

Chapter XVI: *Fire and Movement*

Fire without movement is indecisive. Exposed movement without fire is disastrous. There must be effective fire combined with skillful movement.

IF THE ENEMY is allowed full mastery of his fires, any advance toward him in daylight will be penalized by heavy losses. Therefore the attacker resorts to various expedients to circumvent or nullify the enemy's defensive fires. An attack screened by darkness, fog, or smoke, is one method that may accomplish this end. Surprise is another. A skillful utilization of covered approaches is a third. But often the situation or the terrain precludes any one of these methods. Then must the enemy's fire be beaten down by our fire if we are to advance. Even when one or more of the other methods are used, the time will inevitably come when we must resort to fire to neutralize the enemy's defensive fires. In short, fire must be fought with fire—with more effective fire.

In modern war mere numbers cannot be used as a substitute for fire. If the attack lacks surprise or superior fire power, an increase in men will merely mean an increase in casualties. Thus it becomes a vital duty of the leader to take all possible measures to provide adequate fire support for his attacking troops. Nor does this responsibility devolve only upon the high command—it applies to all leaders from the highest to the lowest.

The attacker's scheme of fire is built up on what is often termed a base of fire. For large units the base of fire consists of supporting artillery. For the infantry battalion it is made up of machine guns and infantry cannon. But even the rifle platoon and squad may have a base of fire. For instance, a platoon may use its first section to fire on the enemy while the second section maneuvers to strike him in flank; in that case the first section is

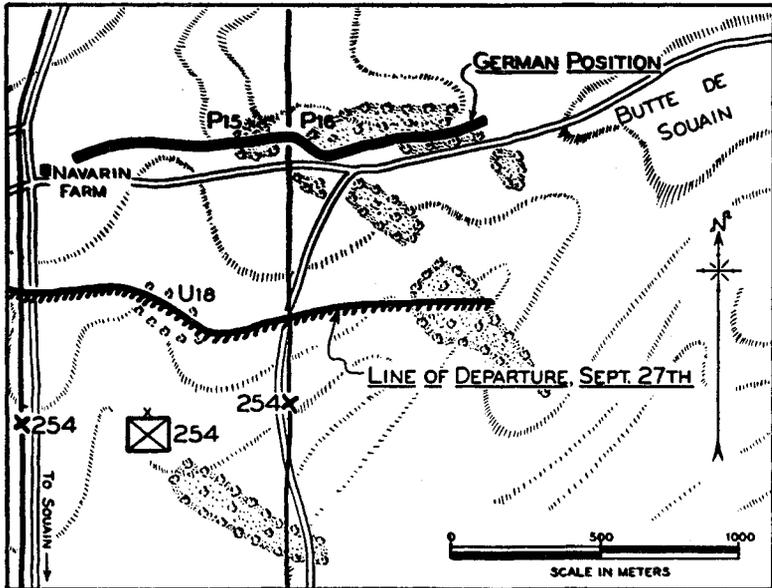
used as a base of fire. In the squad the automatic rifle may be used as a base of fire to cover the advance of other members of the squad.

The composition of the fire support as well as the method of employing it will vary widely with conditions. Often it will be found advantageous for the riflemen to approach the enemy from one direction, while the fire support from the base of fire is delivered from another direction. In any event the base of fire should advance as the attack progresses.

Riflemen cannot be expected to reply effectively to hostile machine-gun fire at long and medium ranges, particularly if it comes from a flank. The exact location of the guns is difficult to determine and to pop away at the countryside in the hope of neutralizing their fire is futile. Therefore, riflemen in the attack work their way forward under the protection of the fire of supporting artillery, machine guns, and light mortars; seldom do they fire at ranges greater than 400 yards.

Experience in the World War indicates that riflemen meeting with machine-gun fire at the longer ranges will either seek the nearest shelter and wait for the fire to cease or push forward without replying—depending upon the effectiveness of the hostile fire. When, however, the advancing riflemen get close enough to determine the approximate location of the guns, their own fire becomes an important factor in furthering their advance. It becomes of vital importance when the supporting fire of artillery, howitzer weapons, and machine guns, is compelled to lift. At this stage, attacking troops must cover the final phase of their advance into the hostile position by their own fire—or pay the price. Enemy machine guns that are still in action—and there may be many of them—should be overcome by pushing forward a few men to get on their flanks or in their rear under cover of the fire of the other members of the attacking groups. To rush machine guns, even with fire support of other riflemen, is costly; to attempt to do so without it is suicidal.

EXAMPLE 1. On September 27, 1915, the French 254th Brigade struck to the north with the mission of carrying that part of the German position which lay between the Navarin Farm and the clump of woods marked P15 (both inclusive). The brigade sector was some 800 meters wide.



Example 1

The attack order called for a deep column of assault with waves 300 meters apart. The 19th Battalion of Chasseurs, deployed in one dense skirmish line, would form the leading wave. Behind it would march the 355th Infantry (two battalions only), the 171st Infantry, and the 26th Battalion of Chasseurs.

The assault column would form prior to H-hour with each wave completely deployed in line of skirmishers. At H-hour all waves would move forward "and not allow themselves to be stopped either by obstacles or by enemy fire."

Thus a mass of 6,000 bayonets was to assault a front of 800

meters. Enthusiasm ran high, for this was the third day of a great French offensive—an offensive that would bring Germany to her knees. The troops were confident that the hour of decisive victory was at hand.

And so, at the appointed hour, this brigade of 6,000 high-hearted and determined men stood up and at the word of command fixed their bayonets, shouldered their rifles, and marched forward in quick time and in step to assault an intrenched enemy armed with machine guns. One can only surmise the thought in the minds of those German gunners as they saw the dense and serried waves of skirmishers marching stolidly toward them.

As the leading wave approached the German position the French artillery lifted and the enemy's artillery, machine guns and rifles opened with a concerted roar. The leading wave went down, the others surging forward were literally blown apart. In a matter of minutes the attack had melted away. A few men reached the wire in front of the German position, but there they were forced to take cover in shell holes. The entire brigade, nailed to the ground by a merciless fire, could do nothing but wait for nightfall.

During the night units were reorganized and the higher command ordered a resumption of the attack the next day. The new brigade commander (the previous one had been wounded) issued his orders. Zone of action and formation were the same as for the 27th. The attack order included the following:

The brigade commander insists particularly that it is with rifles on shoulders, bayonets fixed, and in good order, that the result will be achieved. Do not think of firing; just push on.

The attack was launched at 3:30 p.m., from a line only 200 meters from the German position. The massive column of assault rose, moved forward in step, and the events of the day before were repeated. Pinned to the ground, the débris of the brigade waited for night.

Under cover of darkness it managed to withdraw. Losses were more than fifty per cent and included nearly all the officers.

From an article by Lieutenant Colonel Ducornez, French Army, in "La Revue d'Infanterie," February, 1927.

DISCUSSION. The war had lasted more than a year when this attack was launched, yet we see the French still contemptuous of the effects of fire. No effort was made to utilize infantry fire power—in fact, firing was forbidden. The French sought to overwhelm the enemy by employing a massive column of assault—a formation of a bygone day which took no account of the annihilating power of modern weapons. The result is clear-cut. In attempting to win by movement alone, the 254th Brigade met with a costly reverse. Six thousand bayonets, massed on a narrow front, proved helpless against a far smaller number of defenders.

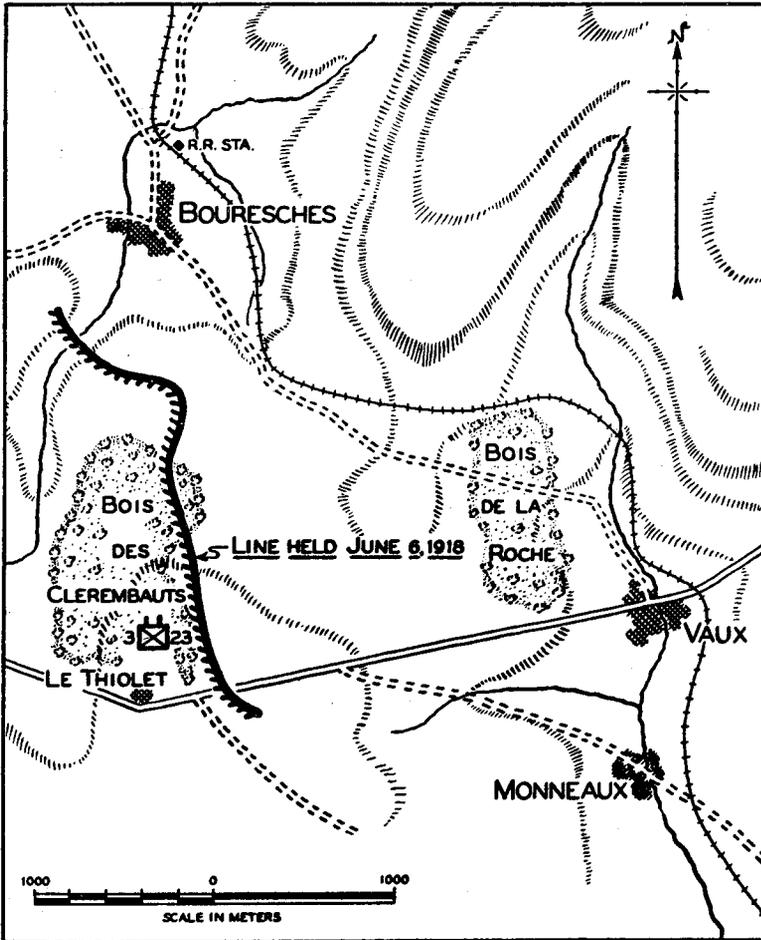
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EXAMPLE 2. At 3:15 p.m. June 6, 1918, the U. S. 23d Infantry received orders directing it to launch an attack to the east and northeast at 5:00 p.m. with two battalions in assault. It was planned to support the attack with a machine-gun company and the available one-pounders and Stokes mortars, but no arrangements were made for artillery support.

The time was inadequate for the necessary preliminary arrangements. The 3d Battalion attacked at 5:50 p.m. with companies K and M in assault—the company commanders literally gathering these companies together on the run and starting toward the enemy line.

The attack moved through a rolling wheat field toward its objective. Little, if any, supporting fire was placed on the German position as the riflemen advanced. When the battalion was deep in the wheat field, the enemy machine gunners opened fire from the front and flanks, inflicting heavy casualties and halting the attack. The battalion eventually withdrew to its original po-

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*Example 2*

sition. It had lost 8 officers and 165 men, virtually all from the assault companies, K and M.

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On July 1, 1918, the same battalion again attacked, this time from a line about 1,000 yards east of the position it occupied on

June 6. In the interim the regiment had received replacements and had been reorganized.

In this attack every type of fire support, including a rolling barrage, was utilized. One entire machine-gun company, one section of Stokes mortars and one section of 37-mm. guns, were attached to the battalion. Every detail for supporting fires had been completed.

The attack moved off promptly at 6:00 p.m. and advanced in perfect order. By 8:00 p.m. all units were on their objectives and consolidating their positions. More than a hundred prisoners and thirteen machine guns had been captured. After repulsing a strong counter-attack, supported by artillery, a check of casualties revealed the loss of four officers and 143 men.

From the personal experience monograph of Captain Withers A. Burress, Operations Officer of the 23d Infantry.

DISCUSSION. In this example we see the same unit attacking twice over practically the same terrain.

The first attack, notable for its lack of fire support, failed to attain its objective. Its only result was the temporary elimination of two companies from further combat usefulness.

The second attack clearly illustrates the effectiveness of adequate fire. Here, all available supporting weapons were brought to bear in order to further the advance of the attacking infantry. As a result, the same unit, but with less experienced personnel, overcame strong enemy opposition, and advanced to its objective in good order. Furthermore, it sustained fewer casualties than in its previous abortive effort.

The second attack was a limited-objective operation, prepared well in advance. In mobile warfare neither the time nor the matériel will be available for any such elaborate scheme of fire support, but by the same token the organization of the defense will usually be less complete. But be it trench warfare or open warfare, leaders must still bend every effort to provide their attacking troops with some form of effective fire support.

EXAMPLE 3. On July 30, 1918, the 1st Battalion of the U. S. 47th Infantry attacked to the north with companies B and D in assault, B on the right. No supporting fires had been provided.

Company D moved forward to the attack with the 1st and 3d Platoons in assault, the 1st Platoon on the right. After an advance of 250 yards the company came under fire. Thereafter, by dint of short dashes and crawling, the men succeeded in advancing the line some fifty yards farther, but here they were held up and here they remained for three hours with the enemy position only a little more than a hundred yards to their front.

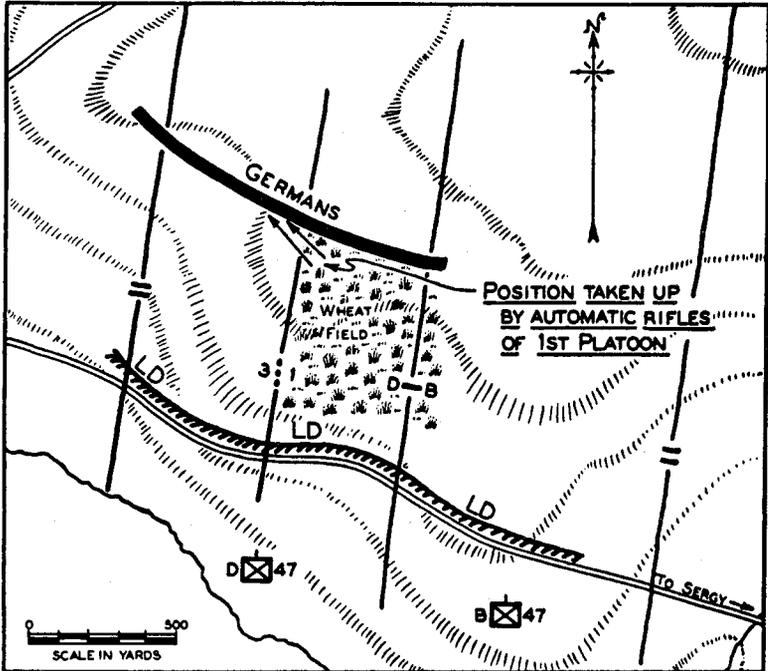
The situation looked bad, particularly for the 3d Platoon, which had been caught in the open ground in the left half of the company zone, where it was being systematically cut to pieces by machine-gun fire from the front and both flanks. All efforts to advance this platoon had failed. The 1st Platoon, pinned to the ground in a partially-cut wheat field, was not much better off.

After three hours of this a message came in from Company B stating that machine guns in front of Company D were holding up their advance and asking Company D to clean them up. Spurred to renewed action by this message, the company commander directed the 1st Platoon to work two automatic rifles forward to a point just within the northwest corner of the wheat field. They were to open fire to their left-front whether they saw anything to fire at or not, since the machine guns which had been holding up the 3d Platoon seemed to be located in that general area. The 3d Platoon was ordered to be ready to rush when the automatic rifles opened fire.

The automatic riflemen reached their position, saw some Germans and opened fire to the left-front. At the sound of the Chauchats the 3d Platoon rushed the hostile position, covering the intervening distance of 125 yards at a run. The resistance was promptly overcome, about twenty-five prisoners being taken in the assault.

From the personal experience monograph of Captain John W. Bulger, who commanded Company D of the 47th Infantry.

DISCUSSION. In this action no fire support of any sort had been provided for the 1st Battalion which was separated from its regiment. The battalion pushed forward 300 yards and then



Example 3

was nailed to the ground. For three hours it stayed there while its casualties mounted. Then the captain of the left assault company ordered a very simple maneuver. He had two automatic riflemen work their way forward through the wheat and open fire to the left-front. Under cover of this fire the 3d Platoon rushed and carried the position. The effectiveness of this simple expedient probably lay in the surprise effect of fire coming from an unexpected direction which required a new distribution of

enemy fire. In any event, this reasoned use of fire and movement plus a seasoning of surprise resulted, as it so often does, in success.

It is interesting to learn that Company B employed a similar maneuver at about the same time. One automatic rifleman and a lieutenant crawled forward on the extreme left flank until they reached a position considerably in advance of the rest of the company. The automatic then opened fire on the enemy to the right-front. The fire of this well-posted automatic rifle enabled Company B to resume its advance after it too had been held up for several hours. The German position was then quickly overrun.¹

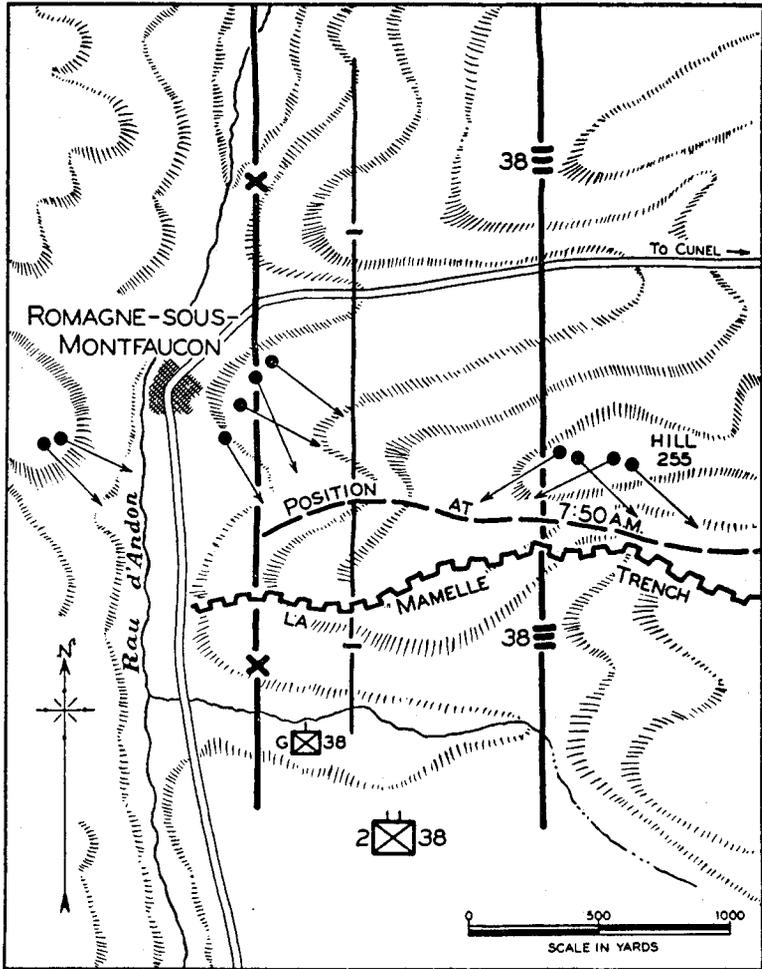
¹*Statement of Captain Jared I. Wood, who commanded Company B of the 47th Infantry.*

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EXAMPLE 4. At 7:30 a.m., October 10, 1918, the 2d Battalion of the U. S. 38th Infantry, with two companies in assault and two in support, attacked northward from la Mamelle Trench. Each assault company attacked in column of platoons.

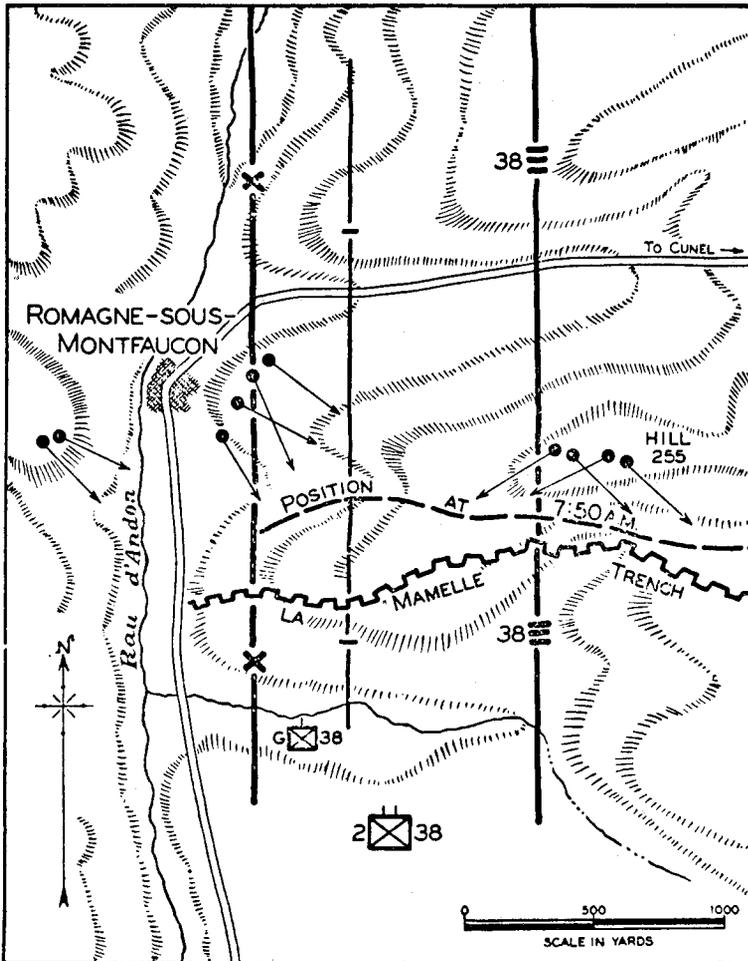
Company G, on the left, formed for the attack under shelter of the western nose of Hill 255 with the assault platoon in la Mamelle Trench and the other platoons farther down the hill. The scouts of the leading section were on the crest of the hill. At 7:30 a.m. the scouts moved forward unmolested, followed by the leading section in line of skirmishers. When this leading line reached the crest of the hill, it was met by heavy machine-gun fire and promptly disappeared from view. The sections in rear continued to move forward and piled up on those in front. Within fifteen minutes most of the company was pinned to the ground on the crest and northern slopes of the hill. The enemy artillery and machine-gun fire was so intense that the company was virtually paralyzed. In twenty minutes it suffered fifty per cent casualties.

