groves. Automatic weapons advanced with or closely in support of assault echelons. Machine guns and automatic rifles were set up to cover river crossings before riflemen tried to advance. The Browning Automatic Rifle was found to be invaluable in the attack because of its mobility and fire power, and patrols sent out were always reinforced with automatic rifle teams.

Night Operations "There were no night operations of consequence beyond resisting enemy attacks. However, it is believed that under certain circumstances, carefully prepared night operations would be successful and valuable. Our cordon defense was highly effective against Japanese night attacks, so effective that it made suicidal all Japanese attempts to break through our lines. One hostile night attack resulted in the death of 90 Japanese with the loss of only 2 of our own men. It is therefore apparent that night attacks against a well-organized enemy are likely to be costly, although the failure of Japanese night operations in most cases was due to their faulty preparation, and to the fact that we were constantly alert against night attack. In this connection, the hand grenade and the bayonet used defensively should be emphasized. Rifle fire at night is obviously ineffective and reveals positions.

Security Measures "Security for advancing elements during daylight was maintained by patrols and by flank and advance guards. Distances were greatly reduced. For in-

stance, advance guards often operated from 50 to 100 yards in front of the main body, and connecting files were correspondingly close in order to maintain contact. In advance through the jungle it is almost impossible to provide flank protection for any one column. Advance through the jungle on a wide front required the use of multiple columns with men in each column moving in single file.

— **During Halts** "During halts and particularly at night, security measures in the forward areas assumed the aspect of a cordon defense covering possible approaches from all directions. Routes of enemy approach were wired in and covered by fire. Light barbed-wire entanglements and trip wires with tin cans attached were considered a necessity. Machine guns sighted on final protective lines were set up to cover the front, protected by riflemen and automatic riflemen. Artillery and mortar fire was planned and prepared to fire on a final protective area in case of enemy counterattack.

Security at Night "Weapons used for night security were principally the grenade, the bayonet, and final protective lines of machine guns. The hand grenade was found to be the best weapon to use against night attack. Firing of tracer ammunition at night was prohibited to prevent exposing the location of weapons to the hostile assault. Smoking at night in forward areas was prohibited.

"All men and officers used foxholes and local security was obtained by keeping from one-fourth to one-half of front line units on the alert at all times. All-around defense was secured by requiring reserve units to conform.

Protection of Lines of Communication "Lines of communication in open country were secured by periodic patrol-

ling and by routine passage of armed troops. Lines of communication through jungle areas were secured by periodic patrols where strong hostile activity was not to be expected. In those cases where hostile activity was expected it was necessary to establish strong fixed guards in foxholes along the trail. Carriers were invariably furnished with armed guards in the proportion of about 1 to 10 when carrying through jungle forward areas. These guards were usually detailed for this purpose from regimental reserve units, such as the antitank company. Additional security was provided by patrols which combed the areas on the flanks of the line of communications.

"These security measures were sufficient to prevent surprises during any stage of the combat.

Patrol Reports "In general the distance covered by patrols was much less than that expected of them. The diffi-

Be conservative in evaluating reports from patrols!



culties of terrain caused many patrol leaders to feel that they had covered two or three times as much ground as they had actually covered. This must be taken into account when evaluating patrol reports."

Outposts and Patrols "The terrain over which the division fought made it almost impossible to use outposts as prescribed in the manuals; where such outposts were used they seldom were more than 50 yards from the main positions of the troops. At night all movement in forward areas was prohibited in order that Japanese making night attacks could be readily identified and destroyed. Sentries at night were posted in pairs and maintained absolute silence and immobility. In the rear constant patrolling is necessary to protect against snipers and infiltrating patrols.

Our forces advance cautiously into a palm grove on an island of Makin atoll, ever watchful for the Jap



FIELD ARTILLERY NOTES

Supporting Fires *Comments by the -th Division as Reported by XIV Corps, SOLOMON ISLANDS:* "The use of supporting artillery fires was often extremely difficult because of lack of accurate maps, lack of observation in jungle terrain, difficulty of ammunition supply due to poor roads and lack of transportation, and lack of communications. In spite of these handicaps the division artillery gave very excellent and timely support.

