

INFANTRY COMBAT

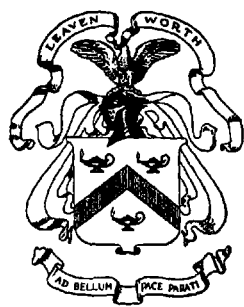
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INFANTRY COMBAT

AN ANALYTIC AND SYNTHETIC STUDY

Based on
FRENCH REGULATIONS

By
Colonel Allehaut, French Army

MAR 16 '35

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INFANTRY COMBAT

AN ANALYTIC AND SYNTHETIC STUDY

Based on French Regulations

Illustrated with Concrete Cases from the War, 1914-1918

(11 Sketches, 29 Diagrams, 3 Panoramic Views.)

PART I

INFANTRY COMBAT

MORAL LIAISON--INFANTRY : ARTILLERY

Moral Liaison.

As soon as the words, liaison of the arms, infantry--artillery liaison, are heard, the mind turns towards the material means of realizing this liaison, and especially towards the actual means of transmission. Certainly, the importance of this viewpoint is not to be denied: it is great; none the less, to consider this viewpoint alone is to neglect the main point of the question; to consider it first, is to place the cart before the horse.

The basis of this delicate, complex and vitally important mechanism, the collaboration in combat of the infantry and artillery, is intellectual and moral liaison and this should be considered first.

An example, among thousands of others, taken from the World War, will enable us to demonstrate our point.

The counterattack of 26 September, 1914. -- During the last days of September 1914 (sketch 1), the French lines, more or less stabilized for ten days on the Champagne front, were outlined approximately by Beausejour Farm--Mesnil-les-Hurlus--Perthes Mill, leaving Perthes between the French and German lines, and extending from that point to Sabot Woods.

At a certain distance from the front line, varying from 2,500 to 3,000 meters, a Roman road ran obliquely to the interior of our positions.

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Like all of Champagne Pouilleuse, this region was scattered over with rectangular shaped woods of stunted pines which obstructed the view and divided the terrain more or less into small zones. Between Wargemoulin, in the valley of the Tourbe, and Hurlus, however, was a coulee (draw) entirely exposed, the coulee of hill 147, which was later called "Bahr-el-Gazel", from the large amount of mud in which one got stuck.

Early in the morning of September 26th, between Beausejour Farm and Sabot Woods, the enemy launched a strong surprise attack, executed by several Bavarian Divisions, overran our defense, placed as was customary during that period, in the front line trenches, killed and captured a large number, and forced the remainder of the troops to retreat precipitately. Finding no serious resistance in front of it since our disposition for defense lacked depth, the German drive reached the edge of the Roman road on the left, and hill 147, in the center, in less than two hours.

The situation was critical.

At Wargemoulin, two battalions of the 20th Infantry Regiment constituted the reserve of the 33d Division, which occupied the right part of the front attacked.

Orders were given to these two battalions to counterattack in the general direction of Mesnil-les-Hurlus--Hurlus.

One of them was to attack via the draw of hill 147; with Hurlus for objective. The other battalion was to attack on the right of the first, in the woods, in the general direction of the village Mesnil-les-Hurlus.

We shall consider only the battalion which was to operate in the draw of hill 147, over open terrain. What interests us, for the moment, is the cooperation of the artillery and the infantry. This cooperation was difficult, if not impossible in the very wooded regions in which the second battalion operated. Here the infantry was obliged to attack without artillery support. Page 7 - Sketch 1 - Page 8.

About 6:30 AM; the battalion on the left, left its position of readiness at Wargemoulin and started its approach march via the draw (coulee) 147, in the direction of Hurlus.

One battery of 75s of the 18th Artillery Regiment supported it. This was very small support for a front which attained, at intervals, from 400 to 500 meters; nevertheless, we shall see what these four guns were capable of doing.

The regimental commander advanced with this battalion; on account of the natural division of the terrain into sectors, the other battalion was not under his direct command. His command post was near that of the battalion commander. The battery commander was with him.

The captain commanding the supporting battery may well be presented at this juncture. From the beginning of the campaign, he had spent many critical hours with the infantry. Generally, during combat, he was at the command post of the element which he supported while between critical periods, he visited the lines, watching the infantry, talking to them and interesting himself in them. He learned to know them and was known by them; he had observed them and understood the problems of the infantry in combat; he had learned how it operated. He knew also, from having observed it in person, how the German infantry fought. He had penetrated the psychology of the French infantryman; he was familiar with his needs; he appreciated the greatness of his morale, but he was not ignorant that his nerves were sensitive and he knew what factors reacted on them.

In a word, he had learned what the infantry was, what it could do, its character, capabilities, desires, customs, evolutions, and combat, its sufferings and its way of meeting death. In this way, he did more than learn to know it, he had learned to love it and was loved by it.

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The battalion advanced. Its approach march brought it to the vicinity of hill 147; where its first elements encountered the Bavarian infantry. Combat was engaged.

The Bavarians were full of the enthusiasm of success, while our ranks passed through the debris of our front line units which the attack had surprised in their trenches. This was not a comforting spectacle for those who were about to engage in combat. Furthermore, as soon as they became engaged in coulee 147, from hill 196, Butte du Mesnil and Perthes Mill, powerful hostile artillery fired upon them and followed their advance and numerous German machine guns, with which the German infantry was supplied at that time, fired and mowed them down. Greatly tried, the battalion was obliged to take refuge in the woods. A little later, it received orders to continue the counterattack, the battery of 75s supporting it foot by foot.

There was a sudden burst of fire from 75s on the leading Bavarian lines and they were taken by surprise. At once, taking advantage of the disorder, our infantry effected a bound in advance and part of the Bavarian line gave ground. Another burst of fire from our 75s, longer than the first; another almost simultaneous bound of our infantry which, followed close upon the artillery fire and advancing with superb ardor, attacked the Bavarian infantry almost as soon as our shells.

Thus, bounds succeeded fire until finally, the Bavarians, their offensive ardor turned to complete discouragement, withdrew in disorder toward their trenches of departure, abandoning to us, prisoners, wounded, killed and material. Our infantry pursued them to the line: Hurlus--Mesnil-les-Hurlus.

On the heights which dominated Hurlus--Mesnil-les-Hurlus from the north, was to be heard the confused noise of innumerable "gray ants" hastening to their shelters. An arrogant enemy, at the moment when he thought himself victorious, had been suddenly forced to retreat in confusion, a spectacle to which no one other in the world can be compared.

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To whom did the glory belong?

To the infantry-artillery "bloc" formed by the 20th Infantry Regiment and the battery of the 18th Artillery Regiment.

* It should not be forgotten that this was the second month of the war, September 1914. This support of infantry in combat by an artillery detachment, just described, may be considered as an early example of the "rolling barrage" invented at Verdun and on the Somme two years later.

This method of support, spontaneously, from force of circumstances, was created and applied by an infantry colonel and a captain commanding a battery, months and years before this same method was known and codified by the high command and procured such results that a remarkable change in the situation resulted therefrom.

How can such a phenomenon be explained?

The explanation is simple; it may be found in the description of the captain commanding the battery. During the first engagements of the campaign, he had lived as much as possible with the infantry; he had learned to understand it; he knew how it fought and what support was necessary to enable it to gain a victory.

This artilleryman had been instructed as an infantryman.

What conclusions are to be drawn from this account?

It points out the vital character of the principle of intimate collaboration of the infantry and artillery; it teaches the importance of carefully safeguarding this principle during times of peace; indeed, it shows that modern combat is nothing more than the placing in combined action of the artillery--fire action--and the infantry--fire and movement.

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But it shows above all that this collaboration requires mutual esteem, confidence and affection between the infantry and artillery. How could there

* Translator's Note: Support by successive observed concentrations?

be effective work between collaborators who did not know one another at all or were but imperfectly acquainted.

Thus it is necessary for the infantry to learn to know, to esteem and to love the artillery which collaborates so intimately with it in hours of crisis.

And, on the other hand, it is necessary for the artillery to learn to know, to esteem and to love the infantry. This includes comprehension of the essential properties of the infantry and penetration of its psychology and moral characteristics.

In the following pages, we shall attempt to set forth the fundamental properties of the infantry.

CHARACTERISTICS OF THE INFANTRY.

"Provisional Infantry Regulations, 1 February 1920" defines infantry as follows:

"The only arm which, without assistance, is capable of combat with movement and fire, and is able to fight unaided on any terrain and at any time, day or night. The infantry is the principal arm to aid which the others are employed; no other can replace it in the complete execution of its mission, to wit:

Capture ground with the aid of its combat tanks, artillery, aviation, etc., or with its proper means;

Destroy or capture the enemy which occupies it or, at least, drive him from it, pursue him and disorganize his forces;

Hold the ground which it has taken; organize there definitely in spite of counterattacks."

All the terms of this definition should be meditated upon.

The infantry is the only complete arm: Capable of developing powerful fire, it operates also by movement; thus, it may, at need, fight alone and, with its proper means, conduct a battle from beginning to end.

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Without the infantry, combat is radically impossible while there is no other arm with which one may not dispense at need. Hence, it is the principal arm.

But, on the other hand, without support, it would be inferior in strength to adverse infantry which is supported by the other arms, while its attack against an infantry which had set up and dug in its fire system would be certain to fail and the infantry would be sacrificed in vain. Consequently, it is necessary for the other arms to cooperate with it and render possible the successful accomplishment of its bloody task. The most important is the artillery which has developed its sole method of action to a degree of power which exceeds the bounds of what at one time was considered probable. Combat tanks are the true annex of the infantry, in the ranks of which and for which they fight. Aviation reconnoiters, reports and aids the infantry with its machine guns, bombs, and, in the near future, with guns. It creates and maintains a liaison between the infantry, isolated on the ground, in the zone of death and, farther to the rear, the organ of command and the artillery which sustains and covers it which is often very effective from the material and always inestimable from the moral point of view.

On the offensive, with its action complemented, reinforced, covered and rendered possible by the cooperation of its sister arms, the infantry conquers terrain, i.e., at the cost of great suffering, it crosses no man's land which separates it from the hostile infantry, and gains a foothold in that part of

the terrain held by the enemy, by which action alone victory is manifested; it destroys and captures the remainder of the hostile forces or, at least, drives them away and disorganizes the action which constitutes the fruits of victory; finally, holds the ground taken in spite of hostile counterattacks, action which renders the victory definitive. Likewise, in defensive action, victory is gained when the infantry, holding fast the post confided to its honor, in the midst of fire, steel and gas, remains the bloody but inviolable dam against which the combined efforts of all the arms of the adversary break.

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One conclusion may be drawn from the preceding pages: As the "Provisional Infantry Regulations" state so well: "The infantry bears the greatest burden in combat."

It is a fact that if the infantry is too greatly decreased and worn down physically, victory is no longer possible, whatever the condition of the other arms, if the enemy is able to place in combat infantry which has been better conserved. It is also a fact, and we emphasize this fact which we shall consider again later, the moral integrity of the infantry is an indispensable condition of success.

In combat, infantry wears down physically and morally with great rapidity, infinitely more rapidly than the other arms.

First, it is for the common interest for the command to spare the infantry every unnecessary fatigue, effort or trial. Then, it is for the common interest for the artillery, which constitutes the most important helper of the infantry, to assure maximum support at the opportune time and place, at need. In order to succeed in this mission, the artillery should take into consideration not only the material results to be realized by its fire but also -- one is almost tempted to say: principally -- the fortunate reaction which the great voice of the guns produces, without consideration of any other moral effect, on the nerves of its infantry and consequently, in the maintenance of the integrity of its morale.

PSYCHOLOGY OF THE INFANTRYMAN.

Thus we arrive at the last point which we propose treating in this part, the psychology, the morale characteristics of the infantryman, elements which it is of importance to emphasize for whoever may wish to understand this arm, where the morale and the nerves play a preponderant role, infinitely greater than in any other arm.

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The infantryman lives, sleeps, watches, works and fights in the mud or dust and in blood, shivers without shelter, endures privations, fatigue and horrors of all kinds.

It is the infantryman who is exposed to all the alarms, and to all surprises; it is he whom death stalks without ceasing, who sees his comrades fall one after the other about him, and who questions at every moment how it happens that his turn has not yet come. He receives blows which he cannot return and, when distant hostile artillery fires about him tons of steel and clouds of poison gas, he can only appeal to his brothers, the artillerymen, for support and when he finds it impossible to send word to the artillery, is forced to wait until support comes spontaneously. It is from him that is required that superhuman effort of the will; to leave that hole where his very existence is sheltered, even though poorly, but yet sheltered, in order, voluntarily, to expose himself in the zone where the shells are bursting, the hostile machine guns are pitilessly mowing down his comrades; to cross that zone of death and, if he is able to reach it, attack the hostile trench where the remaining hostile forces await him, perhaps to give the fatal blow.

It is the infantryman who, this extreme effort made, if he has vanquished the enemy and is still living, must remain in this strange position, without support, constantly in readiness for a hostile counterattack. He must live there during many hours -- centuries -- constantly watching, with nothing to sustain him but the little food which he was able to carry with him and, more often than not, torn by the pangs of hunger and with his thirst unquenched.

It is the infantryman who, after an action, even though victorious, will be forced to listen, during interminable days and nights, to the groans and pleas of wounded who have fallen between the lines, powerless to give them aid in a zone where, day or night, any one who exposes himself is inexorably shot down. When they have become silent, he will live for days a few feet from their dead bodies; he will see them become green and decompose, the prey of vultures, and he will have the additional sorrow of being unable to assure them burial in peaceful ground. And some later day, on this same terrain, he will be obliged again to attack, exposing himself to the fire, resigned in advance to the probability of a like fate.

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It is the infantryman who, in the trenches where he has watched and suffered, hears under ground the dull sound of the hostile miner and who wonders constantly, if the time has come when the ground beneath him will open under his feet in volcanic outburst.

It would be possible to add to this picture many touches which would render it even more striking but, even as it stands, it will be sufficient to depict the terrible trials to which the infantryman's nerves are subjected and to demonstrate that the morale of infantry depends upon the maintenance of a nervous equilibrium which is necessarily unstable. This is a preponderant factor which one should never lose sight of.

But, it is to be understood that the morale of the French infantryman is wonderful.

He is enthusiastic, devoted and ready for any sacrifice; he has the soul full of confidence of a believer and, as long as he has faith, he will go wherever one desires and do what is asked, not always without grumbling of course, -- the grumblers in our army do not date only from yesterday -- but with consistent ardor; he advances to death or awaits it with sublime abnegation; he stoically endures the worst fatigue, the direct privations, sufferings, and dangers.

It was frequently said before the World War, based upon stories of nobody knows what previous wars, that the French infantryman, capable of superhuman efforts in the offensive, had no tenacity in the defensive and that reverses quickly broke down his morale; the two Battles of the Marne, the Battle on the Yser, the Battle of Arras, the Battle of Verdun, the Battle of the Somme, and the Battle of Champagne.....have gloriously refuted this legend.

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But it is always necessary for the French infantryman to believe in the necessity for his sacrifice and he must also have confidence. These two conditions require that he should never feel himself abandoned and that, on the contrary, he should feel himself constantly sustained, supported and protected by those whose power and duty it is to do so, when he is exposed to dangers against which he has no power to protect himself. In the foregoing, may be seen the reaction of friendly artillery on the morale of the infantryman.

Let us consider the foregoing a moment. An example from the beginning of the World War will serve to point the statement.

August 22, 1914 (sketch 2). -- It was August 22, 1914. In the Belgian Ardennes. The Fourth French Army was engaged in the great offensive battle with which the high command expected to effect the rupture of the center of the German forces operating in Belgium. One of the columns of the XVII Army Corps, placed in the center of the army, followed the route of march, Blanche-Creille, Jehonville, Anloy. The enemy was known to be in the region, Maissin--Anloy--Neufchateau. The advance guard of this column -- one battalion of the 14th Infantry Regiment -- had penetrated the woods north of Jehonville but, on the north edge of the woods, it had encountered a system of extremely violent combined infantry and artillery fire and had been unable to debouch. The other battalions of the same regiment entered the line without delay. Unfortunately, the efforts of the 14th Infantry Regiment, heroically renewed, were powerless and the regiment suffered heavy losses. The 83d Regiment took the necessary disposition to enter the woods in order to debouch west of the preceding regiment. This was a great test for our infantry, particularly since it was their first trial.

And what did the artillery of the column do?

Page 17 -- Map. -- Page 18.

The artillery was composed of three battalions of 75s, one from the 18th and two from the 57th Artillery Regiments. One of these battalions had advanced beyond the positions from which it could have operated against the region north of the woods and was in close formation in a slight fold of the terrain, northwest of Jehonville where, inactive, it was being fired upon by the hostile artillery. The two other battalions had stooped in march column, with their head at Jehonville, and passively awaited their orders which did not arrive. Here was a paradoxical situation for which the methods of gaining contact employed at that time are to be blamed.

Only one battery of this mass of artillery was in position and fired. It was placed in rear of a group of trees northwest of hill 435. There was no observation point in the vicinity from which might be obtained a view north of the woods. In front of this battery, at a distance of about 1,000 meters, was the zone of woods north of which the infantry was engaged.

At this time, a captain of the General Staff from the XVII Corps was sent in liaison to the local command post in that part of the battlefield.

Going to the commander of the battery in question, the captain asked him: "On what are you firing?" And the artilleryman answered in the most indignant tone, "On what am I firing? I am firing . . . on the order of the general!"

This sally is hardly worth publishing, but how tragically apropos!

At a time when ammunition was not to be obtained in great quantities, the captain, a good artilleryman, desirous of exploiting in the most useful manner his supply of ammunition, had the best technical reasons to be outraged when forced, by a formal order, apparently to waste his ammunition since he could see nothing, knew nothing and had been forced to debouch at random for no other reason than to fire at long range but, in reality, for a good reason.

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In the meantime, let us not forget that, at this moment, the infantry was being overcome by the combined fire of the German machine guns and artillery and that the fire of this battery was the only thing which prevented the infantry

from feeling that it had been abandoned to its tragic fate. And we should be convinced that, if, in spite of everything, the infantry of this column maintained its morale better than other infantry during the day, it was due to the illusion of being supported which the fire into the air of the small battery gave to it.

The foregoing shows that artillery fire may have great effect even when it does not appear susceptible of great material results because, even with no other results, the roar of friendly guns so pleasant to the infantryman, sustains and quickens his morale. It is far from our intention to ask that the artillery waste its ammunition without obtaining the greatest material results compatible with the situation; but, we do ask it not to forget the infantry in action. So, when we send urgent messages for support or when, in a crisis, our requests do not reach it, we beg that the artillery will not remain silent under pretext that no worthy objective presents itself within its zone of action (1); furthermore, we ask that it not haggle over its aid; that it not allow itself to be hypnotized by the purely material side of the question; that it consider its moral side and never lose from sight that the safeguard of the morale of the infantry is the first condition of victory.

(Note 1 -- It is important to emphasize here that, even in a situation analogous to the one in which the battery on hill 435 found itself on August 22, 1914, an artillery element would, at the present time, have the means to realize useful material work, due to the methods of topographical preparation of fire; for example, the latter would furnish the possibility of interdiction fire on a road junction, or concentration fire against an important point like Anloy; it would no longer be obliged to fire into space.)

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How many times have we seen our infantry, resigned, it is true, but mournful and with their morale at its lowest ebb, suddenly brighten and jests pass their lips when they heard our artillery!

That is a fundamental moral law of the infantry; it should be emphasized.

A few characteristic incidents of infantry combat in the World War will serve to illustrate the psychology and state of the soul of infantry in combat.

The example used is taken from the combat of the first months of the war, but its interest still exists, particularly from the viewpoint which we are now considering.

The Brown Trenches (Les Tranchees Brunes) (Sketch 3). -- Toward the end of December, 1914, the respective situation of the opposing lines in the region Mesnil-les-Hurlus--Perthes, was that indicated in Sketch 3.

It was known that the German salient called "Tranchees Brunes" was well organized although neither the details nor the nature of the armament was known.

At the end of December, when the command decided to effect a penetration in the direction of Tahure, the 20th Infantry Regiment was given the mission to attack the "Tranchees Brunes". Its 1st Battalion which was to make the principal effort, had for mission to take a point called "Point X", situated from 150 to 200 meters from the salient.

Artillery preparation which was considered formidable at that time had been organized. "The hostile trenches", said the command, "will be covered with projectiles; their upheaval will be such that not a single defender will be able to hold; it is certain that the hostile position will be found evacuated and you will enter as if at home and push forward easily from there to Tahure, a distance of several kilometers."

On the morning of the 20th, a heavy sleet started to fall which endured the entire day, reducing the terrain to a condition beyond the power of the imagination to conceive.

At daybreak, the 1st Battalion was on its line of departure, in the Bois des Allemands. Some detachments of the 2d Battalion, one company of the 11th Infantry Regiment and some engineer detachments were concentrated there also.

At 8:30 AM, the preparation fire started in which the loud sound of the heavy projectiles and the characteristic shriek of the 75s mingled, a symphony singularly agreeable to the ears of the infantry which, deep in its holes, awaited H hour

At 8:55 AM, the commanders of the 1st and 2d Battalions left the regimental command post where they had just received their final instructions; they shook hands; they would not see each other again.

Five minutes later, at 9:00 AM, the 1st Battalion, under command of Major Hebrard, was launched, as one man, from its trenches; it was soon lost to sight in a curve in the terrain. For some minutes the clear notes of their single bugle sounding the charge were to be heard; then they were lost in the tumult which was unchained; the rattle of musketry, the sinister tac-tac of machine guns, the sharp detonations of revolving cannon, the characteristic burst of shrapnel and the detonations of shells of all calibers.

The Bois des Allemands became hell.

For a short time -- ten minutes perhaps -- two or three liaison agents of the attack battalion arrived successively to request extension of the range of artillery fire; then nothing more was heard from them.

We sent messengers to the Bois des Allemands to obtain information but none came back. Many of our soldiers were lying on the edge of our trenches of departure. Occasionally, some of them raised their heads; a sudden burst of machine gun fire and their heads fell, never to rise again.

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Then a heavy silence fell which weighed upon us like an icy shroud; it was broken from time to time by machine gun fire directed against one of our men sent out for information but whom we would now never see again.....

Heavy German shells continued to fall intermittently upon the Bois des Allemands and the neighboring woods. For some time, our artillery had been silent.

The hours passed; in the French trenches, we knew nothing; saw nothing and heard nothing further from the terrain of attack; it was unspeakable anguish.

Hours so lived give some notion of eternity in the sense that they seem not to be governed by the law of duration; they seem to be interminable even while one is not conscious of their passing.

Probably toward the end of the afternoon, a sudden cry sounded in the woods: "The Boches! The Boches are entering the woods!" Then, from the bloody communication trench which outlined the woods came a sudden rush of frightened, haggard eyed soldiers.

There was a terrible panic against which only one kind of reasoning was possible: the muzzle of a revolving cannon trained by the commander on this miserable mob.

Fortunately, even in hours of panic, men instinctively obey their officers; and, though in the Bois des Allemands, the officers were obliged to draw their pistols, their terrible duty ended there; they were not obliged to pull the trigger.....

We have there an infantry detachment which, in the morning, shared the enthusiasm of the 1st Battalion; if the supreme sacrifice had been demanded of this force also, it would have responded without hesitation. But now we see it reduced to a mad mob, brought to this condition by the tragic dream of a feverish brain.

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During days like this the men's nerves are stretched to the breaking point. In the morning, they had watched their comrades advance to what was considered certain victory; everything cooperated to reinforce this certainty in their minds; the assurances of their officers, the redoubtable fire of our guns, the ardor of the attack troops. But, since the departure of these troops, not a single one had returned; during this time, the Bois des Allemands had been worse than Dante's Inferno. Then complete silence fell; we were in total ignorance of the fate of the brave men of the 1st Battalion and every effort to obtain news of them had failed; our artillery no longer fired; the hostile artillery, still active from time to time, created new gaps in our ranks.....

What nervous system could withstand such a strain?

After nightfall, a corporal succeeded in regaining our lines and gave the following account of their experiences:

The battalion, having started with the greatest enthusiasm, had immediately been taken under the most hellish front and enfilade fire; rifles, machine guns, revolving cannon, shrapnel, guns of all calibers and minenwerfers. Their ranks were literally mowed down; nevertheless, a small handful of men, under command of Major Hebrard, had succeeded in reaching the German wire entanglements. But this wire entanglement remained intact and, beyond, the German trenches did not appear to have suffered. Part of the defenders had mounted the parapets and fired upon our men caught in the accessory defenses as they would have fired upon rabbits. What was there to do? It was impossible to advance, impossible to withdraw under the enfilade machine gun fire, and impossible to obtain shelter by lying flat on the ground. The terrain which sloped toward the hostile trenches exposed them with no possible shelter to the German fire.

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In this way, the battalion was completely annihilated; later, after our offensive of September 1915, their bodies, including that of Major Hebrard, were found in the wire entanglements.

The 1st Battalion was no more

Now, it is a question of considering the state of the soul of the infantry of the 2d Battalion of the 20th Infantry Regiment when, the following day, they learned that, two days later, on the 25d, they would again attack on the same terrain. It should not be forgotten that they were among those who, on the 20th, had been forced to look on, helpless, while their comrades were destroyed. On the evening of that same day, they were witnesses of the panic described above by which some of them were carried away. Since then, they had occupied the trenches in those tragic woods; let us add that they were not relieved until the night of the 22-23 when they went through the rain and darkness to spend a few hours at rest several kilometers from the trenches, returning before day-break to occupy their position of departure.

Those men knew that their battalion commander had requested and obtained permission for the salient of the "Tranchées Brunos", instead of the sinister point "x", to be the principal objective; it could be perfectly seen from their positions of departure. They knew that, this time, the artillery would execute serious destructions and open large breaches at suitable places in the hostile wire entanglements, for their battalion commander, himself, in cooperation with the artillery officers, had organized fire for adjustment and fire for effect (heavy artillery and 75s). This cooperation had not been effected for the attack on the 20th, the infantry and artillery working separately with only the orders of the command for point of contact.

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The infantry knew that, in this way, their commander could correct any great error in the plan of fire and finally, they knew that the battery charged with effecting the breach in the wire entanglements was under command of the captain mentioned in the beginning of this work who had received infantry instruction and was so well known and well beloved in the infantry ranks of the 53d Division.

At 12:51 PM, December 23, from the same trenches in the Bois des Allemands, from which the 1st Battalion had departed three days previously, never to return, the brave men of the 2d Battalion jumped off, as described in brigade orders of 25 December, "in a magnificent assault which evoked expressions of admiration from the commanders who were observing from their command post".

A few moments later, the 2d Battalion had reached the famous position and boldly exploited their conquest.

The "Tranchées Brunos" were ours.

How wonderful the soul of the French infantryman!

There are other phases of this engagement which might be related but one is obliged to set a limit.

Furthermore, we think that we have said enough to indicate the characteristics of the French infantryman: a critical intelligence, courage and stable nerves; such, indeed, is his nature which enables us to demand and expect everything from him, but with the condition that he have confidence and that he be not deceived in his faith.

Of all the factors which create and maintain the confidence of the infantry, the artillery is among the greatest; we might even say that it is the most powerful.

That is why it is so necessary for the artilleryman to know the infantryman, to learn in person what the infantry is, what it does, what it feels and what is necessary to it; in this way alone, will he feel its needs; finally, in a word, it will love and be loved by the infantry, the most certain guarantee of victory.

PART II.

GENERAL DISCUSSION OF INFANTRY COMBAT

CHAPTER I

OFFENSIVE COMBAT

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1 -- Essence of Offensive Combat

Definition of Combat; Offensive Combat; Defensive Combat.

The object of military operations is to break down the moral force of the adversary. One is not vanquished. It is this conviction which each adversary attempts to inculcate in the mind of the other by the employment of brutal means for the destruction or, at least, the disorganization and reduction of the adversary's material strength, factors which it is easy to understand react directly upon his morale.

Destruction, diminution and disorganization of material forces are obtained through combat which has for direct object the successive conquest "of the positions, organized or not organized, which the enemy desires to hold" (Provisional Maneuver Regulations for Infantry).

Now to conquer terrain requires an advance.

Whence the result that the only form of combat which will inflict decisive checks on the enemy is offensive combat.

On the other hand, defensive combat has for object to effect "the conservation of the terrain upon which the command has decided to break the offensive disposition of the enemy" (Provisional Maneuver Regulations for Infantry).

This form of combat lends great force to the possibility which it procures of considerably increasing fire power, while economizing effectives. Indeed, the defender organizes, more or less at his leisure, his fire power in a methodical system; he adjusts it; his supply of ammunition is largely assured.

The effectives employed for the defensive are restricted in number in comparison with those which the offensive should have at its disposition on a front of the same extent; thus they are less vulnerable; moreover, they are more or less sheltered. Finally, when the defensive has sufficient time at its disposal, the general disposition is covered by accessory defenses, -- wire entanglements or similar types of defense, -- which, forcing the assailant to stop for a time under a hail of fire, may be compared to a reinforcement of fire power.

But, on the other hand, the defensive can never be more than an incomplete form of combat, being incapable of effecting a decision; indeed, the enemy can "be stopped, suffer heavy losses and appear to be checked" (Provisional Infantry Regulations): his total disorganization and his moral disorganization will not be obtained as long as the victorious defender has not advanced in turn.