The situation in the other companies was much the same.



Example 4

Units became intermingled and the few remaining leaders lost control. The battalion, unsupported by fire, was unable to make effective reply to the deluge of German fire which converged upon it from the town of Romagne-sous-Montfaucou, from the ridge west of that town and, most disconcerting of all, from



Example 4

the crest of Hill 255. By 7:50 a.m.—only thirty minutes after the jump-off—it was clear that the attack had failed. The battalion commander thereupon ordered a withdrawal to la Mamelle Trench. This was accomplished by individuals crawling back over the hill.

When the battalion withdrew, five or six riflemen remained on the forward slope of the hill. A lieutenant, commanding a machine-gun section, saw these men and ordered his guns to be set up near them. He then opened fire on the German position on the crest of Hill 255, from which the heaviest hostile fire was coming, and continued firing until his ammunition was exhausted. Then, led by the lieutenant, the riflemen and the gun crews rushed the position. Their charge was successful. Thirty-six prisoners and six machine guns were captured. The battalion was unaware of what had happened until the prisoners were marched into the American lines.

From the personal experience monograph of Captain Francis M. Rich, who commanded Company G of the 38th Infantry.

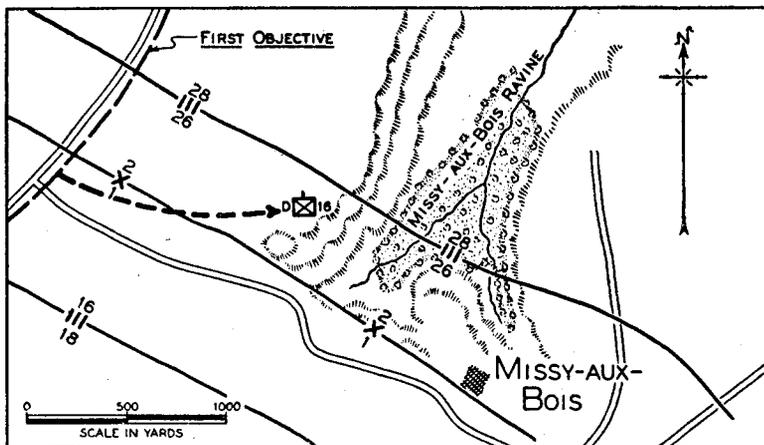
DISCUSSION. Here we see a battalion met by fire from three directions as it moved over the crest of a hill. The men were confused, control was lost, and the advance was definitely stopped. The reasons are clear. The battalion had no effective artillery support and it had not established a base of fire. In attempting to fight fire with movement alone, it merely offered itself as a target for the enemy. A few minutes of this was enough. It withdrew. The attack had failed.

Two machine guns and a few riflemen thereupon proceeded to accomplish more than the entire battalion. This small group began by placing heavy fire on the enemy on Hill 255. Here we see effective reply being made to the German fire; the Americans no longer had the exclusive rôle of targets. Then came the rush which carried the position. Movement combined with fire had again succeeded where movement alone had failed.

EXAMPLE 5. At dawn on July 18, 1918, the 1st Battalion of the U. S. 16th Infantry attacked eastward with two companies in assault and two in support. On the first objective, Company D

leap-frogged the assault company in its front and became the left assault company.

At 5:50 a.m. the advance was resumed. Smoke and the early morning mists limited visibility to a few yards. Shortly after



Example 5

this second advance began Company D lost contact with units to its left, right and rear. The advance, however, was continued. Suddenly the mist lifted and the company emerged on a small knoll on the western edge of the Missy-aux-Bois Ravine. Here it was stopped by concentrated enemy machine-gun fire from the front and both flanks. No friendly troops were in sight. The entire company was withdrawn in rear of the knoll. Patrols were sent out on each flank but the enemy fire was so heavy that any advance beyond the crest of the knoll was impossible. Enemy machine guns had been placed to rake the ravine.

Shortly thereafter, and much to the surprise of the company commander, four French tanks appeared from the rear and moved into the position of Company D. These brought down still more fire. The captain of Company D immediately took

charge of the tanks and pointed out to the French lieutenant in command those targets which had been located. The tanks moved straight across the ravine under a hail of enemy fire and then turned south down the ravine toward Missy-aux-Bois, wreaking havoc among the enemy machine-gun nests.

When the tanks left the ravine, the company moved forward. Only one enemy machine-gun opened fire as the line crossed the crest of the knoll and advanced into the ravine.

From the personal experience monograph of Major Leonard R. Boyd, who commanded Company D of the 16th Infantry.

DISCUSSION. As so often happens in war, this company suddenly found itself in an unusual and unexpected situation. The lifting fog revealed that the company had gone astray. Contact had been lost with all friendly troops and with all weapons that had been supporting the advance. Such were the conditions in which this isolated unit stumbled against the strongly held Missy-aux-Bois position and there it was stopped in its tracks by a storm of machine-gun fire from the front and both flanks. Further advance was impossible.

Then came the tanks—literally a *deus ex machina*. Here were supporting weapons indeed; here was a base of fire—a *moving* base of fire—that could and did silence the murderous machine guns. Thus did Company D gain the fire superiority that enabled it to resume its advance.

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CONCLUSION. From the time infantry becomes exposed to the fire of hostile infantry, fire and movement become inseparable. At the longer ranges, supporting weapons will furnish the fire and the riflemen will furnish the movement. This fire must be adequate and it must be effective if the infantry is to close to assaulting distance and still have strength enough to storm the position.

As the infantry nears the hostile position the supporting fires are forced to lift. Then must the riflemen themselves furnish both the fire and the movement. At this stage, fire without movement is useless and movement without fire is suicidal. Even with both, the last hundred yards is a touch-and-go proposition demanding a high order of leadership, sound morale, and the will to win.

Chapter XVII: *Fire of Machine Guns*

Machine guns affect the outcome of battle by fire power alone. Guns that have not fired have not attacked, no matter how many times they have been placed in position.

THE MACHINE GUN acts by fire alone; movement of this weapon has no other purpose than to secure positions from which more effective fire can be delivered. Maximum usefulness is obtained only when every gun within range of the enemy is firing effectively against him.

Studies of the use of machine guns on the Western Front disclose the fact that while some machine-gun companies performed many and varied fire missions, others performed few fire missions, and had no effect upon the outcome. Some commanders made great use of their machine guns; others merely had them tag along.

Leaders must know what the guns can do before the attack starts, what they can do while the attack is in progress, and what they can do during reorganization and consolidation. They must learn to seek and to recognize opportunities for employing machine guns in every phase of the action. Finally, they must have the aggressiveness to keep everlastingly at the task of getting the guns forward, so that when opportunity does present, they will be able to seize it.

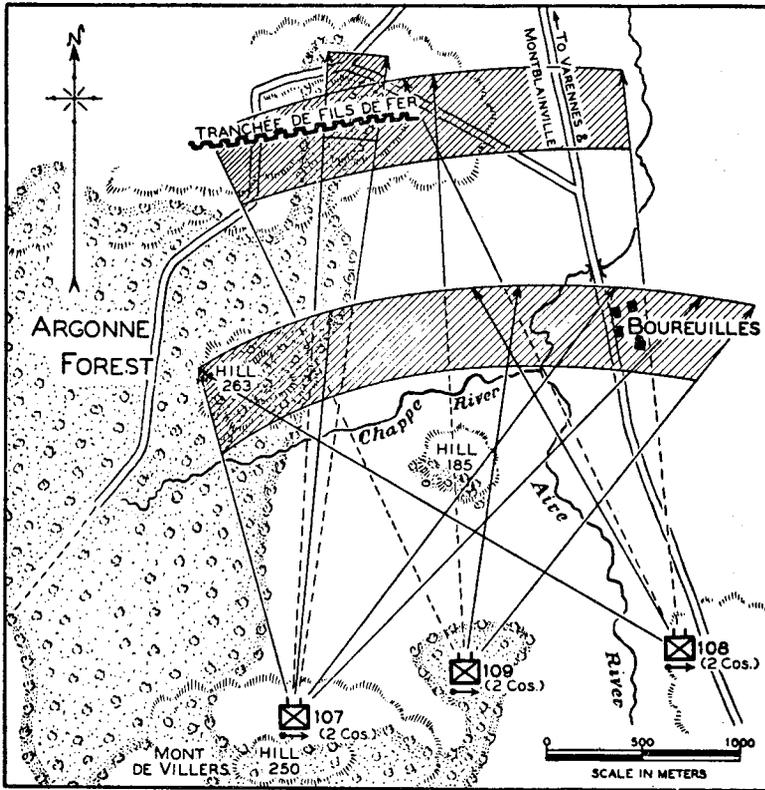
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EXAMPLE 1. In the opening phase of the Meuse-Argonne offensive the well-seasoned U. S. 28th Division was given the mission of outflanking the Argonne Forest on the east.

Of the division's fourteen machine-gun companies, eight were ordered to support the assault battalions. The division machine-gun officer was directed to draw up a plan for the effective em-

ployment of the other six. These six companies were used in the following manner:

The 108th Machine-Gun Battalion was assigned tasks in the left half of the division zone and the 109th Machine-Gun Bat-



Example 1

talion in the right half. The four companies of these two battalions were to fire initially upon the enemy front line from Boureuilles to Hill 263, inclusive, then to lift to the Fils de Fer. One company of the 107th Machine-Gun Battalion was directed to fire initially on Boureuilles and the other upon Hill

263, after which both were to place an enfilade barrage along the edge of the forest.

It was all long-range fire, and much of it had to be delivered by indirect laying. Reconnaissance for positions was necessary and data had to be prepared, checked and rechecked. T-bases were put in and the guns placed in position. Each company was required to have 60,000 additional rounds of ammunition. Fire was to be delivered at the rate of 100 rounds per gun per minute. D-day and H-hour were announced as 5:30 a.m., September 26, 1918.

The actual occupation of positions began late in the afternoon of September 25. Despite difficulties and the great amount of preparation, checking and coördinating, everything was in readiness well in advance of the hour set for the jump-off.

At 2:30 a.m. the artillery preparation started. Shortly before H-hour, the machine-gun barrage commenced on schedule and as planned. Fire from guns of all calibers poured into the German position.

The advance began. During the day the left brigade carried Hill 263 and pushed on into the edge of the forest. The right brigade took Varennes, and then pushed up the Aire valley as far as Montblainville. Strong resistance was met but at the end of the day this alleged "impregnable position" had been successfully penetrated.

From the personal experience monograph of Major Stuart C. MacDonald, who was Machine-Gun Officer of the 28th Division.

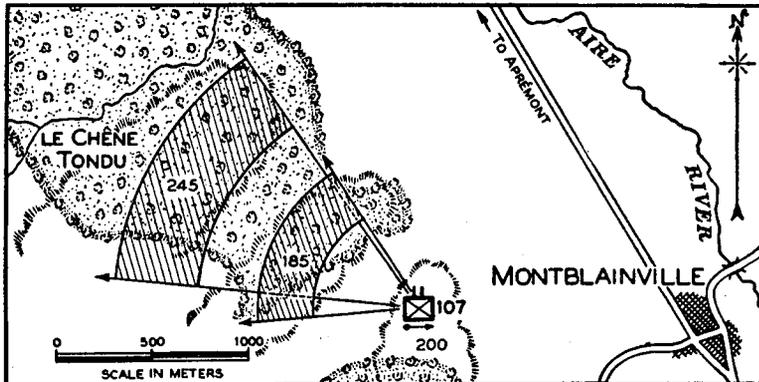
DISCUSSION. This example shows that even when in reserve, machine guns may be used to good purpose during the initial stages of an attack.

Commanders of regiments and larger units must seize opportunities to use all the supporting fires their organization can furnish. Guns of reserve battalions are available for these missions and should be so employed. If they remain silent, they exert no influence upon the outcome of battle.

Of course, preparatory and supporting fires cannot eliminate the enemy, but they can reduce his defensive power by inflicting casualties, by making his fire less effective, by lowering his morale, and by interfering with his movement and reinforcement. The defense may thus be weakened to such an extent that the attackers can assault the position with a reasonable chance of success and without prohibitive losses.

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EXAMPLE 2. This example is a continuation of the operations of the 28th Division in the Meuse-Argonne. The next day, September 27, an unsupported rifle battalion attempted to advance to le Chêne Tondeu but was driven back after suffering heavy casualties from machine-gun fire. It was reforming for a



Example 2

second attempt when the division machine-gun officer arrived. This officer promptly arranged with the commander of the rifle battalion to support the attack by machine-gun fire. He brought up the 24 guns of the division machine-gun battalion (the 107th) and secured other guns from the 109th Machine-Gun Battalion, which was nearby. These guns were placed in position

on the forward slopes of a commanding ridge from which the attack could be supported by direct overhead fire.

All was now ready, but there were no targets. There were no enemy columns, no enemy groups, no visible enemy trenches or other works. Nevertheless, the enemy was there and the American machine gunners knew a way to get at him.

Each pair of guns was given an initial mission of firing upon the first wooded ridge. This fire was to start two minutes before the battalion jumped off, and was to continue until masked by the advance. When this occurred, all guns would lift to le Chêne Tendu. In neither case were there any definite targets; therefore area fire was to be used and this was to sweep again and again through the suspected German positions. This plan, although worked out rapidly, was carefully coördinated.

When the American machine guns opened, the Germans attempted to silence them by fire. This failed, for the guns were well concealed and the German fire, directed at the summit, passed harmlessly overhead.

The attack succeeded. The assault units met no resistance whatever.

From the personal experience monograph of Major Stuart C. MacDonald, who was Machine-Gun Officer of the 28th Division.

DISCUSSION. This operation illustrates how machine guns may be used to aid assault units when they get into difficulties after having left the initial line of departure.

Whether this success was brought about because the machine guns found their targets and drove the Germans out, or because the Germans recognized this as a properly supported attack and withdrew to a new position in accordance with a prearranged plan, is not definitely known. But whatever the cause of the German retirement, the facts are that the unsupported attack failed with heavy losses, while the supported attack succeeded with no known casualties.

Two factors contributed to the success of the second attack:

the first, and most important, was the willingness of the rifle battalion to try again; the second was the presence of a machine-gun commander who saw something his guns could do and did not hesitate to offer them for the mission. Apparently no one had ordered this machine-gun commander to find this particular assault battalion and help it. He didn't wait to notify anyone or to get authority for this use of his guns. Instead he went to another battalion and borrowed more. He saw an opportunity to affect the outcome of battle by the use of his guns and seized it.

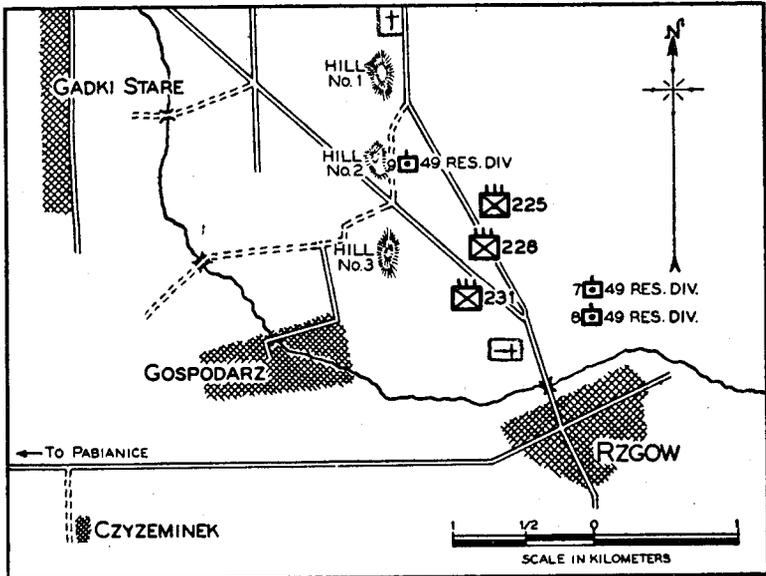
The ideal target seldom occurs in battle. Rarely will even small groups of the enemy be seen. But the absence of definitely located targets is not a bar to firing. If the enemy is thought to occupy an area, that area may be swept with fire to seek him out. Generally, the area in which he is located will be determined by the resistance encountered in the advance and this knowledge will afford the machine guns their opportunity. The machine gun is a suitable weapon to employ against areas. It has the necessary volume of fire and delivers it on a long and narrow beaten zone. It can be traversed uniformly to cover wide areas, and raised or lowered to cover deep ones. By searching critical areas, valuable results may be obtained from guns that might otherwise serve no useful purpose.

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EXAMPLE 3. On November 21, 1914, the German 49th Reserve Division had been roughly handled by the Russians. A powerful Russian attack had carried the three small hills north of Gospodarz, captured the 9th Battery, and driven back the 225th, 228th, and 231st Infantry Regiments, which had been defending the hills.

Shortly before dawn of November 22 these three German regiments attacked to the northwest in an effort to retake the three hills and the lost battery. The 228th Infantry, in the center of the line, was charged with the recapture of Hill No. 2 and the

9th Battery. The 225th Infantry, attacking on the right, struck at Hill No. 1 and the 231st Infantry, on the left, at Hill No. 3. The gruelling campaign had reduced all three regiments to skeleton strength; not one could muster more than a few hundred effectives.



Example 3

It was still dark when the attack jumped off. The 228th Infantry, with its left following the left branch of the road from Rzgów, drove forward rapidly and soon recaptured the lost battery. At this point it became apparent that the 228th had outdistanced both the 225th and the 231st, for in addition to the heavy frontal fire from Hill No. 2, this hard-driving regiment was now taken under a murderous cross-fire from Hill No. 1 and Hill No. 3.

In an effort to escape this fire the 228th pushed forward to the shelter afforded by the slopes of Hill No. 2. Here it found

comparative security from the Russian machine guns but it also found something else: it found that the German artillery was shelling Hill No. 2 and that much of this fire was falling squarely in the ranks of the 228th. The situation was critical: the regiment could not advance; it could not stay where it was; and if it withdrew it would again come under machine-gun fire from three directions. The regimental commander decided that a withdrawal was the best of three very bad choices and accordingly ordered his command to fall back to the battery position.

So back the regiment went while the Russian guns swept it from flank to flank. Back in the battery position they sheltered themselves as best they could and waited. The enemy's machine guns continued to rake the position. No man dared lift his head.

And, then, the men of the 228th suddenly heard German machine guns firing to their left and right. The sound and the tempo were too characteristic and too familiar to be mistaken. As this German fire increased in volume and intensity, the fire on the 228th steadily dwindled. Men began to lift their heads and look about.

Suddenly Lieutenant Kuhlow, the only unwounded officer of the 228th, seized a rifle with bayonet fixed, leapt to his feet, and shouted, "*Vorwärts! Kameraden, folgt mir! Auf, marsch, marsch!*" and started for Hill No. 2. "That cry," says the German account, "held magic." The remnant of the 228th—"there may have been a hundred men in all"—surged after their leader. This little German group swept up the disputed hill. "The Russians fired to the last minute," says the account, "and then surrendered."

From "The Experiences of the 49th Reserve Division in the Campaign of Lodz, November 22, 1914."

DISCUSSION. Here are two perfect examples of machine guns used to assist adjacent units—one by the Russians in defense, one by the Germans in attack.

Opportunities to assist adjacent units by fire constantly occur in battle. In the attack some units advance faster than others; these will have enemy positions on their flanks. Often these positions may be subjected to enfilade or reverse fires from machine-gun units that have gone forward with the riflemen. By taking advantage of such opportunities, adjacent units are helped forward and, at the same time, serious threats are removed from the flanks of the more advanced units.

On the defensive, similar opportunities to assist adjacent units by fire will be frequent. The first penetrations of a defensive line will be made on a limited front. By cross fires from adjacent positions as well as by prompt counter-attack, the penetration may be stopped and the enemy ejected.