Liaison and Observation "Both a liaison officer and one or more forward observers from the direct support of artillery were used with each infantry battalion and were found to be essential to good results. Forward observers were pushed well into the front lines and maintained continuous contact with both front lines and the liaison officer. Because of the fact that the Japanese used only the jungle and reverse slopes for positions, little enemy activity was ever picked up by forward observers. Some adjustments were made by aerial observation. More would have been done had planes been available.

Control "The artillery was kept under centralized control since the division fought as one team, not as semi-independent regimental combat teams. However, the normal procedure of always assigning the same light battalion to direct support of a front-line infantry regiment was followed. In case only two regiments were in line the third light battalion was placed in general support.

Concentrations "Heavy concentrations of two or more battalions were the rule rather than the exception. Such concentrations are almost mandatory to obtain effective

results in the heavy jungle where the artillery targets were usually located.

Adjustment of Fire "In all cases of artillery support in jungle it was essential to start adjustments well in front of infantry troops and walk the fires in toward our troops under the direction of the forward observers. Initial adjustments on new terrain were carried out by using smoke.

Limitations "In many cases where artillery fire was highly desirable and would have been effective, it was impossible to execute fires because of the difficulty in locating our troops in the jungle. In one or two cases fires could be executed only by withdrawing troops temporarily from close proximity to enemy positions. However, this procedure is not recommended for general use against aggressive Japanese.

Effect of Fire "It is essential that if full advantage is to be taken of the effect of artillery fires, troops must advance into shelled areas immediately upon lifting fire. Due to the effective field fortifications used by the Japanese, the actual destructive effect of artillery fire in jungle is less than that normally to be expected. However, the shock effect was found to be considerable among those Japanese who had been exposed to serious artillery concentrations prior to attack.

Handling Smoke Shell *Artillery Operations Report, MUNDA Campaign*: "Smoke shell was placed in the sun for a few hours and then stored in a vertical position on the theory that an equal distribution of the filler was thus obtained. The theory was never proved conclusively, but all smoke fired was accurate, the only corrections applied being for weight of projectile.



TANK OPERATIONS

Tanks Can Be Used *Digest of Various Reports on Tank Operations in Jungle Country*: "Due to the closeness of jungle country and the nature of the terrain, employment of tanks in the jungle is necessarily different from the usual concept, but it has been proved that tanks, both light and medium, can be used in the jungle. They have been successfully employed in many instances to knock out enemy resistance holding up the advance. In most operations of this type from three to six tanks were employed with each infantry battalion. It was found that in dense jungle no more than three tanks could be successfully controlled at one time, and maneuver was almost impossible due to close country and lack of communications. The action was very slow, the tanks running for the most part in first gear and advancing only from 25 to 75 yards at a time.

Cooperation Necessary "Close cooperation and coordination with the infantry was essential for success. It was found best to assign a certain number of infantrymen to furnish close support for each tank and for the remainder of the infantry to follow the tanks closely in order to exploit their success. When the infantry came up alongside the tank casualties were high, and when the tanks, as they did in some cases, got ahead of their infantry support they were attacked by Japanese swarming over them, rendering their guns useless. The best results were obtained when the in-

fantry commander followed the tank commander closely so that direct communication could be effected, either by use of the walkie-talkie radio or by passing messages through the rear pistol port of the tanks.

Application of Fire Power "Supporting artillery and mortar fire were found advantageous for clearing fields of fire and disclosing enemy positions for the tanks to attack. In addition, the fire power of the tanks was used advantageously for the same purposes, canister being employed to clear fields of fire. 37-mm. HE shell was used most often. However, 37-mm. armor-piercing ammunition was used to knock holes in Japanese bunkers after which high explosive shell was fired through these holes, exploding on the interior of the position.

Jap Magnetic Mines "On several occasions, when close infantry support had not been effected, the Japanese were able to place magnetic mines or grenades against the sides of the tanks, causing some damage but no casualties. *It was found that canvas or neutral materials applied on the tanks made the magnetic mines slide off.*

Slow Work "Many of the tanks became incapacitated due to the fact that the going was so slow. Engines had to be run for long intervals in low gear which overheated them and caused vapor lock.