There were numerous examples of this during the great war. Let us cite our defensive victory at Verdun in 1916, and our unsuccessful offensives of April 1917 which were unable to procure a victorious end of the war either for us in 1916, or for our adversaries in 1917.

A modern battle nearly always includes a succession in point of time and a juxtaposition in space, of offensive and defensive combats, the defensive being adopted where one desires to economize in means for the benefit of the offensive parts of the battlefield or when the command desires to gain time until an attack in course of preparation is ready.

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Whatever the case, at a given moment or point of the terrain, it is the role of the infantry which determines the offensive or defensive form of the combat; this role is:

"Either to advance in spite of the enemy in order to disorganize his dispositions and destroy his force for resistance."

"Or to conserve the terrain, in spite of the attempts of the enemy, i.e., to prevent the latter from advancing."

INFANTRY METHODS OF ACTION

What are the infantry methods of action in either of these forms of action?

Since the beginning of conflicts between human beings, in the offensive, the infantry has employed two methods of action:

-- The action of missile weapons, for the destruction of the adversary's forces from a distance;

-- The action of movement, to get to close grips with him.

Since the adoption of fire arms, the action of missile weapons is called fire action.

In the defensive, we also find fire action; sometimes, it is exclusively fire action, but not necessarily so, because a well conducted defensive should not be passive and, when the assailant has not been sufficiently broken by fire, the action of movement, in the form of counterattacks, should be added.

In the counterattack the two forms of action are united; the counter-attack is only a more or less localized offensive.

Let us consider first the most complete form of infantry combat, -- the offensive, fire and movement; in the attack, what role does each of these two methods of action play?

Since to vanquish is to conquer terrain, i.e., to gain a hold on the terrain of the enemy and, since, for that, it is necessary to advance, the only method of decisive action which can obtain victory, is, consequently, the movement.

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With this consideration in mind, it has come to pass that, movement alone being decisive, such a preponderant role in combat has been assigned to it, that one has neglected more or less, and sometimes even completely, the other method of action, fire action.

This condition is produced after long periods of peace when the lessons of experience, though dearly bought on the battlefields, have been obscured.

It is also manifest at the beginning of wars when, for the first time, are employed weapons whose effect, considerably greater than that of the weapons previously employed, has not been estimated at its real value.

From both reasons, fire power was not understood, since it was believed possible to attain the object of the combat, -- contact with the enemy, -- by movement alone, the net result of which belief was to oppose men alone to materiel. It is self evident that the more powerful armament becomes, the more easily and more rapidly it defeats man power: "One does not oppose men to materiel", said General Petain in 1915.

Accordingly our tremendous losses, which were not exaggerated, led superficial minds to decree the supremacy of the defensive and the absurdity of the offensive. This likewise was an error.

THE EFFECTS OF FIRE

The phenomenon of the misconception of the effects of fire was manifest in 1870, and had had particularly tragic results for the Prussian Guard, August 18th, on the hill at Saint-Privat. It will be remembered that, on that day, troops in compact formation attempted to take the Canroberts French lines. The French infantry was armed with the Chassepot rifle. It was a great improvement over the small arms previously employed and even over the Dreyse with which the German infantry was equipped. The Prussian Guard was cut down on the famous glacis.

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Why was such a great lesson lost to us at the beginning of the great war? In the meantime, since 1870, considerable progress had been realized in armament, marking a much greater revolution than that which had resulted in 1870, from the adoption of the Chassepot rifle. The repeating rifle and the machine gun had had trials, and bloody ones, on the battlefields of the Transvaal and Manchuria. And yet, in August of 1914, we thought we could take the German lines by virtue of our enthusiasm alone. The hard lesson was not heeded.

It is difficult to realize when we consider the cost of those first experiences, that many months later, we attacked again with men alone, -- maneuver (action de mouvement), without fire action, or with entirely insufficient fire action.

It will be sufficient to take an example here and there in the accounts of 1914-1915 for attempts of this nature.

We shall give the following example from among a hundred others:

Attacked by the 34th Division, 9 May 1915, in Artois (Sketch 4). --

An offensive was organized by the Tenth Army, on the Artois front, for the first part of May 1915, with the initial object of taking Vimy heights. The 34th Division had for objective to take the German positions on a front of from 800 to 900 meters, northwest of Roelincourt, its left on the Roelincourt--Thelus road, and to take the southwest spur of Vimy heights, 3000 meters beyond.

The attack was set for May 9th.

The boundaries for the zone of action of the 34th Division were those indicated in the sketch.

Two regiments of the division (one per brigade) took part in the attack: the 88th Regiment in the front line, the 59th Regiment in the second line.

Page 33-Sketch 4.

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Until the 8th, the 88th Regiment was at rest at Duisans at a distance of about seven kilometers; it left its cantonments at 9:00 PM on that date to occupy its place of departure; it relieved the 59th which held the trenches, and was in position at 3:30 AM.

It had two front line battalions; the 1st on the right; the 3d on the left and the 2d in regimental reserve.

In each of the front line battalions, the four companies were abreast; they were in columns of platoons.

The front line platoons of the 1st Battalion were in the jump off trench for this attack; the four other platoons were in the former front line trench.

The front line platoons of the 3d Battalion were in the old front line trench because time was lacking to construct a jump off trench in their sector; the other platoons of this battalion were in the communication trenches with their heads near the front line trench.

Two companies of the 2d Battalion were in a position of readiness in the communication trenches in rear of the front line trench occupied by the battalion on the right; the two other companies were in the trench of the regimental reserve line which rested its extreme left on the salient north-east of Roelincourt.

The regiment's company of machine guns had three platoons distributed among the first line companies as indicated on the sketch; the fourth platoon was held in reserve, in the center, with the battalion in second line in Cocil trench.

The 59th Regiment had one battalion in the assembly position east of Roelincourt; the two other battalions were placed in the assembly positions organized from Roelincourt to Quatre-Vents.

What was known of the hostile positions opposite the sector of the 34th Division?

In front of the two wings of this sector, roads forming two triangles (highways and roads sunken in part) constituted two bastions which were known to be full of machine guns.

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Here between the two triangles was the front line trench, trench B, forming a curtain between the two bastions and well in rear of them.

During the last several days, a new more advanced trench had been constructed which connected the two points of the bastions. In front of the northwest bastion was reported a small field work (without doubt a machine gun nest).

In rear of trench B was a reserve trench.

In rear of trench B was a reserve trench.

Between this first position and Vimy Ridge was at least one line of trenches. Some field works were organized on the crest of the ridge itself.

Wire entanglements were placed in front of all these trenches; the normal wire entanglements sometimes had wire placed below.

On account of the accentuated salient of the French lines in the vicinity of Arras of which the city of Arras formed the point, the Germans had special facilities for realizing powerful concentration of fire in this vicinity. This they used to their fullest extent.

Let us now examine how the attack was prepared and supported.

Heavy artillery. -- For the general front of the XVII Corps which was about three times the extent of the front of the 34th Infantry Division, the following heavy artillery was employed:

2	batteries	of 120 mm guns;
2	"	of 95 mm;
2	"	of 155 mm guns;
2	"	of 155 mm howitzers, field artillery, model 1912.
1	"	of 105 mm.

It is to be observed:

a. -- That, with the exception of the 120 mm. guns which belonged organically to the XVII Corps, all this artillery was maintained under the direct orders of the commanding general of the army artillery and that it was simply required to meet as far as possible the requests of the army corps which could modify either its positions nor its organization;

b. -- That, of all the artillery, the heavy artillery was limited to two batteries of a model of very little efficiency: 155 howitzers, model 1912.

The result was that:

Almost all the heavy artillery was charged exclusively with firing upon distant hostile positions (Thelus, Farbus, Vimy, Petit-Vimy, Baillcul) and with counterbattering hostile artillery. Only the two batteries of 155 mm. howitzers were to execute destructions in hostile front line in particular the triangles; but what could two batteries of 2,500 meters on a front do? Little more than nothing (Note 1 -- On May 3d, General J.B. Dumas, commander of the XVII Corps wrote to General d'Urbal, commander of the Tenth Army, in letter No. 2459 S.C.):

"The assignment of two batteries of 155 mm howitzers is manifestly too little... One may well say... that the infantry will have only its batteries of 75's to break down the organization of the line to be attacked.

"I will add... that the heavy artillery destined to support the sector commander is not under his authority and perhaps is not in a position to cooperate in the general preparation as fully as is necessary."

In short, there was practically no preparation executed by heavy howitzers against the front lines to be attacked.

We had at our disposition several 58 mm guns (trench artillery), which were rather distant and poorly supplied with ammunition.

Artillery, 75's. -- The 34th Divisional artillery placed in line on the front now under consideration, seven batteries of 75's; they were to be

employed to destroy the first position; but it is known that the 75 is practically powerless against sunken organizations. All that it can do is to open breaches in the wire entanglements and it does not always succeed in doing this as we shall see.

In fact, this artillery preparation against the first German position was so decidedly inefficient that, in practice, it could and should be considered as nonexistent.

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Let us now consider the steps in the method of the attack:

Destruction fire was effected by the artillery during the days which preceded the attack.

On D day, from H hour to H plus 4 hour immediate preparation by the artillery; we have just seen that alone or almost alone, the 75's were to operate against the fire position. It fired from H plus 3 hour and 10 minutes to H hour plus 4 hours in fire periods of destruction fire varying in duration from two to six minutes with intervals of varying lengths.

At H plus 4 hours, the infantry attacked; the artillery, 75's extended its fire 100 meters, then in jumps of 25 meters, "preceding the infantry which carried red flags by about 250 meters". Such was the order of the XVII Corps for its entire front.

We should remark in passing that the above was an effort toward the realization of the moving shield which, later, was to be the rolling barrage. But, at this time, the prescribed support could not be carried out because it required for success two conditions from their impossible of execution: First, that the artillery which supported the infantry, follow by direct observation the advance of the infantry; second, that the infantry mark at all times its position by means of red flags which it feared would more certainly draw German fire than the protection of French artillery. The barrage laid down in front of the 34th Infantry Division had to be adjusted to the features of the terrain by divisional orders. These orders contained no instructions on this capital point. Finally, of the seven batteries, two were on counterbattery leaving fire for direct support.

In fact, as we shall see, immediately after the debouchment of the infantry, the assault units found themselves without any protection from their artillery.

Finally, the artillery 75's was charged with opening the German wire entanglements, in the breaches shown in the sketch. This operation was effected May 8th.

Let us now consider the execution:

"At the signal for the attack (H plus 4 hours) (Note 1 - March journal of the 88th Infantry Regiment), the leading platoons in swarms of from fifteen to twenty men dashed in the direction of the breaches (one half section direct against the breach, the other half sections of the platoon converging against this breach).

Page 38 - Diagram 1.

"The second platoons immediately followed the movement in swarms fifty meters in rear.

"The platoons in support (second line battalion of the 88th) followed immediately in rear; then came the 59th.

"The movement was continuous."

Such at least was the plan as it had been foreseen.

Let us observe first, the great density of the disposition, almost one man per lineal meter of front in the first wave; the same in the second wave; troops converging by detachments of 80 men against the breaches; extremely short distances between the successive echelons; a wonderful target for the German artillery and machine guns.

It should be remarked that no infantry fire (particularly machine gun fire) had been foreseen, either for immediate preparation (neutralization), or for accompanying or flanking fire for the attack. At H plus 4 hours, 10 AM, the attack started; the men of the first echelon, mounting the trench steps and ladders, left their trench of departure and, led by their officers and noncommissioned officers, rushed forward.

The bugles sounded the charge; the band played the Marseillaise. Unforgettable spectacle; heroic dash....

But, as soon as these brave soldiers appeared, an intense machine gun fire from the two triangles and violent rifle fire mowed them down.

In the left subsector, part of our forces succeeded in reaching the first German trench, trench A, but beyond there, they encountered a low wire entanglement completely intact; they were forced to return to trench A by a redoubled machine gun fire. Moreover, trench A, which we had thought the German trench for resistance, was only a communication trench into which mine galleries opened and was defended by only ten or twelve engineers.

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In the right subsector, some men succeeded in approaching the right triangle but they found the wire entanglement intact there and the survivors were fixed to the spot.

Less than two minutes after the launching of the assault, Colonel Mahon, commanding the 88th, fell mortally wounded in the trench of departure where he had stiffened the morale of his men with his traditional intrepidity.

The second line platoons were launched in rear of their comrades; the violence of the German infantry fire redoubled; extremely dense artillery barrages were fired upon them; they succumbed like their comrades and only some debris reached trench A where the survivors of the first wave were already crouched.

The 2d Battalion (reserve battalion) attempted to debouch in its turn; it did not succeed.

It made a second attempt some minutes later (10:15 AM) with no greater success; artillery support at short range was nonexistent from that time on account of the uncertainty with regard to the situation of the first waves; infantry fire also was nonexistent; this effort resulted only in further sacrifices.

At 4:00 PM, the remainder of the 88th and at 4:20 PM, the 59th resumed the attack after an artillery preparation which was much too long; failure with further losses.

The losses were as follows: thirty-five officers among them the colonel and lieutenant colonel; 1500 men.

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Such was the result of an operation in which the movement was not prepared and covered by sufficient fire action.

Although not indicative of such complete ignorance of the power of modern arms to stop troops and sacrifice them, another, more insidious form of the same error of the theory of maneuver has reappeared. It may be stated as follows:

"If I cannot attack the enemy in front, I shall attack him otherwise, I shall turn him, envelop him, maneuver him."

It is thus that we have seen section and demi-section chiefs organize battle plans like army commanders while forgetting the fire power which they had at their disposition.

Let us remark that this conception of maneuver is entirely correct and productive of results and that its employment is even indispensable. However, it is far from opposing the essential idea of combined fire and movement, on the contrary, it closely allies itself with it.

There is no doubt that if one succeeded in approaching the enemy without his knowledge and suddenly appeared at a point where the enemy did not expect one, on his flank or in his rear, he would have the benefit of surprise; but, even in such a case, he should expect fire action on the part of the enemy which would require fire reaction on his own part.

The real virtue of the maneuver lies in the fact that it places the enemy in a less advantageous position for employing his fire power.

"Thus maneuver is fire which moves", as General Debonoy said. Why does it move? In order to approach the enemy and obtain a better position with the object of effecting more easily the maneuver against an enemy whose morale has been lowered by the maneuver in the meantime.

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Let us conclude that movement, whether a direct attack or maneuver with surprise, could never be a method of action for the infantry sufficient in itself. Alone decisive, certainly; exclusive and preponderant, no.

NECESSITY FOR FIRE SUPERIORITY; CONSEQUENCES.

In order to advance in spite of the enemy, it is necessary, -- this idea is imperative today on account of the formidable power of modern arms, automatic arms in particular, -- it is necessary for the adverse infantry to be put in such a situation that it cannot effectively employ its armament.

This result may be obtained:

-- Either by the complete destruction of all the enemy's weapons or the men serving them, a result practically impossible of realization as the example of our offensives of 1915 to 1917 show clearly;

-- Or by neutralization which temporarily prevents the infantry on the defensive from placing its fire in action;

-- Or by a combination of the two.

This result may be obtained by the assailant only in case he can realize fire superior to that of the defensive, at the point and at the moment desired.

Thus fire action is indispensable.

But, should we conclude that infantry fire has a capital importance?

Is there not an arm specially organized for those missions of destruction and neutralization, -- the artillery whose only method of action is fire which it can develop to an enormous degree of power?

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On the other hand, were not combat tanks created precisely for this mission of the destruction and neutralization of defensive fire?

Are not artillery and tanks sufficient for the task?

No, neither the powerful cooperation of artillery nor the very valuable cooperation of command tanks can enable the infantry to dispense with its proper fire means.

Tanks cannot be placed at any point if only because certain ground is impracticable for them.

In a great number of cases, artillery action may be insufficient or fail. In the first place, this action may present gaps or not have sufficient density to realize the neutralization desired, -- for example, when sufficient guns or ammunition are lacking for the front or depth of attack desired.

Furthermore, there is always a time when, influenced by the terrain, the artillery must extend its range in order not to fire upon its own infantry. The infantry fire of the assailant which, previously, complemented or doubled that of the artillery, must now almost completely replace it. This replacement is necessary at times when the assailant has advanced to within about 400 meters of the adversary (let us remark that machine gun fire is most effective at this distance).

When, instead of the rolling barrage which is so important for the infantry when sufficiently dense, but which, in a war of movement cannot often be realized because it requires too much attention, when, then, it becomes necessary to resort to successive concentrations against distinctive points of the terrain or against organized hostile positions, there will always be, between the zones beaten by the artillery, points of terrain from which machine guns will fire (machine gun nests). Then will it not be necessary for the infantry to reach its objective using of its own means?

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In the case of an attack against a hostile position for which the range has been established, it is possible during the first part of the attack, i.e., during that part which consists in reaching the enemy's front line, to execute powerful, efficacious and sure coordination of infantry and artillery fire; but what then? Experience has shown that the infantry will always find in front of it, little nests of resistance which the artillery could neither destroy nor neutralize because it did not know of their existence. These nests will be improvised, artificial, which the automatic arm will create with its proper power wherever it is placed. They may be placed anywhere, in a tuft of grass, in rear of a mound of earth, in a shell hole. If the infantry does not have tanks, it will be obliged to neutralize or destroy them with its own fire (let us remark, in passing, that for this purpose, it will be obliged to have its own accompanying guns).

5/1/30-vel

Finally, in open warfare, it is very difficult, even during the beginning of combat, to obtain, by means of the artillery, effective neutralization of an adversary whose situation is not definitely known. In this case also, the infantry alone, if it has the means required, will be ready to neutralize, without excessive loss of time, fire which is not revealed until the last moment.

Let us conclude then that, under all circumstances, the infantry should rely on its own fire as complementary to the fire action of other arms, in order to realize the neutralization of the fire of the defense in default of which its advance would be inexorably broken.

Fire action is therefore an indispensable condition of success. By itself, it can not effect the decision for movement only can effect it, but it alone makes movement possible.

Thus, its fire action is of capital importance to the infantry.

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THE FIRE ECHELON.

The foregoing premise having been established, it now remains to be seen by what methods the infantry will put into action for itself fire power superior to that of the enemy, i.e., sufficiently powerful fire to neutralize that of the defense?

Theoretically, the more weapons the attack placed in line on a given front, the more powerful would be its action for neutralizing the enemy's fire; but, to realize this, the assailant would have to be invulnerable. A contradictory factor enters into this effort to obtain invulnerability, that is, the fact that the vulnerability of an echelon of fire increases very quickly with its density. The result is that there is a certain density, variable according to circumstances, beyond which the vulnerability increases more rapidly than the fire power obtained and nothing is gained by exceeding this given density.

The power of automatic arms, when employed in defense, forces the assailant to employ as small a number as possible of weapons. Since the adoption of light automatic arms for the attack and due also to a more clever and complete utilization of the heavy machine gun in the offensive, this power on the other hand enables the assailant equally, to realize great density of fire, in spite of very extended formations.

Whence results the conception of the "combat group", elementary unit of the infantry, which, under the command of a noncommissioned officer, includes, as essential element, an automatic weapon surrounded by riflemen, grenadiers and ammunition carriers to protect and serve it and, also, to complete its action as we shall see.

This group, organized, commanded and supplied with the cohesion so necessary during combat, is able, on account of the rapidity of fire of the automatic weapon, to realize an intensity of fire, with only twelve men, definitely superior to that which, on the same front, one formerly obtained with difficulty with the 50 rifles of a section.

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Thus, while not long ago, in order to obtain sufficient fire power on a given front, it was necessary to establish a nearly continuous line of riflemen almost elbow to elbow, the combat groups are now placed at intervals of which the width is only limited by the "double necessity of remaining in direct liaison and of beating all the intermediate terrain with cross fire." (Provisional Regulations for Infantry Maneuvers).

In practice, in the average combat situation, adjacent automatic arms are placed 50 meters apart; thus an approximate density of 12 men per 50 meters is obtained.

One may thus judge what progress has been realized in the thinning out of the fire echelon, a condition imperiously imposed by the fire of the defense, without destroying the cohesion so necessary for combat.

Let us remark that, in spite of this extension and the more or less complete neutralization of hostile fire obtained by the fire of the attack, the vulnerability of the weapons still remains such that, often, the movement cannot be effected other than by creeping.

Thus we have acquired a leading idea of the organization of the fire echelon.

COORDINATION OF FIRE AND MOVEMENT. (Combined Fire and Movement).

In addition, it is necessary for the fire echelon to be organized with much closer coordination of fire and movement than in the past, another consequence of the employment of automatic arms.

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Let us see what is to be understood by the foregoing (Note 1 -- Lieut Colonel Ducornez, of the centre d'etudes d'Infanterie, has treated this question in a remarkable manner, in a conference at the Center which directly inspired the following lines).

Formerly, in order that the defense might have at its disposition sufficient fire power to break an attack, numerous rifles were necessary and, consequently, numerous men. If the offensive fire had the desired power, it would destroy in part and disperse the effectives; after each burst of fire of the attack had ended, a certain delay was necessary for the defenders to reorganize and become ready again to furnish effective fire, even though considerably reduced in power; however short this delay, the offensive took advantage of it to make another bound.

At present, in situations where it would formerly have been necessary to place in line all the rifles of a company, a single arm is sufficient to furnish the necessary fire power -- a machine gun; this gun can instantaneously resume its firing as soon as the fire which neutralized it, ceases, because it has no nerves, it is solidly placed on the ground and its service requires only a few men; if the gunner has been put out of the fighting, a comrade quickly replaces him.

It is not sufficient for the assailant to make a succession of neutralization fires and bounds in advance; these two methods of action must be effected simultaneously; in other words, neutralization fire and the bound should be effected simultaneously during the entire phase of the attack which precedes the assault.

For the assault in which this simultaneousness is impracticable, the two adversaries being too close, then the bound forward to gain contact must follow the neutralizing fire without interruption.

Let us remark, however, that a certain simultaneousness of fire and movement may still be realized by marching fire of the light automatic arms.

We shall now consider the conclusions to be drawn from the preceding in the disposition of the fire echelon.

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The following is an example which will explain clearly the necessity and effectiveness of succession without intervals, of fire and movement in the as-

sault (Note 1 -- This example is taken from a conference given at the Centre d'etudes d'Infanterie by Colonel Berenguier, instructor in this center.

The text given in quotations is the literal reproduction of that of the conference.)

Engagement at Clos-Davaux, 18 July, 1918. (Sketch 5).

On 17 July, 1918, the 14th Infantry Regiment (131st Division) took part in a counterattack which was planned to drive north of the Marne the German forces which, on July 15th and 16th, had succeeded in crossing that river in the vicinity of Dormans.

The left battalion of the regiment had taken Chene-la-Reine where it took sixty prisoners but, upon debouching from that hamlet, it was the object of violent machine gun fire from machine guns placed at Clos-Davaux, and was unable to advance.

Until night, "the battalion attempted to advance seven times; first attempting to outflank the obstacle on the left; then, on the right; the adjacent units were stopped likewise; it could not succeed. Then, it made the attempt with the support of a platoon of the 57th and a gun carrying armored car placed at its disposition. Finally, it made the attempt aided by artillery in direct support whose fire, poorly regulated, was absolutely ineffective.

"During the night of the 17-18th, the battalion commander received operations orders for the 18th of which the following passages were of interest to him:

"I -- The attack will be resumed tomorrow morning under the following conditions:

"a) -- From H hour less 30 minutes to H hour, artillery preparation against Clos-Davaux;

"b) -- At H hour, one company will advance against Clos-Davaux and capture it.

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"II -- Deployment -- The company charged with the attack will be in position at assault distance at daybreak (200 meters from the houses of Clos-Davaux, to enable the artillery to fire).

"III -- Support and cover for the attack. -- When the attack is launched, machine gun sections will cover its flanks, sweeping with fire those parts of the crest not attacked.

"IV -- H hour is 5:30 AM.

"In following these orders, the 9th Company was in place at 4:30 AM. It was under the command of a sub-lieutenant and had only one adjutant and two sergeants to command about 60 men."

From 5:00 AM to 5:30 AM, the artillery preparation, a little over, effected however appreciable results.

At 5:30 AM, the range was extended.

"The infantry, uncertain of the precise moment at which the fire would cease against its objective (1), hesitated some seconds, then departed in a single bound. (Note 1 -- Perhaps the matches had not been perfectly regulated.) One hostile machine gun opened fire. The infantry line lay down but, fortunately, a rifleman had seen the hostile machine gun. He boldly remained standing and fired upon it. He fell, struck by two bullets. His neighbor replaced him; the machine gun became silent.

"At this moment, fire was opened and spread along the entire front of the company.

"The company commander then pushed his line forward. The advance continued without ceasing fire.

"Ten minutes later, Clos-Davaux was in our hands. We found in the houses and orchards, one 77-mm trench mortar, 5 heavy machine guns, 6 light machine guns and 30 rifles."

Thus a handful of men worn out from three nights of watching and a day of combat and scantily supplied with food, captured a strongly defended point of support.

Page 49 -- Sketch V -- Page 50.

The first effort failed, although it had been prepared by effective fire by artillery in direct support (of the 11 automatic guns with which the point of support was armed, only 1 remained in action). However, the bound of the infantry did not follow the artillery preparation until after a short interval.

The second attempt was successful, after neutralization fire executed by infantry weapons only, because this time the bound immediately succeeded the fire and because, also, marching fire permitted the two methods of action to be executed concurrently.

From another viewpoint, this example shows, furthermore, that, even after effective artillery preparation, the infantry may be obliged to complete the neutralization of the adverse infantry weapons with its proper weapons.

How can simultaneousness of fire and movement be obtained or, at least, for the assault, succession of fire and movement without interval?

First, the combat group is organized for that purpose; it has two equipments: the one which includes the automatic rifleman and his ammunition carriers; and the other, the grenadier and rifleman. The maneuver is organized essentially as follows: The automatic rifleman, from as sheltered a position as possible, lays down neutralization fire on the defense; during this time, grenadiers and riflemen make a bound forward, and open fire with rifle grenades, and rifles. Under cover of the smoke from the bursting grenades, the fusilier and his equipment make another bound forward. This operation is repeated if necessary, until they are within hand grenade range of the enemy and the enemy is so shaken, that immediately succeeding a burst of fire from all weapons, he can be attacked hand to hand.

This maneuver within the combat group is not practicable unless the distance between the combat group and the point of resistance is short, since the rifle grenades have a range of about 150 meters and the hand grenades, of from 30 to 40 meters only.

Page 51 -- Diagram 2.

Furthermore, for this maneuver, cooperation between neighboring combat groups of the section and between neighboring sections of the company is necessary.

For such cooperation, the fire echelon must be organized in depth, the groups, in their relation to each other, forming salients and **reentrants**, a disposition which, as shown in Diagram 2, enables groups a and b to lay down neutralization fire while c and d make a bound forward, repeating this operation as long as necessary (Diagram 2).

This protection should be powerfully reinforced by machine gun fire from machine guns placed either in the intervals between the combat groups or on

their flanks, or using overhead fire. Intervals should be left between certain elements of the fire echelon through which the machine guns attached to the front line companies may fire.

In short, we see that there is no longer a firing "line", but an organization in depth, formed "by a certain number of combat groups disposed in an irregular harrow formation, which beat the terrain in front of them and give mutual support" (Provisional Infantry Regulations). The outline of this organization is particularly irregular and difficult to define, thus making more difficult the task of the artilleryman. It can be easily understood how important it is for the artilleryman to have definite information of the location and contour of this organization.

Page 52 -- Diagram 3.

ARTICULATION IN DEPTH; SUCCESSIVE ECHELONS.

We have just given the organization of our first echelon, the fire echelon but that is not all.

It is necessary to feed this effort and push it forward until the enemy is reached and beyond. Also, the disposition for attack should enable the commander of every infantry unit, large or small, to meet unforeseen incidents and develop his plan, whatever attempts the enemy may make to prevent him from doing so. In short, it is necessary to assure continuity of action, the security of the unit under consideration, and the liberty of action of its chief.

These conditions require that the disposition for combat have depth, articulation and maneuvering power.

It is of first importance that the attack should be fed and be supported.

Let us assume, for example, fire echelon A.B.C.D. (Diagram 3). If groups B, and C, are put out of the fighting, the continuity of the fire echelon may be reestablished instantaneously, automatically.

With this object, once the initial fire echelon has been organized, with a sufficient number of groups to have, from the start, sufficient fire power on the entire combat front, there will be organized in rear, a second echelon, with its groups in a second harrow placed irregularly in relation to the groups of the first echelon. Thus, when groups B, and C are silenced, groups b and c automatically replace them.

Page 53 -- Diagram 4.

In addition, we have seen that the deployment should be so arranged as to enable the commander to meet unforeseen incidents, -- close a gap which has become too large between two adjacent elements, cover a flank, etc., and develop his plan in spite of hostile reaction, -- for example, oppose a counterattack, or even advance beyond a center of resistance in front of which part of the fire echelon has become immobilized, reestablish the firing "line" beyond, and envelop the center of resistance. Here we have the depth and articulation required, -- the depth, in particular, which enables the commander to have at his disposition available elements, or reserves.

Let us assume, for example (Diagram 4), two adjacent companies in the front line, a and b. It will frequently happen that a and b will diverge from their initial direction due to the incidents of battle, a to the left, b to the right; a gap will then form between them. If the battalion commander has at his disposition a battalion reserve, c, he will fill this gap with all or part of his reserve.