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CONCLUSION. The foregoing examples illustrate the use of machine guns in the attack. Good illustrations of this use of heavy machine guns by American troops in the early stages of the World War are none too frequent. In view of the innumerable examples that are available to show the decisive influence of this powerful weapon in defensive operations, the shortage of good attack illustrations is significant. It strongly indicates that the possibilities of machine guns as an adjunct to the attack were not fully appreciated until the war had nearly run its course. In the earlier American attacks, machine guns were seldom assigned specific fire-supporting missions. The idea seems to have prevailed that machine guns were fulfilling their mission as long as they maintained their place in the formation.

The following quotation from Colonel Walter C. Short's book, *The Employment of Machine Guns*, bears on this point:

In the 1st Division at Soissons on July 18, 1918, the machine-gun companies were broken up and three machine guns were assigned to each infantry company. These guns were practically all placed in the first wave of the company to which attached. Almost the

only order given to the machine gunners was for them to take their places in certain waves. I talked with practically all infantry battalion commanders and machine-gun officers of the 1st Division after this fight, and I found no case where an order had been given for the machine guns to support the advance of the infantry with fire. The order had been invariably to take a certain place in the formation. The machine gunners had generally interpreted the order literally. They took this position in the formation and kept it. They were not interested in finding opportunities for shooting their guns nearly so much as they were in maintaining their position. The results were most serious. The machine-gun companies suffered very heavy casualties and accomplished practically nothing except during the consolidation. One company lost 57 men without firing a shot. Another company lost 61 men and fired only 96 rounds. This is typical of what happened to a greater or lesser extent throughout the whole division.

Later on the Americans began to realize some of the possibilities of the machine gun. Again quoting Colonel Short:

At St. Mihiel the 90th Division made practically no use of its machine guns. On the contrary, on November 1 it fired over 1,000,000 rounds with the machine guns, and practically all day the infantry advanced under the protection of machine-gun fire. The 2d Division at St. Mihiel used only 8 out of 14 companies at the beginning of the fight. On November 1 this division not only used all of its own guns but used 10 companies of the 42d Division. The 5th Division at St. Mihiel used only 8 out of 14 companies at the beginning of the fight. In the early part of November this same division was using overhead machine-gun fire to cover the advance of its exploiting patrols. These three divisions are typical examples of the great strides that were made in the use of machine guns during the last few months before the Armistice.

Although machine guns lend themselves more readily to the defense than to the attack, this is no excuse for a failure to exact the utmost from them in support of advancing troops. The handicaps to their effective employment in the attack can and must be overcome. An intelligent appreciation by battalion and regimental commanders of their power and limitations is essential and this must be supplemented by the determination

to get the guns forward and use them. For their part the machine-gun units must be on the alert to seize and exploit every opportunity to assist the forward movement of the rifle units, without waiting for specific orders to engage a particular target or locality.

Chapter XVIII: *Infantry-Artillery Team*

The effective functioning of the infantry-artillery team depends upon the intelligent and unremitting efforts of both members to solve the difficult problem of liaison.

WHEN INFANTRY has room to maneuver, or is not faced by strong continuous resistance, it may be able to advance with little or no assistance from tanks and artillery. This situation may arise when the enemy is not determined to hold, or after the rupture of his position. On the other hand, when confronted by determined resistance from a strong enemy who is well equipped with machine guns, infantry requires all possible assistance from the auxiliary arms, particularly the powerful help of the artillery, in order to have any chance of success.

In our problems and exercises we have adopted a liaison technique which permits infantry-artillery teamwork, but does not insure it. Mere physical and intellectual liaison between these two arms is not enough; there must be moral liaison as well. The infantry must know and trust the artillery; the artillery must know and trust the infantry.

Let us examine some of the many difficulties the infantry-artillery team meets in the attack. Let us assume that a battalion has an artillery liaison officer with it, that communications are working, and that in the initial stages of the attack the artillery can fire its concentrations either on a time schedule or by direct observation of the infantry's advance.

So far so good, or at any rate, not so bad. But now what happens if the infantry goes too fast, or not fast enough, for a time schedule of concentrations? What happens if it goes through terrain where it and the enemy are both lost to view of artillery observers?

Usually it will not be long before our battalion strikes a snag. The problem of infantry-artillery liaison then becomes acute. Pinned to the ground, platoon leaders have only a vague impression of the sources of hostile fire, and that impression may be in error.

Although it will seldom be true, let us assume that all officers are provided with adequate maps. Let us further assume that some of the enemy can actually be seen. Subordinate leaders must now transmit this information to the rear, together with the locations of their own units. Just how accurately will these platoon leaders be able to locate this hostile resistance on the map? How precisely will they indicate the positions of their own troops? Remember, this will not be done in the academic quiet of the map-problem room, but in the confusion and stress of battle; not on new, unfolded maps, but on maps that are muddy, wet, and wrinkled from a hundred folds. Under such conditions, just how legible will this information be?

The message goes back by runner and eventually reaches the battalion commander. This officer still has to formulate his request and, through his liaison officer, transmit it to the artillery. Even if we assume that this message is clear and accurate and contains all that the artilleryman must know, there are still other factors to be considered. The message may be long and involved. The artillery has to receive it, may have to compute data, and then has to get on the target. Even if everything is accomplished with 100% efficiency and good luck, how long will it all take? In exercises we do these things in a few minutes; in war they often take hours. The artillery may lack ground observation. The infantry's request may be incomplete or inaccurate. Communications may break down. These and a thousand and one similar obstacles may arise that must be overcome before the artillery can come to the aid of its partner.

Here are the things that artillerymen must know: accurate location of the target; nature of the target, whether it is an

enemy machine gun, a line of foxholes, or a counter-attack; the location of the front line of friendly troops; when the fire is to start; and, finally, when it is to stop. Unless it has this information, the artillery can not respond effectively to the calls made upon it by the infantry it supports. But how often and how fast can the infantry furnish this? Artillery observers seldom know all of it unless they are told. They can see something, but not everything.

As a result of the lessons of the World War, we shall probably avoid some of the more common errors we made then. For instance, the artillery liaison officer will certainly not be chosen for his uselessness to the artillery, as seems to have been done in some cases.

We have a good mechanism, we prepare and number the concentrations that are likely to be needed, and we are well-schooled in theory. But how many infantry units frequently participate in exercises in which artillery is represented, and infantry-artillery liaison emphasized, when there is anything beyond the transmission of a routine message or so? Has the infantry been practiced under battle conditions, in transmitting requests to the artillery quickly—requests that the artillery finds adequate for fire on unexpected targets?

Unless infantry considers the artillery in all its actions, it is headed straight for trouble!

In many instances in the World War, artillery gave extremely effective support to the infantry. If we expect this to be normal we must make it normal. We must be prepared to deal with the difficult situation as well as the situation that solves itself. The infantry-artillery team is not a fair-weather partnership. For this reason the historical examples that follow deal largely with situations in which infantry-artillery teamwork was not attained or was difficult to attain.

EXAMPLE 1. On August 22, 1914, the French Fourth Army

advanced northward in several columns. One of these columns, composed of elements of the XVII Corps, moved on Anloy via Jehonville. Although the situation was vague, the enemy was believed to have strong forces in the area Maissin—Anloy—Villance.

The advance guard of the French column, a battalion of the 14th Infantry, pushed through the woods north of Jehonville. At the north edge it ran into a violent and well-adjusted system of enemy fires and was unable to debouch. The other battalions of the 14th quickly entered the line and attacked. Although the regiment attacked again and again, it was uniformly unsuccessful. Each effort was repulsed with heavy losses. Another regiment, the 83d, moved to the west through the woods and attacked from that direction, but with no better result.

Meanwhile, what was the artillery doing? There were three battalions of artillery in the column. One battalion passed positions from which it could act to the north of the forest, and assembled in close formation in a dip northwest of Jehonville; the other two waited in rout column at Jehonville for orders that never arrived.

Of all this artillery only one battery went into position. This was located on the northwest slopes of Hill 435 behind a clump of trees. Although there was no observation post at hand that afforded a view north of the wood, the battery was nevertheless firing. (At this time French wire equipment was so limited that observation had to be close to the guns.)

A staff officer of the XVII Corps rode up to the battery commander and asked, "What are you firing on?"

The indignant artilleryman replied, "I am firing on the order of the general and on nothing else."

He had no target, and he was being very careful to fire "long."

From "The Combat of Infantry," by Colonel Allèhaut, French Army.

DISCUSSION. In this example the French infantry acted as

if the artillery did not exist. The artillery for its part, failed to solve a difficult problem but one that will be soon encountered in any war. There are lots of wooded areas in this world.

There was not the remotest indication of any infantry-artillery liaison here, and yet Colonel Allèhaut thinks that perhaps the artillery did some good. He says:

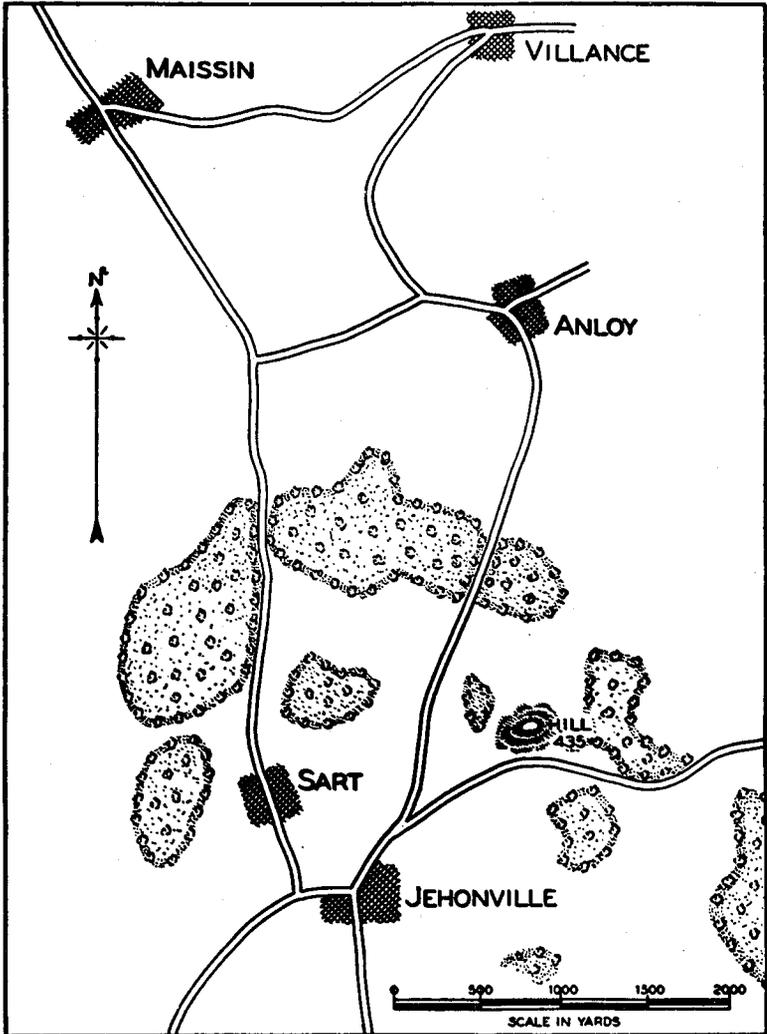
Let us not forget that on this part of the battlefield infantry was succumbing to the combined fires of German machine guns and artillery. The voices of the cannons of this one battery were all that bolstered this infantry's impression that it had not been abandoned to its tragic fate. . . . The morale of the infantry of this column was rated among the best on this day. . . . [Perhaps] it was due to the illusion of support created by this one battery firing "into the blue."

Illusion may be better than nothing, but when it comes to artillery support of infantry what is actually needed is *reality*.

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EXAMPLE 2. On July 18, 1918, Battery A of the U. S. 7th Field Artillery formed part of the artillery supporting the 28th Infantry (1st Division). The initial artillery support was to take the form of a rolling barrage. Telephone wires had been installed, liaison detachments had gone to their respective headquarters, and H-hour (4:35 a.m.) found the battery in position, prepared to take its proper part in the attack.

In this operation the artillery battalion commander had been ordered to accompany the infantry commander whom he was supporting; this in addition to the usual liaison officer furnished the infantry. Since there was no executive officer provided at that time in the artillery organization, the senior battery commander was detailed to act in this capacity in the absence of the battalion commander. The commander of Battery A took over this duty. The procedure had certain disadvantages. To quote Captain Solomon F. Clark:



Example 1

Messages from the infantry came through the battalion commander. Messages, orders, fire charts, etc., from the artillery brigade, invariably came direct to the battalion C.P. near the batteries. This procedure practically deprived the artillery battalion commander of the ability to control his unit, and resulted, in those cases where it was followed to the letter, in command being assumed by junior officers for considerable periods of time.

At 4:35 a.m. the batteries opened. No caterpillar rockets were seen, so the artillery concluded that it was not firing short. Liaison officers soon reported that the barrage was satisfactory.

The attack progressed and Battery A displaced forward. On the way, a runner from the artillery liaison detachment met the battery. He delivered the following message:

From: Liaison Officer

To: B.C. Battery A.

The liaison detachment has captured a Boche 77 battery at (coördinates). They are marked "Battery A, 7th Field Artillery." Please have the limbers take them out.

2D LIEUT. _____
Liaison Officer.

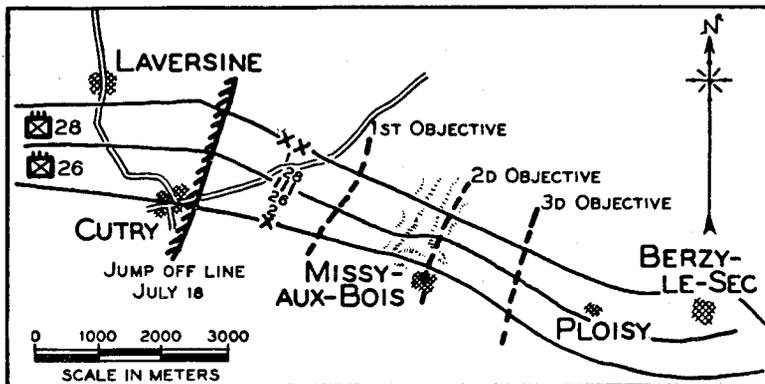
The liaison officer with his detail of a half-dozen men had gone over the top with one of the assault companies of the 28th Infantry. In the fighting near the Missy-aux-Bois Ravine, the platoon to which he had attached himself became separated from the others. Soon the platoon commander found himself out of contact on left and right. The lieutenant, who had never fired a rifle, became engaged in a duel with a German sniper and was wounded in the arm. To quote Captain Clark, "It may be easily imagined that liaison under these conditions practically ceased to exist."

Late on the morning of the 18th the commander of the artillery brigade visited Battery A. He stated that the infantry had far outrun the artillery fire, that they were at that time near Berzy-le-Sec, and that their front line was beyond the artillery's maximum range. Reconnaissance parties were sent out and, after some time, determined the location of the front line. It was

by no means as far advanced as Berzy-le-Sec. In fact, the infantry did not take that town until several days later.

From the personal experience monograph of Captain Solomon F. Clark, Field Artillery.

DISCUSSION. The 1st Division had been in training in France for more than a year and had had six month's experience in the front line. It had participated in a limited objective attack



Example 2

at Cantigny. It was accustomed to the idea of liaison officers and was determined to solve the problem of tying in its artillery with the infantry. Is it reasonable to expect that the average division will be better prepared?

At the start of the attack liaison was perfect. The form of support—a rolling barrage—facilitated this at first. The rolling barrage, which lifts on a time schedule and moves forward, starts with the infantry but thereafter it may be either too slow or too fast. In one case it retards the infantry; in the other it outruns them, failing to give support where and when support is needed. However, "lifts" on a time schedule can solve the early part of the problem if the infantry and artillery have been coordinated beforehand.

The real trouble develops later. For instance, in the foregoing example, the artillery brigade commander was completely in error as to the location of the front-line infantry. It is obvious that unless the artillery knows the infantry's location it is going to hesitate to fire. Yet, despite this natural reluctance, it is only necessary to read the personal experiences of front-line infantry leaders to realize that all too frequently artillery does fire on its own troops. In fact, General Percin, of the French Army, estimates that 75,000 French casualties were caused by French artillery during the last war. American artillery frequently faced the same indictment.

It is infantry-artillery liaison that seeks to remedy such conditions and that strives to promote a more smoothly functioning partnership. This should be borne in mind when the artillery liaison officer reports to the infantry commander; an immediate conference should follow, and not a perfunctory one either. The infantry commander should thoroughly acquaint the liaison officer with the situation, and in turn be thoroughly acquainted with the artillery plan, the location of the artillery's OP's, the plan for displacement of observation, and the terrain the artillery commands with its observation and fires. Infantry should also have a clear understanding of the work of the liaison detail itself. During the World War an infantry commander often told his liaison officer, "You stay here," and then promptly forgot all about him.

The artillery believes today that a liaison officer, unless definitely needed at the front to check or observe fire, should stay with the infantry battalion commander. The artillery liaison sergeant remains at the command post in the absence of the battalion commander and the liaison officer. He keeps abreast of the situation and is authorized to transmit requests for fire. If the liaison officer is at the command post, the sergeant goes to the observation post.

In the example we have just examined, the artillery liaison

detail displayed great gallantry. They rivalled their infantry comrades in pushing forward against the Germans, but they did not do the job they were sent forward to do.

The infantry-artillery liaison mechanism existed then in much the same form it does today. The troops were better than the average that can be expected in the opening stages of any future war, and yet late in the morning of this attack "liaison practically ceased to exist."

Prearranged fires, assignment of specific artillery units to support specific infantry units, and the dispatch of liaison officers from artillery to infantry will not by themselves insure infantry-artillery teamwork.

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EXAMPLE 3. On August 20, 1914, the French 59th Division held a position near Nancy with outposts generally along the Seille. One battalion of the 47th Field Artillery, facing north and northeast, was located near Mt. Toulon and Mt. St. Jean. The 28th Battery was at B-1 with its observation at O-1, 300 meters in advance. The 27th had its observation on Mt. Toulon, and the 29th, farther east, had its observation on the spur to its front. The terrain permitted observation far to the front and to the east.

On the morning of August 20 the officers of the 28th and 29th Batteries were at the observation post of the 29th Battery with their battalion commander. To the east they heard an uninterrupted cannonade. It was known that the French Second Army had advanced in that direction. The 59th Division remained facing toward Metz. Beyond this the battery officers knew nothing of the situation.

About 10:00 a.m. a single shrapnel and a little later a salvo burst over Nomeny, where a French infantry company was on outpost. The captain of the 28th Battery rushed back to his O.P. The cannonade on Nomeny became more intense, then a sharp

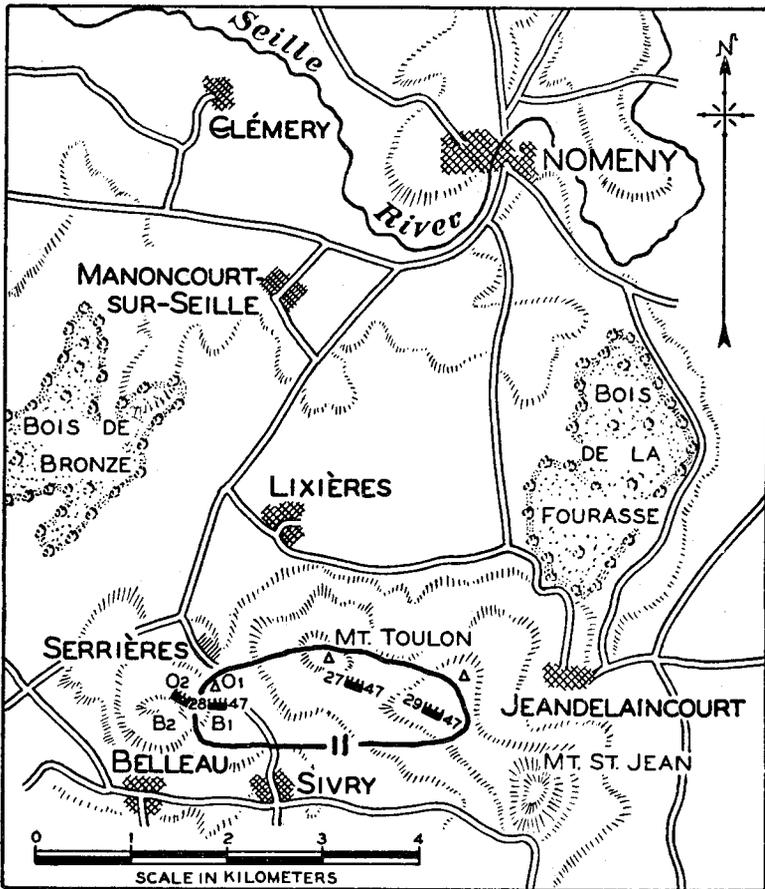
fusillade was heard. The artillery saw nothing to shoot at. Where were the French infantry of the 277th which was to the front? Some movement was noticed near Manoncourt. Men moved singly from the Seille toward the high ground to the south, then thin lines moved in the same direction, halted, and were hidden by the wheat.

Actually one battalion of the 277th Infantry had been strongly attacked and had fallen back and abandoned Nomeny, which had caught fire. At 11:00 a.m. this battalion was reinforced by another and a violent combat ensued on the front Nomeny—Manoncourt. But of all this the artillery was ignorant.