Routes of Advance "The successful employment of tanks was found to depend to a large extent on close and detailed reconnaissance of the ground, to include route reconnaissance, reconnaissance through the positions of friendly troops, and reconnaissance in the area in which the tanks were to be employed. In some cases it was found necessary to use engineer bulldozers to clear adequate trails for the

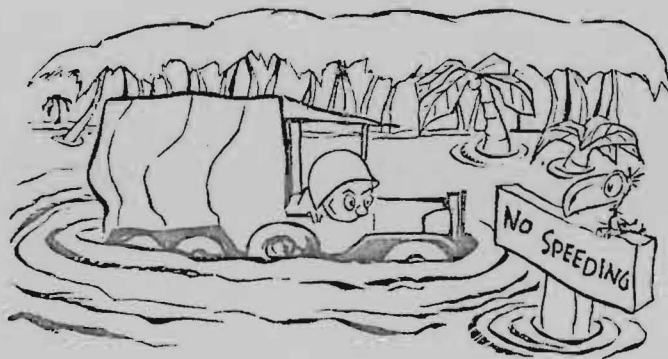
tanks to advance to the line of departure. In many cases it was found that the most unlikely route to the Japanese positions was the better one, due to the location in which the Japs placed their pillboxes and bunkers.

"Mass" "Wherever possible, tanks should be employed in mass, as in lightly wooded areas. In this country, however, it will seldom be practicable to employ more than a company at one time. Two or preferably three should be the minimum number of tanks used in any attack, since it is necessary for them to furnish each other mutual support against enemy infantry."



Limitations *Informal Report, XIV Corps, SOLOMON ISLANDS:* "Tanks can be used in jungle only in small numbers in very special situations. Their use should be confined to times when their objective has been definitely located and the route to the objective has been reconnoitered and found to be one over which a tank can move without stopping. Also it should be kept in mind that the movement of tanks is canalized by the terrain and that therefore they are easy prey to antitank mines and guns.

"There was only one instance of tank support during the combat of the 25th Division on Guadalcanal. In this case a single tank was used for attacking Japanese strong-points located between two hills and occupied by several hundred men. The tank itself was protected by a group of infantry following immediately behind, this group also being available to destroy any Japanese who attempted to shift positions or to escape. The 37-mm. canister and high-explosive ammunition proved highly effective in this operation."



TRANSPORTATION

Use of Vehicles *Informal Report, XIV Corps, SOLOMON ISLANDS:* "All types of TBA transportation found use. . . . The $\frac{3}{4}$ -ton truck is an excellent vehicle and will go anywhere the $\frac{1}{4}$ -ton truck will go, provided the passageway is wide enough, although they are more destructive to trails than the $\frac{1}{4}$ -ton. The $\frac{1}{4}$ -ton truck (jeep) was the most valuable single type of vehicle in any unit. Without this vehicle operations of the nature executed by troops of this division would have been impossible. In addition to normal use, it carried all types of supplies and equipment and was converted to an emergency ambulance for the evacuation of casualties.

Maintenance "Due to the condition of the roads, usage was extremely hard on all types of vehicles, and maintenance requirements mounted far above what might be considered as normal. In particular, the excessive wear on brake lining caused by the abrasive action of the deep mud and the salt water caused an early consumption of all available brake material and brake fluid.

AIR SUPPORT

Difficulties Encountered *Informal Report XIV Corps, SOLOMON ISLANDS:* "The air support of ground troops on Guadalcanal was an improvised affair. Its effectiveness was in a large measure due to the most cooperative spirit of the air units. Much more could have been done if air ground-support personnel and equipment had been available. Use of combat aviation was limited by the nature of the terrain and by the extreme difficulty of determining the exact locations of the enemy at sufficient distances from our own ground troops to make its employment safe or effective.

Targets "Marking targets or front lines for combat aviation in this type of terrain is particularly difficult and in many cases impossible. However, air attack by bombs and strafing were very effectively used in some instances where it was necessary to neutralize reverse slopes and deep ravines which could not be reached by any ground weapons.