Let us now assume (Diagram 5) a hostile center of resistance, O, which has stopped one part of the fire echelon, part b. Now, what will happen if, on the one hand, in rear of the fire echelon, this second echelon of which we have spoken, advances and whose groups are deployed in an irregular harrow

formation with regard to those of the fire echelon, -- and if, on the other hand, the commander of the unit which is operating at this point, has organized reserve R?

Group b, immobilized in front of the hostile point of resistance, O, neutralized it by its fire. Groups a and c continue to advance; groups d and e turn the hostile center of resistance and reorganize beyond, a continuous fire echelon which continues to advance without further considering the hostile center of resistance, O; finally, all or part of reserve R maneuvers against this center of resistance with the object of taking it and freeing group b.

Finally, let us remark, that in this deployment, echeloned in depth, the machine gun fulfills a particularly important role, that of covering the flanks. A particularly apt example of this role follows:

German Counterattack against Butte de Souain, on the left flank of the 19th Battalion of foot chasseurs, 28 September, 1915, (1), (Sketch 6), --
(Note 1 -- This example is taken, from a conference given at the Centre d'Etudes d'Infanterie by Colonel Ducornez, instructor at this Centre.

The parts in quotations are taken literally from the text of the conference.)

Page 55 -- Sketch 6. -- Page 56.

On September 26th, 27th and 28th, the 254th Brigade made bloody assaults against the German positions which, between Navarian Farm and Woods P. 16, defied the efforts of Marchand's Division on the 25th.

All these attempts, made with map power alone, in the manner of former days, without fire support, only ended in terrible sacrifices.

On the 27th, the 19th Battalion of foot chasseurs attacked in the first wave; it was decimated; "Certain companies were reduced to 20 or 30 men and lost all their officers."

On the 28th, it attacked a second time in the first wave. This attack failed also and there were further heavy losses.

Pinned to the ground, the debris of the battalion awaited the coming of night.

"The commander of the first wave was there, a little to the left and in front of Woods P. 15; lying beside him was his sergeant major. Suddenly, the latter cried: "The Boches!"

"Then, the battalion commander saw, in rear of some Moroccans who left Woods P. 16 at a run, a hostile force of about two companies debouch from the woods.

"The danger was imminent. The battalion commander had no forces with which to oppose this new danger on his flank; and his anguish was extreme for the moment. But suddenly, like a flock of sparrows which whirls, flutters and disappears in a thicket, the two hostile companies wheeled and disappeared.

"In the beginning when he took his position, the battalion commander placed a section of machine guns along each flank of his position; this disposition was carefully held.

"On the 27th and 28th, the machine gun section on the right had advanced along the shallow valley from Butte de Souain to Woods C2 so that when, on the 28th, the assault was stopped, it was disposed in echelon slightly in rear on the right of the line formed by the battalion.

"The enemy had encountered this machine gun section. The sub-lieutenant commanding the machine gun section, with marvellous sang-froid, permitted the Moroccans to pass through his position, then opened fire point blank, -- at a distance of 50 meters according to witnesses, -- seeing that the fire was without effect, he jumped to one of the machine guns, corrected the aim and instantaneously obtained results."

Due to its echelonnement in rear of the right of the battalion -- depth and articulation, -- this machine gun section saved the battalion.

II. -- Phases of Combat.

In the preceding pages, only combat properly called, was considered: It is logical to show the essence of combat before considering the preliminaries since the latter evidently should be conceived, regulated and organized with relation to the characteristics of the action which they precede and prepare.

It is now suitable to say a word with regard to these preliminaries.

The combat itself includes several acts which may be definitely distinct and we should have some idea of the successive operations.

Preliminary operations and combat are consecutive operations and succeed one another in a series of phases which we shall now consider.

But, before starting this study, it is necessary to state that such discrimination is not rigorous or absolute. According to "Provisional Drill Regulations for the Infantry", "combat may last a long time and its phases succeed one another with intervals; it may last several days, several weeks, or even several months, during which the first echelons will remain on the defensive. Thus, there may be a period of waiting between the approach march and the attack. The attack may take place even after a long period of stabilization." Consequently, one should not believe that the different phases of the combat succeed one another at close intervals or that the same troops execute the attack from start to finish.

The principal phases of the combat are as follows:

The advance in the direction of the enemy;

The approach march;

The gaining of contact with his main body and the engagement of our main force;

The attack, including the assault;

The retention of the ground gained and the maintenance of contact;

The exploitation of success.

The Advance toward the Enemy.

While the infantry is advancing in march columns in the direction of the enemy, via highways and roads, the columns, -- which may include elements of various arms, -- are covered by advance guards and, if necessary, by flank guards and rear guards whose duty it is to cover these columns, during the march and halts, against attacks by hostile cavalry, raids by auto-guns, and detachments of all arms transported by automobiles and, in the not far distant future, attacks by ultra-rapid tanks with extended radius of action. Furthermore, let us not forget that, during this phase, and even at a great distance from the enemy, several days' march, precautions should be taken to avoid the observation and attacks of hostile aviation.

As soon as the troops enter the zone of fire of hostile long range artillery, "The columns", states "Instructions on the Tactical Employment of Large Units", "are exposed to interdiction fire whose moral effect may be considerable." Then commences the approach march. Then the infantry abandons "the principal highways, in particular, those observed by hostile aviation, in order to employ the roads, foot paths, etc., and, at need, to advance across fields." Often during this period, movements are executed at night.

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Approach March.

The infantry really enters the phase of the approach when it penetrates the zone of fire of hostile artillery of all calibers, let us say about fifteen kilometers from the adversary. The infantry of the large second line units also advances at night as far as possible. This is not possible for the first line units charged with gaining ground contact with the enemy; generally speaking, the latter can accomplish their mission only by day.

These elements will advance exclusively across fields.

In what formation and in what manner?

During the approach march, the infantry does not have to employ its proper weapons, but it will be covered against adverse artillery and aviation fire, also against machine gun fire at long range when it arrives within about 4,000 meters of the enemy.

Then the formations adopted will be governed by the following conditions:

The infantry should conceal itself as well as possible from hostile aerial and terrestrial observation, making use of the slightest cover, irregularities of the ground and advance under cover. It should deploy into small manueverable columns which can advance over any terrain; they will have wide intervals in frontage and in depth. These columns will be in single file, by group or even by squads only, maintaining between them such distances and intervals that no two elements can be struck by the burst of the same shell; at least 25 meters; preferably from 40 to 50 meters ("Infantry Regulations").

Page 60 -- Diagram 6.

The approach disposition should have sufficient manuever ability to permit changes in orientation and formation. It is clear that a formation which is suitable for one sector of the zone of approach might not be suitable for other sectors.

Let us assume the situation (Diagram 6) of a battalion which is executing an approach march over terrain without cover, south of a certain river R, between the boundaries L1 and L2; it will then cross this river at two points of crossing, P1 and P2; it will then find itself in a zone covered by extensive woods such as B1, B2 and B3.

It is clear that the extreme deployment in both depth and front taken up to reach the river will have to change two slender columns to cross it. Across the river the formations will have to take the outline of the woods in order to make a full use of the cover offered.

It is evident that, to carry out these successive changes, the formation adopted must be always supple and for this reason carefully echeloned and distributed in depth.

The approach formation should also contain the germ of a combat formation and be capable of deployment without difficulty or loss of time.

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We have seen in the preceding pages that a formation combat should be organized in depth, in several echelons, and that it should be able to furnish sufficient fire power along the entire front. This is the duty of the leading echelon, the fire echelon, which is composed of combat groups in an irregular harrow formation to permit cross fires.

Certain of these conditions are the same as those required for approach formations.

In short, the two types of formation are conceived according to the same plan; they differ to this extent that the approach formation covers the advanced echelons from hostile fire as completely as possible, while combat formation enables them to furnish sufficient fire power to the front. Consequently, to deploy for the approach formation into combat formation, it is sufficient for the most advanced echelon of the approach formation to deploy into a fire echelon capable of furnishing the required fire power.

With this object in view, the advanced echelon of the approach formation will have the necessary density for the situation.

When the time has come, the small columns of the advanced echelon of the approach formation have only to deploy and will then constitute a fire echelon.

If necessary the distances and intervals in the remainder of the approach formation will be closed up and the combat formation will thus be taken up in the minimum time.

A number of plans for types of approach formations for the company, follow; below each type is given the corresponding combat formation (Diagram 7).

Finally, a unit executing an approach march may either be in the front line without being covered by a friendly infantry element between it and the enemy or, it may be covered by other infantry elements which have already gained contact with the enemy.

Page 62 -- Diagram 7.

In other words, the approach may be covered or not covered.

In the second case, the unit under consideration covers itself by its leading echelon, which, pushed well to the front is really an advance guard with mission to gain contact with the enemy and protect the following units from surprise.

This advance guard is so deployed as to cover the entire frontage of the zone of advance of the units which it protects; it is preceded by light elements (patrols, mounted scouts), so arranged as to be able to reconnoiter all important points of the terrain.

Page 63 -- Diagram 8.

Detachments cover the flanks. These flank guards are indispensable, even when the unit is an interior unit. In this case they are likewise liaison detachments.

If the approach is covered, security measures may be reduced to patrols. These are charged, in particular, with reconnaissance of routes of march.

Let us remark at this point, that the greatest security measure for infantry is its ability to deploy instantaneously from the approach march into combat formation.

The approach march when the unit is not covered will be an advance by bounds from one suitable feature of the terrain to the next (Diagram 8). Each bound is followed by a halt of variable length. The infantry halts principally in order to enable the artillery in direct support to coordinate its advance to the advance of the infantry. The artillery also advances by successive bounds and, furthermore, by successive echelons so that one-half of the artillery is always in position effectively to support its infantry.

Each bound will often be subdivided into intermediate bounds with halts on lines which, generally, have been determined in advance. These intermediate bounds which are made by the infantry alone are for the purpose of reorganizing the units, ~~verifying~~ cohesion and reestablishing liaison between adjacent elements.

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Gaining Contact: the Engagement.

A time will come when some of the most advanced elements of a front line unit effecting an approach march which is not covered, will be fired upon.

Generally, in the beginning, the hostile fire will come from scattered points held by small hostile security detachments furnished with automatic arms. They will form a screen in which the neighboring elements will not be sufficiently close together or have sufficient fire power to produce effective cross fire.

The fact that the advance detachments of the approach disposition are disposed in width over the entire zone of the advance, will cause certain of these elements to be within range of hostile fire from these points; they will attack these points with their proper means; sometimes the support artillery or tanks brought up in trucks will aid them.

During this time, the neighboring elements which are opposite the intervals (gaps) in the hostile screen, will penetrate the screen by infiltration.

Attacked in front and threatened with envelopment, the hostile nests will withdraw. This action will continue with the support of artillery and sometimes of tanks, until the advance echelon of the approach formation encounters serious, continuous resistance without gaps.

Then this advanced echelon organizes defensively on this line of continuous contact and assure the possession of this line.

Under cover of the defensive position thus hastily created, the command is enabled to organize methodical operations, that is, to prepare either preliminary (partielles) local attacks if it is thought that contact has been gained with only a simple screen and if it is desired to penetrate this screen in order to reach the position of resistance, or a general attack if the time is thought opportune.

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In either case, this line of first contact which has now been organized will first cover the preparations for attack: disposition of infantry, tanks, artillery, etc.....When the attack is launched, it will serve as line of departure.

An example taken from the great war will serve to make clear the determining influence which good or poor approach dispositions and gainings of contact exercise upon the issue of combat.

Approach and Engagement of the Center Column of the XVII Army Corps, 22 August, 1914 (Sketch 2). -- On 22 August, 1914, the Fourth French Army marched in the direction of Neufchateau; its mission was: "The enemy will be attacked wherever he is encountered."

The XVII Corps which operated in the center of the army, advanced in three columns; its center column followed the route of march: Sainte-Cécile--Cugnon--Blanche--Creille--Jéhonville--Anloy.

This column under the orders of the commanding general of the 67th Brigade, had the following composition:

67th Infantry Brigade (14th and 83d Infantry Regiments), three battalions of 75s (one of the 18th Regiment, two of the 57th Regiment), and a company of corps engineers.

It was known that the enemy had important forces in the region: Maissin, Anloy, Neufchateau.

The advance on the 22d would bring contact with the enemy and battle on what line? This was not known; perhaps this line would be situated at entrance to the woods south of Maissin--Anloy; it might be further to the south if the enemy, reported in the vicinity of these places, had advanced. In a word, as soon as the center column of the XVII Corps started its movement, the 67th Brigade might expect to encounter the enemy at any moment, perhaps ready to receive it with all his fire power organized in a powerful, methodic system.

Page 66 -- Diagram 9.

How should the 67th Brigade advance?

In conformity with the bad practice of the period and also with orders received, the 67th Brigade advanced in route column; its route of advance was: Sainte-Cécile--Cugnon--Blanche--Creille--Jéhonville--Anloy.

Still in conformity with the procedure of the period, it was broken up according to Diagram 9, into an advance guard on the road, in column of fours (one-third or one-fourth of the infantry) and, 1500 meters in rear, the leading elements of the main body in which the artillery, divided into several parts, was interspersed.

Contact with the enemy was made with these forces still in the above formation and combat was engaged directly from this formation.

This column was to engage an enemy ready for combat, covered by wire entanglements, with all his fire power set up, carefully adjusted and combined.

Let us recall the facts which were related briefly in the first part. The advance guard battalion (1/14) in route column, penetrated, about noon, the woods de la Haie de Wez, following the Jéhonville--Anloy road. Its first elements became the target for terrible infantry fire (machine gun and rifle fire) and artillery fire as soon as they attempted to debouch from the north side of the woods. Successive deployments for debouching were useless sacrifices. Then, later, the 11/14 battalion, which marched at the head of the main body, attempted in its turn to debouch from the

woods and was decimated; then part of the last battalion of the same regiment (III/14th Regiment) engaged and succumbed likewise.

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Later, about 4:00 PM, the 83d Infantry Regiment attempted to debouch via a road further to the west (see sketch) but it also had the fate of the 14th Regiment.

During all this time, the three battalions of 75s of the column, having advanced beyond the place from which they might have had effective action on the terrain north of the woods, were inactive, one battalion being in close assembly formation in a fold of ground between Jéhonville and Sart and two battalions, in march column, with their head at the central square of Jéhonville. One battery placed in rear of the thicket northwest of hill 435, fired, but we know that it fired into the air.

What took place here, took place at other points of the front. On the evening of the 22d, the French forces, which had been so full of enthusiasm in the morning, were in full retreat.

Let us now assume that, from the beginning of its movement, that is, from the crossing of the Semoy, that the center column of the 67th Brigade has operated, for the approach and with a view to gaining contact and engaging, according to the principles which have just been stated.

When its first elements gain contact with the German infantry placed at the north debouchment from woods of la Haie de Wez, they may, for example, deploy according to the following Diagram 10.

The two infantry regiments are abreast, Each is covered by a battalion; so two battalions will gain contact with the enemy. Both battalions have been deployed so as to cover the entire frontage of the zone of advance of their regiment. The two other battalions of the same regiment, semi-deployed, are advancing across fields. They have contrived a certain degree of echelonnement in accordance with the demands of the situation and the characteristics of the terrain; and, since the neighboring column on the right (33d Division) has been echeloned well in rear of the 67th Brigade, the exterior battalion of the 14th Regiment is echeloned to the right of the regiment.

Page 68 -- Diagram 10.

One artillery echelon of the column -- two battalions of 75s-- is in position, one southeast and the other southwest of Jéhonville, where observation posts furnish direct observation in the direction of Anloy; they are ready to support and to cover the gaining of contact and the engagement of the front line battalions. The other group (2d echelon) is in movement and, according to circumstances, will rejoin the first echelon or advance beyond it.

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Thus the 67th Brigade has advanced, covered, from the Semoy, so disposed as to be able when necessary to deploy for combat with effective artillery support.

The traversing of the woods of la Haie de Wez was a critical period because it was known that hostile forces had been reported in the vicinity of Anloy. Consequently, the advance guard battalions regulated their movement so as to reach the north edge of the woods as nearly simultaneously as possible, -- the front line combat groups were ready to deploy immediately upon reaching the edge of the woods if necessary and there to employ their fire; liaison was established with the first artillery echelon.

The advanced echelon of the front line companies attempted to debouch from the woods in this formation; it was greeted with powerful infantry and

artillery cross fire; it was impossible to advance further in spite of the combined fire and movement. There were no gaps in the hostile defensive fire through which some elements might penetrate the hostile line. The front line battalions stopped and intrenched themselves, reported and requested cover from the artillery already in position.

Under cover of this temporarily defensive front, the command, having been informed of the situation, with all its forces in hand and well covered, estimates the situation and plans its attack methodically, deciding to await the development of its fire before launching the attack in order to obtain, from the beginning, superior fire power to that of the defense.

Are we not right in stating that if, on August 22d, like dispositions had been taken, the Battle of the Belgian Ardennes would have had a different result?

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Attack, Assault.

Let us now consider the phases of combat, properly called, attack and assault.

"The infantry", states "Provisional Drill Regulations for Infantry, 1 February, 1920", "will be confronted by terrain:

- free from artificial obstacles;
- hastily organized;
- well fortified."

"To attack is always to advance from objective to objective in the assigned direction."

"In general, combat consists in an advance of the infantry from a certain line of departure, of which one is in firm possession, to another line from which it will depart under the same conditions. The line of departure may be completely organized or it may consist of simple cover". (Part 2, Art. 66.)

Of course, the length of the bounds of the attack will be regulated by the strength of the enemy, the obstacles to be overcome, etc.

When the attack has for object the conquest of successive strips of terrain, more or less well organized, the bounds will be made so that each ends in a new (base) line of departure at a suitable distance to attack the succeeding organization.

Thus in Diagram 11, 01, 02, and 03 are organized hostile zones; the first bound will jump off from B-1 in order to take hostile organization 01, then hostile organization B2, which will form a new (base) line of departure for the second bound, etc..... (Note 1 -- For example, 01 may be a combat echelon of outposts; 02, the zone of resistance; 03, the "stop line" where the regimental or divisional reserves will be stationed.)

When the combat takes place in a zone where there are no obstacles, or only unimportant ones, instead of being marked by hostile organizations, the successive objectives will be marked by natural features of the terrain: ridges, woods, villages, etc. The idea of direction will then assume greater importance since the objectives will be less definitely indicated.

Page 71 -- Diagram 11.

With this general idea of the attack given, when and under what circumstances will the attack develop into the assault?

Before the great war, the assault was considered to be the crown of the attack.

This too narrow conception has not resisted the test of reality.

"The assault", states "Provisional Drill Regulations for Infantry", "is a violent, decisive crisis of the attack. It comes at the beginning of the attack, when the approach and gaining of contact have brought two hostile lines within a short distance of each other. In any case, this is the inevitable outcome when the adversary holds.

"It implies a definite intention on the part of the assailant to advance hand to hand with the enemy, if his maneuver and threat have not succeeded in overcoming the enemy, and to organize on the very terrain which he occupies.

"The short brutal episodes of the assault may be repeated several times during the same attack and are not, necessarily, participated in at the same time by the entire leading echelon of the assailant. The entire line of attack troops is engaged only if the adversary has organized a continuous line of resistance to the proximity of which the entire attack echelon has advanced.

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"In general, the hostile resistance is organized in width and depth. From this manner of organization result local assaults by infantry detachments. Thus the attack is a progression of combined fire and assaults as far as the predetermined objective (Part 2, Art. 70)."

Let us add, in order to complete the elements of the problem set the infantry in combat, that "Immediately supported by tanks" when there are any, "it is further supported by the artillery and aviation."

We shall speak in a later chapter of the cooperation of tanks.

The infantry requires the artillery to destroy or to neutralize hostile defenses before the attack -- and, during the attack, to support the advance principal by neutralizing the organs of resistance directly opposing the infantry (Art. 67).

Finally, the air service directly aids the infantry by means of reconnaissance and maintenance of liaison. The importance of this can not be overestimated.

Let us now resume the discussion of Diagram 11 which demonstrates the most general situation, that of an attack against positions either well fortified or at any rate hastily organized. Let us attempt to imagine the manner in which the infantry combat will develop.

The attack troops are sheltered on their line of departure. The troops of the combat echelon are on line B1, the successive echelons, in their respective places. These echelons should generally be more closed up than is prescribed for the combat formation with the result that the infantry has greater chances to debouch with surprise and to cross barrage of hostile artillery before firing begins. These reduced distances are accordingly taken.

Each front line unit, a battalion or larger, has been assigned a zone of action, objectives, and a general direction of advance. Zones of action have not been assigned to units of the size of a company or less, but the latter have been assigned a direction of advance and objectives. Direction has been assigned by the compass (azimuth - so much).

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It is of great importance for the debouchment to be a surprise. Consequently, great precautions should be taken to bring the troops up to the vicinity of the attack and to place them under cover of darkness. Control of the air should be assured, at daybreak in particular, when low flying hostile airplanes will attempt to observe what is taking place within our lines. To obtain surprise, artillery preparation will be dispensed with when tanks are at hand and when the hostile organizations are not too strong. At times, a few minutes particularly intense neutralization fire will be executed. Finally, in case artillery preparation is made, no modification of the rhythm of fire should indicate to the enemy that the ~~moment~~ for the launching of the infantry attack has come.

The infantry also will participate with its machine guns in the preparation (often machine gun units of the reserve elements will effect direct or indirect fire against the hostile zones), also by placing in action their accompanying weapons.

Furthermore, immediately before the attack, the fire echelon will execute a violent but very short burst of fire with all its weapons (some seconds).

H hour sounds; the attack commences.

This is an assault.

If the line of departure is at a distance of 200 meters from the hostile front line, the artillery neutralization fire is lifted at exactly H hour; if it is at a greater distance than 200 meters; the fire is maintained without change until the infantry has advanced to that distance.

In either case, whether the method of direct support adopted is the rolling barrage or successive concentrations, the successive extension of the range of the artillery in support should be so regulated as to continue to cover and protect, as closely as possible, the advance movement of the infantry.

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The latter, having the benefit of the neutralization obtained, is not obliged to make use of its own fire at the time. On the contrary, the infantry makes every effort to reach the first hostile line as soon as the neutralization fire lifts from this line and, in any case, before the defender has had time to gather himself together again. At the most rapid gait possible, considering the condition of the terrain and the load carried by the soldier, the infantry will cross the space between its base of departure and the hostile front line; this rate of advance may be about 100 meters per minute.

Since a condition of rapidity of advance is that the troops be well in hand and that, as we have just seen, the infantry be not obliged at this time, to make use of its fire (at least; of the fire of its front echelon), the attack troops are best disposed in small columns which are more supple, more easily handled and more coherent than the line; these will be small combat groups or even squad columns, which in general will be disposed in the irregular harrow formation such as we have previously discussed.

Here, it is a propos to make the following remark: a formula has been stated to which certain minds have attributed much greater importance than the author: "The artillery conquers, the infantry occupies". This formula can be applied to only one phase of the battle in which, however, it finds its verification in no absolute measure: This is, as we shall see, the initial act of the attack of an organized position which has been organized and well observed or, what amounts to the same thing, the phases of a similar nature which may sometimes be produced during a combat. Within these limits, the formula is correct. These are without doubt the limits which were assigned to this formula in the mind of the author (Note 1 -- It is necessary to date this formula in question back to the epoch in which it was stated. This was during the first months of the war, when attacks by force of man power continued to be misused, attacks by infantry insufficiently armed, without sufficient artillery support against an intrenched defense, well supplied with automatic arms, lying in ambush in rear of wire entanglements. A reaction against such disastrous errors was natural: The expression "the artillery conquers, the infantry occupies" had the great merit of marking the beginning of this reaction and of solidifying it in a striking form. Once started, a just and desirable equilibrium should be established between the two methods of attack).

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But this formula should not be too frequently applied to all combat, as if combat were not, above all, -- we have already discussed this point and we shall discuss it again, -- the sum of multiple local actions from which the infantry must often extricate itself alone and where, in any case, the inestimable support of the artillery, -- when it has the benefit of artillery support, -- does not enable it in any way to dispense with aiding itself any more than it completely prevents bloody losses in the infantry.

Such a generalization can only be explained by an incomplete knowledge of the realities of the battlefield. It is comprehensible that these realities cannot be seen by all since there are some combatants whose duty, during the complex drama, keeps them at their combat posts situated away from a direct view of the inclosed field in which the hostile and the friendly infantry are fighting.

But the fact is none the less true; although not observed by all, these realities none the less remain realities. These realities have been indelibly engraved by the blood of innumerable martyrs of the infantry who have fallen in reconquering the national soil, piece by piece.

Since it is contrary to the realities of the battlefield, the generalization against which we protest, presents a grave danger - it causes the infantry to count too exclusively upon the support of the artillery and to remain inactive when this support is lacking although its own fire, well employed, would have secured success.

In the latter half of July, 1918, General Fayolle wrote of this danger:

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"The infantry should be prepared to push the fight home without awaiting the displacement of the artillery system." Likewise General Potain, on July 15 of the same year: "The infantry must remember that it possesses an armament which will permit it to exploit its first success and to advance after reducing local hostile resistance by its proper weapons, without artillery support."

Finally, the generalization, "the artillery conquers, the infantry occupies", by influencing the organization of the army, is of such a nature as to gravely compromise the future.

The artillery shines with too brilliant and pure a glory to brighten its frame with beams from the glory of another arm.

Once the hostile front line has been reached, incidents will arise which the infantry will be obliged to settle itself. This will slow down the rate of advance of the combat echelon. Furthermore, until the infantry has carried the entire hostile organized zone of defense, it will encounter successive trenches and centers of resistance. Previous neutralization of the defense should be assured by the artillery of direct support as far as possible; and such neutralization can only be assured by a plan for protection and by a schedule conceived and drawn up in advance (fire plan).

But, how can this schedule be worked out in advance when the rate of advance of the infantry is regulated by incidents of which it is impossible to foresee the duration in advance?

One is obliged to establish an extremely slow average rate of advance, sufficiently slow, for example, to enable the infantry to overcome the resistance encountered between lines AB and CD in the length of time represented by the product of the rate of advance foreseen and the distance which separates the two lines AB and CD (Diagram 12).

Page 77 - Diagram 12.

This will be a rate of advance of 100 meters in three minutes, perhaps in four minutes.

Does this mean that the attack infantry really marches, at any given time, at this rate of advance? No, it merely signifies that if the distance between AB and CD is, for example, about 200 meters and if the rate of advance foreseen is 100 meters per four minutes, that, all resistance overcome, the infantry should reach line CD eight minutes after having departed from line AB and that it cannot advance beyond the line CD before the eight minutes have passed. The elements which have not encountered any resistance between AB and CD may easily reach the line CD long before the end of the period of eight minutes but they must stop on the line CD until the end of

the period of eight minutes. This short stop period will very profitably be employed for reorganizing and resting.

In practice, does the attack infantry receive, in advance, the designation of well defined lines beyond which it is not supposed to advance before a certain time which is calculated upon the basis of the rate of advance adopted?

Yes, this is true for rather long bounds, -- 1,000. 1,200 or 1,500 meters, -- at the end of which the command has ordered a halt of a certain duration, in order to regain control of its units and, if necessary, to adjust the artillery fire of direct support with the situation of the infantry.

In the meantime, the rate of advance of the infantry will be held down to the rate of advance prescribed (assuming that there has been no resistance encountered which has delayed the advance longer than the time figured upon) by the necessity of remaining without the short range of the bursting shells of the barrage of the supporting artillery, if the system of rolling barrages has been adopted; or without the short range of the bursting shells of the concentrations executed by the support artillery, if the system of successive concentrations has been adopted.

It is necessary to insert a parenthetical remark at this point: It is not within the scope of this study of infantry, to consider the mechanism of the rolling barrage or that of successive concentrations of fire and, less still, to compare the technical advantages and inconveniences of the two methods.

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But, a statement which the infantry can and should make is that the rolling barrage, considered by the soldier as a shield between himself and the hostile machine guns, stiffens his morale to an extent which fire concentrations are far from producing. When the barrage is sufficiently dense, it has the effect of drawing him toward the enemy.

The rolling barrage is the more desirable method; it should always be employed whenever there is a large supply of ammunition.

In case there is not a large supply of ammunition, a rolling barrage of at least some minutes should be laid down in front of the attack infantry at H hour which, due to the moral effect which it exercises upon the infantry, is pulling it out of its holes. This sort of barrage is called a "starting barrage" (barrage de demarrage).

Let us return to our attack infantry which is still engaged in the labyrinths of organization 01; in what formation are these combat groups? They are obliged at any moment to use their arms; they are constantly under fire or threatened by fire. Consequently, they should be deployed.

Finally, to complete this phase of the attack, -- the taking of the first organized zone, -- it should be mentioned here that the fire echelon does not need to concern itself with the hostile elements which, intrenched in shelters, might have been overlooked by it and which will then seek to fire at its rear. The second echelon units are particularly charged with putting these elements out of the fighting. These units are especially designated under the name of "mopping up units".

The infantry has traversed organization 01; the advance continues to the next line of departure, B-2 from which it will eventually attack to take organization 02.

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How will the intermediate terrain between the two organizations, 01 and 02, having at some points a depth of several thousand meters and supposedly without field organizations, be crossed?