About noon the commander of the 28th Battery received an order through a liaison agent to open fire "to support the infantry toward Nomeny and Manoncourt." The order failed to state where that infantry was located. The liaison agent went back to the battalion O.P. at Mt. Toulon with the report that the O.P. of the 28th could not see Nomeny, and a request that the battery be permitted to change position. (The battery had only 500 meters of wire.)

In the meantime the battery commander had opened fire, because it seemed to him that the French had fallen back beyond the Manoncourt-Nomeny road; therefore in firing beyond that road (range more than 5,000 meters) there could be little danger to his own infantry. He chose a green field which stood out amid the yellow wheat and by progressive fires searched a wide area from the road to the stream. Enemy artillery fired on Mt. St. Jean and Mt. Toulon.

The rifle fire to the front died away. Soon after a battalion of the French 325th Infantry, which had been in reserve, moved forward on the road east of the 28th Battery. The battery commander found some personal friends in this battalion and, from them, learned that the 325th was to relieve the 277th and attack toward Nomeny. By this accidental conversation, he learned what had happened and what the infantry planned to do.



Example 3

Shortly after this the 28th Battery was ordered to accelerate its fire "to support the infantry toward Nomeny." The battery moved to B-2. From here the captain could see Nomeny and its environs.

About 4:00 p.m. he saw the 325th deploy one battalion on each side of the road and advance. The artillery placed fire in front of the 325th on the plateau which fell toward the Seille.

The infantry was enabled to advance. By dark it had nearly reached the Seille.

From an article by Major de la Porte du Theil, French Army, in "La Revue d'Infanterie," August, 1925.

DISCUSSION. Here the striking things are the absence of co-ordination between infantry and artillery, the lack of any precise missions given to the batteries, and the ignorance in which the artillerymen were left during the battle.

It was only through an accidental encounter of old friends that any information reached the batteries. There was no detachment charged with maintaining liaison. How much time would it have taken the infantry near Manoncourt to get a request for fire back to Mt. Toulon?

The artillery here had splendid observation; still its targets were far from conspicuous. It was forced to search areas where it thought the enemy might possibly be located. To a certain extent the action of the infantry and artillery was coördinated—but only because personal friends had accidentally met.

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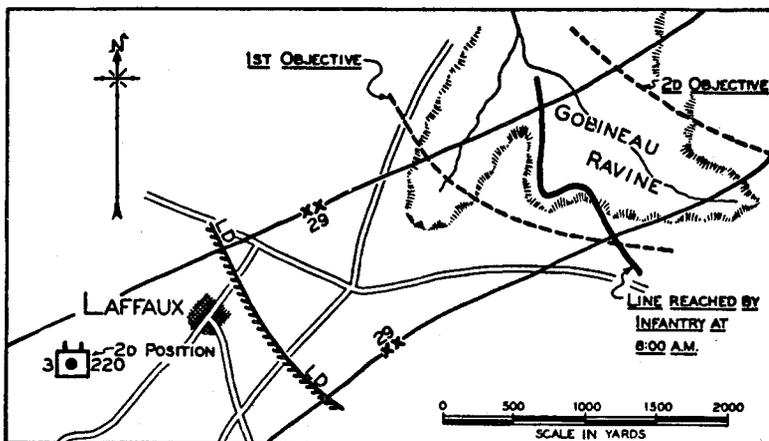
EXAMPLE 4. Let us skip four years.

In 1918 this same artillery battalion of the 47th Field Artillery had, in the expansion of the French Army, become the 3d Battalion of the 220th Field Artillery. On September 14, 1918, it took part in a carefully prepared attack to the northeast.

Artillery support of the infantry was to be in the form of a rolling barrage; artillery units were assigned in direct support of infantry units; batteries were given precise missions; the artillery's command posts were located near the command posts of the infantry they supported; liaison detachments were furnished the infantry; displacements were planned in advance; and everything was worked out on an elaborate time schedule. Let us see what happened.

The French 165th Infantry and a battalion of marines were

the attacking elements of the division. They advanced at 5:50 a.m. The initial stages of the attack were successful. The artillery fired its barrage on schedule. At 8:20 a.m. the barrage reached the second objective. In accordance with orders, the 3d



Example 4

Battalion of the 220th Field Artillery displaced forward. It was not expected to shoot again until 10:50, but was in its new position a kilometer west of Laffaux by 10:00 a.m. There it received orders to fire—not on targets beyond the second objective but on the Gobineau Ravine, much closer than that objective.

The infantry had not reached the second objective. It had been held up since 8:00 a.m. between the first and second objectives. The barrage had rolled on. The liaison details took more than an hour to acquaint the artillery with this situation. Artillery fires then had to be moved back toward the rear. The location of the French infantry still remained uncertain.

All morning, efforts were made to renew the advance. The artillery supported these attempts by firing on areas on the east slopes of the Gobineau Ravine. It was useless. At 6:00 p.m. the infantry was still in the immediate vicinity of the position it held

at 8:00 a.m. Several days elapsed before the French were able to resume their advance.

From an article by Major de la Porte du Theil, French Army, in "La Revue d'Infanterie," August, 1925.

DISCUSSION. This operation was minutely prepared, but it was not possible to know in advance exactly what would happen. All details had been worked out on a time schedule, according to the concepts of the French command. When the rhythm was destroyed, it was difficult to tie in the artillery with the infantry. The infantry lacked support when it needed it most.

Despite signals, pyrotechnics, and all the other means of communication at its disposal, the liaison detachment took more than an hour to get word to its artillery of the existing situation. Even then the information was incomplete. Let us quote Major du Theil:

Only one thing was lacking: a knowledge of exactly where to fire. The Gobineau Wood and Ravine are large. Tons of steel could be poured into them without reaching the few machine guns that stopped the 29th Division's infantry.

Who knew exactly where those machine guns were? Who could say? Maybe a few infantrymen of the 165th saw them. But no one could locate them exactly, much less direct the fire of a battery on them effectively, or send the necessary information to the captain, two or three kilometers to the rear.

The liaison detachments managed to transmit the approximate location of the lines. That was something. In an hour it was possible to bring back the barrages. Efforts were made to move out again—blind efforts. At no moment did we have precise fires, fires that kill the adversary aimed at, and which open the breach at the appointed place, as at the start of the attack.

Between 1914 and 1918 we had gone far. Nevertheless the experience of the war shows that the solution to this problem is not always effective in its present form.

Perhaps we may never be able to turn out a perfect solution to the problem—perfection of execution is seldom encountered in war—but we can overcome many difficulties that handicap infantry-artillery teamwork.

EXAMPLE 5. Following its defeat in the Battle of the Frontiers, the French Fourth Army withdrew slowly, and in the closing days of August, 1914, made a stand on the Meuse.

On August 27 the 87th Infantry Brigade, which had been in reserve near Beaufort and Beauclair, moved forward to take over a sector generally extending between Cesse and the Forêt de Jaulnay. Its mission was to prevent the enemy from debouching west of the Meuse. Limits of the sector were not precisely defined. It was understood that French outposts held the line of the Meuse.

Fourteen batteries of field artillery under an artillery regimental commander were attached to the 87th Brigade for the operation.

The brigade itself consisted of the 120th Infantry and the 9th and 18th Chasseur Battalions. The 18th Chasseurs were directed to occupy the woods just south of the Forêt de Jaulnay; the 9th Chasseurs were ordered into a position south of the Maison Blanche Inn; and the 120th Infantry was held in reserve.

The forward movement to these locations was made in a dense fog. The question of positions for the artillery was difficult. The woods were very thick, and from their edge the ground descended to the Meuse. It was finally decided to place all the artillery in a clearing about 800 yards wide in the Forêt de Dieulet. This position afforded excellent observation to the front.

As the result of previous successes in which artillery had played a large part, the 87th Brigade commander was strongly impressed with the necessity for artillery support of the infantry.

About 8:00 a.m. the fog lifted. German heavy artillery near Cervisy shelled the French position, blew up a caisson, and caused some losses. Because of the long range, the French artillery did not reply.

Through his field glasses the brigade commander noted some dark uniforms to the left front and, accompanied by the artillery colonel and a signal detail, went in that direction on a per-

sonal reconnaissance. He thought the troops seen were his own 18th Chasseurs. Instead he found troops of the II Colonial Corps, the unit on his left.

He met a lieutenant whom he asked to explain the situation.

"General, we are at the place where the Beaumont-Stenay road enters the Forêt de Jaulnay. The Maison Blanche Inn is 500 yards from here. Two kilometers farther in the same direction you can see some houses. That is the village of Cesse. The Forêt de Dieulet is behind us, and to our left front is the Forêt de Jaulnay. We have a post of Colonial infantry at Maison Blanche. A battalion of the regiment of Colonel M, which occupies those trenches to your right toward that hill, 190, furnishes the post at Maison Blanche.

"I belong to the regiment of Colonel L. We have one battalion in the Forêt de Jaulnay which is to advance in the woods as far as the Inor bend, while the other two battalions under the colonel attack in the direction of Luzy, with their left flank on the edge of the Forêt de Jaulnay. Luzy is just behind that crest you see on the horizon."

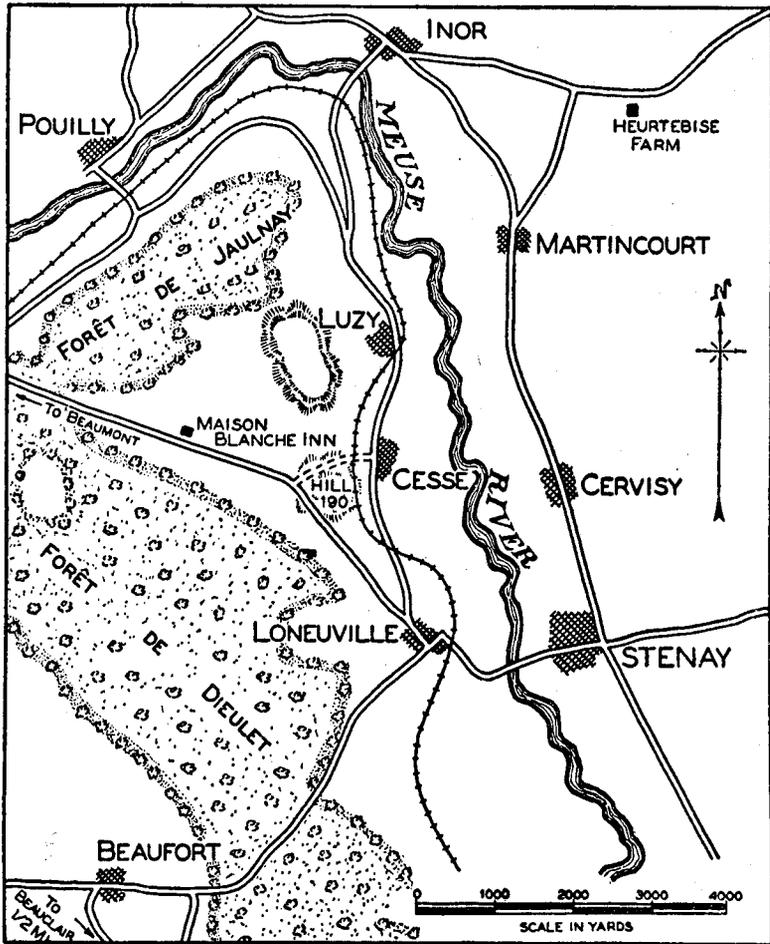
"What information have you of the enemy?"

"Cesse, Luzy, the Inor bend of the Meuse, and Pouilly are occupied by the enemy. Our outposts have been driven from that crest this side of Luzy and the colonel is moving out to attack the crest which he wants to hold. The Germans are on the military crest now."

"Tell your colonel to hold up his attack until my artillery can get in liaison with him and support his attack," directed the brigade commander.

The artillery colonel who had accompanied the brigade commander had a telephone wire connecting him with his batteries in the clearing. He installed a telephone at an O.P. and began to describe the situation to his commanders.

The lieutenant reached the Colonial colonel in time to stop the attack. The colonel rushed to join the 87th Brigade com-



Example 5

mander, and a new plan was arranged. Two artillery battalions were to shell the Luzu crest while a third shelled the edge of the Forêt de Jaulnay.

The patrols of the Colonial infantry had moved forward in a thin line. The military crest of the ridge west of Luzu was held

by a strong German firing line supported by several machine guns. This line opened a heavy fire on the French patrols. The French Colonial infantry waited in rear, while the French batteries registered on the crest.

After a few minutes word came back from the artillery that everything was ready. The artillery knew the infantry plan and could open fire for effect at a moment's notice.

"You can go now, Colonel," the 87th Brigade commander told the Colonial.

But before the French movement could get under way, the Germans attacked. Their firing line executed rapid fire for two minutes and then rushed forward. Behind the crest that had sheltered them the German supports and reserves followed. The three German lines were about 300 yards apart. The French artillery was silent until the German reserves had gotten well beyond the crest. Then the French artillery opened fire for effect. Heavy losses were inflicted and the Germans thrown into confusion. The French infantry now attacked, completely scattering the dazed Germans. In less than twenty minutes the French were near Luzy. Their losses were slight.

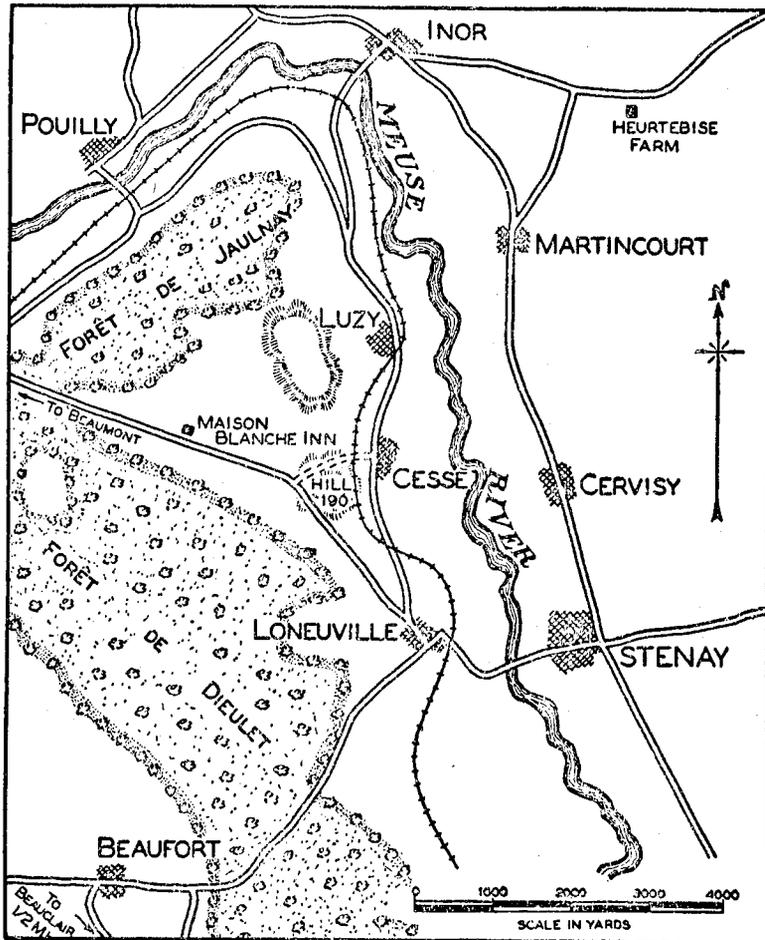
Since the Germans still held Cesse, the 87th Brigade commander decided to attack this village with the 9th Chasseurs and one battalion of Colonials.

"It's going to be tough," a Colonial remarked to the brigadier. "There's a whole line of walls there near the village. The Germans sheltered behind them will shoot us up."

The brigade commander wished to humor the Colonials and restore their confidence. They had met with a disaster a few days before.

"Not at all," he replied. "You will go into Cesse with your hands in your pockets, and I will go with you, my hands in mine."

The two attacking battalions formed; the artillery was informed of the plan. The entire fourteen batteries supported the



Example 5

attack by fire on Cesse and its environs. The Germans in Cesse were taken under a powerful concentration and sustained severe losses. To quote the French brigade commander: "We reached Cesse with our hands in our pockets."

From "Une Brigade au Feu," by General Cordonnier, French Army.

DISCUSSION. The Germans had crossed the Meuse on the morning of the 27th. Therefore, the French, in accordance with their mission, attacked. The Colonial Infantry was about to go it alone. The intervention of the 87th Brigade commander, who belonged to another army corps, resulted in excellent infantry-artillery teamwork. The infantry brigade commander his artillery colonel rapidly coördinated their artillery with the Colonial infantry. The brigade commander ordered the coördination. The artilleryman acted both as an artillery commander and as his own liaison officer.

The essential points are:

(1) The commander on the spot was deeply impressed with the necessity for infantry-artillery teamwork.

(2) The infantry knew the location of the Germans.

(3) A representative of the artillery was with the infantry and got this information from them. He was also informed of the infantry plan.

(4) He had instantaneous communication with the artillery, and was thereby enabled to transmit this information promptly.

(5) Artillery observers had an excellent view of the terrain and could identify the targets and objectives from the description given over the phone.

(6) As a result of the intervention of the 87th Brigade commander, the infantry and artillery were coördinated as to time. The infantry attack was not launched until the artillery was ready to fire for effect. Everything had been hastily improvised, but that is often necessary. In this case it was effective.

In commenting on the combats of the 87th Brigade in August, 1914, General Cordonnier says:

The artillery with this brigade had been loaned by the division or the army corps. Sometimes the brigade had one artillery unit, sometimes another. Each time it was necessary to arrive at an understanding in advance. It was only with the Stenay battalion (which had trained with the 87th Brigade in peace) that one could go into action without feeling one's way and without fear of being mis-

understood. The best results are obtained only if infantrymen and cannoneers are accustomed to working with each other.

1 1 1

EXAMPLE 6. On October 4, 1918, the U. S. 1st Division launched its attack in the great Meuse-Argonne Offensive. By noon the following day the 1st Battalion of the 26th Infantry had captured Hill 212 and the woods east of that hill. At this time the 3d Battalion, which had been in reserve, was ordered to advance, pass through the 1st Battalion, and continue the attack. At 1:15 p.m. the relieving battalion reached the forward lines of the assault units.

Here the battalion commander was informed that a barrage would be laid on the southwestern part of the Bois de Moncy, which dominated the valley from Hill 212 to Hill 272. This valley had to be crossed in the advance. The barrage was scheduled to come down at 1:45 p.m., stand for fifteen minutes, and then roll forward. To quote the battalion commander:

This necessitated a nerve-racking wait of forty-five minutes under heavy artillery and machine-gun fire delivered at short range from across the valley, and enfilade fire of all arms from the Bois de Moncy. But it was too late to do anything about it.

The battalion advanced behind the barrage and, against strong opposition, fought its way forward to a point south of Hill 272. To quote the battalion commander again:

During all this time the artillery liaison officer, who had accompanied the 3d Battalion commander, did excellent work. He controlled the fire of two guns that were located southeast of la-Neuville-le-Comte Farm. He had direct telephonic communication with these pieces. Instead of giving targets to his guns, this unusually competent officer issued fire orders from wherever he happened to be. He thus destroyed many machine guns and two pieces of artillery. His fire could not only be directed on all targets to the front, but on targets located along the Bois de Moncy as well.

Later, while the battalion was attacking Hill 272 from the east, the Germans counter-attacked toward its flank and rear.

The battalion commander, through the liaison officer, asked the artillery to fire a numbered concentration which had been previously prepared to cover the area over which the Germans were advancing. The fire came down promptly and was effective.

From the personal experience monograph of Major Lyman S. Frasier, who commanded the 3d Battalion of the 26th Infantry.

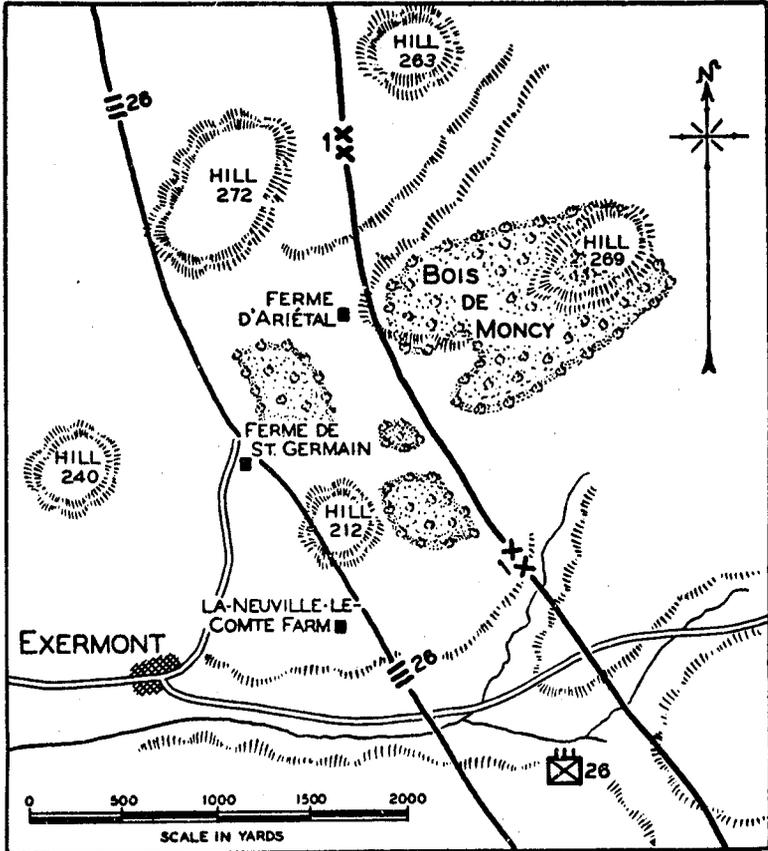
DISCUSSION. We see here an example of good infantry-artillery liaison. The bulk of the supporting artillery was used to fire a rolling barrage in accordance with the general artillery plan. In the future we shall probably make little use of the rolling barrage. The form of support will be different. Nevertheless, at the start of an attack artillery will fire according to some general plan.