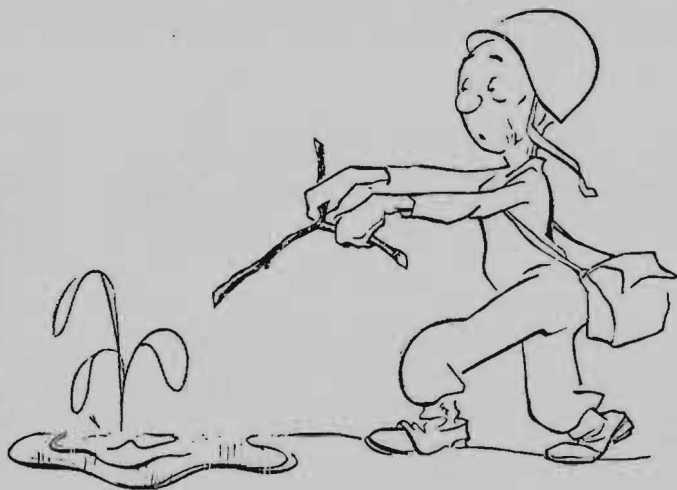
Liaison "The air liaison officer lived at division headquarters and when air support was indicated made personal visits to the front line units concerned in order to determine exactly where support was wanted. In all except one air attack the liaison officer then led the formation in the air to avoid placing bombs on our own troops and to insure striking profitable targets. This method is considered most satisfactory where air support is to be used in jungle areas. Unless areas which are to be attacked from the air are clearly defined on the map or ground the flight leader of aircraft to be employed should be shown his target on the ground and, where possible, should identify it from the air before the attack.

SUPPLY AND EVACUATION

Supply in the Jungle *Informal Report XIV Corps, SOLOMON ISLANDS:* "Most of the combat areas were utterly devoid of roads and impassable for motor vehicles. Although motor and jeep trails were pushed behind advancing troops as rapidly as possible, in almost every case the last mile to five miles of the supply advance had to be made by hand carrying.

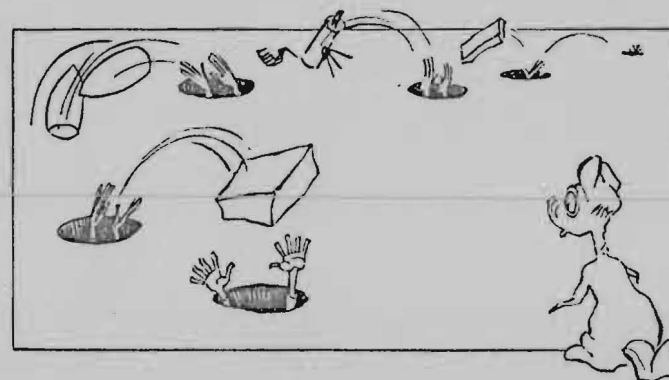
Water Supply "Constant reconnaissance was made for water supply along the routes of advance. Despite this, water was the most critical item of supply to front-line troops throughout the campaign, and had a definite relation to the progress of any offensive action. It was supplied to front-line troops in 5-gallon cans carried by hand from the nearest supply point or water tank, or from the head of the nearest

Always be on the lookout for good water!



jeep road. It was found that the use of catchments such as tarpaulins, drainage from tents, etc., proved of great help in water supply before and even after regular water dumps were established.

Necessity: Mother of Invention "In some cases the use of cables with trolleys was the only method of advancing



Keep supplies moving forward to the front line!

supplies or evacuating the wounded. Supplies on reaching the most forward units were sometimes thrown by hand from foxhole to foxhole."

The Supply Line "Supplies were pushed up from the rear, using the larger trucks to establish dumps as far forward as possible. Supplies were then transferred to jeeps or 3/4-ton trucks to push as far forward as this transportation could go. From this motor head supplies were transported by natives and soldier carriers to the using troops. In one instance, advantage was taken of the water routes, using

small powered boats and home-made barges to save a long carry by hand.

Ammunition Supply "Ammunition was carried forward in jeeps and by hand as with other supplies. Amounts sent forward were based on expenditures and estimated needs of the troops.

Evacuation Methods *Informal Report, XIV Corps, SOLOMON ISLANDS:* "Evacuation of casualties was by hand-carry, litter bearers, cable litter slings across jungle gulleys, improvised sleds, or drags down steep inclines, improvised litter racks on $\frac{1}{4}$ -ton jeeps, small boats on mountain streams or along the coast, and finally by field ambulances to clearing stations or hospitals.