Will the infantry reach line B-2 without encountering any hostile resistance? Assuredly not; it will be the target for the infantry and artillery fire.

of the defense of 02. Consequently, it will be necessary for the artillery to direct neutralization fire against the hostile infantry and artillery.

This neutralization fire will not be sufficient because, in the intermediate terrain, the fire echelon of the attack will be certain to encounter centers of resistance well supplied with automatic arms which will impede the advance and which it will be necessary to overcome. (Note 1-- For example, such centers of resistance will be encountered between the line of resistance of the outposts and the position of resistance, a strip of terrain where the reserves of the advance posts will play an extremely effective role; or even in the strip of terrain which separates the position of resistance from the stop line where the regimental or divisional reserves are placed. Battalion reserves of the front line can effectively stop the attack by scattering over the terrain points of resistance against which the assailant has been unable to regulate fire in advance.) Will the supporting artillery have been able to neutralize them in advance? No, because there has been no previous indication of the location of these points of resistance.

We know that with its proper power, the machine gun creates a center of resistance wherever it is placed. Consequently, it is not placed at prominent points of the terrain so that the artillery supporting the attack cannot neutralize it except by a dense fire laid down upon all the intermediate terrain. Such consumption of ammunition would be impracticable in comparison with the results to be obtained.

The support artillery can only lay down successive concentrations according to a preestablished table of fire, based on the probable rate of progress of the infantry, upon the zones of terrain where hostile nests of resistance appear probable. But these zones, also can be only probable zones. We shall see that the hostile nests of resistance will have probably escaped this fire.

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Results: When these points of resistance are encountered by the infantry, it will attempt to reduce them with its proper weapons. It will sometimes succeed in those attempts, especially when it has tanks at its disposal. In other cases, guns will be forced to intervene; then it will become necessary to appeal to the artillery of direct support. But, often the length and precariousness of communications between the infantry in contact with the enemy and the artillery, placed several kilometers in rear, prevent intervention by the artillery until after a delay of several hours.

This fact shows the imperious need of the infantry for its own accompanying gun whose characteristics will be such that it can closely follow the fire echelon (in principle, abreast of the command posts of the front line battalions) and fire at short range without disclosing itself.

We shall only state the problem. Its development would require a long explanation for which there is not space here.

The preceding explanation demonstrates how necessary it is for the artillery of direct support to be placed close in rear of its infantry when the infantry has no accompanying artillery. In this case for the advance over the intermediate terrain, the necessity of pushing one echelon of this artillery forward as soon as the resistance of organization 01 has been overcome by the infantry is apparent.

What formation will the infantry adopt to cross this intermediate terrain? -- a combat formation, since it will assuredly be forced to combat and to employ combined fire and movement such as we have previously described. The combat groups will generally be deployed both because they will be under the fire of the organization against which they are advancing and in order that they will be ready instantaneously to open fire against the points of resistance which they encounter.

What happens when a point of resistance is revealed? The units which encounter the point of resistance, open fire upon it with part of their elements;

other elements attempt to turn its flanks under cover of this neutralization fire. When they have gained ground but can advance no further, they, in turn, fire upon the point of resistance. Then other detachments advance; when they have arrived within good assault distance of the point of resistance, they lay down a short brutal concentration of fire upon the point of resistance immediately after which the assault is launched.

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We have here an example of these local assaults whose sum total, in this phase of the battle in particular, constitute the essential feature of the battle.

In this phase of the battle as in all others, when certain units have at their disposal insufficient means to overcome a point of resistance, or when the losses sustained by them have too greatly reduced their fire and shock power, they are reinforced by all or part of the reserves.

For this phase of the battle, the average rate of advance can be more rapid than for organized zones; for example, 100 meters every two minutes. If the resistance encountered delays the advance beyond the time set, it will be indispensable to have them agreed on signals rapidly obtain the renewing of the artillery concentrations of which we have spoken.

Let us assume that the infantry has reached line B2; the attack troops halt there for the length of time either previously determined or determined later according to circumstances.

Often infantry units which have constituted the fire echelon of the first bound have exhausted their offensive capacity. They will then be relieved by fresh units from the reserves. This very delicate operation is called "passage of lines" and is generally carried out in the battalion echelon; a fresh battalion relieving a tired battalion.

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The second bound will be effected like the first.

OCCUPATION AND CONSERVATION OF THE CONQUERED TERRAIN; MAINTENANCE OF CONTACT.

We shall now say a word about the occupation and conservation of the conquered terrain and the maintenance of contact.

In reality, the obligation of assuring the occupation of and of conserving the conquered terrain does not belong exclusively to that phase immediately following the attack.

"At every halt, however short, the immediate and automatic preoccupation of every commander of a small infantry unit should be the organization of a system of cross fire which will assure as complete a barrage as possible in front of the line reached."

"The disposition of forces in irregular harrow formation which has already been laid down for the advance is again applied; there may even be several organizations in depth. (Provisional Infantry Regulations", art.100).

At each halt, the infantry likewise intrenches.

Before the war, the infantry could not handle the space; furthermore, we must admit, they held it in contempt. At mobilization, we did not give each private a tool (there were only two tools to every three men, these tools were not even all tools for digging). In this we see the consequences of our theory of a rapid, crushing offensive which, so we thought, would not have need for tools.

But cruel experience, from the very beginning of operations, disclosed our error. Let us not forget to profit by this experience.

Contact must be maintained or regained without delay if once lost. Patrols will be "pushed as far forward as necessary to learn whether or not the enemy has withdrawn."

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Of course such reconnaissance requires a definite understanding with the artillery since the latter should, normally, during the organizing which we have just described, even when provisional, cover it with standing barrages laid down in front of the line which has been reached by the Infantry. Since such an understanding could not be effected in time unless previously arranged and prepared, a code of signals should have been adopted, the placing in operation of which, it cannot be denied, will generally be extremely delicate.

If the position reached is to be occupied for any length of time, "a more studied organization gradually takes the place of the one hastily made when the position was first occupied" (art.100). Forces are redistributed, fire power is economized in the fire echelon which now becomes the observation echelon; a position of resistance is established in rear; the plan of fire is perfected; it is coordinated with the fire plan of the artillery; in short, a complete defensive organization is created such as the one which will be studied in connection with defensive combat.

EXPLOITATION

Finally, a word should be said with regard to exploitation.

"When troops have reached the last objective assigned to them, patrols are immediately sent forward to gain contact with the enemy", as we have just stated.

"To maintain constant contact with the enemy in the direction assigned to them, by the small leading units, is the first condition of the exploitation of success." ("Provisional Infantry Regulations", art. 103).

If the detachments thus sent forward to reconnoiter find a favorable situation for developing the success, they immediately report. The commander who sent out these patrols exploits without delay the success in the direction indicated, by means of his available reserves. He himself reports to superior authority which will take measures to support and develop the results of his initiative.

Thus begins the pursuit during which the infantry will utilize formations analogous to those for the march approach and for gaining of contact.

CHAPTER II

DEFENSIVE COMBAT

We have seen in preceding pages that defensive combat is "a maneuver having for object to hold in spite of the enemy, a certain part of the terrain on which it has been decided to break the enemy's efforts".

The principal, distinctive qualities of this form of combat are the following:

- The defensive permits complete development of fire power, since the system of fire is developed at leisure and methodically organized; and the ammunition supply can be assured to a great extent;

- The accessory defenses of which the one most generally employed is, as we know, the wire entanglement, having considerable effect in stopping the enemy; their employment amounts to an increase in the fire power itself under which they hold the assailant;

- Since the material and the personnel are under cover, losses may be reduced to a certain extent;

- Finally, the defense of a given front requires a smaller force than an offensive against the same front, the defensive enabling the command to economize means.

But, we should not forget that, on the other hand, the pure defensive has a fundamental weakness in that it cannot obtain a decision.

For this reason the command does not resort to the defensive unless it desires to economize forces for the benefit of some other parts of the front, or unless it has need of gaining time until the opportune moment arrives for resuming the offensive.

In offensive combat, the defensive phases are frequent. "They are necessary", states "Provisional Drill Regulations for Infantry", "whenever it becomes necessary to await the arrival of any material assistance (ammunition, tanks, artillery fire, etc.,) or the completion of a maneuver (reinforcement, passage of the line, outflanking, etc.)"

(art 369)

Finally, one may state that, with regard to small infantry units, offensive combat is formed of alternating offensive and defensive attitudes, with constant tendency to the offensive.

FUNDAMENTAL PRINCIPLES; METHODS OF ACTION

An essential principle underlies the conduct of defensive combat.

Once the commander has chosen his position of resistance, i.e., that portion of the terrain which he has decided to hold, whatever attempts the enemy makes, that position should be maintained at any cost. All forces assigned to the defense should be placed in action to defend this position.

The mission of the troops assigned to the defense of the position of resistance is to resist without thought of retreat; "every man will be killed on the spot rather than withdraw". Thus, "a unit which has for mission to hold a point of the terrain, should never abandon it without orders."

Such is the mission.

Let us now consider the methods of action of the infantry to which this mission is assigned.

In defensive combat, the chief method of action of the infantry is fire.

"Fire is the chief means of the defense for stopping an attack," states "Drill Regulations for Infantry"; "thus the principal act of the defense is to establish a complete fire net organized in depth in the meshes of which the enemy will sooner or later be stopped even if he breaks some of them" (art.370).

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Movement does not appear until later in case the assailant succeeds in breaking some of the meshes when an attempt is made to drive back or to capture the hostile elements which have penetrated the position and to reestablish the position: in a word, movement appears in the counterattack.

Since fire is essential, we shall see that everything, in the disposition of the troops, the organization of positions, and the choice and utilization of the terrain, will be dominated by this principal idea: obtain maximum fire effect.

THE SYSTEM OF FIRE; THE PLAN OF FIRE.

The necessary requirements from fire in order to break an attack, may be summed up as follows:

It should furnish in front, barrier fire, which will form a dense, continuous barrage, composed of several successive barrages organized in depth; these barrages should be launched instantaneously and the fire immediately adjusted.

Thus intensity and continuity of the front, i.e., without gaps, via which the assailant might enter, organization of successive barrages in depth, instantaneousness, and immediate effectiveness; such are the required conditions.

The measures taken to satisfy these conditions form the plan of fire.

The first requisite of a plan of fire is intensity of fire from automatic arms and, in particular, from the machine gun. "The machine gun is the most effective weapon of defensive combat; its barrages cannot be penetrated.... The relative proximity of the machine gun to the organ which it defends, makes liaison between this organ and the machine gun effective thus preventing misunderstandings and accidents." (art.415). Consequently, the machine gun constitutes the backbone of the system of fire.

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The fixed net of dense fire which the machine guns procure is completed by the employment of automatic rifles, which beat the intervals which are not already sufficiently beaten by fire, and by other infantry weapons; rifles, hand grenades and rifle grenades (V.B.), 37 mm guns, and Stokes mortars; in particular, weapons with short range, high angle fire-grenades, mortars, which fire against targets in what would otherwise be dead space.

Finally, the plan of infantry fire is coordinated with the plan of artillery fire: "the barrier of artillery fire is not impenetrable"; furthermore, it could not "be continuous everywhere, or often repeated without great consumption of ammunition in excess of the possibilities of supply". Nevertheless, artillery fire gives the infantry of the defense "powerful protection and considerable moral reinforcement" (art. 416). Furthermore, since the greater part of the infantry weapons have a flat trajectory and since, for this reason, certain parts of the terrain are sheltered from their fire, the barrier fire of the artillery is valuable to beat those zones: This is the basis for the coordination of infantry and artillery fire to break the first echelons of the attack.

But, the infantry should no longer expect, as it did for too long a time during the war, the artillery to effect almost the entire destruction of the first echelons of the attack; on the contrary, as "Provisional Drill Regulations" states: "Well instructed infantry which has been well supplied with ammunition

should effect this destruction with its proper weapons; then the artillery can be employed for a more fruitful task whose results will be more important for the infantry itself: disperse the following hostile echelons and reserves.

Continuity of the barrier of fire is obtained first by flanking machine gun cross fire. This flanking fire is carefully adjusted to the terrain so as to leave no gaps.

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But this organization is not sufficient. Provision must be made so that in case any machine gun element constituting this fundamental barrage be destroyed or neutralized; this continuity will be maintained. Furthermore, every element whose mission it is to execute flanking fire, i.e., to operate in a direction other than the one from which it is threatened the most, must, itself, be covered in that direction. Consequently, the machine gun barrage will be completed by the action of the groups of riflemen of the echelon of resistance; the most advanced of these elements will fire in front of them, offering mutual support and protecting the machine guns; the groups situated in rear of the first will form with them the irregular harrow and will fire in the intervals; Thus we shall establish for the defense, the harrow formation already praised in connection with the offensive.

The essential feature of the fire of the combat groups is their automatic arm, the machine rifle, but the other weapons will play their role in the plan of fire, rifles which fire to kill, i.e., are aimed at such or such assailant, in particular against officers and noncommissioned officer, -- hand grenades and rifle grenades which, as we have already seen, operate against parts of the terrain which cannot be reached by weapons with a flat trajectory.

Finally, the 57 mm. guns, enfilading the paths which, the enemy will be forced to employ, the Stokes mortars seeking the attacking infantry in folds or holes in the ground, will contribute to the continuity of the barrage.

We see that the arrangement of the fire echelon of the position of resistance, as it would result from the preceding considerations, realizes continuity of the barrage without requiring continuity of occupation: on the contrary, in the position, there will be active parts, -- or points of support, -- separated by passive parts, -- or intervals, -- which the active parts will beat with their fire.

Page 89- Diagram 13-- Example of the Distribution of Means and Organizations in a Position of Resistance -- Page 90.

Successive barriers of fire are obtained by the organization of machine guns and in depth and the deployment of the groups of riflemen in the irregular harrow formation.

The organization and distribution of fire means, according to the principles is the most important and should be the first act of troops establishing themselves on the defensive.

With reference to Diagram 13 which represents the hypothetical occupation of a position by a battalion, the first act of the defender, immediately upon his arrival on the terrain, would have been put his fire means in position.

Instantaneousness of barrages is satisfied when the barrages can be launched as soon as the assailant, seeking to take the position, penetrates within the range of the infantry guns of the defense. The system of security, of which we shall speak later, will cooperate effectively by warning the defenders and placing them on their guard. On the other hand, the weapons will be in place or in proximity to their emplacements for combat. A lookout service will function at each post and, in the vicinity of each shelter, there will be on duty at all times enough men to install and operate the automatic weapons. Finally, definite instructions will determine the general mission for each weapon; in general, this mission will include a principal mission and a number of subsequent, secondary missions. The principal mission must automatically be assured in case of a general attack. Thus we see that the plan of

fire consists of the combination of the principal instructions. Due to these measures, the alarm will always find the plan of fire ready for instantaneous execution.

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Finally, in order that the system of fire may have its full effectiveness, from the start, machine gun fire is adjusted; the 37 mm gun fire likewise is adjusted; sometimes, even the automatic rifles, mounted on extemporized carriages, may also have their fire adjusted.

INFLUENCE OF THE TERRAIN

Page 91. Diagrams 14--15.

In the organization of an impenetrable system of fire, the contour and irregularities of the terrain play an important role.

As we have already stated, of all the arms, the machine gun is the most redoubtable; but, by reason of its extreme precision, its sheet of fire is narrow; unless more machine guns could be procured than is now possible, a continuous machine gun barrage could not be organized without using the greater part of them for flanking fire (see Diagram 14).

To have flanking fire, salients and reentrants are necessary. (Diagram 15).

Page 92-- Diagram 16.

Thus it may be conceived that a diagram of a position should exploit to the maximum the facilities which the terrain presents for the creation of these salients and reentrants and that a terrain which presents great facilities for flanking fire may be well organized for the defense. That will be one of the determining factors of the choice of a position when circumstances permit one to make a choice.

The terrain should also, as far as possible, offer good fields of fire. It is apropos to remark that the enormous rapidity of fire of automatic arms now does away with the necessity of an extended field of fire in front of the infantry, in particular because the greater part of the machine guns are habitually employed for flanking fire. This is especially the case when the time position has obstacles in front of it which halt the assailant under the fire of the defense: a hundred meters of terrain without cover in front of the line of defense is now sufficient where formerly a field of fire of several hundred meters was required.

One consequence of these new conditions is the defense organized on reverse slope which is now frequently used in spite of the fact that the slightly curved form of the rises of the terrain generally present a very narrow field of fire perpendicular to the front. Formerly, this factor prevented the general use of such a position in spite of the great advantages which it presented. (Diagram 16).

CONTINUITY OF EFFORT.

The plan of fire having been organized, as for the offensive, the disposition for the defensive must assure continuity of effort, security and the liberty of action of the commander.

Page 93 -- Diagram 17.

As in offensive combat, continuity of effort may be obtained by a disposition organized in depth, that is successive echelons organized in harrow formation of which we have just spoken, and from the reserves, of which we shall speak shortly. It will be obtained also by organizing the terrain in compartments automatically procuring a front without gaps even in case the assailant

has succeeded in forcing an entry into the position in certain parts. Organization in compartments enables the centers of resistance and the points of support (1) to furnish lateral defense uniting that part of an echelon of defense which is intact to the following echelon; in short, it is a procedure analogous to that of the switch position which unites two successive positions. (2).

(Note 1 -- Strong point: A part of the terrain occupied by several combat groups, under the orders of a platoon or of a company commander.

Center of resistance: Several strong points grouped in width and depth under the orders of one commander, generally a battalion commander or a captain commanding a detachment larger than a company.)

(Note 2 - Diagram 17, two successive positions, P1 and P2. If P1 (checked) should fall, the continuity of the front (cross-hatched) is maintained due to the switch.)

Thus (Diagram 13) if the combat groups of the first echelon of the point of support on the right, cd, should fall, the continuity of the front will nevertheless be assured, along the line abgh, due to the ability of the point of support on the left to execute lateral fire (group g).

SECURITY OF THE DISPOSITION

The safety of the disposition is obtained from the security of the system of the forces and from the liberty of action of the chief (the faculty for being able to apply, at any moment, in spite of the enemy, the dispositions prepared (art. 372); it will be assured by the following general measures:

- Measures against surprise;
- Measures to secure the functioning of the defense and of the command, in spite of hostile fire;
- Measures to conserve effectives and material;
- Measures for strengthening the position by means of obstacles, called accessory defenses;
- Measures which procure for the command the means of meeting exigencies of combat and of reestablishing a situation which has been more or less compromised.
- Information of the enemy is the best guaranty against surprise; thus it is of paramount importance to watch the terrain in the direction of the enemy; for this purpose each of the front line combat groups will have a look-out service; each commander of an infantry unit, platoon, company, battalion and regiment will have at his disposal an observation post.

This will not be sufficient however, since, between the time that the launching of the attack is reported and the moment that the assailant reaches the front of the position of defense, the troops must have time to take their positions for combat. Therefore between the position of resistance and the enemy, there should be organized outposts which will not only warn the command of the beginning of the attack but will also gain for the defenders of the position of resistance the time necessary to take their positions. We shall consider this point in greater detail later.

Finally, when an attack is expected, information of the enemy will be obtained by means of raids for the purpose of bringing in prisoners.

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-- To enable the elements of the defense and the command to function during the combat, in spite of hostile fire, not only must circulation, liaison and communications be organized, but, in a certain measure, they must be

covered from offensive fire: whence the necessity of sheltered communications, on the front and in depth. To this effect, combat groups of a same section, after having each dug an element of trench, where they will take shelter, will unite those elements of trench with a parallel trench for communication from one to the other, -- the sections of the first echelon will be connected with the second echelon by communication trenches-- the second echelon will communicate likewise with the rear by means of other communication trenches (see Diagram 13). Supply and evacuation, telephone wires, liaison agents, couriers, and bearers of orders and information, etc., will pass through these trenches.

-- The security of the disposition for defense and the liberty of action of the commander could not be assured if personnel and material were not covered as completely as possible against the efforts of the assailant to destroy and to neutralize. Hence, the defense will effect measures for conserving troops and material which will consist first in sheltering them in the elements of trenches, then in light shelters which, with time and means, will be replaced by underground, concrete shelters from which the defenders will advance when necessary to occupy their combat posts; these combat posts, likewise, should be covered as well as possible.

-- The security of the disposition for defense is aided by placing obstacles in front: wire entanglements. However solid and thick, obstacles are necessary defenses which in themselves, have only a negligible value if the edge of the obstacle is not beaten by the fire of the defense; if this condition is fulfilled, its power to stop the enemy is equivalent to considerable reinforcement of the fire power.

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Consequently, the outline of the accessory defenses should be adapted to the axes of fire of the guns of the defense and principally of the machine guns (see Diagram 13), and should not be established parallel to the outline of the trenches as has too often been done. The obstacles will be strongly reinforced in front of the intervals, the passive parts; the compartments of which we have spoken will likewise be reinforced by accessory defenses as well as the successive lines of defense (Only the accessory defenses protecting the exterior edge of the position have been shown in the sketch in order not to overload it with detail).

Obstacles may also include measures taken against tanks: mine fields, and large deep ditches if the means for constructing them are at hand.

-- Finally, a reserve enables the command to meet the exigencies of events and to reestablish a situation which has been compromised (c of Diagram 13). This reserve will be "distributed over the terrain, by groups or sections, like the detachments placed in front of it and will prolong to the rear the harrow formation adopted by them. If the attack submerges the position of which the reserve forms a part, the reserve detachments will be organized in advance in the emplacements and formation best suited to fire upon the attack (art. 407). But this role is only the ultimate role which a reserve is called upon to fulfill in the defense: "Its natural mission is to execute counter-attacks, and to regain lost terrain; it may also reinforce the echelon immediately in front of it, in case of destruction of personnel or material which might compromise in certain parts the solidity of this echelon". (art. 404).

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SURPRISE.

When the defense has been organized in conformity with the preceding rules, there remains one more capital condition to be fulfilled: To assure for the defense the benefit of surprise.

The mind easily conceives the idea of surprise on the side of the assailant since the latter has the initiative of action, i.e., he launches his surprise attack at a point and time convenient for himself. But how can the

defender surprise the assailant? To this question, "Provisional Drill Regulations" reply: "The defender may surprise the assailant by keeping him in ignorance of the real position of resistance and of the system of fire which has been organized against him" (art. 371).

Not only will the defense attempt to deceive the enemy as to the real position of resistance but, within the position of resistance, to deceive him as to the actual emplacements occupied, by rendering as similar as possible the active and the passive parts, i.e., the points of support and their intervals; this leads to the construction of a continuous parallel (1) which joins the elements of trenches of neighboring points of support (broken lines of sketch 13) and to the general and systematic use of camouflage. Simulated organizations will also be employed. (Note 1- Furthermore, the continuous parallel is indispensable for securing sheltered communication between adjacent elements, a very important requirement, in particular from the moral point of view because such sheltered communication prevents the defenders of the points of support from having the feeling of isolation which is so depressing).

In order to deceive the enemy as to the system of fire prepared against him, no weapons, and in particular, the machine guns, will be placed in action until the moment of the launching of the attack. While waiting (periode d'attente) or during stabilization, if it becomes necessary to fire, guns will be placed elsewhere than in their emplacements for combat. The actual emplacements for combat will be established outside the trenches, the latter being too easily observed.

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They will be carefully camouflaged (for example, in shell holes which must be allowed to retain the appearance of shell holes; they will not remain permanently in position either but, in case of long stabilization, they will be replaced in underground or concrete shelters, with means of communication via well screened paths, covered communication trenches, or even, if there is time, by subterranean galleries.

Finally, certain machine guns will be especially designated for anti-aircraft fire.

BIRD'S EYE VIEW OF A POSITION OF RESISTANCE

Finally, we shall have a completed position of resistance.

It will be composed of a group of centers of resistance (garrison for defense: one battalion, as a rule, mutually flanking; -- each center of resistance will include a certain number of strong points which will execute cross fire (garrison of a strong point: generally one company); each center of resistance and strong point will be divided into compartments as previously stated, and divided into several successive echelons; the defense will be organized in depth, the various echelons being disposed in harrow formation with reference to each other.

However, the exterior edge of the position toward the enemy constitutes none the less a line in front of which is fixed the first defensive barrage. It is called the "principal line" ("Instructions on the Tactical Employment of Large Units", art. 203). If the assailant should force the first barrage at certain points, he would encounter a second barrage formed by the second echelons of the points of support. This would be the "support line". Further in rear will be organized the battalion and regimental reserves so as to lay down a barrage in front of one or several "stop lines" (lignes d'arret)(1).

(Note 1 - It will often be advantageous to organize the "lignes d'arret" according to the same methods given in the following pages for "intermediate positions".)

On an average, the support line is from 150 to 200 meters or more from the principal line (line of resistance); the first (ligne d'arrêt) reserve line is from 300 to 400 meters or more from the support line.

The different lines are protected by wire entanglements; furthermore, the principal line is sometimes preceded by a sort of antennae conducting to listening posts.

Communication trenches connect the parallels which constitute the lines just defined; certain communication trenches are so organized as to form the lateral faces of the points of support and centers of resistance and are covered by necessary defenses. Shelters open into the communication trenches and telephone lines are laid in them.

Within the network of triangles formed by the parallels and communication trenches, but outside of these trenches are arranged, upon terre-pleins, the emplacements for the various fire weapons camouflaged and connected with the shelters or servers and materiel so as to be invisible.

Observation posts are established for each echelon of the command.

Such will be the position of resistance.

But is it clear that such an organization could not be so complete except after prolonged stabilization or when the position is organized at leisure far from the front.

On a moving front, where time and means are restricted, the results will be limited, but will conform to the fundamental rule that the prime necessity is the creation of a system of fire. Reconnaissance and observation will be assured; the men will provide shelter themselves and their weapons by individually; liaison and communications will be rapidly organized by using to the best advantage the means carried by the troops.

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If the occupation of this position is prolonged, organization will be made more complete.

SUCCESSIVE POSITIONS

The position of resistance should be so situated on the terrain as to cover the artillery positions and important observation points (command and artillery observation points).

Some kilometers in rear will generally be established a second position of resistance, organized according to the same principles, whose defense will be assigned to other troops than those charged with the defense of the first position.

On the intermediate terrain between the two positions of resistance may be provided other positions called intermediate positions. The latter will be best established, not continuously, but with centers of points of resistance distributed in width and depth, well supplied with automatic arms and well camouflaged-- if they are organized -- but often not organized or only hastily organized, so as to avoid their being located by the enemy. Their unexpected entrance into action with surprise would be very effective in disorganizing and retarding the attack.

OUTPOST POSITION

Let us return to the first position of resistance. We have already observed that, in order to be complete, a disposition for defense should be covered by outposts occupying an outpost position.

The reason for the outpost position is defined in the following terms by "Provisional Drill Regulations for Infantry"; The outpost position "covers

the position of resistance and secures the time necessary for the troops to take up the prescribed formation and to occupy their combat positions."

Page 101 -- Diagram 18.

The troops of the outpost procure this time in two ways: By giving notice, without delay, that an attack is about to be launched; -- by meeting the assailant with the first resistance and delaying him.

Hence it follows that the security troops include (Diagram 18);

-- An observation echelon, composed of observation posts which is organized to give the alarm in case of attack.

-- A combat echelon of outposts, composed of units or detachments (companies) platoons, or combat groups) so organized in the familiar harrow formation as to operate effectively by fire and step or, at least, retard the enemy."

There may also be in addition an outpost reserve (organized in harrow formation in rear of the combat echelon, but distinct from it)."

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The organization of a complete security system, as described in the preceding pages, assumes the position of resistance to be situated at a sufficiently great distance from the enemy, one, two or three kilometers and sometimes as far as seven or eight kilometers. Such a distance is greatly to be desired because not only will the defense be able to organize sufficient cover but at such a distance from the hostile force, its position of resistance will be beyond the range of hostile trench weapons, by far the most dangerous to it. The position of resistance will likewise be out of effective range of part of the hostile field artillery if the distance from the enemy is from seven to eight kilometers.

But sometimes, the situation will force the organization of the position of resistance very near the enemy, for example, when it will not be possible to give up the least bit of terrain. In this case, there will not be sufficient space to organize a complete security position in front of the position of resistance; a single (echelon de surveillance) line of observation posts and even, at certain points, lookout and listening posts only will be organized. (Note 1 -- The two examples of defensive combat developed in the chapter concerning battalion and regimental combat, will furnish two very different types of defensive organization, particularly from this viewpoint.)

PART III

COMBAT OF THE BATTALION AND OF THE REGIMENT

CHAPTER I

OFFENSIVE COMBAT

The preceding chapters have enabled us to clear up the general principles of infantry combat.

The time has now come to apply these general principles to the particular case of combat of infantry tactical units: the battalion and the regiment.

We shall not consider that superior echelon, the divisional infantry: Divisional infantry is not a real unit; it could not reasonably be considered a "whole" in itself, since it is inseparable from the division as a whole. Rather it is the division commander than the divisional infantry commander who, under penalty of ceding his authority, and of renouncing his responsibilities, i.e., the most precious prerogatives of his command, combines the action of his three regiments and assigns their missions. The action of the division does not come within the limits of this work.

However, everything which will be said upon the subject of the role and action of infantry commanders of battalions and regiments is applicable to the role and action of the divisional infantry commander in placing the divisional infantry so far as the role and action assigned to the latter by the division commander permits. Page 104.

The object of this chapter is the study of the offensive combat of the battalion and the regiment.

The following chapter will be given over to the defensive combat of the same units.