By October, 1918, the 1st Division was a veteran organization. It had learned much about infantry-artillery liaison. The effectiveness of the artillery support is all the more notable when we learn that the 1st Division in this operation did not have as much artillery supporting it as was usual in 1918 Western Front attacks. The remarks of the battalion commander speak for themselves.

Some enemy machine guns, as well as two field pieces located well forward, were not neutralized by the barrage. Prearranged fires will never put out all hostile machine guns. Sometimes machine guns will remain silent until the infantry has gotten close. In this example the artillery liaison officer was with the infantry battalion commander and in direct communication with the artillery. He personally conducted the fire on these machine guns. His method was a short cut which will probably be resorted to frequently.

1 1 1

CONCLUSION. A study of the early Franco-German engagements in 1914 reveals the striking fact that virtually no unit that effectively tied in its infantry and artillery suffered a severe



Example 6

reverse. On the other hand, where severe reverses were suffered the loser had invariably failed to coördinate his artillery with his infantry. It would be an exaggeration to say that, in the early days of 1914, all a commander had to do to win was to achieve infantry-artillery teamwork, but nevertheless such a statement would not be very far from the truth.

The phrase "The artillery conquers; the infantry occupies"

was coined when trench warfare began. It was not true, as the officer who originated it undoubtedly realized. But it did represent the reaction to numerous reverses that were attributed to the artillery's failure to support their attacking infantry properly. It focused attention on what might be called ARTILLERY-infantry teamwork. When this was changed to the infantry-artillery team, decisive results began to be achieved.

The importance of infantry-artillery liaison is undeniable; the real question is: "How can the action of these two arms be tied together on the battlefield?"

Any intervention of direct-support artillery, which has not been foreseen and prepared for, usually requires much time. And once infantry has asked for this fire, it must wait until it materializes, or run the risk of being fired on by its own artillery. Although artillery will try to comply with all requests for fire, the supply of ammunition is by no means unlimited; it is important to remember this. For these reasons, infantry should try to settle local incidents with its own weapons, leaving the artillery to fire on larger targets in accordance with the previously arranged scheme. On the other hand, when a real need exists for artillery fire on some particular place, infantry should not hesitate to ask for it.

Infantry that is accustomed to working with a definite artillery unit has the opportunity to arrange certain conventions. Conventional signals might be arranged to insure the immediate execution or renewal of certain fires. The duration of any particular fire asked for by the infantry might habitually last for a definite period of time—three minutes, for example—unless otherwise requested. The artillery might signal the fact to the infantry that it is about to cease certain fires by some peculiarity in its fire at the end—greater rapidity the last minute, a long salvo, a smoke salvo, or a high-bursting salvo. Individual infantrymen, lying down, need some such warning—something they can see or hear. These are but a few conventions that might

be used; the number is limited only by the ingenuity and familiarity of the units involved.

Infantry requests for fire might include a statement limiting the *duration of the request*. If at the end of a request for fire made, say, at 9:00 a.m., the message added "Request good until 10:00 a.m.," that would mean that the artillery would not comply with the request at all if it had not been able to do so by 10:00 a.m. Then at 10:00 a.m. the infantry would be free to go ahead, if the situation had changed, without being exposed to the fire of its artillery, or it could make a new request.

If the physical distance, and sometimes greater mental distance, that separates the infantry and the artillery on the battlefield is to be spanned, the following considerations should be observed:

Habitual designation of definite artillery units to support definite infantry units.

Intellectual liaison and mutual familiarity between the arms, so that infantry will not call on artillery to do the impossible, the unnecessary, or the unsuitable; while the artillery, for its part, will be capable of appreciating the infantry's problems.

Determination by the artillery to support the infantry when support is needed, even at some cost, and to seek OP's that will enable artillery observers to follow the combat by direct observation.

Use by the infantry of its own weapons against small targets that are difficult to describe to the artillery, thereby freeing the artillery to fire on larger targets.

Recognition by the infantry that prompt advantage must be taken of opportunities afforded by artillery fire.

Proximity of infantry and artillery leaders in combat, with command posts as close together as practicable.

Particular attention to communications.

A moral liaison, reciprocal esteem, confidence and friendship,

preferably personal friendship between the two elements of the particular infantry-artillery team.

Previous joint training of the two specific units of the team.

Careful selection and actual training with infantry units of artillery liaison officer.

Maximum use of prearranged fires.

Chapter XIX: *Nearing the Enemy*

In a meeting engagement a great advantage accrues to that side which first succeeds in making effective preparation for battle.

AS THE INFANTRY nears the enemy, it deploys and advances, protected by part of the artillery. The German regulations state: "At the outset the first endeavor should be to lay down the law to the enemy, thereby securing one's own freedom of action. This is best accomplished by the early development of the main body in the direction in which the decision is sought, with a view to timely deployment."

Early and effective entry of the artillery is of the greatest importance. To quote the German regulations further,

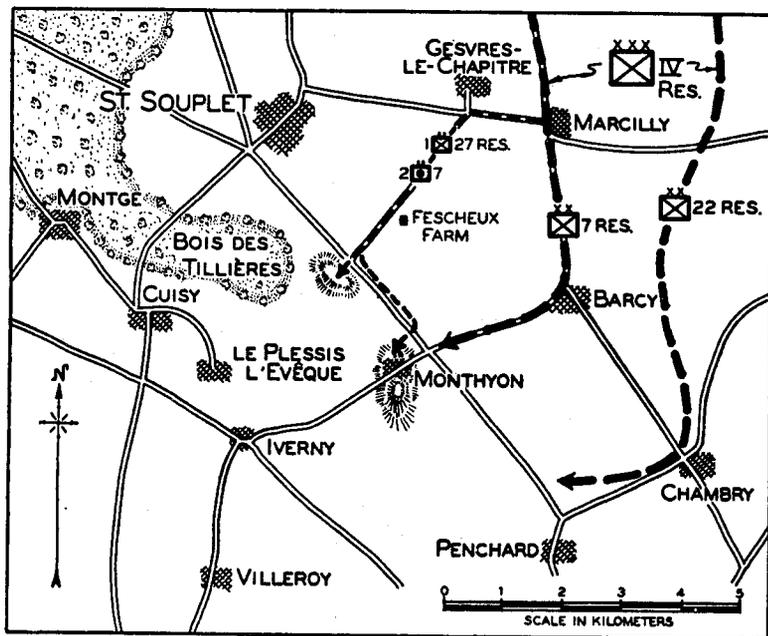
The artillery of the main body first gives the necessary stability to the front which is being formed.

The alert commander does not await the clash of leading elements before taking action. When contact is imminent he deploys his artillery and his infantry supporting weapons in order to protect the forward movement of infantry elements in rear. Ordinarily he will see that his infantry (except those elements well in rear) leaves the road and advances by bounds.

During this advance, active reconnaissance is pushed to locate the most advanced detachments of the enemy. As the infantry nears these it assumes a formation preparatory to combat. The nearer it gets, the more closely this formation resembles a complete deployment. From such a formation a coördinated attack can be launched with great rapidity.

Clinging to the road, when contact is imminent, invites punishment by hostile artillery, and is almost certain to rob a command of any chance to surprise the enemy. Furthermore, it may easily lead to a piecemeal engagement.

EXAMPLE 1. On September 5, 1914, the German IV Reserve Corps (7th and 22d Reserve Divisions) echeloned to the right rear of the German First Army, had the mission of protecting the flank and rear of this army from the west—the dangerous



Example 1

direction of Paris. The IV Reserve Corps marched south in two columns with cavalry on its west flank.

Early on September 5, the 1st Battalion of the 27th Reserve Regiment and the 2d Battalion of the 7th Artillery were detached from the 7th Reserve Division and ordered to march west to support the cavalry. Suspicious French activity from the direction of Paris had been reported.

About noon this small force was overtaken near Gesvres-le-Chapitre by a messenger who brought the following order:

The French are coming from the west. The IV Reserve Corps changes direction to the west. The 7th Reserve Division moves on Monthyon. Turn southwest and rejoin it at Monthyon.

The artillery battalion (with the exception of one platoon which remained with the 1st Battalion of the 27th Reserve Regiment) immediately set off for Monthyon at an increased gait. The infantry followed. Near Fescheux Farm the infantry battalion commander received a second order.

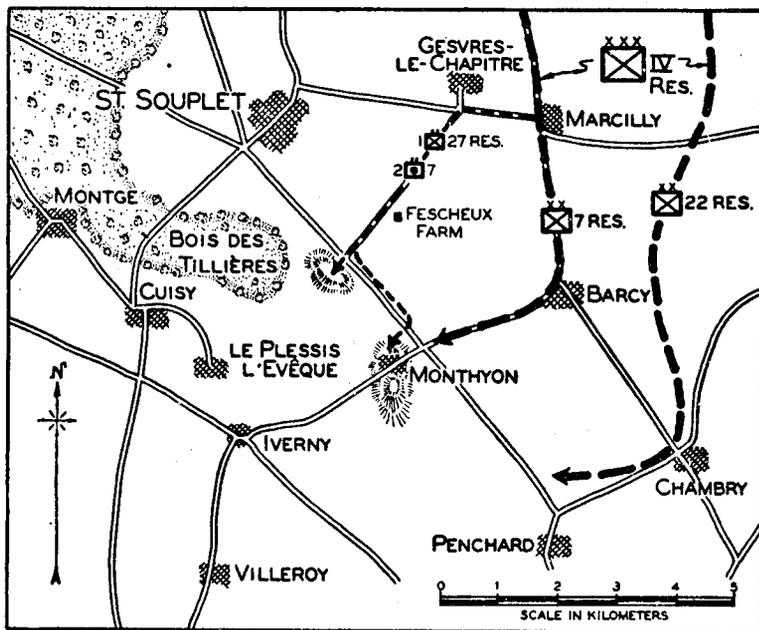
Move to Cuisy by roads through the Bois des Tillières. The cavalry reports the French are within a few miles.

Since the terrain near Fescheux Farm afforded no observation to the west, the infantry battalion commander and his staff galloped forward to the hill a mile northwest of Monthyon. From there observation was excellent—and startling! Near le-Plessis-l'Evêque the little German group saw a French force that they estimated as a brigade. To the northwest they saw a line of French skirmishers moving east between the Bois des Tillières and the village of St. Souplet.

The battalion commander at once galloped back to his command and ordered his platoon of artillery to trot ahead and occupy the hill he had just left. He then deployed his three-company battalion. One company faced the skirmish line north of the wood; one faced the wood itself; and the third remained in reserve. The artillery platoon moved out at a trot and after climbing the steep hill went into position at the gallop. A moment later the guns of this platoon roared the opening octaves of the Battle of the Ourcq and the Battle of the Marne.

Meanwhile, the artillery battalion continued its rapid march on Monthyon. As it neared the town it was met by a German cavalry officer who quickly explained the situation. "The French," he said, "are just over there a short distance." In a matter of minutes the battalion wheeled off the road, raced up the northern slopes of Monthyon Hill, went into battery and opened with a burst of surprise fire.

Although the French in this locality were partially deployed, the German artillery's early entry into action effectively covered the advance of the 7th Reserve Division, whose units were thrown into battle as fast as they arrived. Despite the numerical



Example 1

superiority of the French, the tactical laurels of this day seem to go to the Germans. Even the threatened envelopment from the French near St. Souplet was stopped in its tracks.

From an article by Lieutenant Colonel Koeltz, French Army, in "La Revue d'Infanterie," October, 1930.

DISCUSSION. A successful French attack driving southeast from St. Souplet would have taken the IV Reserve Corps in flank and might well have had far-reaching results. Had this corps been broken on September 5, the Battle of the Marne might have been as decisive tactically as it was strategically.

The check of the French movement near St. Souplet may be partially attributed to the early engagement of the German artillery. This effectively covered the deployment of the larger German elements on the north flank.

The action of the one platoon that trotted ahead of the German infantry, and went into position on the hill a mile northwest of Monthyon, was the result of a definite order. It was a bold movement and provides an extreme case. The action of the rest of the artillery battalion was accidental. Nevertheless, it clearly indicates the importance of the early deployment and early commitment of artillery in a meeting engagement.

With the wire equipment of today, the battery positions would not be so advanced. The observers—not the guns—would occupy the hills.

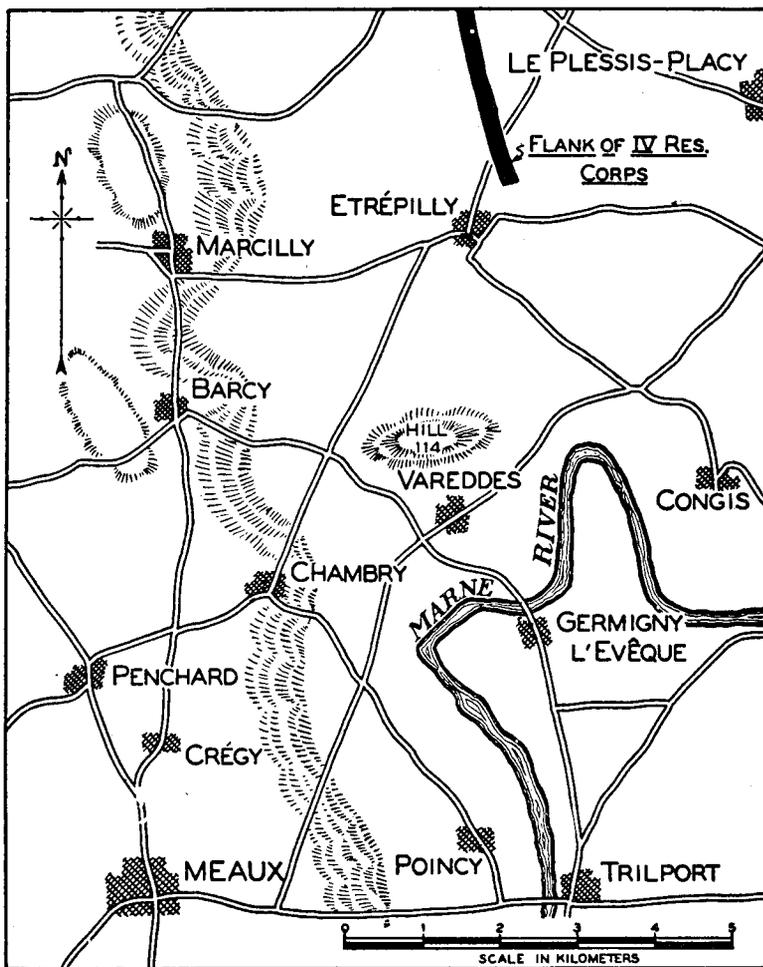
Finally, the action of the infantry battalion commander adds one more bit of testimony to the value of personal reconnaissance.

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EXAMPLE 2. On September 5, 1914, the German IV Reserve Corps encountered the French Sixth Army, which was moving eastward from Paris to strike the flank and rear of the German First Army. The IV Reserve Corps was charged with the protection of this threatened flank. However, after a heavy engagement it withdrew a short distance under cover of darkness. The next day the German II Corps, located south of the Marne, was rushed north to the assistance of the IV Reserve Corps, which was threatened with a double envelopment.

The German 3d Division, part of the II Corps, marched north in one column. It had been alerted about 1:00 a.m. At the head of the division rode the 3d Dragoons, followed immediately by the corps commander in his automobile and the commander of the 3d Artillery Brigade and his staff.

At 5:00 a.m., from a height near Trilport, these officers saw five strong French columns moving eastward, north of the



Example 2

Marne. Evidently the IV Reserve Corps would soon be attacked by very superior forces.

The corps commander forthwith ordered the artillery of the 3d Division to pass the infantry and get into action quickly in

order to assist the IV Corps and cover the crossing and debouchement of the 3d Division beyond the Marne. The dragoons were directed to cover the batteries.

The artillery (three battalions of light artillery and one battalion of howitzers from the corps artillery) received this order about 6:00 a.m. and moved forward at a trot, passing the infantry's leading elements.

The commander of the artillery brigade preceded the column to reconnoiter. About 8:30 a.m., from Hill 114, he saw French infantry crossing the high ground at Marcilly, Barcy, and Chambry. He saw no friendly infantry anywhere on the plateau east of Barcy. (Actually there were a few German companies near Vareddes.) This artilleryman immediately ordered his guns into position. Two battalions of light artillery and the battalion of howitzers went into position near Hill 114 and the third battalion of 77's near Germigny-l'Evêque. By 9:00 a.m. three battalions had opened fire; the remaining battalion was in action fifty minutes later.

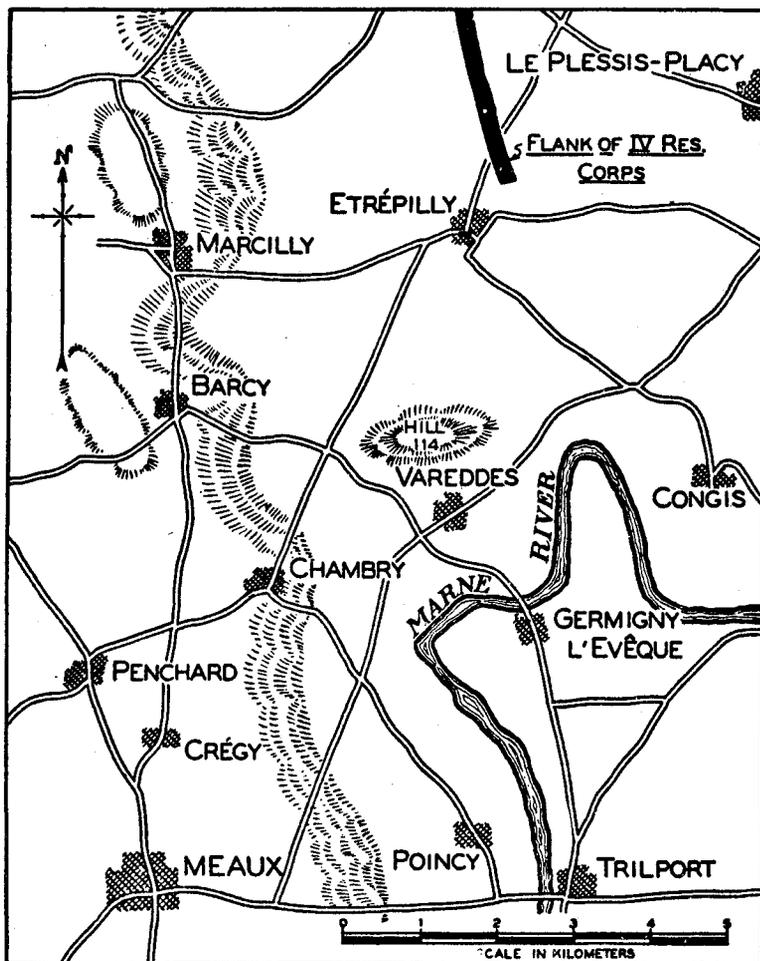
At about 9.30 a.m. the fire of the German artillery stopped the advance guard of a French brigade near Barcy and delayed the advance of two other brigades. Thereafter it intervened with particular effectiveness near Chambry.

About 10:00 a.m. the German 5th Infantry Brigade crossed the Marne and went into position on the plateau just north of Vareddes. The 6th Brigade reached the crest west of Vareddes about noon.

The French attacks, starting about 12:45 p.m. and continuing throughout the afternoon, were repulsed. The south flank of the IV Reserve Corps was secured.

From the article by Lieutenant Colonel Koeltz, French Army, in "La Revue d'Infanterie," October, 1930; and from the articles on Monthyon by Captain Michel, French Army, in "Revue Militaire Française," 1930.

DISCUSSION. Although a few German troops were at Vareddes on the morning of September 6, the operations of the 3d Division had all the earmarks of a meeting engagement. The



Example 2

French were advancing in several columns from the west, the Germans in a single column were moving north. Possession of the crests north and west of Vareddes was highly important to both sides.