—**By Litter** "Evacuation by litter bearers was difficult, tiring, time-consuming, and involved distances averaging two or three miles, and five to six miles in some instances. Many more litter bearers had to be utilized than under ordinary conditions. Litter carry in many cases required as high as 16 carriers per patient over almost impassable terrain and can be counted as least efficient. Where evacuation by litter was necessary, bearers worked in relays, 8 or even 16 men accompanying each litter, relieving one another in litter carry and in cutting narrow paths through the dense jungle.

—**By Jeep** "Improvised Jeep ambulances were invaluable and should be pushed forward as far as trails are possible to carry patients to the nearest point which can be reached by standard ambulance.

—**By Water** "Evacuation by water where it can be



Basic Logistics in Jungle Combat. Providing a hot meal for forward elements of the combat forces often involves hand-carrying food hundreds of yards through swamp and jungle.

used is efficient and far more comfortable for the patient than any other means.

Physical Fitness "The arduous and fatiguing litter carrying demonstrated the need for physical fitness on the part of medical department personnel, which should correct the impression that the physically impaired can be utilized throughout medical department activities."

Improvisation "Use was also made of improvised sleds to lower patients down steep hillsides to the Jeep trails or waterheads on the MATANIKAU RIVER.

Protection of Evacuation Routes "Armed protection was needed, either by detailing accompanying rifle men, or by arming medical personnel for personal protection as well as for protection of patients, and was necessary to maintain a steady flow of evacuation to the aid stations, to collecting or clearing stations, or to points where vehicle transportation was practicable.



Medical Notes *Artillery Operations Report, MUNDA Campaign:* "Medical supplies were adequate to handle any situation. The establishment of a small infirmary in connection with the aid station enabled us to hold many cases in 'quarters' that would otherwise have had to be evacuated and further strain the facilities of hospitals to the rear. The peep ambulance proved its worth in removing casualties from difficult terrain. The regular ambulance was invaluable also, not for hauling casualties, but as a mobile aid station at night. Heavy cardboard was used over the windows to provide a perfectly blacked-out, warm, dry, well-lit interior which greatly facilitated the provision of first aid, the giving of plasma, and other first-aid procedures.

"It was found necessary to store medical supplies very carefully to prevent deterioration from dampness, ants, and rats.

"The importance of thorough training in sanitation and preventive medicine cannot be overstressed."

WIRE COMMUNICATIONS

Stringing W-130 in the Jungle *Artillery Operations Report, MUNDA Campaign:* "One fast method of elevating W-130 wire was to slash trees at about shoulder height and lay wire in the gash between the trunk and the peeled-back bark. This obviated making a tie, which is the most constant cause of wire shorting. W-130 wire, when laid on the ground, shorted out or was broken within a few hours.

W-130 wire was found to be valuable for laying short lines to forward observers but went out quickly if it was handled or touched. It should never be used for lines of a permanent nature.

Test Stations "Test stations were established every two or three miles to expedite the location of breaks.

Sound Power Phones "The sound power phone was found to be the best type for forward observers. It is light in weight, and there is no ringing mechanism to give away the position of the observer at night. Also, of all equipment it is the least affected by dampness."

Under-Water Wire The maintenance of communication involved not only land but under-water lines. Under-water cable was laid from landing craft, and once in, it required practically no care. A considerable amount of W-110 wire was also laid under water and helped immeasurably in the early stages. In every case where W-110 wire was used under water it stayed in good operating order; the longest under-water lines were approximately one mile in length and were still in excellent working order when abandoned after about three weeks' use. Thirty to

fifty percent slack was used in laying wire under water and lines were not weighted down.

"Care had to be exercised in protecting the wire where it passed over coral formations and the edges of reefs, and to keep it clear of boat channels and landing beaches. New, unspliced W-110 wire will give good results when laid under water and will last indefinitely.

Security "In most cases a minimum of five men were sent out along wire lines. In many cases, such as along MUNDA trail, a larger security guard than was available was desirable. All men should be armed, preferably with carbines, whether carrying wire or not."

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