For the study of the offensive combat of the battalion and the regiment, taking as guide "Provisional Drill Regulations for the Infantry", we shall consider the role of the commander with regard to conception and preparation of the plan; then, as to his placing in operation of his plans the principles and rules which guide him; and the procedures and methods which he has at his disposition.

In this discussion, we shall attempt to follow the natural sequence of the different phases of combat.

Finally, we shall give at the end an account of a concrete case which really occurred.

In combat, the duties of the battalion commander and of the colonel in general are similar; they are likewise common to all infantry commanders. Nevertheless, in their application, they have characteristic difference as influenced by the great differences in the composition of the two units: the battalion and the regiment.

We know that, in combat, the battalion includes:

- a headquarters platoon
- Three companies of riflemen, or four platoons of three combat groups each, each combat group being composed of two squads (one squad of automatic riflemen and one of grenadiers);
- One machine gun company, with four platoons of two squads each, each squad being armed with two machine guns;
- On occasion, some accompanying weapons placed by the colonel at the disposition of the battalion commander, for the combat.

The regiment includes:

- One headquarters platoon

-- Three battalions;

-- One platoon of accompanying weapons generally distributed, for the combat, among the front line battalions.

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It is to be hoped that, in the near future, the regiment will include, in addition, one battery of accompanying guns, whose different platoons will generally be attached to the battalion engaged.

The most striking difference to be seen in a comparison of the composition of the two units is the fact that the battalion includes units of a different nature: rifle companies; a machine gun company; accompanying weapons; at times tanks; soon, accompanying guns, while the regiment includes only identical elements, three battalions (since the accompanying weapons are attached, in combat, to the front line battalions).

Consequently, the battalion commander will have to place in action and to superimpose, in the same zone, means of action of different kinds, while the colonel maneuvers with three similar elements, three battalions, which will combat in distinct zones. "Drill Regulations for Infantry" very justly remarks upon this fact.

One may deduce, from that, that "Regulations" consider the battalion as the "principal tactical unit" since "it is supplied with all the means necessary for engaging complete infantry combat." (art. 161).

On the other hand, the battalion is the "largest unit whose commander may personally conduct the maneuver": furthermore, from this viewpoint, the action of the battalion commander upon his subordinate units is direct while that of the regimental commander is less direct, less immediate and less frequent in the maneuver of his battalions.

I-- PREPARATION FOR COMBAT.

Conception of the Maneuver; Principal Effort.

The colonel and the battalion commander must, first of all, conceive their maneuver for which purpose they must learn their mission, -- given by the higher command -- their situation, that of the neighboring troops, the known situation of the enemy, and, finally, study their terrain and the hostile organization if there are any.

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The conception of the maneuver consists essentially in determining, within the limits of the zone of action assigned to the regiment or battalion, the point for application, or the successive points for application of the principal effort.

What is meant by that?

To attack on the entire front with all forces evenly distributed means really not to be strong at any point. Consequently, the maximum of the forces should be directed against one point logically chosen. The remainder of the front should also be attacked, but with smaller forces; or it may be sufficient to maintain a screen in front of these other points held by the enemy, directing against them powerful artillery and infantry fire (in general in the zone of a battalion or regiment, it is better to attack these points, otherwise, the troops charged with the principal effort will be exposed to concentrations of fire which the adversary will be able to realize as soon as he knows the single point of attack).

In order to determine the point of his principal effort, the regimental or battalion commander will attempt to determine those parts of the front where the enemy "will not be able to place as strong a force as himself" (art. 148), in other words, the weak points of the adversary's front. The latter will be the more strongly indicated as the points of application for the principal effort if, inversely, the attack has, at those points, facilities for realizing powerful artillery concentrations and operations by tanks. In this manner the attacker will be stronger than the defender at the critical point. Salients of the hostile position will often offer such conditions.

Terrain features which lend themselves to the movement of the infantry will likewise be seriously considered.

Finally, sometimes, the choice of the point of application of the principal effort will be a part of the hostile front "whose fall would bring the shaking or fall of neighboring parts of the front" (ibid).
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Arrangement of Forces; Disposition for the Attack.

Once his choice of point of attack has been made, the commander has the basis for his plan of maneuver; he will now organize his plan of attack; in other words, determine an adequate disposition for his plan of maneuver.

This disposition will be made according to conditions which we already know:

-- it will include a fire echelon sufficiently strong to procure adequate fire at every point with greater density of fire against the point of principal effort;

-- It will assure continuity of effort;

-- It will permit the commander to meet emergencies and will guarantee the liberty of action of the chief, i.e., to pursue the integral realization of his plan, in spite of the reaction of the adversary.

The first and second conditions will be fulfilled by "the distribution in width and depth of the attack units in accordance with the effort to be required from them" (art. 148).

In other words, the forces will be so distributed over the front that the maximum forces will be placed at the point of principal effort, -- maximum, from the viewpoint of frontage, in order to realize from the beginning, great fire power; and maximum, from the viewpoint of depth, in order to guarantee the maintenance of this fire power.

Such distribution of forces may be obtained in two manners:

Either by assigning zones of action of unequal frontage to units of equal strength;

Or by assigning zones of action of equal frontage to units of unequal strength.

Or, the two methods may be combined.

Thus, in Diagram 19, we have the front of attack AB, -- AC being the point of action for the principal effort; then according to the first method, to each of the zones Z1 and Z2, Z1 being smaller than Z2, units of equal strength would be assigned (U_1 equals U_2).
Page 108-- Diagram 19.

The second method (Diagram 20), on the contrary, divides AB into two equal zones: Z1 equals Z2, but to zone Z1, the zone of principal effort, AC, a stronger force will be assigned than to Z2 (U_1 being larger than U_2).

The regimental commander, operating with three units of "equal strength, -- three battalions, -- will generally adopt the first method. However, he may combine it, in a certain measure, with the second method, by assigning to one of his battalions, -- the one to which is assigned the smallest zone, or the zone of principal effort, -- all or greater part of his accompanying weapons.

Or, it will be permissible for him to employ the second method alone, for example, if he places two battalions in the front line and holds one in reserve, he may reinforce the battalion charged with the principal attack with a detachment from the battalion in reserve; or, if he places his three battalions abreast

in the front line, he may hold out some reserves from the battalion or battalions which do not make the principal effort. The two latter methods are not to be recommended in principal, because they break, a priori, the tactical control of one or several battalions; such a method is to be avoided. It is otherwise with the battalion.

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Since the battalion commander has under his orders elements of different nature: rifle companies, -- a machine gun company and accompanying weapons, he will generally have every facility for combining the two methods; he will assign to his front line rifle companies, not zones of unequal frontage (generally companies do not have zones assigned to them), but objectives of unequal extent and width, and he will reinforce those units which will operate against the principal objectives, by supporting them with the greater part of the fire means at his disposal, the machine gun company and accompanying weapons. Often he will place these powerful fire means under the direct orders of the commanders of the companies which are to execute the main effort; and he will support them with tanks when he has them.

The third condition to be fulfilled by the disposition for attack, -- to enable the chief to meet exigencies and to preserve his liberty of action, -- will be effected by the organization of reserves, elements to be held available by the chief of the unit with a view to future employment.

Naturally, the decision as to the size of the reserve force, the choice of its disposition, its position and the roads by which it will advance, will be governed by the plan of maneuver. Thus, the reserves will logically be placed in rear of the front line units charged with making the principal effort and will, in principal, advance immediately in their wake, ready to intervene according to circumstances, in particular to support and exploit their success.

Let us apply the preceding to the regiment, then to the battalion.

As to the regiment, "Provisional Drill Regulations for Infantry" provide that the disposition shall, in general, be as follows (Diagram 21).

-- "There may be two front line and one second line battalions", the most commonly employed disposition of forces;
Page 110-- Diagram 21.

-- "Or three battalions echeloned, one in rear of the other", a disposition of forces suitable when the regiment has to deliver a powerful, prolonged effort in a narrow zone.

In certain cases, a third disposition of forces may be considered: the three battalions abreast. This disposition should be employed when the regimental zone of action has a wide frontage and a great effort is not required of it (Diagram 21).

In the first case, the regimental reserve consists of one battalion; in the second case, of two battalions of which the one which advances in the second line is intended to relieve the front line battalion during combat by passage of the line.

In the third case, we have seen that the reserve is constituted from units taken from the one or the two battalions not charged with the principal effort.

The determining elements in the choice of formation are, of course, the extent of the front of attack allotted to the regiment, the strength of hostile organizations, the obstacles to be overcome and the effort to be required. The extent of the front of attack to be assigned to a battalion of the present composition is determined as follows by "Regulations":
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-- A zone of action of from 300 to 400 meters wide in an attack against a position strongly organized;

-- At the maximum, a front of 800 meters in non-organized terrain, hastily organized terrain.

Within the battalion, the rifle companies conduct the offensive combat. All other elements placed at the disposition of the battalion are fire reinforcement for these companies and function to their benefit (Provisional Drill Regulations, art. 162).

Consequently, the commander divides his front of attack among his rifle companies; furthermore, his reserve has some rifle elements.

("Provisional Drill Regulations", art. 189). When the entire battalion makes an attack, the battalion commander generally places two companies in the front echelon and one company in reserve". (Diagram 22).
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If the front of attack is narrow, and if the terrain is flat and without cover, or, if the hostile resistance foreseen is weak, a single company may be placed in the front echelon, the two others being placed abreast or one in rear of the other" (Diagram 22).

The battalion commander may group the machine gun company for fire concentration against predetermined objectives for the benefit and in support of the front line rifle companies whose action he particularly desires to support, -- or he may attach, to certain of his companies, one or several machine guns, the remainder of the machine gun company to constitute a reserve of fire which he will employ according to circumstances.

The 37 mm. guns and the accompanying mortars, placed at the disposal of the battalion commander, will be employed by him according to similar rules.

The determination of the point of principal effort and the arrangement of adequate forces, constitute the basis of the plan of attack of the regimental or battalion commander. This plan would not be complete without arrangements:

- To assure liaison between neighboring elements;
- To combine, when necessary, the employment of tanks with infantry combat units;
- To closely coordinate infantry action with that of the artillery in direct support.

The regimental commander will assure liaison between his battalions and between his battalions and neighboring units by charging special detachments with this mission; in principle, these detachments will advance slightly in rear of the fire echelons. The battalion commander will make similar arrangements.

Cooperation of Tanks.

The presence of tanks in combat does not fundamentally modify the methods of combat of the infantry. "Provisional Drill Regulations" emphasize this fact; but they also add "the presence of tanks influences the preparatory disposition of the infantry for attack, as well as the distribution of its proper weapons (automatic rifles, machine guns, 37 mm. guns, and accompanying mortars)".
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"Close cooperation of infantry and tanks is assured by the subordination, in combat, of the command of the tank unit to the command of the attack troops. This subordination goes down to the echelon "infantry battalion inclusive" (art. 300).

Thus the colonel and also the battalion commander, determines the disposition of the tanks placed under his orders and incorporates these dispositions in his plan of attack; but, previously, he confers with the commander of the tank unit as to points of technique.

Since the tank unit placed at the disposition of the regimental commander, is generally a tank company, the commander plans to distribute tank platoons among the front line battalions and to organize a tank reserve; "the tank element assigned to each battalion is determined by the mission assigned to that battalion, by the resistance which it will be obliged to overcome, and by the nature of the terrain" (art. 292). The platoons not assigned to the front line battalions will form the tank reserve of the regimental commander.

In his turn, the battalion commander, having at his disposal a tank platoon, will determine, in accordance with the advice of the platoon commander, the special missions of the tank section. He will plan:

- The debouchment of the tanks;

- The development of the operation with probable incidents; for example, detailed maneuvers to be executed by the combined action of infantry and tanks "for the reduction of hostile points believed to be strongly held.

- The assistance to be given to the tanks by the infantry during combat, in crossing difficult parts of the terrain;

The fire support which the infantry should give the tanks: "neutralization of cover which may contain hostile antitank defense; assignment of this mission to the different companies, the machine gun groups and the accompanying guns" (art. 300).

Combined Action of Infantry and Artillery.

One word as to the duty of infantry commanders with regard to planning close cooperation between their proper infantry unit and the artillery in direct support.

The artillery preparation fire, that fire which immediately precedes the launching of the attack, is planned by the division commander and regulated by the division artillery commander, in conformance with the division commander's orders.

In this respect, the commanders of the tactical infantry units intervene only to the extent of making known their desires. Points of terrain and hostile organizations which are particularly important in maneuver which they have planned, points against which they desire a greater fire concentration, etc.

Then informed as to the dispositions decided upon, the infantry commanders complete their plan of maneuver with a plan of infantry fire destined to strengthen at certain points the artillery preparation or to fill the gaps left by this plan.

The fire for direct support is carried out by groupments (or battalions) of divisional artillery, normally operating in the zones which correspond to the zones of action of each regiment and battalion, the strength and composition of the groupments being determined by the divisional commander.

Since the artillery in direct support is placed in action by the commander of the divisional artillery, in conformance to the orders received from the divisional commander, it will be a divisional order or, annexes thereof, which will lay down the essential lines of the methods to be employed by the artillery, rolling barrages or concentrations, rate of advance of the barrage or the application of concentrations against successive objectives, nature and density of fire, etc.

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Consequently, the part played by the commanders of infantry units in making the above decisions will in general be limited to the requests they have been able to make with respect to the mission given them. It is of great importance to give them the opportunity to make these requests for otherwise the commanders of the real tactical units, the regiment and the battalion, which, in reality, conduct the greater part of the combat, would be forced to alter their plan of maneuver to conform with artillery action which is employed precisely to support this maneuver; this would manifestly be irrational.

However, preliminary consultation with the commanders of the tactical infantry units cannot be realized, we admit, except in the case of an attack organized at leisure, and then only for the first act of this maneuver; beyond this first act, or even from the beginning of the operation, if an improvised attack becomes necessary, (in the case of pursuit, for example), preliminary consultation with infantry commanders becomes impossible. For this reason, in certain armies, the groupments of direct support are sometimes placed under the orders of the commanders of the infantry units, which they are supporting. For this reason also, with us, artillery is attached to pursuit detachments.

Whatever the case may be, when the division commander has given his orders, it is the duty of the colonel, in close liaison with the commander of the corresponding supporting groupment, to agree with him direct on the manner of application of the support and to adapt logically the methods of support prescribed by the division commander to the infantry plan of maneuver devised by the colonel.

If necessary, the colonel may request changes in the plan for the use of the artillery when the dispositions prescribed by this plan do not fit properly with his idea of the infantry maneuver.

Page 116. -- Diagram 23-- Diagram 24.

The battalion commander will consult in the same way with the command of the element of direct support operating for his benefit.

Finally, in providing for the probable development of the combat, such groupment (or battalion) in direct support should defer to the requests of the infantry unit which it supports and the command of the infantry unit will inform in detail the command of the corresponding groupment (or battalion) of his intentions, and will, at need, decide upon prearranged signals with him, etc.

This work in cooperation with the command of the artillery element of direct support, will enable the regimental or battalion commander to complete his plan of attack.

Approach Disposition

In certain cases the infantry troops will be already at the line of departure when the plan of attack is prepared.

But, in other cases, which will arise in certain phases of mobile operations, it will be necessary to advance the troops to their (base) line of departure: Then it will be necessary to precede the plan of attack by preliminary approach dispositions.

As we know, approach dispositions differ according to whether the approach is covered or not covered.

For an approach which is not covered, the regimental commander will, in general, push forward an advance guard battalion; the two other battalions will follow, abreast (Diagram 23) or in succession (Diagram 24). Page 117 -- Diagram 25 -- Diagram 26.

In the battalion the non-covered approach may be carried out in a lozenge-shaped formation: In advance, one company, reinforced by machine guns, so disposed as to cover the entire deployment and covering itself with one or two sections, -- the two other companies forming a second echelon, more or less outflanking the first, in order to protect its flanks; -- the main body of the machine gun company in the third echelon (Diagram 25). If the front to be reconnoitered and covered is too extended for one company, the battalion commander will adopt a double column disposition: two companies in the front echelon, each of which will cover itself in front by the necessary number of sections; the third company and the machine gun company, in the second echelon (Diagram 26).

In zones of equal width, the first formation is suitable in case no serious engagement is expected. The second formation will be employed when, on the con-

trary, the battalion may, from one moment to the other, be obliged to enter combat. It must be remembered that every approach formation should enable the troops to pass immediately to combat formation.
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On the other hand, it is proper to remark that the commander of an infantry unit having to carry out an approach without cover, will be able, at the most, to prepare a priori, more than a hypothetical and incomplete plan of attack, on account of the lack of precise information of a situation which is changing every moment. In reality, he will not be able to complete his plan of attack until his first elements have gained close contact. Such will be the case in the preliminary phase of the attack and also, in pursuit.

This will not be the case during an approach under cover, carried out under protection of troops which have already gained contact. Here, the situation will be relatively definite; the commanders of the tactical infantry units, -- regiment, battalion, -- will generally have received their missions for attack in advance, and have made their reconnaissance. The fundamental parts of their plans of attack will have been made in advance; furthermore, the disposition for approach, in principle, will be analagous to the formation for attack already prescribed by the plan of attack, but with greater distances and intervals which close progressively as needed.

When the attack is launched from bases completely organized -- after a period of stabilization of a certain duration, -- the approach, covered by a solid defensive front, will generally be effected without other consideration than to avoid hostile observation and fire and for this reason, frequently at night. Combat formation will take up on the (base) line of departure itself.

Surprise

When the plan of attack has been made, the regimental or battalion commander should endeavor to secure the advantage of surprise.
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Surprise will be possible if secrecy has been carefully maintained, if the preparations have escaped the observation of the enemy; the placing of troops and guns under cover of darkness, camouflage, prevention of unusual firing, precaution against carelessness, against misuse of the telephone, orders against using this method of communication in the immediate vicinity of the enemy, march and halt discipline, etc.

Further maintenance of surprise will result from rapidity of execution: sudden launching of the attack, rapid succession of the various phases prescribed.

Orders

It will still remain for the infantry commander to provide his units with the necessary munitions, food supplies and materiel of all kinds, and to organize systems of liaison and communication.

Then, he will be obliged to embody all his plans in orders which will, in substance:

- Orient the subordinate units as to the hostile situation and neighboring friendly troops;

- Inform the unit of its proper mission, and the plan of maneuver of its commander;

- Prescribe the missions of each subordinate unit including those of the reserves;

- Allot the supplementary means placed at the disposition of the subordinate units: tanks, accompanying weapons, accompanying guns, machine guns, engineer elements;

-- Prescribe the conditions and the methods of the support of the artillery and aviation, and the prearranged signals decided upon for communication with these two arms;

-- To determine the location of the command posts and observation posts, the measures taken for the composition and mission of the liaison detachments, the axis of signal communication advance information centers, etc . . .

D day and H hour will generally be given in a special supplementary order which will appear at the last moment in order to maintain secrecy.
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Moral Preparation.

Finally, during preparation for the attack, the regimental and battalion commanders will take constant care to exalt the morale of their troops; infantry combat is, above all, a moral combat; and morale is principally the result of confidence, as is very justly stated in A Provisional Drill Regulations for Infantry". The regimental and battalion commanders will be obliged also to inculcate in their troops the hope of victory.

II. -- THE EXECUTION.

Surprise and the use made of it,

In the execution of an operation, surprise is necessary above everything. We have seen that, to this end, the battalion and regimental commanders surround their plan of maneuver and their preparations with the most impenetrable secrecy possible; Furthermore, they conceive and arrange their plans so that, from the launching of the attack, i.e., from the moment that the factor, secrecy, can no longer play a part, the factor, rapidity, makes its appearance; without which the fruits of surprise would escape, or at least a part of them. Rapidity is secured by the sudden, powerful launching of the attack and the prompt unfolding of the successive phases of the combat necessarily limited by the schedule of the general divisional plan of attack, with a view to the coordination of the artillery and infantry action.

But, in this respect, it should be emphasized that rapidity has no better guarantee than the closely maintained coordination between the infantry and the artillery indirect support. As long as this is not broken the successive acts of the fight will follow each other without loss of time.
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If this coordination breaks down, and unluckily it breaks down frequently, then delays commence and the action slows down. Then it is of vital importance that the impossible be done, that the necessary cooperation between these two arms be reestablished in the minimum of time. For this purpose, the regimental or battalion commander should have at his disposal adequate means of communication to inform his proper groupment of support of his needs and their requests. The command of the groupment of support should, in its turn be able to inform the commander of the regiment or battalion what it can and will do for him.

From the above, one may judge the importance of the role which close liaison between the infantry and the artillery, plays and the great importance of well organized liaison detachments to be maintained by the groupments of direct support in proximity to the commands of the corresponding infantry units. How many times has it not been proved that on the choice of an officer for commander of a liaison detachment has depended the success or non-success of the work of that detachment. When the commander of the liaison detachment is a well tried officer, well informed on the formations, methods of combat and the nature and characteristics of the infantry, remarkable results have been obtained. But when, on the other hand, an inexperienced officer without knowledge of the infantry is in command of the liaison detachment as was seen too often during the war, there is certainly to be irremediable lack of cooperation between the two arms and the infantry will have the support of its proper arms only, probably to the end of the combat.

It goes without saying that rapid, practical, multiple means of communication, mutually substituting one for another, are also a condition of the maintenance and rapid reestablishment of coordination in the combined action of the two arms: Furthermore, it cannot be denied that there is still great improvement to be made along this line.

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In spite of every effort, whenever the infantry is delayed by hostile resistance, the schedule of artillery fire will be so upset that a prolonged delay will be necessary before the artillery can direct its fire on the point desired by the infantry. Hence, the attack units first should attempt to get out of their difficulties with their proper means, first. Only by success on such an effort can they reduce to the minimum the risks of losing the fruits of surprise. At such times, as on other occasions of which we have spoken, the infantry should not forget that it has at hand redoubtable fire power which enables it to conduct combat without support. If it so desires, and if it wisely combines its fire and movement, it will be successful in the many local actions in which it must count upon its fire alone and whose sum total form a large part of the battle.

Thus we have another demonstration of the fact that if the formula "the artillery conquers, the infantry occupies", is in part exact within the restricted limits which its author must certainly have assigned to it in his mind, i.e., for the initial phase of an attack against an organized position, the phase which consists in breaking the first hostile line of defense, the realities of battle protest against a general application of this formula to all the phases of the combat: after the initial phase of the combat, the infantry will have only intermittent artillery support. Such intermittent support, while of inestimable value will not enable the infantry to dispense with filling the ensuing gaps when the artillery cannot operate on time, or with completely taking the place of the artillery when a complete disruption of contact, momentarily irremediable, has taken place between the artillery and the infantry. Consequently, the infantry is today, as yesterday, the arm which conquers the terrain.

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How the Commander Follows the Action.

Once the action has been launched, the infantry commander must follow its progress. The judicious choice of his initial command post, and the choice of positions of subsequent command posts, will be of great importance from this viewpoint, as will also be the placing in operation of the liaisons of command and of information and every kind of means of communication.

The battalion commander, whose less extensive zone of action will often be entirely within view, will have greater facilities for following the development of the combat than the regimental commander whose idea of the changing situation can only be obtained from reports and information which he has ordered to be gathered.

How the Commander Intervenes in the Action.

The first duty of the infantry commander is to place himself in a position to follow the combat of his troops; otherwise, he would be unable to make his action felt in the combat and to force it to develop according to his initial plan.

His reserves are the principal means which enable him to exercise this action.

Once the combat is launched, the commander cannot direct the units engaged. "He has only his reserves to modify or reestablish the management of his system of forces, i.e., to maneuver" (art. 109). His constant preoccupation should be to build up his reserves as soon as they are expended.

Reserves enable him:

-- "To assure continuity of effort and the duration of the combat by furnishing indispensable reinforcements and reliefs", the latter being effected

during a halt by passage of lines;
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-- "To correct errors in direction, and to fill resultant gaps";

-- "To reestablish, as desired, a maneuver which does not develop in conformance to his plan."

Reserves are held out, in particular, to force a success where planned, to complete it and to exploit it.

Thus, if the regimental commander has initially placed his reserves in rear of the front line battalions charged with the principal effort, i.e., in front of that zone where he has planned his success, he will not hesitate, if the more rapid advance of another battalion has uncovered a zone of less resistance, to deflect from its axis at least a part of his reserves, in order to direct them in rear of this battalion, with the object of exploiting the success at this point; he will engage his entire reserve at this point, if he obtains success there.

The battalion commander will operate likewise with his reserves of rifle companies; but, furthermore, he will have at his disposal a fire reserve, -- available machine gun platoons and accompanying weapons, -- with which he will reinforce, by strong concentrations, those front line elements charged with the principal effort at that time.

Powerful neutralization fire will be directed by the battalion commander against hostile points of resistance when as is often the case the artillery is unable to furnish such fire in time. Such cases are familiar; they will arise when the infantry has been delayed by hostile resistance beyond the schedule planned with resultant irregularity between its advance and that of the fire of the artillery of direct support, -- or when the infantry encounters unforeseen centers of resistance.

But, though the battalion commander employs his available fire to overcome the hostile resistance encountered, he also attempts the impossible by trying to gain touch with his artillery of direct support and to inform it of his situation and needs.

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And now we wish to say a word with regard to a second resource which the battalion commander, and particularly the regimental commander, possesses for directing the development of the combat. This means is liaison with the commander of the corresponding groupment of direct support. Such liaison enables the infantry commanders to reestablish close cooperation with the artillery whenever an adjustment is rendered necessary by the vicissitudes of combat, and to organize a complete local action, supported by artillery, against unexpected, stubborn hostile resistance.

We have already considered the great importance, in the above situations, of a well organized artillery liaison detachment with the infantry, but it will do no harm to emphasize this fact. Whether the artillery support arrives in time and as desired or whether it arrives too late to be exploited by the infantry, depends upon the good or poor functioning of the liaison detachment, the ability of the commander wisely to interpret an infantry situation during combat and the sure and rapid functioning of the means of communication between the infantry unit in question and its corresponding groupment of direct support. The success of an engagement depends upon these factors.

The tank reserves which the regimental commander will have organized, or the tank units placed at his disposition, will also constitute a powerful means of intervention in the action. He will employ them, in principle, like his other reserves, preferably to accentuate success at the desired point.

The battalion commander who has been reinforced by tanks during the battle, employs them according to the same principles, or to surmount particularly tenacious resistance.
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Ammunition Supply; Conservation of Conquered Terrain; Exploitation.

It is to be understood that, during the entire course of the action, the regimental and the battalion commander will assure continuous supply of ammunition to the units engaged.

When the last objective has been taken, the regiment will establish itself in the conquered position. The regimental commander will prescribe the distribution of the regiment in front and depth and also the main lines of the organization of the ground. He will prescribe the most important flanking fires, especially those to be executed by one battalion across the front of another.

The battalion commander will operate likewise but his first care will be to "determine the position of the echelon of resistance of the battalion". He will rearrange the distribution of his forces, connect with care his position of resistance with those of the adjacent battalions, and carefully make sure by means of the liaison detachments, that the artillery adjusts its fire in perfect knowledge of the front occupied by his battalion.

Finally, he will reconnoiter for as close contact as possible.

If pursuit is possible, it will be immediate, uninterrupted and resolute. The regimental commander will permit his battalions "to freely develop their initiative" and himself will take every disposition to cover their flanks with his reserves.

The combat disposition of the regiment and battalion will be maintained as for the attack itself, as long as the enemy remains capable of facing them.

Little by little, as hostile resistance weakens, regiment and battalions will resume approach formations, covered by advance guards and advancing by bounds, in liaison with the bounds of the artillery, as in the approach properly called.

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Attack by the 154th Infantry in the Bois des Loges, 16 August, 1918.

On August 10, 1918, the German positions were broken through by the left of the Third Army operating in liaison with the right of the First Army on the front MERY--BELLOY--SAINT-MAUR, etc. The left division of the Third Army, the 165th Division, had advanced twelve kilometers to the region north of Le Plessier--La Poste and had reached the south edge of the Bois des Loges. On August 12th, one of the two front line regiments, the 155th Infantry, attacked these woods without success. It was relieved during the night by the 154th Infantry. On August 14th, the general situation was that shown in Sketch 7 attached.

On August 15th, orders were given for a general action to take place on the 17th (Sketch 8).

The right of the XXXIV Corps (74th and 70th Infantry Divisions) was to outflank Lassigny on the north; its center (6th Infantry Division) was to attack Canny Farm and Canny; its left (165th Infantry Division) was first to cover the left flank of the 6th Infantry Division against any hostile attack from the north (Le Cessier, hill 102, Bois des Loges).

On its side, the right of the First Army was to outflank Roye on the south. When the 169th Infantry Division, on the right, had taken possession of Le Cessier and hill 102, the 165th Infantry Division, whose covering mission of the 6th Infantry Division was now finished, was to attack the Bois des Loges, out-

flanking it on the north and south, while the 169th Infantry Division took the village des Loges. When the Bois des Loges had been taken, the 165th Infantry Division was to continue its advance in the direction of Fresnieres and Balny; the 159th Infantry Division was to push forward on Crapeaumesnil and beyond, and the 6th Infantry Division was to advance from Canly.