All the German artillery was in position and firing effectively before their infantry had crossed the Marne. This artillery not only delayed the French advance, but covered the approach and deployment of the German infantry. When the French attacked in force, they were repulsed again and again.

The decision to advance the artillery was taken early. The movement was covered by mobile troops, the 3d Dragoons. The failure of the French on the south flank on this day may be attributed in large part to the early deployment of all the German artillery.

✓ ✓ ✓

EXAMPLE 3. On August 27, 1914, the French, who had been withdrawing to the south and west, made a stand on the line of the Meuse River. The French 87th Brigade occupied the woods west of Cesse, with small outposts near the river bank. Fourteen batteries of artillery supported the brigade from a position in a clearing in the woods.

During the morning it was discovered that some Germans had effected a crossing. The French promptly attacked near Cesse and Luzy and drove them back. The fighting then died down.

In the afternoon a German column of infantry was seen descending the long slope from Heurtebise Farm toward Martin-court. It was estimated that there were some 3,000 men in the column. French artillery had previously registered on points on this road. The fourteen batteries divided the target, each taking a part of the column.

As the head of the column neared Martincourt the French batteries simultaneously opened fire. The German column suffered heavy losses and was completely scattered.

Fifteen minutes later German artillery appeared on the same road, following the infantry. It, too, was in route column. The leading batteries attempted to go into action but were pre-

vented by the massed fire of the French artillery. The German artillery withdrew.

From "Une Brigade au Feu," by General Cordonnier, French Army.

DISCUSSION. It appears that the commander of the German force failed to make provision for a vigorous and searching reconnaissance. In any event, the highly vulnerable formation he adopted definitely indicates that he was unaware of the situation to his front. The artillery, which should have been in position to protect the forward movement of the infantry, actually followed fifteen minutes behind it. The infantry had been dispersed before the artillery even attempted to go into position.

The infantry first, and then the artillery, made separate and successive efforts which led to disaster. For the German infantry to have reached the Meuse, it would have been necessary for it to get off the road, abandon such a vulnerable formation as column of squads, and advance under the protecting fire of its own artillery.

There are many similar examples in the mobile operations of the World War where troops approached the enemy in route column, on roads, and paid heavily for their temerity.

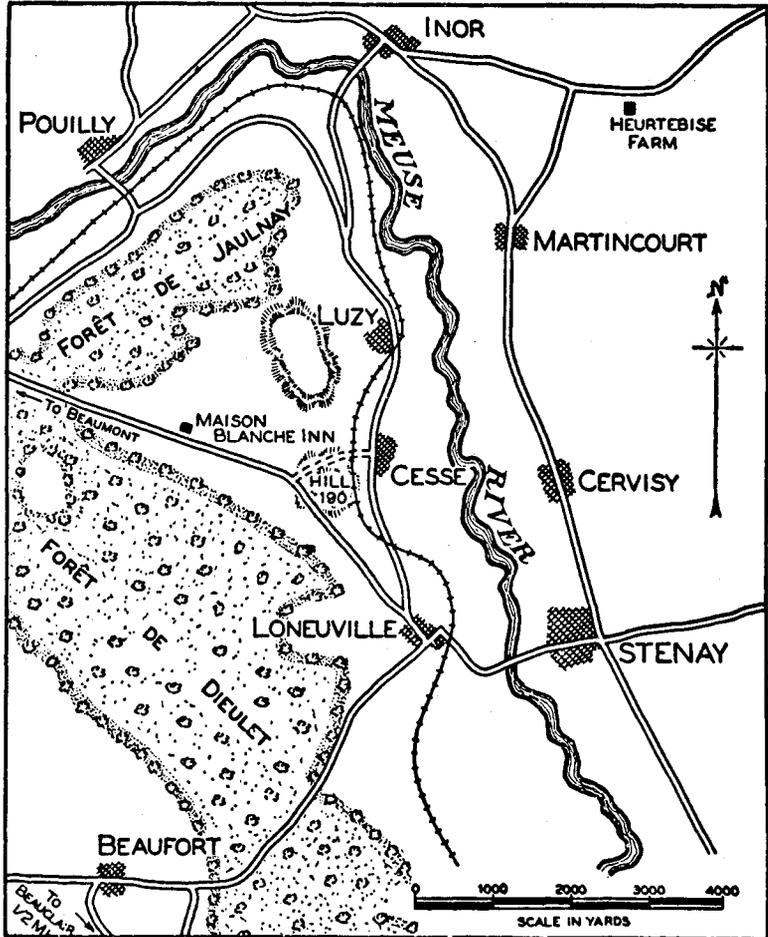
The advance guard of the U. S. 7th Brigade approached the Vesle in this manner: its support was caught by a devastating artillery fire while in route column. (See Example 1, Chapter I.)

At Ethe, the artillery of the advance guard of the French 7th Division was caught in route column on a forward slope and on a narrow road from which it could not escape; it was virtually destroyed by German artillery. On the same day a large part of the French 3d Colonial Division, marching in route column on the road near Rossignol, was surprised by German artillery fire. Half of it was destroyed or captured.

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EXAMPLE 4. On August 22, 1914, the French 40th Division, echeloned to the right-rear of other French forces, marched

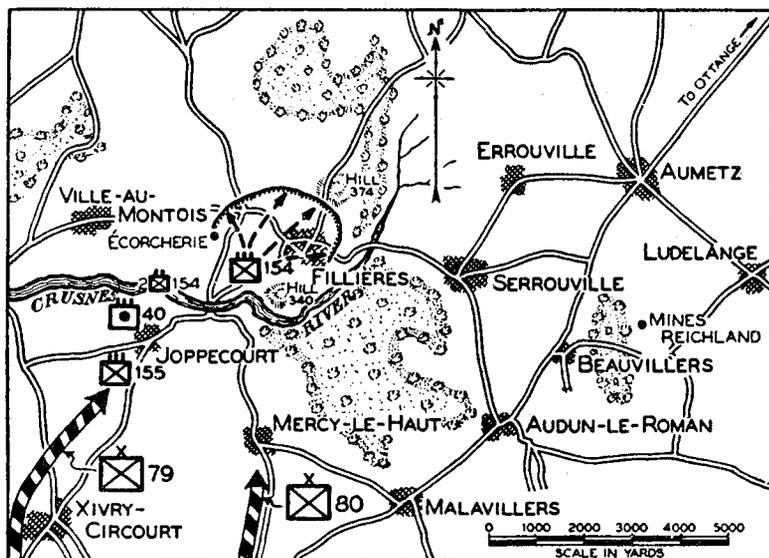
northeastward in two columns. This division was charged with the protection of the right flank of the French movement north.



Example 3

Farther to the right a cavalry division reconnoitered to the north and east.

The situation was obscure. Small German forces were known to be near, but nothing was known of the larger elements.



Example 4

The 79th Brigade (left column) marched in the following order:

Advance Guard: 154th Infantry (less 2d Battalion)

2d Battalion of 154th Infantry

Main Body: 40th Field Artillery (3 Battalions)

155th Infantry

There was no French cavalry in front of the brigade.

The point passed Xivry-Circourt and entered Joppécourt. Here it saw and fired on hostile cavalry. About 8:30 a.m. the 11th Company of the 154th Infantry (the leading element) was fired on from Hill 340 near Fillières. The leading battalion, assisted by the remainder of the advance guard, attacked and drove some Germans to the north and west.

With its units somewhat intermingled, the advance guard reached the line: Ecorcherie—Hill 374—southeastern edge of Fillières. The 2d Battalion of the 154th Infantry, leading element of the main body, was crossing the Crusnes. Suddenly, a German attack, effectively supported by artillery, debouched from the woods east of Fillières.

The 2d Battalion of the 154th attacked toward Fillières but as it neared the southern edge of the town it was driven back by Germans attacking from the wooded ravine in that vicinity. The French artillery, in position near Joppecourt, attempted to support the infantry, but its fire was ineffective.

The 154th Infantry, opposed by a strong enemy who was well supported by artillery, lost heavily. It reported that it could not hold. It was then ordered to withdraw south of the Crusnes toward Joppecourt. The 3d Battalion of the 155th covered the withdrawal.

The remainder of the 155th now moved north of the Crusnes toward Ville-au-Montois. Here it encountered advancing Germans who drove it westward in disorder.

The remainder of the 40th Division was equally unsuccessful. That night it was ordered to retreat some twenty miles southwest of Joppecourt.

Let us now examine the movements of the Germans opposed to this brigade.

That morning the German 34th Division, an interior unit, had been ordered to move so as to be disposed at 7:00 a.m. as follows:

Advance guard (furnished by 86th Brigade): On the line Errouville—Mines-Reichland.

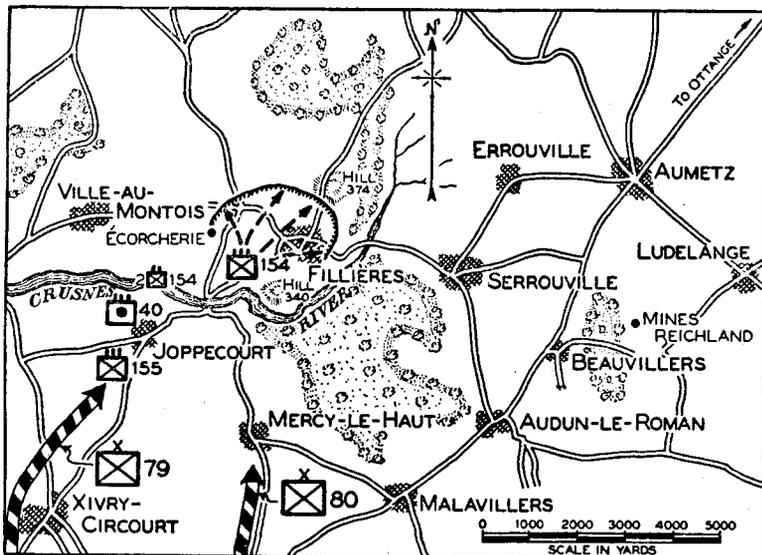
Remainder of the 86th Brigade (which was composed of the 30th and 173d Infantry Regiments) and the 69th Field Artillery, in assembly positions in rear of this line. The artillery prepared to support leading elements.

INFANTRY IN BATTLE

The 68th Infantry in two columns just southeast of the Ottange—Aumetz road, with its head near Aumetz.

The 70th Field Artillery on this road abreast of the 68th Infantry.

The 14th Uhlans (cavalry) reconnoitering to the front.



Example 4

By 7:00 a.m. these dispositions had been carried out. Meanwhile, a vigorous cavalry reconnoissance had brought in positive information of the French movement and, based on this, the division made a new bound forward at 7:30 a.m.

The 14th Uhlans were directed to march on Fillières, continuing reconnoissance.

The 86th Brigade was ordered to move to the line Serrouville—Beauvillers.

During this movement the 69th Field Artillery was told that it would support the 173d Infantry, and the 70th Field Artillery that it would support the 30th Infantry. Thus, all the artillery

was prepared to cover the movement of the leading brigade.

The 68th Brigade (67th and 145th Infantry Regiments) followed the leading brigade toward Serrouville moving across country in approach formation.

By the time this bound was completed enough definite information was at hand for the division to issue its attack order.

The 86th Brigade, supported by the bulk of the artillery, attacked toward the line Malavillers—Mercy-le-Haut. The 68th Brigade (less two battalions in division reserve) moved north of the 86th Brigade and, supported by one battalion of artillery, drove hard for Fillières. Both attacks succeeded and the French were driven to the west.

Further to the south, the German 33d Division employed similar measures and was equally successful.

From an article by Colonel Étienne, French Army, in "La Revue d'Infanterie," March, 1926.

DISCUSSION. The French 79th Brigade, marching in column behind a conventional advance guard, was caught flat-footed by an alert, aggressive, well-prepared enemy. The Germans did not fumble their way forward in a clumsy, inelastic and vulnerable formation. Realizing that battle was in the offing, they made a partial deployment long prior to contact and then advanced by bounds until the situation became clearer. As a result they were able to launch a coördinated attack with great rapidity.

The French fought a piecemeal action, battalion by battalion. Their artillery was late and ineffective. Contrast this with the smashing German attack, effectively supported by artillery from the very inception of the action.

The French 154th Infantry was crushed. Its casualties were appalling. Every officer in its 2d Battalion was killed or wounded. The two battalions of the 155th sent north of the Crusnes met a similar fate.

The German attack came as a complete surprise. The French 79th Brigade was unable to get its full power under way at one

time. Its advance guard, in attempting to explore the situation, was decisively defeated before it could be effectively supported, and two battalions of the main body became involved in the débâcle. Further south, the remainder of the French 40th Division was similarly surprised. Night found it in full retreat.

Colonel Étienne contrasts the French forward movement "made too fast and without prudence" with the method by which the Germans gained contact and became engaged.

He says:

An examination of the orders issued in this action makes the advance of the German 34th Division stand out. This division advanced by successive bounds, in a formation preparatory to combat, and with an artillery unit prepared to support each infantry unit.

Before an adversary in movement, even more than before an adversary in position, contact should be effected by successive bounds—the advance being covered by elements seeking to discover the hostile front and direction of march.

Advance guards should be sufficiently early in making dispositions that approximate combat formations. Unless one wishes to be caught deploying, dispositions must be taken at least 10 or 12 kilometers from the enemy. If both sides continue to advance it isn't at kilometer 12 that contact will be made, but at kilometer 6.

Moreover, it is essential that such dispositions be made as will enable the artillery to intervene in the minimum time in support of the advance elements.

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CONCLUSION. In his book *Development of Tactics—World War*, Lieutenant General Balck, German Army, says:

Without considering long-range batteries, troops in march column approaching the effective zone of hostile fire can expect to be fired on when within 10 kilometers of the front. This requires that the column formation be broken into separate elements. In this day of long-range guns, it may easily happen that the enemy's projectiles will arrive sooner than the first reports of the reconnoitering units; thus the infantry will have to feel its way after it reaches the fighting zone.

In no case must troops enter the hostile zone of fire in close order. . . . The development of the attacker must be made under the assumption that artillery fire may start at any minute, and that the

larger his force, the sooner will the enemy open fire. The utilization of cover, the adoption of formations calculated to lessen the effect of fire, the timely removal of all vehicles from the column and their movement from cover to cover, are the best means of avoiding hostile artillery fire.

We have seen that German regulations emphasize early development of the main body. French regulations go even further. They prescribe deployment or partial deployment *prior to contact*.

It must be noted, however, that for small units acting alone, partial deployment before contact makes it extremely difficult to change direction. In such cases the distance from the enemy at which partial deployment may profitably begin will be greatly reduced. It should be remembered that the figures mentioned by General Balck and Colonel Étienne assumed the proximity of large forces, adequately provided with artillery.

The desirability of the early deployment of at least a portion of the artillery was clearly brought out by many meeting engagements in the World War. Artillery and machine guns must go into position early if a decisive effort in the critical early phases of a battle is to be strongly supported. Finally, repeated disasters should teach infantry that a daylight movement in route column on roads in the neighborhood of an alert enemy is a short cut into action that will usually be paid for in heavy casualties.

Chapter XX: *The Advance to the Attack*

The approach march should bring the troops into their assigned zone, opposite and close to their attack objective, in good physical condition and with high morale.

FORMATIONS taken up in the approach march should be flexible and should be adapted to the terrain and the situation. A skirmish line, for instance, is not flexible; it cannot maneuver to take advantage of cover nor can it be readily controlled. Therefore it is an undesirable formation for an approach march. Since column formations facilitate maneuver, control, and maintenance of direction, they are generally preferable.

At all times the greatest care should be taken to move along reconnoitered routes, to cover the advance with patrols, and to avoid premature deployment.

1 1 1

EXAMPLE 1. Late on July 28, 1918, the 1st Battalion of the U. S. 47th Infantry was ordered to march to a certain farm in the Forêt de Fère, where it would receive further orders from the 42d Division, to which it had been temporarily attached. After an all-night march the battalion reached the designated farm where it received an order attaching it to the 167th Infantry and directing it to report to the command post of that regiment.

Since the heavy foliage of the Forêt de Fère afforded perfect concealment from the air, the battalion marched north on the main road through this wood in a column of squads. It was known that the Germans had recently been driven out of this area, but beyond that there was no information. The woods

were alive with American artillery and troops, apparently in some confusion.

Early on the morning of July 29 the battalion reached the north edge of the forest. Previous to this a halt had been called and the troops given a breakfast which consisted of a fraction of their reserve ration. Being detached from their regiment and unaccompanied by their kitchen section, the battalion commander had authorized the use of a portion of the reserve ration on his own responsibility.

The battalion, in column of twos, then moved along the edge of the forest to the Taverne Brook where the stream and the wooded ravine provided intermittent cover. Distances between platoons were increased. Taking full advantage of all cover, the battalion made its way to the grove of trees which harbored the command post of the 167th Infantry. There the troops were placed under cover. Although machine-gun fire had been encountered, no casualties were incurred.

After a short delay, instructions were received to move forward and make a daylight relief of a front-line battalion of the 167th.

Reconnoitering parties were immediately sent out. Two captains, accompanied by their own runners and runners from the 167th Infantry, moved down the Taverne Brook, acquainting themselves with the situation to the front and reconnoitering routes of approach. They learned that assault elements of the 167th were a short distance beyond the Ourcq, that the enemy occupied the crest of the hill just beyond that stream, and that he had machine guns well sited and well concealed in the waist-high wheat on the hilltop.

The reconnoitering party also noted that after it crossed the road south of and generally parallel to the railroad, it was shielded from hostile observation to the north by trees along the Ourcq and scattered cover near the railroad.

The 1st Battalion moved out that afternoon. Company B,

whose captain had been forward on reconnaissance, led the way. The battalion, in column of twos and with increased distances between companies, moved along the Taverne Brook where it could not be seen.

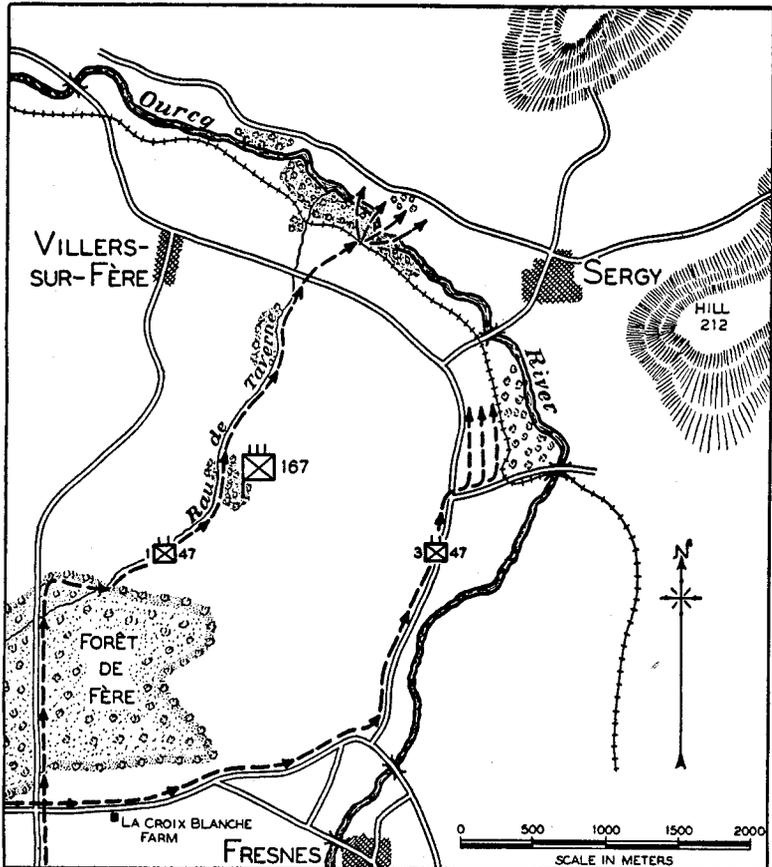
Arriving at the point where the trees along the Ourcq hid it from enemy observation on the north bank, the column bore to the right, moved through the woods, and forded the river. At this point the battalion ceased to move as a single column. Companies now moved separately to their assigned locations, in different formations. For instance, Company B advanced with two platoons in the lead and the other two following at 200 yards. Each platoon was in line of squad columns.

The forward movement of the battalion continued to the unimproved road just north of the Ourcq which generally marked the front line. Here the approach march ended and the ordered relief was made.

This battalion had moved by day into a position close to the Germans without drawing any unusual amount of fire. It was in position facing its objective, in good condition. Only one or two casualties had been incurred. These resulted from artillery fire during the halt near the command post of the 167th.

Let us now examine the experiences of the 3d Battalion of the 47th Infantry, which made a similar movement at the same time and on almost the same terrain. This battalion was also detached from its regiment and ordered forward. En route the battalion commander received word that the 168th Infantry had captured Sergy and that the battalion would advance and mop up that town. He was further informed that hostile artillery fire could now be expected.