What was the mission of the 154th Infantry Regiment (Sketch 9)?

a. -- First, from H hour, to cover the left of the 6th Infantry Division against any attack debouching from Le Cessier and hill 102;

b. -- Then, when the 169th Infantry Division had debouched from Cessier in the direction of the village des Loges, supposed to be calculated for H hour plus 48 minutes, to attack the west edge of the Bois des Loges, the chateau and the south part of the village of the same name, -- then to outflank the woods on the north, while the 287th outflanked it on the south, and to reach the east edge as soon as possible.

c. -- This result obtained, to continue its attack north of Fresnieres and Balny.

Initial zone of action: bounded by the limits shown in the sketch.

Supplementary means: Detachment of engineers.

Artillery support: The artillery of the 165th Division included only its organic elements: three battalions of 75's and one battalion of 155 howitzers.

The advance of the 154th was to precede that of the 287th, the artillery was first to cover the attack of the 154th against les Loges, then that of the 287th.

At H hour, two battalions of 75's were to put down a standing barrage in front of the 154th and concentrations were to be placed by the third battalion of 75's and the battalion of 155 howitzers, on the west edge of Bois des Loges, the south part of the village des Loges and the southwest slope of hill 102.

At H hour plus 48 minutes, the standing barrage was to change into a rolling barrage in front of the 154th which should start its attack. Then, at H hour plus 1 hour and 10 minutes, the hour for launching the attack of the 287th, two battalions of 75's were to lay down a barrage in front of the 287th, while the third battalion and the 155 howitzers covered the south edge of the woods and its southeast angle.

From this moment, the 154th would be without artillery support. It is true that, according to hypothesis, it would operate from that time on in the woods.

A little before 1:50 PM, the artillery battalions were to concentrate their fire on Fresnieres.

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Finally, from H hour plus 1 hour and fifty minutes, platoons of accompanying guns, taken from the battalions of 75's, were to report to the front line battalion commanders.

Terrain: Its principal characteristics were the Bois des Loges, of great extent, and the dominating situation of hill 102.

Enemy: The terrain was organized but the organization was far from having the force and homogeneity of the initial positions taken on the 10th. The German troops, defeated the preceding days, still had great combat value though less aggressive than during the preceding days.

Special missions: The regiment, oriented face to the north, was to execute during the attack, a change of front to the east; furthermore, during the first phase of the action, it was to make a flank march, the length of the Bois des Loges, occupied by the enemy.

Such were the elements of the problem presented to Colonel Viard, commander of the 154th, when, on the 14th, he received the division orders.

How did he solve this problem? (Note 1-- The action of the 154th will be studied to the moment that it captured the east edge of Bois des Loges).

Let us proceed to the first part of its mission, -- covering the attack of the 6th Infantry Division from H hour to H hour plus 48 minutes, -- which was a defensive mission. The dispositions for this phase having been decided on, at H hour plus 48 minutes, the time when the 154th was to commence its attack, it would be disposed as indicated in the sketch: two front line battalions: the 1st on the right, the 3d on the left; the 2d on the second line.

The plan of maneuver of the commander of the 154th was as follows: The attack against the Bois des Loges was to be effected in two periods.

First period (phase): attack, face to the northeast; direction: the south part of the village des Loges; -- objectives: the chateau des Loges (main effort) and the southeast slopes of hill 102. In addition, mopping up of the west edge of the woods.

Second period (phase): attack face to the east; objectives:

Page 131--Sketch 8-- Page 132.

the northeast corner (main effort) and the east edge of the woods.

Whence the plan of attack.

First period: two front line battalions: 1st on the right; 3d on the left; 2d in reserve.

The 1st Battalion would have for objective the chateau des Loges, its right advancing astride the railroad, one of its companies penetrating the woods a little farther north of the southwest corner, in liaison with the left of the 287th and mopping up the west edge; having reached its objective, the 1st Battalion was to gain liaison with the right of the 169th Infantry Division in the south part of the village.

The 3d Battalion would attack with the southwest slopes of hill 102 for objective. When it reached that point it was to establish itself there.

The 2d Battalion in reserve was to advance 500 meters in rear of the front line battalions, and in the center.

Second period (phase): Facing to the east, in liaison with the right battalion of the 169th Infantry Division, the 1st Battalion was to advance, mopping up the north edge of the woods and its objective the northeast corner. The 3d Battalion, passing behind the 1st, was to place itself, in the woods, echeloned to the right rear of the 1st, having for objective the east edge of the woods, north of the central road (allée).

The 2d Battalion was to advance 500 meters in rear of the center of the new disposition.

When the attack was to be launched, at H hour plus 48 minutes, the 1st and 3d Battalions would advance close in rear of the rolling barrage mentioned above. The right company of the 1st Battalion, charged with mopping up the west edge of the woods. Was a barrage table prescribed to this effect? It is permissible to doubt this since the regimental orders are silent in this regard.

Such are the general outlines of the plan of attack as conceived by the regimental commander for the general attack of the 27th; his orders for this attack were given the morning of August 16th.

Page 133--Sketch 9--Page 134.

At 2:30 PM, on the same day, (16th), the 165th Division received the following message from the commanding general of the XXXIV Corps:

"A marked weakening manifested itself last night in the German resistance on the front of the First Army. Liaison will be maintained with army corps Jacquot (Note 1 -- Right army corps of the First Army) which has received orders to pursue the enemy by advancing successively on Beauvraignes, Crapeaumesnil and Avricourt. If the army corps Jacquot advances, conform to its movement. Successive objectives on our left: Bois des Loges, Balny".

The 165th Division immediately gained contact with the 169th which reported that its attack would be launched at 3:30 PM. The infantry would announce: "objectives reached" at Le Cessier and hill 102, with two distinct rockets.

Immediate orders were sent from the 165th Division to the infantry of the division to be ready to attack under these conditions, conforming to the dispositions foreseen for the 17th, without awaiting the intervention of the 6th Division, the latter, on the contrary, conforming its movement to the advance of the 165th.

The commander of the 164th was informed of the preceding after 2:30 PM. He had no changes to make in the dispositions foreseen in his orders for the 17th; but, since no definite time had been set for his attack, it was to be launched as soon as the 169th reached hill 102. It was to be feared that such lack of precision would be an obstacle to the coordination of the action of the infantry and the artillery: Smooth functioning of liaison between the two arms was thus rendered even more indispensable.

At 3:30 PM, the attack of the 169th commenced. As soon as the infantry of this division was seen on the slopes of hill 102, without even awaiting the signal agreed upon, the 154th attacked in its turn. This was at 4:30 PM (Sketch 9).

In the beginning, the enemy, surprised, reacted but weakly; without doubt, the rolling barrage played its role also. Meanwhile, machine gun nests revealed themselves west of the railroad; our infantry fire reduced them to silence.

In spite of the fire from the division artillery which, one may recall, had been directed against the west edge of the woods, there was heavy fire from this edge against the flank of the 1st Battalion. The density of the concentrations of our artillery being found thus deficient, the machine guns of the 1st Battalion superimposed their action and succeeded in neutralizing the centers of resistance from which came the fire.

On the other hand, this same fire of the division artillery (75's and 155 c), kept up too long, prevented the right company of the battalion from penetrating the woods, north of the southwest spur, the mission which it had received, and from mopping up the west edge. Likewise, our artillery fire, directed against the south part of the village des Loges and the northwest spur of the woods, stopped the 1st Battalion for more than two and one half hours in front of those points; neither rocket signals nor the efforts of the artillery liaison detachment succeeded in raising that fire; this is a striking example of the importance of close liaison between the infantry and the artillery.

On the contrary, on the left, the 3d Battalion reached the southwest slopes of hill 102 within twenty minutes, which it mopped up while waiting for the 1st Battalion to resume its action.

The latter could not continue its attack until the end of the day. Then, it took the northwest spur of the woods and the chateau, taking 28 prisoners and capturing important booty: machine guns, depots of shells, and 8 wagons of projectiles.

The 2d Battalion of the 154th formed the reserve according to orders; when a gap was formed between the 1st Battalion of the 154th and the 287th, because, as we have said, the 1st Battalion was prevented by our artillery fire from penetrating the west part of the woods, the colonel ordered the 2d Battalion to fill the gap: an example of the employment of reserves.

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This battalion then advanced in the direction of the southwest spur of the woods, the 6th and 7th Companies in the front line, the 5th in support. At a distance of 300 meters from the woods, it was greeted by machine gun fire; the battalion neutralized this resistance with its fire, penetrated the woods and reached the allée des Sapins, where it organized in the same formation (its second line company in the vicinity of the southwest spur of the woods), and assured liaison, on the right, with the 287th, on the south edge of the woods, and, on the left, with the 1st Battalion of the 154th, in the vicinity of the chateau; an example of provisional occupation of conquered terrain.

It was then 10:00 PM and orders arrived from the colonel to continue the execution of his plan.

The 1st Battalion resumed its attack objective the northeast corner of the woods: one front line company, along the edge; two companies in the second echelon, the one on the right in the woods; the one on the left, echeloned and astride the edge; the machine gun company ready to operate north of the woods to cover the flank of the battalion.

The advance was effected without difficulty as far as the allée des Anglais, but from that line, it was impeded by German machine guns, in position in the trench du Docteur, at the northeast spur and in the northeast part of the woods. One machine gun platoon of the battalion rapidly silenced the machine guns of the trench du Docteur (covering a flank by a judicious echelonment of machine guns). The other German machine guns continued to fire during the entire action; nevertheless, the front line company advanced foot by foot, conducted with energy by the company commander who cleverly supported his action with fire of his rifle grenades and machine rifles. Finally, the operation was entirely successful.

At 10:00 PM, at the same time as the 1st Battalion, the 3d Battalion, likewise found to the east, resumed its advance, taking for objective the east edge of bois des Loges (the Central Allée to the northeast spur).

It advanced in rear of the 1st Battalion as far as the allée des Anglais, then, advancing obliquely to the right, it penetrated the interior of the woods, and found itself, as prescribed by the colonel's plan of maneuver, echeloned to the right rear of the 1st.

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The very slow advance, in complete darkness, within the interior of the woods, was executed under cover of a front line company in spite of the fire from some German machine guns.

Before morning, the 3d Battalion had reached the east edge of which the south part had just been occupied by the 287th; the bois des Loges was entirely in our hands.

The 154th immediately organized the conquered ground holding the position as indicated on the sketch.

In the bois des Loges, it encountered two battalions of the 6th Bavarian Division which arrived from Verdun the preceding night. These left in our hands some prisoners and important materiel.

CHAPTER II

DEFENSIVE COMBAT

For defensive combat of the regiment and battalion we shall proceed as we have done for offensive combat: We shall consider the role of the commander in the conception and preparation of the defense, the placing in operation of the plan he has conceived and the system he has set up. We will try to show how he applies the principles already stated by us and the methods and means at his disposition.

1.-- Conception and Preparation.

Order of Defense; Distribution of Forces; Reconnaissances.

A sector, (terrain limited in frontage and depth, whose defense is given to a large unit: "army corps or division" (art. 367) is divided into subsectors, each of which is assigned to a regiment, in principle.

"Each subsector includes a certain part of the principal position of resistance and part of the security position in front of it (art. 361)".

The important part of the defense orders which confide the defense of a subsector to a regiment, determines the lateral limits of its zone of action (subsector), and the location of the position of resistance and the security position (advance posts) (Note 1 -- For the sake of simplicity, we shall consider defensive organization uncomplicated by the prospect of immediate contact with the enemy. The successive operations which we shall study would be the same, in general, as if contact, even close contact, had been made with the enemy; for example, after the completion of offensive combat, but they would be hampered by restrictions which would render their development more complete.

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If the higher command holds out a part of the regiment as reserve, the defense order will specify the strength of the reserve and its position.

Furthermore, the order will state the probable time at the disposition of the regiment for the organization of the position, the supplementary personnel and the material at the disposition of the regiment, etc.

The regimental commander is now informed of his mission and the means at his disposition to fulfill it; he is also given the available information of the enemy.

The last element necessary for the conception of his plan is study of his terrain. Accordingly he makes a reconnaissance.

Generally, previous study of the map and plans of the region are sufficient to enable him to outline the distribution of his forces; subject to such modification of detail later as may be suggested by his reconnaissance.

Thus he will determine the distribution of his battalions after this preliminary study. Then make his reconnaissance. The battalion commanders make their reconnaissance at the same time and thus time is saved.

Let us consider first how this distribution may be effected.

"It is always advantageous," states Provisional Maneuver Regulations, "to place the regiments and the battalions abreast organizing them in depth with narrow frontage."

"Thus each of these units covers itself and has, for reserves, troops that pertain to it organically. (art. 409).

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If he made rigid application of this regulation, the regimental commander would place his three battalions abreast; but, in this way, he could organize reserves only by taking a certain number of companies from his front line battalions; whence, certain battalions would be broken up, and there would be lack of homogeneity in the regimental reserves.

It will generally be found more expedient to place two battalions abreast in the front line with the third battalion held in the regimental reserve.

One of the determining factors in deciding on the distribution of forces, will be the extent of the defensive front assigned to the regiment, a front of 1,000 meters (with a depth of from 600 to 800 meters) being the maximum front which a battalion can defend under good conditions; even this maximum should not be attained in the case, -- a normal case, as we have already seen, -- the battalion itself furnishes the effectives for the advance posts in the part of the security position corresponding to that part of the position of resistance assigned to it (Note 1-- "Provisional Manuever Regulations" make no provision for a maximum front).

Thus, if the extent of the front of the subsector is less than 2,000 meters, the most suitable disposition would be two front line battalions and one reserve battalion; if the front is wider, it would become necessary to place the three battalions abreast (Note 2--A third disposition of forces may be adopted: three successive battalions; this will be the choice of disposition in case the front of the subsector is about 1,000 meters; in this case, one of the battalions will generally be in the division reserve).

When the sector has been divided among the battalions, the regimental and battalion commanders reconnoiter the terrain, the battalion commanders being accompanied by their company commanders.

Details of the terrain play a more and more important role as one descends to the lower echelons; a battalion commander cannot really determine the distribution of his companies until he has seen and studied the terrain. It is upon the terrain itself that the battalion commander will inform his company commanders which part of the terrain (strong points) is assigned to them for defense. (Note 1--The regimental commander himself, although he has decided upon the distribution of his forces after study of the map and plans, will often be led to make changes when he has reconnoitered the terrain.)

"Reconnaissance of the terrain," states "Provisional Drill Regulations", "is the personal work of commanders of units; this is part of the mission assigned to them.

"Reconnaissance is made of the terrain which the adversary will traverse if he attacks, and of the terrain which the unit will occupy.

"Its object is to seek:

The approaches, covered or screened from view, by which the assailant might approach the position;

--The obstacles which might impede his movements and the points by which he is obliged to pass;

--Those points of the terrain which should be occupied in order to beat effectively with fire the possible routes of access of the attack;

--The facilities which the terrain offers for counterattacks and for passing to the offensive."

This reconnaissance enables the battalion commander to determine the parts of the terrain to be occupied, i.e., the strong points to be created, the strength of the forces to be used, the frontage and depth of the zone to be allotted to each of them, the principal flanking defense to be organized and the positions of the reserve. Since the position of security will also be reconnoitered, the battalion commander will have the necessary information to determine the composition of the advance posts.

Then he, in turn, will proceed to the distribution of his command which includes as we shall recall, differing from the regiment, elements of diverse kinds.

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The distribution of his means will vary according to the nature and the front and depth of the terrain of the center of resistance whose defense has been assigned to the battalion and the role assigned to the security position by the defense orders.

"The effectives of the outpost will vary from a sixth to a third of the total infantry forces placed in the security position and the principal position of resistance."

The battalion commander will assign to that part of the security position placed in his charge, from two platoons to an entire rifle company.

He will distribute his main body between his echelon of resistance and his reserve, conforming to a provision of "Regulations" that the reserve can "never be too great since it will be necessary to counter the unforeseen with them" and that it is "recommended to assure, above all, the stability of the echelon of resistance". We know that an attack is broken principally by fire; the density of this fire depends upon the strength of the echelon of resistance.

Generally, two rifle companies are assigned to the echelon of resistance; if the outpost includes less than a rifle company the battalion reserve may be composed of the remainder of the company which will have furnished the outpost (Diagram 27). In other cases, each of the two companies of the echelon of resistance may cover itself by means of a platoon sent to the security position; then the remaining company will constitute the reserve (Diagram 28).

If an entire company is placed in the outpost, the reserve may be organized for platoons of the companies placed in the echelon of resistance (Diagram 29).

One of the essential parts of the task of the battalion commander is to distribute his machine guns, those arms which constitute the veritable backbone of his fire system. His reconnaissance of the terrain having enabled him to determine the principal flanking defense and the successive barrages to be laid down, and the ravines and paths leading from the direction of the enemy which have to be beaten the most effectively, he then determines the machine gun position, then their distribution.

Page 143--Diagram 27-28-29.

He often assigns machine guns to the advance posts for one should never hesitate "to risk some guns in the most advanced fire echelon if they can injure the enemy more from that position than elsewhere" (art. 148).

He will likewise determine the emplacement of the 37-mm. guns and mortars placed at his disposition.

It is to be noted here that the regimental commander will intervene to coordinate the flanking fire of machine guns between neighboring battalions; this will lead him to prescribe the missions to be assigned to certain machine guns.

Now that the different elements of the battalion have received their mission, and the basis of the fire system constituted by the machine gun fire has been determined, the commanders of rifle companies will complete the fire system, ac-

cording to the indications of the battalion commander, by placing their machine gun rifles "in all the intervals not yet furnished with fire and by executing all the flanking defense capable of supporting the fire system, the principal outlines of which have already been determined" (art 418). They will dispose their combat groups in several echelons--two, in general, -- the most advanced groups firing in front and mutually supporting one another, the groups situated in rear placed in narrow formation with reference to each other, firing in the intervals; finally, they will organize their strong points for lateral fire (cross fire) thus forming compartments.

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In this will be accomplished the essential part of the defense: "to establish a complete and deep system of powerful fire, in the links of which the enemy will be stopped sooner or later, even if he breaks some of them."

The plan of fire of the various echelons, regiment, battalion and company, is thus outlined at the same time as the means are distributed; this could not be otherwise since the latter is dominated by the question of the plan of fire whose preparation it is supposed to effect.

The reconnaissance will be made with the object also of determining the location of observation posts, command posts, etc...

Then one may proceed without delay to the occupation of the terrain, or to the changing of the distribution of the troops, if they are already in place.

And in each echelon of the command, the plan of defense can be established.

The Plan of Defense.

It would be without interest to reproduce here the outline of a complete plan of defense; it can be found in Article 376 of "Provisional Drill Regulations for Infantry".

In its essential points, the plan of defense of the regimental commander, determining and completing the dispositions which formed the object of the defense order, will bear upon the following points: mission of the division, of the regiment and of neighboring units, -- how the regimental commander has decided to fulfill his mission,--precise and definite definition of the positions (security and resistance),--mission of the outpost occupying the security position, -- position and mission of the reserves,--distribution of missions among the battalions,--limits of the subsector allotted to each, -- supplementary means placed at their disposition (for example, 27 mm. guns and mortars),-- plan of infantry fire,--extracts from the plan of employment of the artillery and of the air service of interest to the regiment,--special defense measures against gas, tanks, airplanes and mining attacks,-- organization of field works,--functioning of liaison and signal communications--command posts and observation posts, etc...

Some points of the preceding enumeration should be developed.

Mission of the outpost -- "Outposts always have a security mission for the benefit of the echelons in rear of them", so states (Provisional Drill Regulations" (art. 392)).

"In case of attack, their mission is:

-- "To warn the echelon of resistance in time for it to be ready to receive the shock;

--"To stop local attacks;

--"To slow down and sometimes to break up the main attacks."

The mission of warning the echelon of resistance and of stopping the local attacks are general and constant orders; they do not have to be specified in the plan of defense.

On the other hand, what the regimental commander must specify in this plan is to "slow down and sometimes to break up the main attacks."

According to the case, the different elements of the outpost have for role:

-- "To withdraw before the attack, reporting its advance and delaying the enemy;

-- "To resist for a limited time or until night;

-- "To resist until its means are exhausted."

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In a general manner, the plan of defense specifies the attitude to be assumed; furthermore, special, formal, written orders will determine for each element of the outpost the role which it will have to fulfill; these orders may come directly from the regimental commander. Generally, they will be given by the battalion commander in accordance with the general directions contained in the defense plans of the regiment. We shall return to this question when we consider the details of the plan of defense of the battalion.

We have seen above that the outpost "generally has an observation echelon and a combat echelon."

In general, the plan of defense of the regiment will limit itself to indicating briefly the lines upon which these two echelons will be established.

The plan of defenses of the battalion will determine their outline and their manner of occupation.

Mission of the echelon of resistance. -- The mission of the echelon of resistance was not defined in the plan of defense; it is always the same, as we have seen; "to resist on the spot without thought of retreat" (art. 400). Thus the plan of defense will have only to specify upon which part of the terrain the resistance will be effected and to limit, as we have seen, the sector of each battalion.

Mission of the Reserves. -- We have seen above that the reserves are intended generally speaking:

"To execute counterattacks to retake terrain which has been lost or to drive out of the position hostile elements which have succeeded in installing themselves there;

--"To reinforce the echelon immediately in front of them, in case of the destruction of materiel or personnel compromising, in certain parts, the solidity of that echelon;

--"To relieve tired units;

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--"In case of necessity to defend the terrain upon which they now maintain a position of resistance."

These missions are of a general nature; the plan of defense of the regiment will not have to reproduce them but it will indicate:

--The line upon which the reserves will, at need, stop a hostile push and where they will be advantageously arranged in centers of resistance, provided with machine guns impossible of observation by the enemy (emplaced at non-dis-

tinctive points of the terrain, organization, if there is any perfectly camouflaged.)

--The facilities presented by the terrain for counterattacks and then the principal directions of probable counterattacks which the reserves might have to launch.

Plan of fire--The plan of defense of the regiment is limited in principle: to assuring the coordination of the plans of fire of the battalions among themselves; in particular, to prescribing the missions to be given to certain machine guns of the battalions in order to organize reciprocal flanking fire: -- to furnishing the desired indications for the purpose of combining the plans of fire of the battalions with that of the artillery, as we shall see,--to regulating the signals which will enable the sentinels, posts, and the lookout and observation posts to lay down the infantry system of fire for the defense along a certain part of the entire front.

Directives for the Organization of the Position. -- The order of urgency in the organization of the entire defensive organization is prescribed by "Regulations" (art. 381):

"1 -- The emplacements for fire are to be occupied and the plan of fire determined:

"2 -- Sentries and observation are to be provided;

"3 -- Liaisons and signal communications are to be organized;

"4 -- Shelter is to be provided;

"5 -- Accessory defenses are to be organized."

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This order of urgency, as it is of a general nature should be familiar to all concerned and it is not necessary for the colonel to put it in his places of defense. The colonel's plan of defense will give a general outline of the organization of the position, will divide the work among the battalions and the labor under his orders, will establish depots of material, fix the hours, etc., of work, etc. etc.

Coordination of the Plan of Defense of the Regiment with the plan of Employment of the Artillery. -- The plan of employment of the artillery for the defense includes, in those of its parts which interest the infantry directly:

--Counter preparation fire;

Prearranged protection fires in front of the observation echelon of the security position;

Prearranged successive protective fires in the interior of the position of security, completed by fires designed to sweep in the open the gaps between the centers of resistance of the combat echelon of the outpost, and, when necessary, by special protective fires for those centers when the latter are required to hold, at all cost.

Prearranged protective fires in front of the exterior edge of the position of resistance.

Prearranged successive protective fires in the interior of the position of resistance.

--Sometimes, fires to support probable counterattacks.

The plan of defense of the regiment will not only reproduce extracts of the plan of employment of the artillery prescribing details of these different fires, but will also specify clearly the following points, of which certain ones will be determined in details by conference with the command of the artillery groupment:

a--Participation of infantry weapons in the counterpreparation harassing and interdiction fire by machine guns and accompany weapons;

b.--How the various elements of the infantry of the defense will request the prearranged successive protective fires or protective fire for the different centers of resistance of the combat echelon of the security position, etc: For this purpose there will be codes for light signals, for ground and radio telegraph for visual signaling, etc....;

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a--Basis of the combination of the artillery protective fires in front of the exterior edge of the position of resistance, with the plan of infantry fire of the echelon of resistance; this combination, it may be recalled, consists essentially of the concentration of artillery fire against those parts of the terrain which escape the flat trajectory fire of the machine guns.

Let us add, finally, that, in the defensive, liaison between infantry and artillery will best be assured by placing the command posts of the commanders of artillery groupments with those of the commanders of the regiments which they will support. It is only when placing these command posts together is prevented by important reasons of a technical nature that the artillery would be represented at the infantry command posts by liaison detachments as during an offensive.

The plan of defense of the regiment contains all important directions on this subject.

The plan of defense of the battalion commander will be framed according to the same model as that of the regimental commander. It will differ only slightly resulting, on the one hand, from the inferior strength of the battalion and, on the other hand, from the composite nature of that unit which makes of it, as we have already stated, the fundamental tactical unit of the infantry.

Those parts of the terrain to be reconnoitered, those to be occupied and held, both in the security position and the position of resistance, will be more definitely determined.

Often the battalion commander, if he decides not to leave it to the company commanders, will determine the composition and the positions of the smaller posts of the observation echelon of the outpost, so that he may provide: "cross observation, embracing the entire extent of the terrain to be observed."

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Generally, these posts do not have a mission of resistance; they withdraw, their role accomplished, avoiding envelopment by the enemy and rejoining in the combat echelon, the elements from which they were detached. In certain cases, one may give certain elements of the observation echelon, a delaying mission. If this is done, the plan of defense of the battalion clearly defines this mission.

The plan of defense of the battalion determines the position and composition of the elements of the combat echelon of the outpost. It is this plan which, conforming to what is prescribed in the plan of defense of the regiment, specifies, for each of these elements, their conduct in case of attack: delaying action, or resistance of a predetermined duration, or resistance until enveloped or at all cost. According to the mission thus determined, the elements in question may be either combat groups or platoons or rifle companies, reinforced or not by machine guns, or stronger detachments solidly intrenched; the battalion commander will frequently employ isolated machine gun nests, placed at other than prominent

points of the terrain and covered by the general disposition of the combat echelon.

Finally, it is the plan of defense of the battalion which will organize the plan of infantry fire in accordance with the regulations which we have studied; the system of fire of the regiment will result from the ensemble of the plans of fire of the battalions, coordinated, in particular, at the points of junction, by dispositions for reciprocal flanking fire prescribed by the regimental commander.

The battalion commander will complete his plan of fire by a system of anti-aircraft machine gun fire.

2-PLACING IN OPERATION OF THE PLAN OF DEFENSE.

Search for Information.

Indications or information of the enemy generally permit conclusions as to preparations for the attack; none the less, the enemy will have the benefit of surprise if he keeps his adversary in doubt up to the last moment as to the exact part of the front on which the attack will be launched and as to the time, --day and hour,-- of the launching.

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The defense will attempt to raise the veil by taking prisoners and surprise attacks will be ordered by the high command for this purpose. Commanders of the defense infantry units, regimental, battalion and even company commanders, directly and immediately interested, will take the initiative in small operations of the same nature but of less extent.

When, thanks to the information gathered in the above manner, or from any other important indication, the command (1) estimates that the attack is imminent, that the hostile materiel is ready at hand, that the attack troops are moving to their line of departure, or are already concentrated there, he will launch the counterpreparation fire, in which the infantry will participate under the conditions mentioned above.

(Note 1--Division and higher command).

In spite of every precaution, except in exceptional cases, a certain indecision as to the intentions of the enemy will reign up to the last moment. Sometimes, the attack may be launched suddenly and violently "without any indication of the time at which it will be launched" (art. 423).

With a view to such an eventuality, the troops of the outpost, destined immediately to receive the shock of the attack, should always be in their combat positions or in the immediate proximity thereof. The listening and lookout sero vice, at each post, and the men required to be kept constantly on duty of the platoons and companies, will be always on the alert. Patrols are frequently sent out at night to observe close at hand the hostile lines.

There will be no deep dugouts in the security position; they are traps in which the defenders are often surrounded without having had the time to get out.

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Combat in the Security Position.

The attack has been launched. Each element of the security position takes the measures prescribed for the defense.

The small posts of the observation echelon, or what remains of them, for they have certainly suffered from the violent bombardment, give warning that the assailant is advancing by all the means in their possession, rockets and visual signals in particular. Furthermore, they place their weapons in action, both to assist in giving the alarm and to resist the enemy as far as possible. Their duty accomplished, they attempt to withdraw upon the combat echelon if such are

their instructions as is generally the case. But it cannot be denied that their role is one of sacrifice and that very few will succeed in reaching the lines. An account of part of the defensive battle of 15 July, 1918, gives an example of the role of the small posts.

Having reached the combat echelon of the outpost, the attack will encounter the fire from the centers of resistance of that echelon; signals and information sent by these elements will cause to be launched the prearranged protective fire prescribed for this phase. The centers of resistance themselves will be submitted to neutralization fire, generally very heavy which, generally, will enable the assailant, if not to take them, at least, to pass through the intervals between them. Nevertheless, their resistance will have broken up the disposition of the hostile infantry and diverted the latter into routes of advance where it will be under the prearranged successive concentrations and sweeping fires of the artillery and the machine gun fire of the defense.

During this entire phase, which covers only the execution of the defense plans by the outpost, the role of the regimental and battalion commanders will be limited in general to gathering information sent from the security position, to causing the resistance and reserve echelons to take their battle positions and to transmitting to the artillery the requests for fire received from the outpost.

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Combat on the Position of Resistance;

Action of the Reserves; Local Counterattacks.

When the assailant attempts to get close to the position of resistance, the infantry plan of fire is automatically taken effect. The prearranged protective fires of the artillery also are automatically launched. In this phase, the role of the commands of the infantry units, regiment and battalion, consists in following closely the episodes of the battle, in holding themselves in readiness to intervene with all or part of their reserves, and in attempting to maintain or reestablish the coordination between the action of the artillery and the fluctuations of the infantry combat.

If, at certain points, the enemy succeeds in penetrating the position, for example, in insinuating himself between two strong points whose flanking fire he will have succeeded more or less in neutralizing, successive barrages and box barrages will be laid down. Everyone will resist at all cost and will be killed rather than give up ground which has been confided to his honor. Available elements of small units, of the companies, will immediately launch local counterattacks, attempting to take in the flank and hostile elements which are attempting to turn them. In the meanwhile, the battalion and regimental commanders await the moment to launch the counterattacks which they have foreseen and prepared, with a view to retaking the points which the enemy has penetrated.

The most opportune moment is that "when the hostile attack, after having been broken, is stopping".

"The habit of decision and the ability to recognize an opportunity of the commander alone can seize this moment; when the enemy is still in full offensive advance, it is too soon; when he has stopped for some time, it is too late and every recapture of terrain then requires the organization of an operation in all its details, as in an attack" (art. 433).

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The counterattacks are launched "as rapidly as possible, by surprise on an order or on a signal" that has been agreed upon by the commander--regimental or battalion,--who prepared them. Often, however, they are launched, "on the initiative of the commander who commands the troops for the counterattack" (art. 234).

"These operations," state "Provisional Drill Regulations", "always have a limited objective; they operate in open terrain in order to advance more quickly and operate with greater force; the dispositions to be employed are those for offensive combat, with great density of fire in the forward echelon." (art. 434).

Sometimes, the counterattacks are executed supported by artillery and tanks; but the rapidity with which they must be launched,--also, the attendant conditions of improvisation, because, although prepared in advance to a certain degree, their direction and objective are nevertheless dependent upon the advance already effected by the enemy,--force the infantry to depend upon itself: whence the utility, in the defensive, of an accompanying infantry gun.

Such is the essential role of the battalion and regimental reserves; only in very rare cases, will the battalion or regimental commander employ them to strengthen a part of the front by reinforcing a unit of the echelon of resistance which has suffered severely. They would generally arrive too late as states "Drill Regulations for the Infantry".

But, "if the enemy has succeeded in effecting a large rupture of the front, the reserves, deployed and placed in rear on the terrain, like the units of the echelon of resistance, will resist to the last; this is the use of the so-called barrier line defined by "Instructions for the Tactical Employment of Large Units".

Defensive Combat of the 14th Infantry Regiment, 24 April, 1918, on the Luce and the Avre (Sketch 10). -- During the nights of the 14-15 and the 15-16th of April, 1918, the 131st Division relieved a tired division in the sector Berteaucourt-Hangard-en-Santerre.

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The boundaries of this sector are defined on the right by the Avre and on the left, by the bois de Hangard--Gentelles (both exclusive).

That part of the front was scarcely stabilized; it has been scarcely ten days since the French troops had succeeded, with heroic efforts, in stopping the German push which followed the formidable offensive launched, 21 March, against the British armies.

Furthermore, the organization of the positions was still in an embryonic condition because the troops were overstrained by incessant alarms and because the supply of materiel was poor. There were some discontinuous elements of trenches, no communication trenches, no good shelters; for obstacles only some Brun or Ribard nets; and a precarious system of signal communications.

On the other hand, while the general trace of the front, in the region west of Amiens, was oriented south-north, that part of this trace included in the sector Hangard--Berteaucourt, faced the southeast; it formed a link between the right of the new British front, south of the Bois de Hangard, where the left of the 131st Division was to be in contact with the British, and the left of the French lines which held the left bank of the Avre, with which the 131st Division was to join up (se relier) in the vicinity of the junction of the Luce and the Avre.

The resultant situation was very critical for this large unit whose communications were to the west and would pass via Thénay.

Finally, the situation was such that not an inch of terrain could be given up: The valley of the Luce lost the enemy, would gain Gentelles heights, from which he has under fire of his field artillery, the railway junction of Longeau, which was vital to the Franco-British front, and the city of Amiens. Furthermore, the forward edge of the position of resistance had been established a short distance from the German lines and consequently, there was not room for a security position; only some observation elements, from 100 to 200 meters from the position of resistance, covered it in a very precarious manner.

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In short, the 131st Division was to occupy a position organized in a mediocre manner, not covered by a security position, and of very unstable equilibrium, on account of its situation as a connecting link and its entire eccentric communications.

This large unit distributed its infantry force as follows:

Two regiments in line: the 7th on the left, subsector of Hangard-en-Santerre; 14th on the right, sub-sector of Berteaucourt (boundary between the two subsectors shown on the sketch);

41st Regiment in reserve in the vicinity of Thezy.

The divisional command post was at Fouencamps; the divisional infantry command post in the quarry of the Sphinx, about 1,200 meters northwest of the chateau of Berteaucourt.

We shall consider the subsector of Berteaucourt in particular.

The 14th which occupied this subsector, had its command post in the cellars of the chateau of Bertecourt.

On April 18th, two days after its entrance into sector, it took part in an attack launched in conjunction with the division on its right, the 64th, which had for objectives the bois de Senecat and the village of Castel. The 64th succeeded in approaching the locality but did not succeed in taking it; the 14th whose line initially scarcely extended beyond the road connecting Thennes with the railroad bridge over the Luce, advanced its front as far as "small woods of la Maisonette", some hundreds of meters from the bridge at Castel.

This operation retarded work in the subsector; furthermore, it was necessary to create a new front. When the German attack was launched on April 24th, the 14th had scarcely five days for this organization.

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Nevertheless, beginning with 19 April, the field works were pushed as rapidly as the restricted personnel and limited amount of material available permitted. Emplacements were prepared for 37 mm. guns, machine guns and automatic rifles; trenches were dug and those elements of trenches already in existence were lengthened and deepened; some defiladed paths were marked out, screened by the villages and road embankments; shelters were created in cellars; others were dug in sand quarries and the side of slopes. The system of signal communications was improved. A redoubt was formed of the chateau de Berteaucourt placed in a state of defense. A foot bridge was built across the Avre to assure liaison with the 240th Infantry Regiment (left of the 64th Division).

Finally, by April 24th, the day when it was destined to oppose an extremely violent attack, the 14th had at its disposition three echelons of resistance (See Sketch):

-- A first echelon, forward edge of the position of resistance, on the general line, bois de La Maisonette--Heurges;

-- A second echelon (support line) established at the southeast edge of Thennes, placed in a condition of defense, and extending, to the west, as far as the railroad bridge on the Luce;

-- A third echelon (barrier line), to the southeast edge of Berteaucourt, with redoubt at the chateau several foot bridges had been thrown across the Luce; they had been prepared for destruction.

Machine guns flanked the successive echelons; others raked the most dangerous avenues of approach; 37 mm. guns fired upon the railroad.

The trenches were not continuous since time was lacking to unite the elements of trenches already in existence.

At from 100 to 200 meters beyond the forward edge of the position of resistance, security elements had been established.

It is to be noted:

-- That the two first echelons were established, in general, on low ground, dominated by the mill at Thennes, where the Germans had a post and by the ridge which they held;

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That, between the railroad and the valley of the Avre, the swampy valley was impracticable for troops; it could only be observed;

-- That, finally, north of the Luce, the rising ground was entirely exposed to view from the heights of the mill at Thennes. The lines of communication of the 14th passed over that ground and it would be obliged to retreat over that ground in case of check.

The lieutenant-colonel commanding the regiment had organized three centers of resistance (two in the front line, one in the second line), and had distributed his forces as follows (See Sketch):

Two front line battalions held:

-- The 3d Battalion, the center of resistance at the railroad;

-- The 1st, the center of resistance at Thennes.

Part of the other battalion, -- the 2d, -- was charged with the defense of the center of resistance at Berteaucourt; but the main body of the battalion (two companies of riflemen and two machine gun platoons) was held in the regimental reserve at Berteaucourt.

The defense of the redoubt of the chateau at Berteaucourt was assigned to the headquarter company of the regiment; one 37 mm gun was attached to it; the other 37 mm guns were placed at the disposition of the commander of the theater of resistance at the railroad.

The center of resistance at the railroad was the most exposed; in a German attack, it would be more easily taken than the center of resistance at Thennes. It was at the point of junction with another division, always a weak point; it was not so well supported in rear by the support echelon (center of resistance at Berteaucourt); finally, it covered directly the line of communications of the regiment and even of the entire sector of the 131st Division; for the above reasons, it was to be expected that the hostile attack would be directed against it.

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For this reason, the lieutenant colonel, commanding the regiment assigned to this center of resistance a front much narrower than the one assigned to the center of resistance at Thennes.

Thus the battalion charged with its defense could echelon its forces in depth and hold, complying with regimental orders a reserve company in the particularly sensitive region of the river junction and the railroad bridge.

Finally, the commander of the subsector planned in particular the employment of his own reserve, in counterattack, either in this same region or, if necessary, at the point of junction of his subsector with that of the 7th, in the vicinity of Domart.

The command post of the subsector, in the cellars of the chateau of Berteau-court, was so situated that the lieutenant colonel commanding the 14th could not follow the combat under favorable conditions; consequently, a combat post was prescribed and constructed north of the cemetery at Berteaucourt on the north slopes of the Luce from which all the terrain of the subsector could be observed.

Such were the most important lines of the plan of defense as conceived and established by the lieutenant colonel commanding the regiment.

An artillery liaison detachment was permanently attached to the subsector command post.

The distribution of the forces of the battalion commanders of the front line centers of resistance were as follows:

-- 3d Battalion, -- center of resistance of the railroad--placed two companies in the front line, each holding a strong point and distributed in depth over the first and second echelons of resistance; the 3d Company was held in reserve, between the railroad bridge and the river junction.

The battalion command post was in the sand quarry at Austerlitz. The battalion commander had attached some machine guns to his two front line companies; he held a machine gun reserve with him in the quarry.

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His 37 mm guns in the vicinity of the railroad, fired upon the railroad and the far end of the bridge at Castel.

The 1st Battalion (center of resistance at Thennes), with a more extensive front, organized three points of support, assigning one company to each; thus his three companies were organized abreast, he formed a reserve of detachments taken from each company. The battalion command post was organized in a house at Thennes. Let us note that the forward edge of this village formed salients which were permitted the flanking by machine gun fire of the second echelon of resistance.

Finally, machine guns, in the two centers of resistance, swept the terrain in front of the extreme edge of the position of resistance.

From April 22d, a German attack appeared imminent; every one was on guard; during the night of the 23-24th, information was obtained from a German deserter who appeared in the lines of the 7th, in the vicinity of Hangard-en-Santerre, to the effect that a large attack was planned for the 24th, with the object of reaching Amiens; artillery preparation was to commence at 4:00 AM.

General alarm: at 3:30 AM, every one was in position, the lieutenant colonel commanding the 14th at his combat post north of the cemetery north of Berteaucourt; liaisons and means of signal communication were tested, the defense was ready.

At 4:00 AM, a bombardment of hitherto unsuspected intensity beat our front lines and the villages of Thennes and Berteaucourt, with accompanying gas shells in the region north and northwest of the latter locality.

About 7:45 AM, the enemy attacked in force the center of resistance at the railroad; its assault waves were held to the spot but, at 8:40 AM, the company commander on the right of the 3d Battalion sent the following report:

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"The 340th no longer occupies the trenches on the hill in front of Castel; two companies of that regiment were captured there this morning. As men from the 340th has joined me who gave me this information:

"Judging by the direction of the firing, the Boches are on the other side of the Avre and envelop me at least as far as Hailles."

At 8:55 AM, the commander of the center of resistance at the railroad, transmitted the following report: "I am holding on the battalion front, but I report what has transpired on my right where the 340th has withdrawn."

This information reached the commander of the subsector about 9:30 AM.

His right appeared to be largely outflanked; his communications were directly threatened.

At the same time, he learned that the Germans had just entered Hangard-en-Santerre and that, finally, breaking through the British right, their attack had advanced and had already reached the vicinity of Cachy.

Thus, not only was the left of the 14th threatened by the irruption of the enemy into Hangard-en-Santerre, but his advance into the English zone also exposed this regiment to being taken in reverse, at less than 4,000 meters to the north.

The situation was critical.

But the 14th was the link of the French positions; if it gave ground the entire defensive system would fall.

Consequently, the front line battalions and, in particular, the 3d Battalion, which occupied the center of resistance threatened on its right flank, were ordered to hold their positions with greater tenacity the more dangerous the situation of the adjacent units.

On the other hand, the time to bring the reserves into the action appeared imminent: a detachment of the regimental reserve had been pushed to the west edge of Berteaucourt, to support, at need, the right of the 3d Battalion, in co-operation with the reserve company of this battalion and to counterattack, when necessary, in the vicinity of the junction of the two rivers.

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The remainder of the reserve, northwest of Berteaucourt, was held ready to counter-attack hill 79 from Doniart, if the Germans continued to advance beyond Hangard.

Finally, the situation in the vicinity of Heilles was reported to the division, with a request to cover the right of the sector in this direction (Note 1 - The 41st Infantry Division reserve was well placed for such support, in the vicinity of Theny, but it was ordered to the vicinity of Hangard in order to execute a counterattack).

In the vicinity of Cachy, the 14th was helpless and could only appeal to the adjacent units to reestablish the situation.

Between 10:30 and 11:00 AM, a further report from the 3d Battalion, dated 10:30 AM, was received:

"On the battalion front, situation unchanged. I have received no information about the 340th but I can see the Boches who appear to be advancing in the direction of hill 82, where they have gained a foothold; along the left bank of the Avre, they appear to have come abreast of the ravine situated west of the flagman's house at the grade crossing and at a distance of about 900 meters.

"On the battalion front, the Boches are stopped."

Thus, although the situation of the adjacent units on the right was less compromised than appeared from first information, it remained critical.

At 11:30 AM, the enemy launched another attack which surrounded the center of resistance at Thennes.

About 12:15 PM, the commander of the 14th received a report from the 1st Battalion (center of resistance at Thennes). The battalion commander reported that his artillery in direct support was not firing. "It is essential", he wrote, "that a barrage be laid down on the crest."

The commander of the 14th transmitted this request to the divisional infantry immediately and added: "I have directed an artillery liaison officer to place a barrage on the mill on the hill; I request that you also give orders to this effect."

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In spite of his requests, artillery fire was not opened since, four hours later, the commander of the 14th wrote to the divisional infantry commander: "The 1st Battalion reports that the hostile infantry is assembling in front of its left (function with the 7th). It is urgently necessary to lay down an artillery barrage. Furthermore, the infantry complains that, in spite of its repeated requests, not a single shot has been fired at the mill. It is necessary for this fire to be executed without delay and to be frequently renewed."

Why did the artillery in direct support fail? Perhaps for technical reasons, perhaps, also, because the artillery liaison officer, a young inexperienced officer, having received insufficient topographical instruction, without doubt, was unable to transmit the information as required (it is to be noted that this officer, commander of the liaison detachment, was changed every day).

Nevertheless, due to the splendid behavior of the 14th, the infantry fire, alone, was able to stop the assailants. A short time after 12:30 PM, the attack had broken down on the entire front; only a few observation elements had been obliged to withdraw to the position of resistance.

In his report dated 3:15 PM, the commander of the 14th stated: "In short, our unit held marvellously well; our men are magnificent."

Elsewhere, the dispositions taken in the vicinity of Mailles, stopped the hostile push which threatened the right of the 14th. A counterattack of the 64th Division had driven the enemy back a short distance from the vicinity of hill 82.

Finally, on the left of the 14th, the combined efforts of the two other regiments of the division and the British reserves fortunately reestablished the situation; however, Hangard-au-Senterre remained in the hands of the Germans.

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Victorious on its front, and reassured as to its flanks and its rear, the 14th was then able to launch local counterattacks with the object of retaking the elements of observation trenches from which part of the outpost had been obliged to withdraw.

A first counterattack brilliantly retook an element of the trench in the vicinity of the mill at Thennes.

At 7:30 PM, Blanche trench, northwest of the same hill, was retaken, in a brilliant action in which sixteen prisoners and three machine guns were taken.

The 3d Battalion, taking advantage of this phase of the reaction to improve the situation on its right, took some terrain along the edge of the railroad.

At the end of the day, the 14th was definitely victor in the combat. It had not given up an inch of terrain; it had even taken a little. It had inflicted severe losses on the enemy; it had taken prisoners and materiel without leaving a single trophy in the hands of the enemy.

Defensive Battle of 15 July, 1918. Sector of the 132d Division (Monte de Moronvilliers) (1) (Sketch 11) (2). -- (Note 1 -- Taken from the reports of the 132d Division, of the Divisional Infantry of the 132d Division, of the 366th Infantry and of the 4th Battalion of the 266th Infantry) (Note 2 -- See also the panoramic views at the end of the text).

On the eve of the last great German offensive, which was launched 15 July, 1918, the IV Army Corps occupied the sector of Monte de Moronvilliers, on the left of the Fourth Army.

Our operations of April and May 1917, costly and stubborn efforts had placed us in possession of the summits, famous from that time forward, Cornillet, Mont-Blond, Mont-Haut, Casque, Teton, and Mont-Sans-Nom from which formerly, German observation elements had dominated our positions at the base of the hills in the plain of the Marquises, Prosnès, Racornes, Mourmelon and Auberive.

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From that time, our position of resistance was situated on those summits.

General Petain, commander in chief, formally prescribed that the defense be removed several kilometers in rear as soon as the attack appeared imminent; only the outpost would be left in contact with the enemy in the first position which would thus become a security position.

Thanks to this method, the enemy would be surprised in finding the position of resistance there he did not expect to find it. The position of resistance would be thus removed from the most dangerous preparation, that of trench artillery. Furthermore, the first resistance offered by the advance posts would dislocate the attack formations, thus forcing the enemy to lose part of his offensive capacity before he reached the real position.

These were incalculable advantages as events will demonstrate, and largely justified the voluntary though painful abandonment of those summits and slopes where so many of our men had fallen, and where so much glory had crowned our efforts.

The Champagne front was one of the best organized of the French fronts. Several successive defensive positions had been organized there; they were composed of a continuous system of trenches, covered by deep wire entanglements; numerous communications trenches had been constructed; switch positions divided them into compartments; shell proof shelters protected the troops; tunnels had been dug in the first position, in particular, in Mont-Sans-Nom, and hill 181; excellent observation posts had been provided; roads had been created; narrow gauge railroads facilitated supply; a telephone net, with hurried cables traversed the positions in every direction.

From this point of view, the situation was very different from the one studied in the preceding example.

Page 167--Sketch 11--Page 168.

On July 14th, the eve of the attack, the 132d Division, the right division of the IV Corps, held the sector called the "Normandy Sector", which extended from the line: Fort Saint-Hilaire--Vaudeincourt, on the east, to the line, Moscou Farm--le Casque (excl), on the west.

The three regiments of this division were abreast, in the following order (from right to left);

330th Regiment: Golfe subsector;
366th Regiment: Mont-Sans-Nom subsector;
166th Regiment: Teton subsector;
(See limits of subsectors on the sketch).

The division was reinforced by a number of infantry battalions belonging to the 75th and the 152d Regiments, and by territorial units, which were to participate in the defense of the position of resistance (See sketch).

The first position was occupied in the normal manner.

The Action (1).

(Note 1 -- The text gives in quotation marks consists of extracts from the reports of the 132d Division, of the divisional infantry of the 132d Division, of the 366th Infantry and of the 4th Battalion of the 366th Infantry.

"At 8:55 PM, on July 14th, a detachment of the 366th, composed of nearly 200 men, with a detachment of engineers and Schilt apparatus, served by infantrymen, under the command of Lieutenant Balestie, executed a deep raid against the zone of shelters and minenwerfers of Cubitus trench.

"This raid, executed with remarkable energy, fell upon the enemy while he was completing his last offensive preparations and was a complete success. At the cost of very few losses (two killed, three wounded), we procured twenty-seven prisoners of the 73d Reserve Infantry (19th Reserve Division) and of the 11th and 4th minenwerfer battalions and, especially some very important information as follows:

"a -- Definite information as to the exact hour of beginning of the preparation for the hostile attack for the following day (1:10 AM, German time, 12:10 AM, French time), as well as the details of the preparation and the time of the launching of the infantry attack;

"b -- A detailed map of the emplacements and directions of fire of the hostile minenwerfers, information which would enable us to disorganize immediately, with our fire, the hostile preparation in front of our sector.

"The alarm positions for a serious attack were immediately taken.

.....

"The first position was evacuated by the main body of the garrison, which left only groups charged with giving warning of the debouchment of the hostile attack. Furthermore, the shelters of this position were blown up and the prepared demolitions were executed."

As we have seen, the alarm disposition against a general attack included the evacuation of the first position, in compliance with the directives of the general in chief, and the establishment of the defense at an average of 3 kilometers in rear, on the former "Intermediate position", which now became the position of resistance.

In the Golfe sub-sector, without doubt on account of the flat, swampy nature of the terrain, only observation posts, of the strength of a squad, were left in the first position; the attack in that sector would reach the position of resistance without opposition.

On the contrary, in the sub-sectors of Mont-Sans-Mon and Teton, the former position became a complete security position, including not only the observation echelon (small lookout posts, of the strength of a squad, maintained, in the immediate vicinity of the enemy, with mission to give warning at the debouchment of the attack), but also one and even two combat echelons, to which were confided the task of dislocating the attack, before it succeeded in reaching the position of resistance.

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At this period, these combat echelons were designated under the name of 'advanced positions'.

Why were combat echelons organized in the sub-sectors of Mont-Sans-Nom and Teton, when in the Golfe subsector, only the line of small lookout posts was left? There were profound differences between the terrain of the latter subsector and the two others which justified the adoption of two such dissimilar methods.

On the one hand, as we have already said, the Golfe subsector had, a flat, often swampy terrain, thinly scattered with narrow and struggling woods, which offered to the defense no points for holding which would, in themselves, constitute a power of resistance.

On the contrary, in the area of the other sub-sectors, were to be found an important breakwater, Mont-Sans-Nom, complete organized by its occupants, -- south of this hill mass was another breakwater, less important perhaps, but still of great interest, and organized likewise. These dominating heights were prolonged to the west by lower hills which, nevertheless, furnished excellent points for holding, like the hog back of Grand Bois and extensive woods such as Bois du Chien.

In the sub-sectors of Mont-Sans-Nom and Teton, the combat echelons, called "advanced positions", were two in number;

a -- Mont-Sans-Nom (sub-sector of Mont-Sans-Nom) and the line of the Blockhaus (sub-sector of the Teton);

b -- Hill 181 (sub-sector of Mont-Sans-Nom), the Grand Bois and the Bois du Chien (sub-sector of the Teton).

Furthermore, a switch position, called switch position A1, connected the advanced position of the Mont-Sans-Nom to the intermediate position, now became the position of resistance, with which it connected in the vicinity of the boundary between the subsectors Golfe and Mont-Sans-Nom.

The distribution of forces was as follows (See Sketch):

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Golfe sub-sector (330th Infantry). -- Security position: four observation posts in the front lines of the evacuated position of resistance.

Position of resistance: two battalions, plus 1 company of the 330th, echeloned in depth.

Sub-sector reserve: 1 1/2 company of the 330th organized in the Bois des Marnites and along the Roman way, forming the stop line (reserves).

Mont-Sans-Nom Subsector (366th Infantry). -- Security position: a) observation echelon: 4 small observation posts, in the former front lines;

b) -- Combat echelon: the ensemble of the two advanced lines -- Mont-Sans-Nom and hill 181 -- forms a center of resistance, whose defense was assigned to the 4th battalion of the 366th Infantry. The battalion commander (command post: Ham) echeloned his forces as follows: first echelon, 14th Company, Mont-Sans-Nom; second echelon, 13th Company, north part of switch position A1 and northeast slopes of hill 181-- and 15th Company, north and northwest slopes of hill 181.

The 5th Battalion of the 366th Infantry held the south part of switch position A1.

Position of resistance: Two battalions, the 2d Battalion of the 73d Infantry and the 6th Battalion of the 366th Infantry echeloned in depth.

Sub-sector reserve: detachments from the preceding battalions.

Teton subsector (166th Infantry)-- Security position:

a) -- Observation echelon: three small observation posts in the former front line;

b) -- Combat echelon: 1 company (7th/166), distributed among several strong points, in the Blockhaus line (first advanced line), over a front of 1500 meters.

Three companies in the second advanced line: 9th Company in the Grand Bois, -- 3th Company in a Fer a Cheval, -- 1st Company in the Bois du Chien.

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Position of resistance: 2 companies of the 3d Battalion, 166th Infantry, 1st Battalion of the 152d Infantry, 2 companies of the 1st Battalion, 166th Infantry.

Sub-sector reserves: one company of the 166th (5th) on the stop line (reserve) along the Roman road, -- one company of the 334th Territorial Infantry Regiment in the grand Bois de Prosnas.

Let us add that, aside from its participation in counterpreparation fire, the plan of employment of the divisional artillery included a series of pre-arranged successive protective fires corresponding to the different phases foreseen for the advance of the German attack against the security position, concentration fire laid down on the different routes between the strong points and centers of resistance of the combat echelons of the outpost, fires to sweep the intervals, protective fire for the strong points and centers of resistance, and immediate protective fires laid down in front of the forward edge of the position of resistance. All these different fires, numbered, were to be launched upon the appearance of signal rockets according to a code, or at the request of the different infantry echelons, transmitted by telephone, ground telegraphy, visual signaling, pigeons, etc., or according to orders received from the command or indications furnished by terrestrial or aerial observation.

Successive protective fires, within the interior of the position of resistance, were prepared also, but, fortunately, there was no need to place them in operation.

Events developed as follows:

"From 11:00 PM (1), our artillery executed extremely violent neutralization and interdiction fire upon the zone of hostile minenwerfers and the advanced zone of hostile batteries, and harassing fire upon the rear and the communications of the enemy.

(Note 1 -- Report of General Huguenot, commanding the 152d Infantry Division).

"At 12 midnight 14-15 July, hostile preparation fire was launched, with extremely violent minenwerfer fire against the Monte and the first position and very light fire against the intermediate position (new position of resistance), by means of 77's and 105's; rather dense fire against the zone of batteries, of small and medium caliber shells; fire of little density and rather dispersed against the rear."

It is apropos here to emphasize the surprise effected by the defense since the mass of hostile preparation was without effect being directed against the evacuated first position.

"Drum fire" was laid down on the entire front, at 3:30 AM.

"During the entire hostile preparation, we executed extremely violent sweeping, interdiction and harassing fire; at 2:30 AM, the counterpreparation fire was launched.

"At 4:40 AM, the hostile attack debouched along the entire divisional front."

With admirable faithfulness to duty, the men of the observation echelon of the advanced posts, "fulfilled their duty to the end and signaled with all the

means placed at their disposition by the division (couriers, pigeons, search-lights); it is to be noted that flares and carrier pigeons were among the means which gave results.

"By 6:05 AM, the enemy had stopped in front of the intermediate position (position of resistance), of the Golf sub-sector, switch position A1, Mont-Sans-Nom, and Blockhaus line."

Numerous posts of the observation echelon, completely surrounded, were continuing the combat.

In the Golfe sub-sector, the enemy tried in vain to take the first parallel of the position of resistance; he renewed his attempts sixteen times during the day; his dash was always broken by the defensive fire; prompt local counter-attacks drove him from the points of the terrain where he had succeeded in infiltrating.

In the Mont-Sans-Nom sub-sector, the observation posts of the advanced echelon admirably fulfilled their sacrifice mission; in particular, post A2, submerged for more than two hours, sent to the division, at 6:30 AM, a carrier pigeon which delivered a message to the effect that the post still resisted.

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The defense of the combat echelon of the security position merits special development on account of its heroic tenacity, the results obtained, and also the example which it gives of the defensive combat of a well organized center of resistance, superbly commanded and occupied by infantry animated by the pure spirit of sacrifice (Note 1 -- The recital which follows is extracted from the report of Major Besnier, commander of the 4th Battalion, 364th Infantry garrison of the Mont-Sans-Nom -- hill 181 center of resistance.)

Between 4:40 and 5:00 AM, command post Ham (command post of the 4th Battalion) requested by means of rockets with three stars, barrage number 2, which was to be laid down around Mont-Sans-Nom; the barrage was obtained.

"Each man, at his combat post, endeavored to gain sight of the enemy without succeeding at first, on account of the smoke, dust and gas shells; vision was further obstructed by the gas masks which they had been wearing for more than four hours.

The arch of the tunnel of Mont-Sans-Nom had been caved in at the south entrance by a shell of large caliber.

The combat groups on the north and northeast slopes of Mont-Sans-Nom (14th Company, Captain Forcinal) had been attacked one after the other, several by flame projectors; all attacks made up to 10:00 AM were repulsed.

Meantime, the enemy, who had succeeded in traversing the Blockhaus line of Teton subsector, advanced west of the Marochowsky road, and attempted to reach the col between Mont-Sans-Nom and hill 181. "A detachment of the 14th stopped short a group of thirty Boches advancing by fours on this road and killed or wounded half of them."