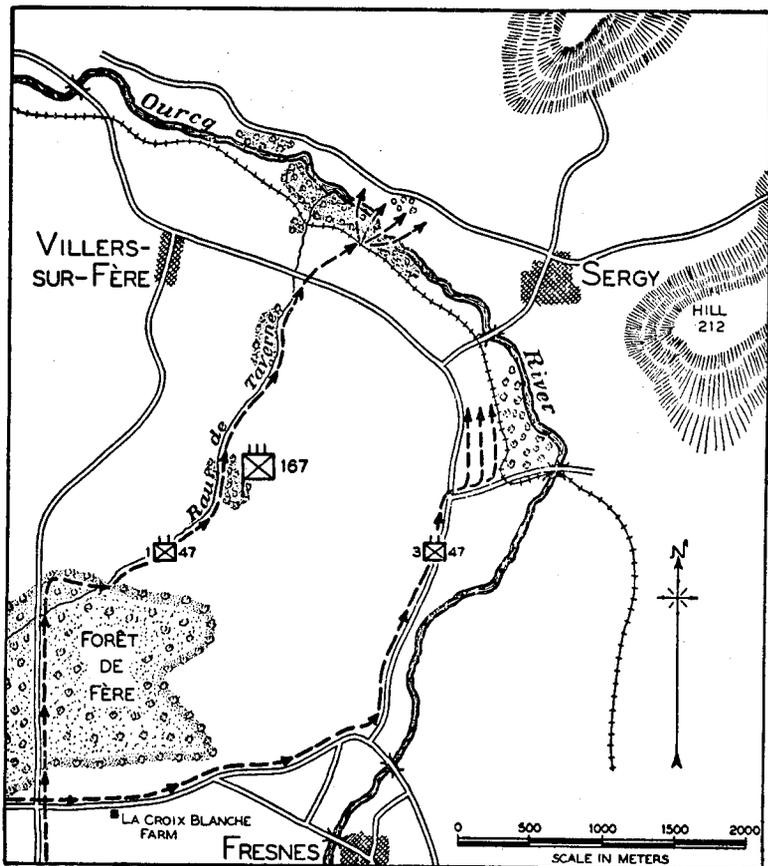
The battalion continued down the road in column of squads. As the head of the column reached the road fork about one mile south of Sergy, the enemy's artillery opened with a sudden fury; shells plastered the fields near the plodding column. The battalion commander met this situation by ordering "Column right"



Example 1

and, when the tail of the column had completed the turn, "Squads left." He then ordered each company to form line of platoon columns and continue the advance with Companies I and L leading and K and M following. Each platoon marched in column of twos; in some cases half-platoons were staggered. The forward movement, in general, paralleled the Ourcq.

Thus the battalion deployed suddenly and continued its ad-



Example 1

vance across country. No reconnaissance had been made. To the right, American troops could be seen moving to the crest of Hill 212 but they appeared unable to get beyond the crest.

The hostile shelling became heavier and heavier. Casualties mounted. Platoon and company commanders did not know where they were supposed to go or what they were supposed to do.

A little later a village was seen through the trees to the right-front, and machine-gun fire from this direction was added to the shell fire. The right assault company inclined to the right toward the firing while the left assault company continued in its original direction. By this time the battalion had become so intermingled and had so lost direction that concerted action was impossible.

Companies broke up. Small groups of men milled around, not knowing what to do. There were two majors with the battalion, but both had been wounded. Losses were heavy. Intermingled units straggled into the trees along the Ourcq and there the battalion remained all night.

From the personal experience monographs of Captains Jared I. Wood and Howard N. Merrill, who commanded Companies B and M, respectively, of the 47th Infantry.

DISCUSSION. The problem of these two battalions was very similar—to get to the Ourcq in good condition and with minimum loss. Both organizations were ordered to make their advance by day. Friendly troops covered their movement.

The approach march of the 1st Battalion brought it close to and opposite its objective. The troops, sustaining practically no casualties, reached this position in excellent physical condition and high morale. That is certainly the aim of an approach march.

The 1st Battalion's movement was characterized by a thorough utilization of the terrain. It was not seen; hence it was not shot up. It took advantage of the available cover and it adopted formations suitable to that cover. It reconnoitered for defiladed routes of approach prior to the advance. It changed into a widely deployed formation at the latest minute permitted by the situation. It had not been necessary to resort to this earlier because the reconnoitered route of approach was sheltered and the situation was known.

The experience of the 3d Battalion was quite different. It

made no reconnaissance. It marched in column of squads, down an open road toward a position behind the front line, and it continued in this formation even after it had been warned that it could expect artillery fire. That this battalion was not severely punished during this stage of the operation speaks highly of its luck. Fortunately, the first salvos of the German artillery missed an excellent target and the battalion deployed. Whether it would have been better to deploy each company, but retain column of companies, and bear toward the shelter of the woods along the Ourcq, cannot be determined. The result of the actual deployment, made suddenly and without sufficient information having been given to subordinates, was inevitable. Units quickly lost direction and became intermingled. Before long the battalion had disintegrated into a confused body of men who, after heavy losses, finally scrambled into the woods along the Ourcq.

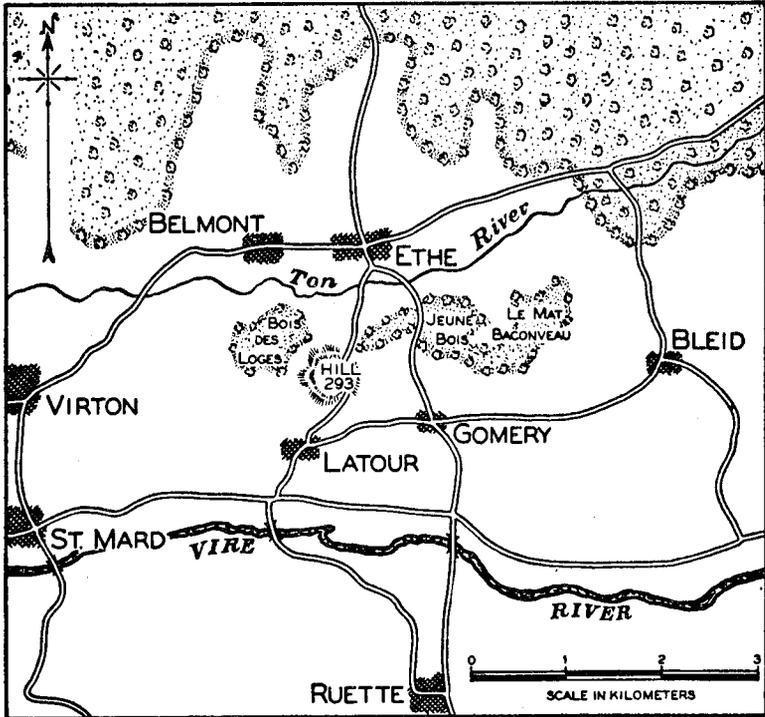
The great difference between the experiences of the 1st and 3d Battalions may be attributed to one thing: the 1st Battalion moved over ground that had been reconnoitered, taking pains to hide itself; the 3d Battalion moved in a conspicuous formation over ground that had not been reconnoitered.

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EXAMPLE 2. Early on the morning of August 22, 1914, the French 7th Division marched north through a heavy fog. Shortly after the march began, the leading elements of the division unexpectedly stumbled into the enemy near Ethe. A bloody and confused battle followed. During its course, the division commander ordered his rear brigade to attack in the direction of Belmont.

The situation was obscure. A few French troops were known to be along the north edge of the Jeune Bois, and the Germans, presumably, were still north of the Ton, where their artillery could be heard firing. Many German guns appeared to be in action and their fire seemed to be placed on the north slopes of

the Jeune Bois. Since observation was lacking, it was apparent that the German artillery was unable to fire effectively except on the hilltops south of the Ton and on the slopes near that stream. Although these facts were few, they were significant. Let us see



Example 2

how they were used in the planned attack on Belmont.

Four battalions of the rear brigade were ordered to move forward and jump off for Belmont from the northern edge of the Bois des Loges and the Jeune Bois. Two battalions were to be in assault and two in support.

The left assault battalion, commanded by Major Signorino, arrived at Gomery in route column where it received its attack

order. Although Major Signorino knew nothing of the situation to his front and had only a 1:200,000 road map, he at once deployed his battalion, with two companies leading and two following. Each company deployed its four platoons in the same way.

Thereupon the battalion struck out for the Bois des Loges as the crow flies—straight across country. In its path stood Hill 293, but the battalion did not swerve. Straight up the hill it moved. When it reached the top it must have made the Germans gasp, for there, if ever, was the artilleryman's idea of a magnificent target. It is probable that most of the seventy-two German guns that were in position cracked down in unison on Major Signorino's battalion.

In a matter of moments this unit was literally blown to pieces and its bewildered survivors were racing in wild disorder for the friendly shelter of the Jeune Bois.

The same thing happened to the right assault battalion, which lost its bearings and also went over the top of Hill 293.

The German artillery had smashed the French attack before it even reached its line of departure.

From "Esbe," by Colonel A. Grasset, French Army.

DISCUSSION. It appears that the commander of this French battalion was hasty to the point of foolhardiness. A moment or two of reflection would undoubtedly have averted this costly error. But the major didn't reflect; the moment he received his orders he placed his battalion in the formation that French regulations approved and set off for his objective.

Now in some cases a formation like this may be desirable for an advance under artillery fire. If there is no cover, for example, we will unquestionably want to spread out. But in this instance the terrain seems to indicate a movement south of Hill 293. Here a covered route of approach was available, a route that could be followed in a more compact formation—probably in column of companies, with security detachments ahead and on

the flanks. Such a formation would have insured both protection and control. The formation actually adopted not only precluded the use of the covered route of approach but resulted in the battalion advancing over the only part of the terrain that the German artillery could effectively shell.

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EXAMPLE 3. By August 29, 1914, the German 4th Guard Regiment had crossed the Oise and its leading elements had reached Rû Marin. On this day the regiment was ordered to attack southward with one battalion in assault. It was definitely prescribed that this attack, which was part of a general advance by the Guard Corps, should pass east of le Sourd.

The colonel of the 4th Guards ordered his 1st Battalion to take over the assault rôle. In his order, he pointed out the east edge of Rû des Fontaines, which he mistook for le Sourd. Not much was known of the enemy except that he had been retreating rapidly before the German advance and that a few of his troops had been encountered north of Rû Marin.

The attack of the 1st Battalion jumped off at 11:45 a.m., by which time the 2d Guard Regiment, on the right, had already captured le Sourd. However, a few French troops still remained in Rû des Fontaines.

The 1st Battalion of the 4th Guards, which had only three companies available, deployed the 1st and 3d Companies in assault with the 2d following behind the center. Two platoons of the 6th Company (2d Battalion) joined the 1st Battalion instead of rejoining their own organization.

The 1st Company on the right, with all three platoons abreast directed its advance against the eastern corner of Rû des Fontaines. The 3d Company guided on the 1st. As the 1st Company neared the village it was attracted by rifle fire from the southwest and obliqued in that direction. All of the 3d Company obliqued with it, except one platoon which pushed on toward a

knoll 400 meters east of the town where a small French detachment had been seen. A small gap was thus created in the front of the 3d Company. The 2d Company and the two platoons of the 6th Company immediately moved forward and filled this gap. Thus the entire battalion was deployed in one long skirmish line.

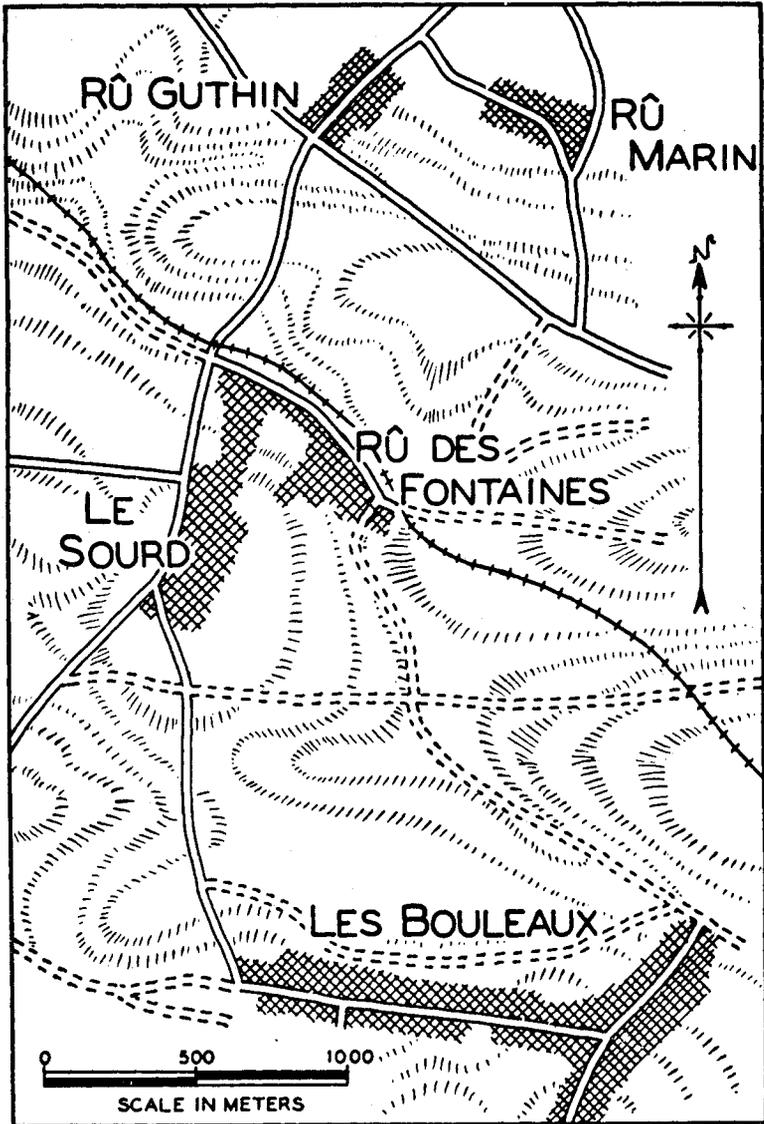
The 7th Company of the 2d Battalion, with a platoon of machine guns, was south of Rû Marin. One or two wounded men who had returned to that place reported that the French were attacking with dense lines of skirmishers and that a terrific fight was raging. The 7th Company and the machine gunners rushed forward at once, covered 1,500 yards without stopping and, exhausted and out of breath, mingled with the firing line southeast of Rû des Fontaines.

The French elements evacuated their advance position and the Germans moved forward almost without opposition until they encountered the main French position on the high ground near and north of les Bouleaux. In the face of heavy small-arms and artillery fire, the battalion pushed on. It was without artillery support, had no reserves, and all its units were intermingled. Its advance was held up with heavy losses 500 yards from the French position.

From the article by Lieutenant Colonel Koeltz, French Army, in "La Revue d'Infanterie," June, 1927.

DISCUSSION. Here 900 to 1,000 men were engaged to throw back a few observation elements. The German battalion split up. The reserves hastened to the firing line. False information reached the rear, and portions of another battalion rushed to the rescue. Units became intermingled. Then, in these unfavorable circumstances, the real resistance was encountered. Premature deployment had resulted in a blow in the air.

These errors were not committed by untrained troops but by the German Guard, a *corps d'élite* commanded by hand-picked officers.



Example 3

CONCLUSION. The formation for the approach march should be elastic, readily lending itself to maneuver. Above all it should reduce both the visibility and the vulnerability of the unit.

The situation and the terrain will dictate whether or not the approach march will be made on or off roads and trails. Generally it will be made along ravines, slopes, and low portions of the terrain, as these avenues provide more cover than conspicuous hilltops and ridges. In open warfare the enemy will not have artillery and ammunition to maintain a constant interdiction of these covered areas.

The approach march should be secured either by advance guards or by units already engaged, and should be made over ground that has been thoroughly reconnoitered. Its object is to place troops close to their attack objective in good condition, with good morale, and with minimum losses. There is no formation which of itself can accomplish this.

The best way to avoid losses is to avoid being seen. The terrain itself will indicate the most suitable formation that can be employed without sacrificing control. Reconnaissance will enable the leader to read these indications.

Chapter XXI: *Soft-Spot Tactics*

In an attack reserves should be used to exploit a success rather than to redeem a failure.

THE ATTACK by infiltration, or soft-spot tactics, endeavors to push rapidly through the weak parts of the enemy position, avoiding or temporarily masking the strong parts. The small groups that filter through unite beyond the resistance. The strong points are then gradually reduced by action from the front, flanks and rear.

An initial breach made in the enemy position must be widened and deepened. This advance within the hostile lines is most difficult. The situation will be confused. Some units will have advanced much farther than others. Higher commanders will seldom know just where the smaller units are; therefore, close support by the artillery will either be impossible or largely ineffective. Such conditions demand the utmost in aggressive leadership on the part of the commanders of small units.

It is risky to drive through a gap without trying to widen it. Sufficient reserves to exploit the success cannot be pushed through a bottle neck. On the other hand, if the advance is halted while the breach is exploited laterally, time is lost, and the enemy is afforded an opportunity to reform on positions in rear and limit the success. As a rule some compromise must be adopted between lateral and forward exploitation.

Usually a rapid advance in its own zone is the most effective assistance a unit can render its neighbor. By so doing, it drives past the flanks of enemy groups that are still resisting, thereby making it possible to attack these groups in flank and rear.

If, however, a rifle company is having great difficulty in advancing in its own zone while its neighbor is pushing forward rapidly, it will often be advantageous to move the bulk of the

company, or at least its maneuvering elements, into the adjacent zone and fight beside the company which has advanced. These elements then have the option of advancing or attacking in flank the resistance which has been impeding the assault elements of the company. Similarly, an infantry unit may, and frequently should, fire into the zone of adjacent units, for boundaries are intended to be a help and a convenience, not a hindrance. On the other hand, the commander must be certain that this fire does not endanger neighboring troops.

Captain Liddell Hart, the British writer, has termed infiltration tactics "the expanding torrent system of attack." He writes:

If we watch a torrent bearing down on each successive bank or earthen dam in its path, we see that it first beats against the obstacle, feeling and testing it at all points.

Eventually it finds a small crack at some point. Through this crack pour the first dribbles of water and rush straight on.

The pent-up water on each side is drawn towards the breach. It swirls through and around the flanks of the breach, wearing away the earth on each side and so widening the gap.

Simultaneously the water behind pours straight through the breach, between the side eddies which are wearing away the flanks.

Directly it has passed through it expands to widen once more the onrush of the torrent. Thus as the water pours through in ever increasing volume, the onrush of the torrent swells to its original proportions, leaving in turn each crumbling obstacle behind it.

Captain Liddell Hart suggests that the breach must be widened in proportion as the penetration is deepened, by progressive steps from platoon to brigade. He propounds the following procedure:

- (1) The forward sub-unit, which finds or makes a breach in any of the enemy's positions, should go through and push ahead so long as it is backed up by the maneuver body of the unit.

- (2) The forward units on its flanks who are held up should send their maneuver bodies towards and through the gap. These will attack the enemy in flank, destroy his resistance and so widen the gap.

(3) Meanwhile the units in rear press through the gap and deploy (expand) to take over the frontage and lead the advance in place of the temporarily held-up units.

(4) The held-up units, as soon as they have accounted for the enemy opposing them, follow on as maneuver units to support the new forward units.

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EXAMPLE 1. On October 12, 1918, the French 12th Infantry attacked to the northeast with its 1st and 2d Battalions in assault (the 2d on the right). Diagonally across the regiment's front ran a strongly-held and heavily-wired German trench sited along a commanding ridge. Two lesser crests lay between the trench and the Seboncourt—Bernoville road, but otherwise there was slight cover.

Both forward battalions placed two companies in assault and attached two machine guns to each. Four machine guns were moved to positions near each reserve company. Each assault company advanced with two platoons in assault and two in support.

The 7th Company, which was closest to the Germans, became heavily engaged before the other units. Although it reached the German position, it was thrown out by a counter-attack and suffered such heavy losses that it was temporarily eliminated as a combat unit. The remaining three companies reached the last crest west of the German trench, where they were quickly pinned to the ground by heavy fire.

At this juncture a few men noted a threshing machine near the point where the Seboncourt—Grougis road crossed the trench and promptly converged on it to take advantage of the slight cover it offered. From their dangerous position behind the thresher, a lieutenant and a sergeant saw that the entanglement across the road was made up of portable wire. Here was an opportunity and both men were quick to seize it. They raced forward and succeeded in clearing away the wire at this point

before the defenders picked them off. Nearby elements of the 5th Company saw the gap, rushed for it, broke through, and cleared a short stretch of the German trench on each side.

This group then continued the advance, leaving only five or six men to keep the gap open. These men were given a French machine gun and a captured German machine gun and ordered to fire to the north in order to assist the 1st Battalion.

Meanwhile the captain of the 3d Company, who had noted this success, brought up his two machine guns and opened fire with them. Since his assault platoons were pinned to the ground, he sent a runner to the leader of his right support platoon with a message directing him to move under cover of the crest toward the thresher, enter the German position and attack northward along the German trench. The runner was killed before he reached his destination.

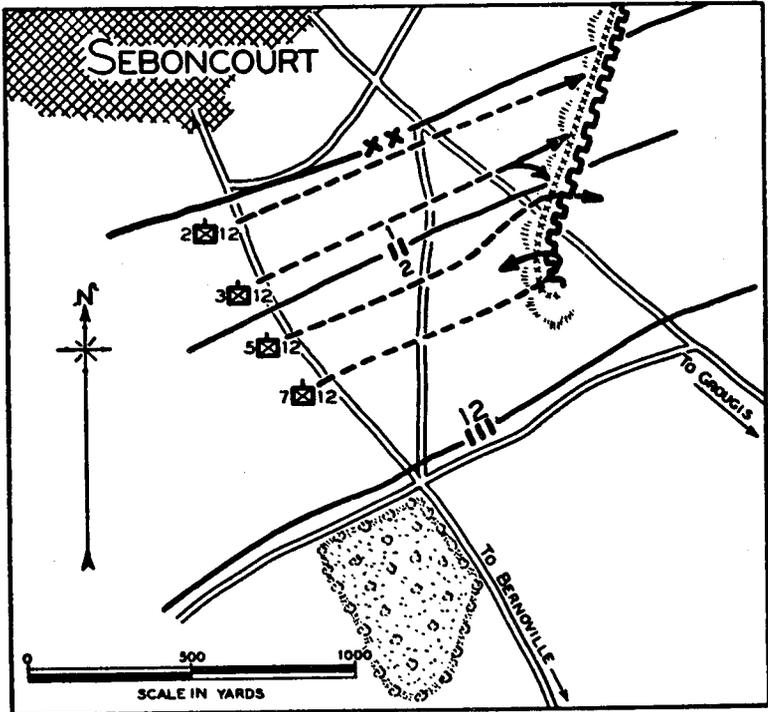
Fortunately the platoon leader in question, acting on his own initiative, decided to make the very movement ordered. His platoon passed through the breach, turned north, took the defenders of the trench in flank and rear, and captured two machine guns and 50 prisoners. The assault platoons of the 3d Company then advanced, and captured all of the trench in their zone. This action allowed the 2d Company to capture the position in its front soon afterward.

From an article by Major P. Janet, French Army, in "La Revue d'Infanterie," November, 1926.

DISCUSSION. The mechanism of infiltration tactics finds a clear illustration here. A few men get a foothold in the enemy position. Most of them push forward. But the gap is small, so some men are left to keep it open, to widen it and to assist adjacent units by fire. In this case six men were left behind with two machine guns to neutralize the flanks of nearby enemy posts.

The assault platoons of the 3d Company were pinned down; they couldn't move. The company commander decided to use a support platoon—where? Not in his own zone where the attack

was failing; had he done so he would probably have done nothing more than swell the casualty list. Instead, he ordered the platoon to move into his neighbor's zone, to the gap, to the



Example 1

weak point, while he used a small base of fire to occupy the enemy and pin him down during the movement.

It is interesting to learn that the lieutenant did the very thing his captain desired, although the order never reached him. He moved out of his zone, penetrated the hostile position and exploited the success laterally. As a result of this one small gap being widened, the entire hostile position was soon captured on a two-battalion front.

In this case the exploitation was almost entirely lateral, which was probably due to the virtual elimination of the 7th Company and the extremely heavy casualties in the 5th.

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EXAMPLE 2. The British 1st Division took part on September 25, 1915, in the Battle of Loos. The 2d Brigade, attacking on the right, was thrown back and failed to reach the German position. On the left, the left elements of the 1st Brigade were successful, captured the German front line, and pushed on.

The 2d Brigade, using fresh troops, renewed its attack. This renewed effort also broke down with heavy losses. The 3d Brigade (British divisions contained 3 brigades each of 4 battalions) and a force of two battalions, known as Green's Force, still remained at the disposal of the division commander. Green's Force was ordered to make another frontal assault on the left of the 2d Brigade, while elements of the 3d Brigade advanced north of it through the break in the German defenses near la Haie Copse.

Green's Force, attacking with one battalion on each side of the Lone Tree, was soon brought to a halt.

The leading battalion of the 3d Brigade lost direction, bore off to the right, joined Green's Force and was involved in its repulse. Let us see what happened to the next unit, the 2d Welch Battalion.

With two companies in assault and two in support, it moved in extended order over open ground for a mile. It was unobserved. The German front line was found to be completely deserted. No trace of the battalion supposed to precede the Welch could be found, so after advancing a short distance within the German position, the battalion commander changed direction to the right front toward a point where the exposed right flank of the 1st Brigade was believed to rest. This movement led the battalion in rear of the enemy trenches south of the Bois Carré,

By 5:20 p.m. they had reached the Lens road and had linked up with elements of the 15th Division on the right.

From "Military Operations, France and Belgium," Volume II, (British Official History of the Great War).

DISCUSSION. In discussing the Battle of Loos the British official history states:

An attack on an entrenched position is not merely a matter of the commander making a good plan and getting it thoroughly understood and rehearsed. Once released, an attack does not roll on to its appointed end like a pageant or play. Innumerable unforeseen and unrehearsed situations, apart from loss of the actors by casualties, begin at once to occur. Troops must be led, and there must be leaders in every rank, and in the latter part of 1915 these leaders were in the making.

The leading of the 2d Welch after it had broken through and arrived in rear of the enemy's trenches near Lone Tree, which resulted in the surrender of Ritter's force and enabled the 2d Brigade to advance, was an exhibition of initiative only too rare on the 25th of September.

The achievement of this one battalion compared to that of the four or five battalions that repeatedly dashed themselves against the German wire, is striking. Battalion after battalion attacked, only to prove a little more thoroughly that a frontal assault against wire and machine guns produces nothing but casualties— and a few medals for bravery among the survivors. All of these battalions, except the 2d Welch, were engaged where the original attack had failed, and in the same way. The barbed wire that stopped the first attack stopped the later ones just as effectively.

The 2d Welch, however, were used not where there had been failure, but where there had been success. They went through the narrow gap that had been created in the German front, then bore to the right, spread out and gained contact on the flank with the troops that had made the gap. A broad front of attack was again built up and the breach that had been created in the British line by the failure of the 2d Brigade was covered.

This one battalion accomplished what the 2d Brigade, assisted by three other battalions, had failed to do. The Welch pushed where the pushing was good. Thus, three years before the phrase and the idea became so prevalent, this battalion demonstrated the attack by infiltration.

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EXAMPLE 3. On August 8, 1918, "the black day of the German Army," the French 42d Division attacked southeast. On its left were Canadians; on its right the French 37th Division. The 42d used three assault battalions initially. From left to right these were: the 2d Battalion of the 94th Infantry; the 3d Battalion of the 94th Infantry; the 8th Chasseur Battalion.

The attack was launched at 4:20 a.m. The 2d Battalion of the 94th made a rapid advance along the left boundary of the division. In the early stages of the attack it saw no sign of the Canadians.

On the right, both the 8th Chasseurs and the 37th Division were held up in front of the Bois de Moreuil.

The center assault battalion of the 42d Division (the 3d Battalion of the 94th Infantry) attacked with the 9th Company on the right and the 10th on the left. Both companies had machine guns attached. The 11th Company followed the 10th.

As the 9th Company neared the Bois de Moreuil it came under fire and fell into disorder. Most of the men took cover facing the wood. The 10th Company advanced somewhat farther but was eventually held up by fire from the front and right front. The Germans were located in the woods and in the trench shown in the sketch.

The battalion commander caused mortar and machine-gun fire to be placed on the points from which the resistance seemed to come, but still the 9th and 10th Companies were unable to advance. Meanwhile, the battalion had lost the rolling barrage and a large gap had opened between it and the 2d Battalion on the left, which had swept victoriously on.

At this time the captain of the 11th Company (battalion reserve) took action on his own initiative. Taking advantage of the rapid advance of the 2d Battalion, he moved to the left of the 10th Company, found cover on the slopes of the Andréa Ravine and succeeded in reaching the trench to his front. There were no Germans in that part of the trench. Thereupon he sent one platoon to the right to attack generally along the trench. With the rest of the company he continued the forward movement through the woods toward the Gretchen Ravine.

The platoon that attacked laterally along the trench was successful. Its action enabled the 10th Company to advance, and between this company and the platoon ten machine guns and fifty prisoners were taken.

Meanwhile, the bulk of the 11th Company, moving by small groups and individuals, had reached the Gretchen Ravine and reformed. A Stokes mortar was pounding the northeast corner of the Bois de Moreuil where enemy machine guns had been firing. In addition, machine guns of the 2d Battalion were enfilading the southeast edge of the wood in order to assist the 3d Battalion. Taking advantage of these fires, the 11th Company attacked and captured the northeast corner of the wood.

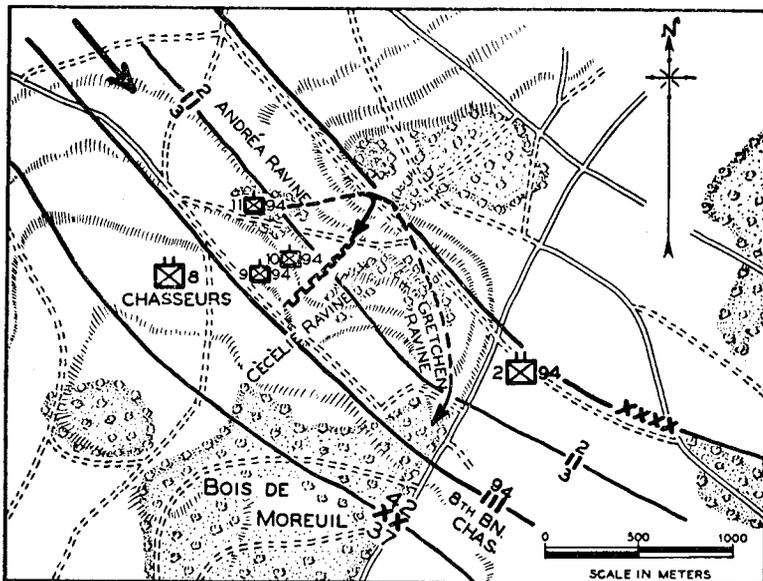
While this was going on, the 10th Company had moved through the wood, swerved to the southwest and now came up on the right of the 11th Company. The 9th Company reorganized and later arrived in rear of the 10th and 11th Companies.

German resistance in the Bois de Moreuil broke down after the 11th Company captured the northeast corner of the wood and the 8th Chasseurs were enabled to advance and mop up.

The road running along the southeast edge of the Bois de Moreuil had been designated as an intermediate objective where the barrage would halt for a short time. The advance from this objective was resumed by all assault elements of the 42d Division in good order and on time.

On this day the 42d Division captured 2,500 German prisoners; its own losses were small.

From "Infanterie en Bataille," by Major Bouchacourt, French Army.



Example 3

DISCUSSION. The operations of the 11th Company furnish an excellent example of the "expanding torrent." The 2d Battalion had driven a hole in the enemy position—a deep, narrow breach. The 3d Battalion was held up but its reserve, the 11th Company, having more freedom of movement than the assault units, executed a maneuver.

Preferably this should have been ordered by the battalion commander. As it turned out, his subordinate recognized the opportunity and acted on his own initiative. By good luck there was coordination of effort. The battalion commander had caused certain localities to be covered by his machine guns and his Stokes mortar, and this fire facilitated the movement of the 11th Company.

It advanced on the left where there was cover, and where the attack of the 2d Battalion had swept the path clear. It reached a position abreast of the Germans who were holding up the 10th Company. No other troops being immediately available, the 11th Company employed one platoon to widen the breach while the remainder of the company pushed on to catch up with the 2d Battalion, thereby extending the front of attack. The 10th Company, thanks to this assistance, was now able to advance; it pushed on and became the right assault company instead of the left. The 9th Company was in such confusion that it could no longer be continued in assault. Accordingly, it was reorganized and moved forward as the battalion reserve. Thus the battalion was enabled to resume the advance along its entire front on time.

This action graphically demonstrates the concept of infiltration.

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EXAMPLE 4. On October 17, 1918, the French 12th Infantry attacked to the northeast toward Marchavenne. The attack, supported by considerable artillery, jumped off at dawn.

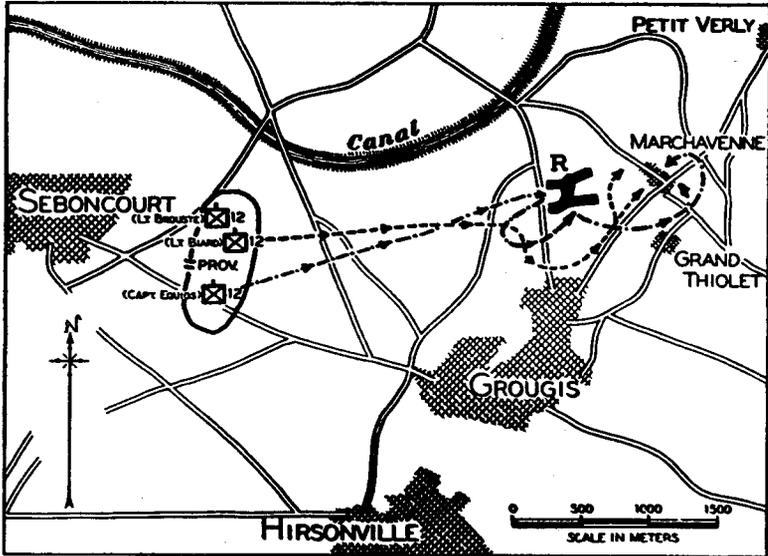
The 12th Infantry formed a provisional battalion of its depleted 2d and 3d Battalions and used this force as an assault unit. Its total in effectives came to about seven officers and 250 men. These men had been attacking for days and were close to the point of exhaustion. The battalion commander himself had little confidence in the success of the attack. On the other hand, the three company commanders were experienced, were close personal friends, and had the confidence of their men.

The battalion formed for attack with the company of Lieutenant Biard on the north and that of Captain Equios on the south. Lieutenant Brouste's company was held in battalion reserve.

A heavy fog covered the ground as the attack began. The French overran the German main line of resistance some 500 yards in front of the line of departure and pushed on. The Biard company, advancing rapidly, veered to the right and,

without realizing it, crossed in front of Captain Equios' company.

The fog began to lift and as it did the Biard company came under heavy fire from a German redoubt (R). Lieutenant Biard sized the situation up, decided to envelop the redoubt from the



Example 4

south, and quickly swung his company in that direction. This movement was unnoticed by the Germans who were holding Grougis and the company reached the north edge of that village without meeting any resistance. To the northeast, toward Marchavenne, Lieutenant Biard heard artillery firing. He also noted that the Brouste company had followed his movement. He had received no word from the battalion commander and had no idea of the location of any troops on the battlefield except the two companies with him.

Lieutenant Biard now changed his plan. He decided to attack Marchavenne instead of the redoubt. Half concealed by the thin-

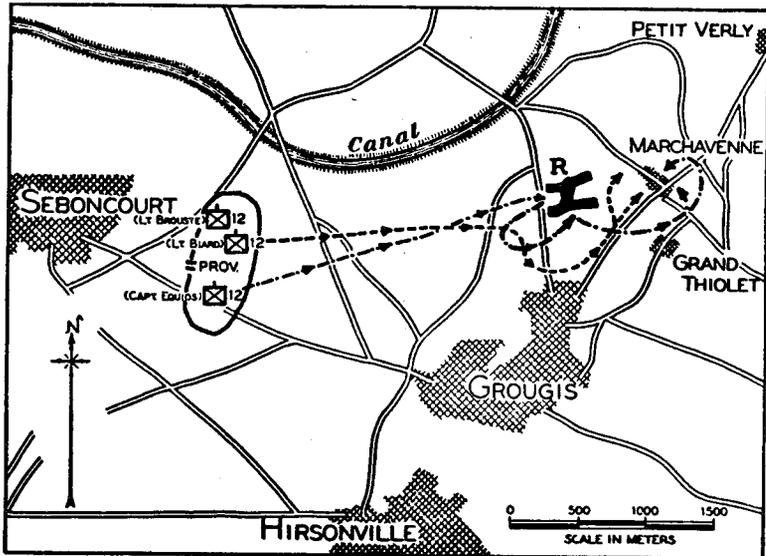
ning fog, the company filtered through the orchards north of Grougis a man at a time. When they reached the Grougis—Petit-Verly road they turned northeast and followed the roadside ditches toward Marchavenne. The Brouste company conformed to this movement.

Lieutenant Biard sent out his scouts and, in addition, made a personal reconnaissance. The fog was almost gone. Grand Thiolet—a little cluster of farm buildings—loomed up 300 yards to the right. The movement was still unobserved by the Germans. Two enemy batteries were firing vigorously from orchards just west of Marchavenne. Nearby were German machine guns with belts inserted; the crews lay near the guns.

As the French companies closed up, Lieutenant Biard issued brief orders: One platoon would rush the batteries west of the town; one would move through Grand Thiolet and attack Marchavenne from the east; another would circle to the east and attack the town from the north; and another part of the force would move along the road and attack from the southwest.

The attack proved a complete surprise. The town was captured and four officers, 150 men, eight 77-mm. guns and twenty-five machine guns were taken. The French did not lose a man.

Shortly afterward the Equios company came up. This company had also stumbled into the redoubt at R and been nailed to the ground by fire. Fortunately, French artillery fire had opened up on the redoubt, and this enabled Captain Equios to pull back rear elements of his company and reorganize. While engaged in this he learned that the rest of the battalion, which he had been looking for on his left, had pushed far ahead on his right. He therefore utilized his reorganized elements to envelop the redoubt from the south and southeast. The redoubt fell, its defenders fleeing to the northeast. Captain Equios then continued the advance, rejoined his battalion, and assisted in organizing Marchavenne for defense. Counter-attacks were repulsed. Later, other French units arrived.



Example 4

The provisional battalion's bag of prisoners during the day exceeded its effective strength. Its losses were less than 60 men.

From an article by Major P. Janet, French Army, in "La Revue d'Infanterie," December, 1926.

DISCUSSION. Most of the success of this battalion must be attributed to the surprise it gained through the use of infiltration tactics.

The Biard company found a gap in the hostile defense—a soft spot. It saw that reserves were following, so it pushed through the gap. The Brouste company followed. Movement through the gap was on a narrow front, one man at a time. The movement continued unobserved until near Marchavenne. Here the companies spread out again to attack. Surprise was achieved by the care taken to avoid hostile observation and by the direction of the attack on Marchavenne.

There are things to criticize in the operation. The battalion

commander exercised no control; he had no idea what was going on. Lieutenant Biard, after finding his gap, either did not try to notify or did not succeed in notifying his battalion commander of what he was about to do. Moreover, both assault companies lost direction early in the attack and also lost contact with units on the flanks.

Nevertheless, when all things are considered, the attack of this battalion stands as one more example of a master effort furnished by troops who have almost reached the limit of moral and physical endurance.

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CONCLUSION. The combat within the enemy position gives infantry its great hour. It is then that infantry is largely on its own; it must use its own fires to the utmost advantage while it maneuvers. It must neutralize and turn enemy resistances, infiltrate and inundate the enemy position. It is the hour of small assaults from the front, the flanks, the rear.

Fire action in the direction of progression will be difficult except for the elements of leading echelons and for curved-trajectory weapons. But machine guns with their flat trajectory will have excellent opportunities for lateral neutralization.

Successful maneuvers in such difficult circumstances demand an elasticity of mind, a lively intelligence and quick, sure decisions on the part of small-unit commanders. They also demand infantry that has been trained to maneuver. In war, troops will do only what they have learned in peace; at least this is true in the early days of a war.

No rule can be laid down that will state in what manner and to what extent a breach should be exploited. It would seem desirable for small infantry units to devote most of their strength to pushing forward and broadening the front of attack to its original dimensions. Direct action by a few men from flanks and rear against enemy resistance will often be decisive due to the moral effect. This was the case in two of the examples

noted: the 2d Welch Battalion and the 11th Company of the French 94th Infantry. However, each case must be solved on its merits.

By using reserves where a success has been obtained, we oppose our strength to enemy weakness. If we employ reserves to redeem the failure of assault units and commit them in the same manner and in the same place as those assault units, we will frequently strike the very part of the hostile position that has already been proved the strongest. For instance, on August 7, 1915, at the Dardanelles, the Australians flung their reserves into battle over the same ground and in the same maneuver used by their terribly defeated assault units. Of that action the Australian official history has this to say:

For the annihilation of line after line at The Nek the local command was chiefly responsible. Although at such crises in a great battle firm action must be taken, sometimes regardless of cost, there could be no valid reason for flinging away the later lines after the first had utterly failed.

It is doubtful if there exists in the records of the A.I.F. [Australian Imperial Force] one instance in which, after one attacking party had been signally defeated, a second, sent after it, succeeded without some radical change having been effected in the plan or the conditions.

To sum up, then, we may say that to succeed we must go fast and to go fast we must go where the going is good.