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A half platoon in reserve at the Tunnel, "advanced to the point where the Boche attack was the strongest and, abreast of the hill, relieved a squad of the 15th Company."

Nevertheless, the Germans succeeded in occupying the col.

"About 10:30 AM, the enemy, in force, climbing the north slopes of the Mont-Sans-Nom, took four strong points, of which the greater part of the defenders were either killed or wounded."

Warned by runners, Captain Forcinal organized the defense between the south exit of the Tunnel and the communication trench of Mont-Sans-Nom."

Mont-Sans-Nom and the command post at Ham reported by rockets that they were still keeping up their fire, during part of the morning; communication between them was broken.

Let us now see what was transpiring meantime at spur 181.

A short time after the beginning of the attack, Major Beanier "having received no news of the 19th Company (5th Battalion, switch position A1) nor of the 15th Company (Barnay trench, north and northwest slopes of hill 181), sent liaison agents to the two command posts. The liaison agent sent to the command post of the 19th was stopped by the Germans in Chesapenoux communication trench.

About 5:00 AM, the two left companies of the 5th Battalion, 366th Infantry (18 and 19th) were submerged by the enemy in switch position A1. Filtering through woods 149, 147 and 146, the Germans had advanced southeast of spur 181, then had pursued their advance south of the hog back.

About 6:00 AM, the battalion commander received a report to the effect that some hostile elements advancing via woods 147, other elements, without doubt advancing from the col between Mont-Sans-Nom and hill 181, and infiltrating through woods 114, threatened to surround the command post at Ham.

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The defense of the command post at Ham had been organized with liaison agents, telephone operators, artillerymen of the liaison detachment, plus a half platoon and a few battalion grenadiers; the latter advanced to meet the most pressing of the assailants, counterattacked and dispersed them with grenades and carbines.

The battalion commander gave orders to blow up the tunnel of hill 181; the operation was executed gallantly by the engineers.

The liaison agent who had been sent to reestablish liaison with the command post of the 15th Company on the left, found the command post evacuated.

The left of the 15th Company had been attacked on the west slopes of hill 181, greatly superior forces, coming from the direction of Blockhaus line, which had advanced to the west of the Marochewsky road.

The platoon which occupied those slopes (2d Lieutenant Houppé) had been surrounded but, prisoner for only an instant, it had disengaged itself and had rejoined, on the hog back of the Grand Bois, the 9th Company of the 166th Infantry where it had placed itself at the disposition of the commander of that unit.

His left platoon cut off, Lieutenant Haireasse, commander of the 15th Company, in turn saw his command post enveloped; with his liaison agents he fought bravely, one against ten, his men having been killed or wounded, he himself was taken prisoner but escaped and rejoined the 9th Company of the 166th Infantry also.

While these events were taking place southeast and west of hill 181, the Germans were attempting to débouch from Leroy trench, on the east slope of Mont-Sans-Nom. Due to the dominating situation of hill 181, they were prevented by two platoons of the 15th Company, established, with 1 machine gun platoon, on the north slope of that hill (Barnay trench), and by the 13th Company, in position on the northeast slopes, likewise reinforced by a machine gun platoon.

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One hostile Company, which had advanced via Champenoux communication trench and reached Leroy trench, concealed itself in woods 165. A request was sent by ground telegraphy for artillery concentration on this woods while machine gun fire swept it and woods 152 and 163.

Later, after the capture, already related, of the north slopes of Mont-Sans-Nom (about 10:00 AM), a continuous advance was made northwest of Mont-Sans-Nom; it was stopped by the 14th Company with grenades in its redoubt abreast of the Tunnel. Farther to the east, the hostile infantry, after having advanced via communication trench Champenoux, had reached the south edge of woods 152; it was still held there by the fire of the 13th Company.

Let us turn to the south slope of hill 181 where the situation had become critical. We have seen that between 5:00 and 6:00 AM, some hostile forces, after having infiltrated into woods 149 and 147, submerged the 18th and 19th Companies in switch position A1, advanced southwest of hill 181, and pursued their advance to the south of that hill.

Lieutenant Verriere, commander of the machine gun company of the 5th Battalion, 366th Infantry, nevertheless succeeded in reorganizing a detachment with 3 machine guns and 1 platoon of the 19th Company, and in occupying the communication trench of Mont-Sans-Nom between woods 112 and 111. He gained liaison with the command post at Ham and placed himself under the orders of Major Besnier; the latter reinforced him with a half platoon of the 15th Company, and placed a small liaison detachment to connect him with the command post.

Thus Verriere's group very effectively covered the center of resistance of the 4th Battalion 366th Infantry against the attacks of the German troops which had turned hill 181 on the left; he even succeeded in taking 12 prisoners in the afternoon.

West of hill 181, Lieutenant Mairoisse, commanding the 15th Company -- who, as we remember, was taken prisoner -- had escaped and assembled the 9th Company of the 166th Infantry in the Grand Bois -- left this company with its quartermaster sergeant, about 10:30 AM, in order to gain liaison with his battalion; "he succeeded in this and crossing the Marochewsky road, in spite of the machine gun fire from hill Mont-Sans-Nom, now occupied by the enemy, he informed Major Besnier that the 9th Company of the 166th was completely isolated."

The commander of the 4th Battalion 366th Infantry, then took measures to reestablish liaison with that unit. A German group, from the Pelade of Mont-Sans-Nom, formed a barrier on the Marochewsky road: it was dispersed by a small detachment of grenadiers from the 4th Battalion but, from the Pelade du Mont-Sans-Nom, some German infantry elements of much greater strength arrived, which drove back the grenadiers and connected with the hostile forces which had advanced from the east to the west, south of hill 181. The 4th Battalion of the 366th Infantry was surrounded.

Then the shell bursts of barrage IV were heard on the south slopes of hill 181.

From that time, "writes Major Besnier in his report, "there was greater need than before, to be in continuous liaison with the regimental command post by means of ground telegraphy in order to indicate that the battalion still held its positions and hoped to continue to hold them. Requests for reinforcement, ammunition, -- or simple messages to the effect that the battalion still held, were sent. Two carrier pigeons were loosed, the latter about 11:00 AM carrying a detailed report of the situation.

"No reinforcements or ammunition could arrive.

"About (?) o'clock, a liaison agent of the 14th came to report that the colonel, upon division orders, directed by telephone of the Tunnel at Mont-Sans-Nom, the commander at the command post at Ham, to rejoin the regiment, with his whole command and to cut a passage through the hostile lines.

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As a matter of fact, this order had been telephoned by the colonel at 3:30 PM.

Major Besnier made the necessary dispositions, ordered all possible demolitions, and gave orders to destroy the Tunnel of Mont-Sans-Nom; the engineers executed their operation with a calm and self control above all praise.

This done, the battalion, in two groups, -- 14th and 13th Companies via communication trench Champenoux, the 15th, via communication trench Mont-Sans-Nom, -- passed through the hostile lines and reentered the French lines, bringing back twelve prisoners.

It was then 5:25 PM.

Any comment would weaken the eloquence of this simple exposition.

The combat echelon of the outpost of the 306th Infantry had so completely dislocated the German attack that it broke down without force, on the forward edge of the position of resistance. Not only did this position remain inviolate, but, at 8:30 AM, the following day, the 16th, some advanced elements still held out in the region south of woods 111, of Bois du Crochet and of Bois Transparent.

In the Teton sub-sector (166th Infantry Regiment), the attack had infiltrated across the advanced line of the Blockhaus which, as we have seen, was held on a front of 1,500 meters, by a single company, the 7th. This company, commanded by Lieutenant Fleury, covered itself with glory in its exposed situation, one of complete sacrifice. These little strong points, submerged from the beginning of the attack, still held out at 10:30 AM, after six hours of combat.

At 6:00 AM, the bois du Chien was completely surrounded, as a result of the forced withdrawal of the division on the left to the intermediate position (position of resistance). Major Bouche, commander of the 2d Battalion of the 166th Regiment, and Captain Miguel, commander of the 1st Company, led their troops in stubborn hand to hand fighting against a very energetic enemy. Major Bouche succeeded in disengaging himself and in rejoining our lines.

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The line was marked out at 8:30 PM and this indicated that our troops still resisted in the bois du Chien, the Patte d'Ode and the Pointe de Coeur" (Note 1 -- Report of General Huguenot, commander of the 132d Division).

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At the end of the day, the position of resistance was intact.

Such was the part taken by the 132d Division in the defensive victory of 15 July, 1918, whose consequences were so fruitful for the French Armies.

The simple account above explains sufficiently clearly the mechanism of the combat in the security position. It does not appear necessary to dwell longer upon it.

In turn, on account of its importance, its extent, and the number of effectives which were employed there, the center of resistance, Mont-Sans-Nom -- hill 181 may, at all points, be compared to a center of resistance forming part of the true position of resistance. The splendid defense of Besnier's battalion furnishes us an excellent example of the manner in which defensive action in a position of resistance is conducted. We find there the essential elements analyzed in the preceding pages: organization of forces in front and depth, fire system furnishing successive barrages, machine gun action, all elements capable of all around defense, importance of liaisons and signal communications prompt local counterattacks, artillery liaison, etc...

Therefore the account of the events of this day is rich in information.

But, what is to be said of the example of pure courage so generously shown by the infantry of the security position? How can one do otherwise than salute

the ardent heroism and the cool tenacity of such troops as the Bouche battalion and the besnier battalion?

How can one but bow before those bravest of the brave who held the small posts, small groups of men, left in complete darkness, in the immense labyrinth of the evacuated first position, alone, a few steps from the German masses which were assembling for the great attack, alone under the torment of steel and gas, sacrificed beyond all possible doubt, to death or captivity and who, having accepted nobly, in all simplicity, the strange task assigned to them, had sufficient courage to control their nerves, in the very heart of the formidable flood which submerged them and to give the signals which their comrades in arms expected from them.

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On 24 July 1918, Colonel Dresch, commander of the 386th Infantry, cited in his orders those of his troops who had written with their blood this page in history:

"Officers, non-commissioned officers and soldiers of the 386th Infantry, who sacrificed themselves in the first position in front of Mont-Sans-Nom, for the safety of the army.

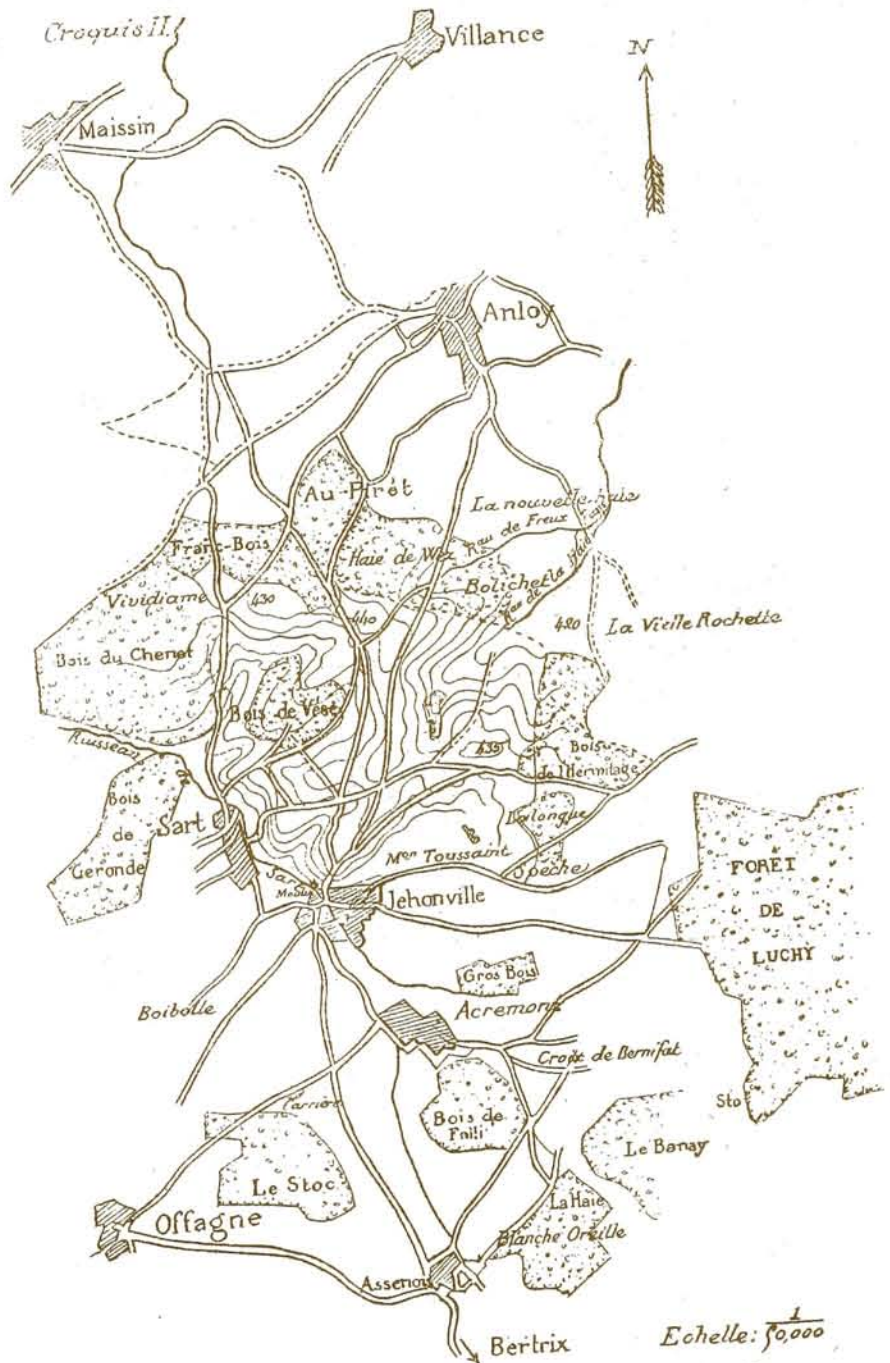
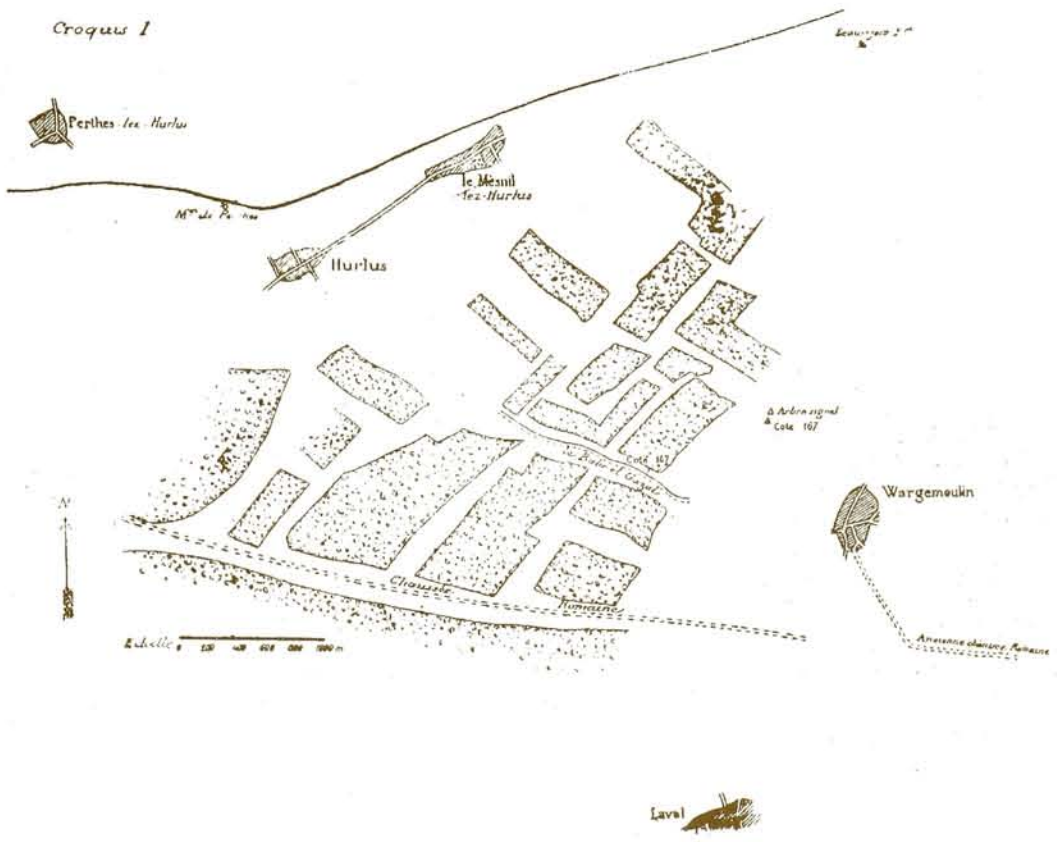
"There were left only four isolated combat groups to warn the army of the cortio of the German masses.

"Their orders were rigid; they were to hold up to that moment.

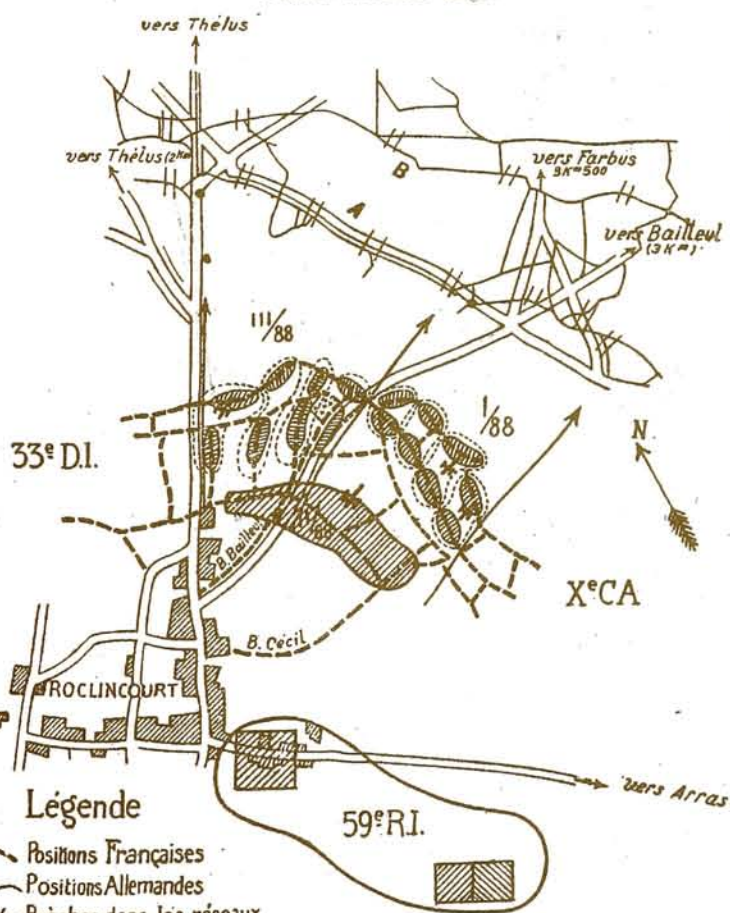
"They held, they gave warning of the attack in time.

"Honor to them all.

"May their memory remain imperishable."



Secteur de la 34^e D. I.



- Positions Françaises
- Positions Allemandes
- Brèches dans les réseaux
- 1 Compagnie (avec ses deux pelotons figurés)

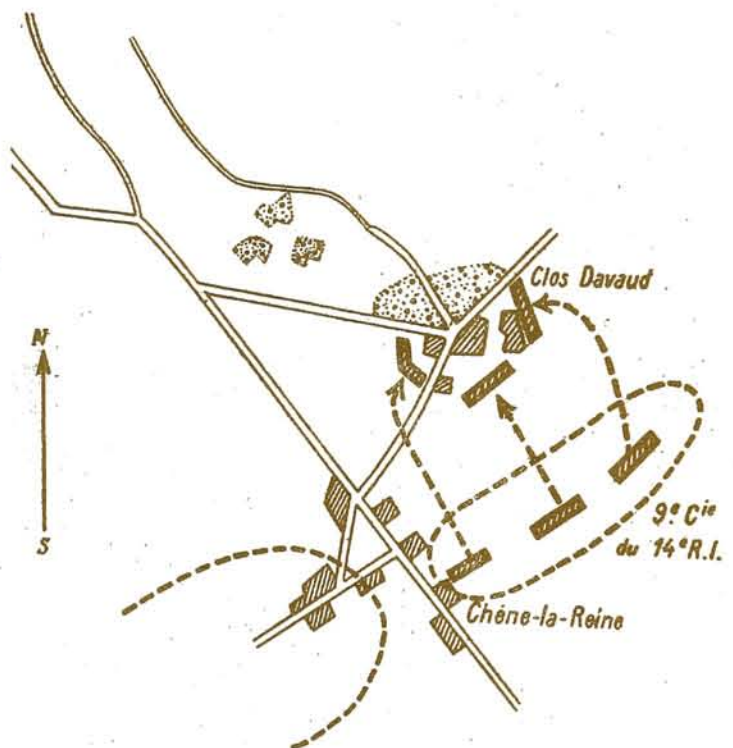
59^e R.I.

Echelle

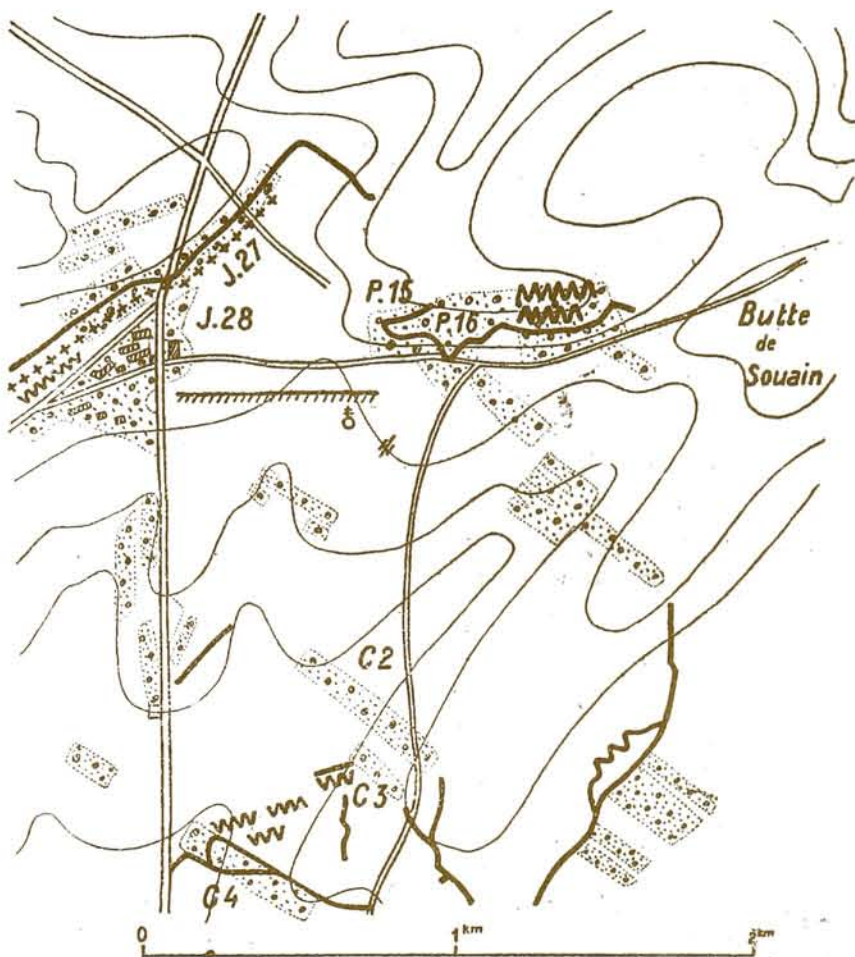
CROQUIS IV

COMB. D'INF.

ENLÈVEMENT DU CLOS DAVAUD, 18 JUILLET 1918

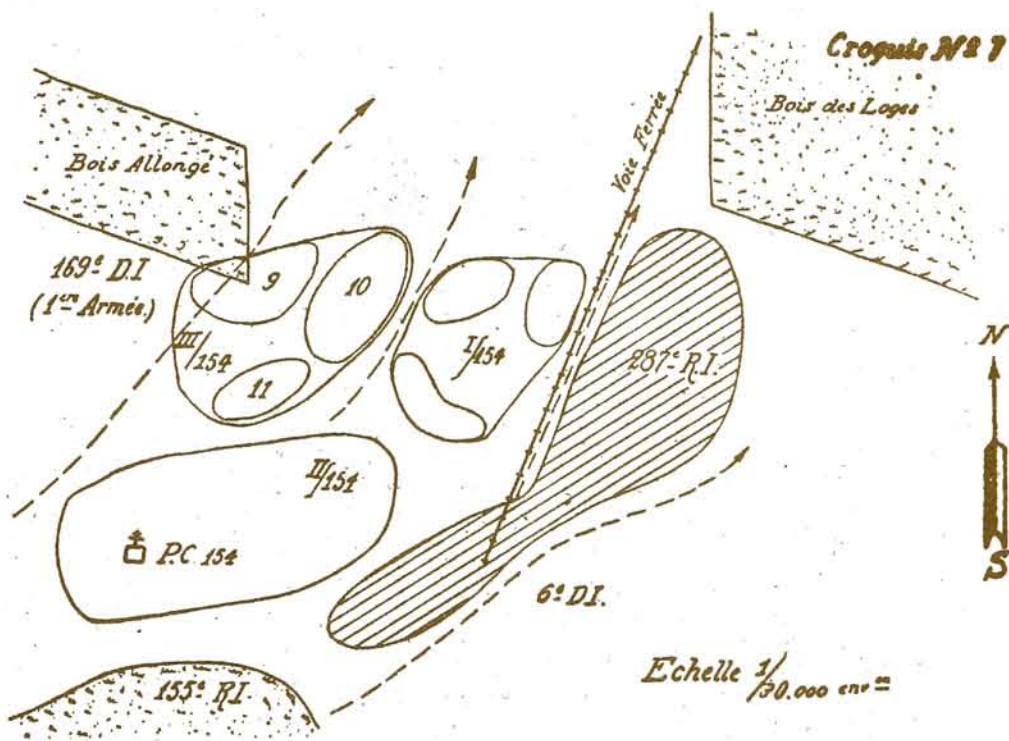


CROQUIS V

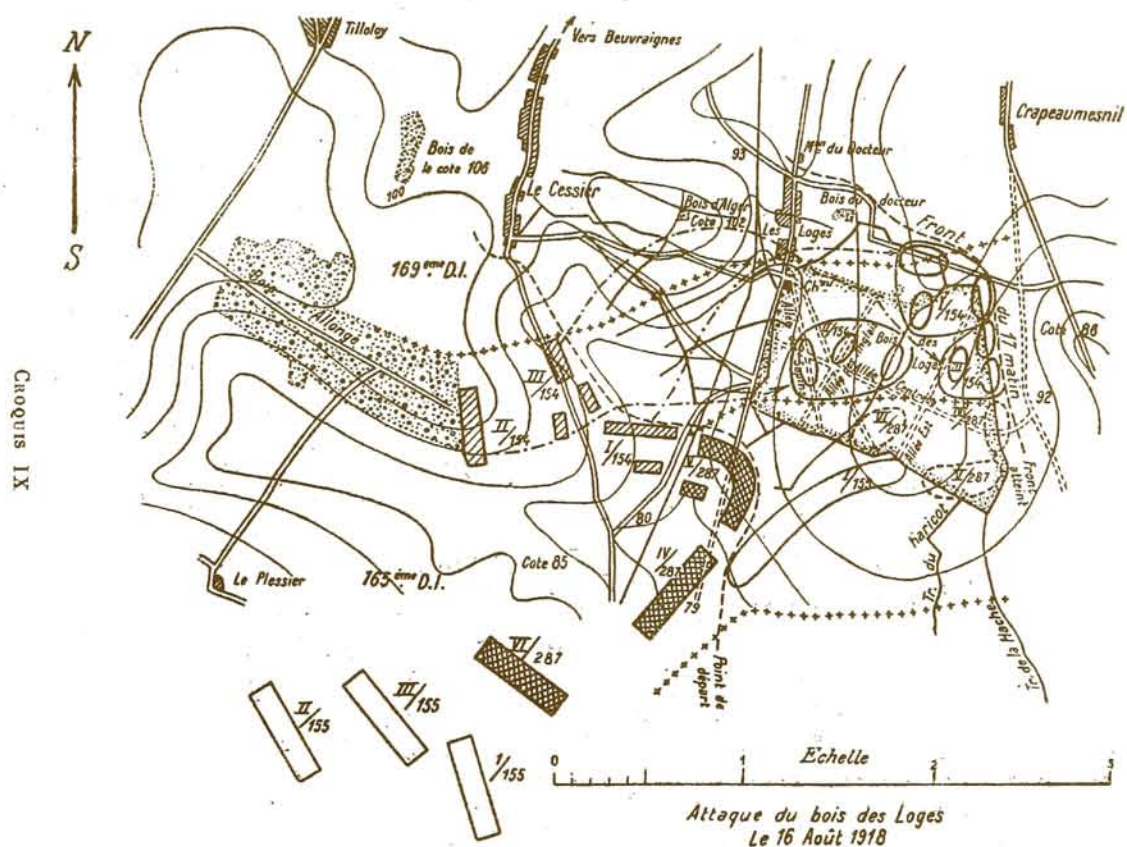
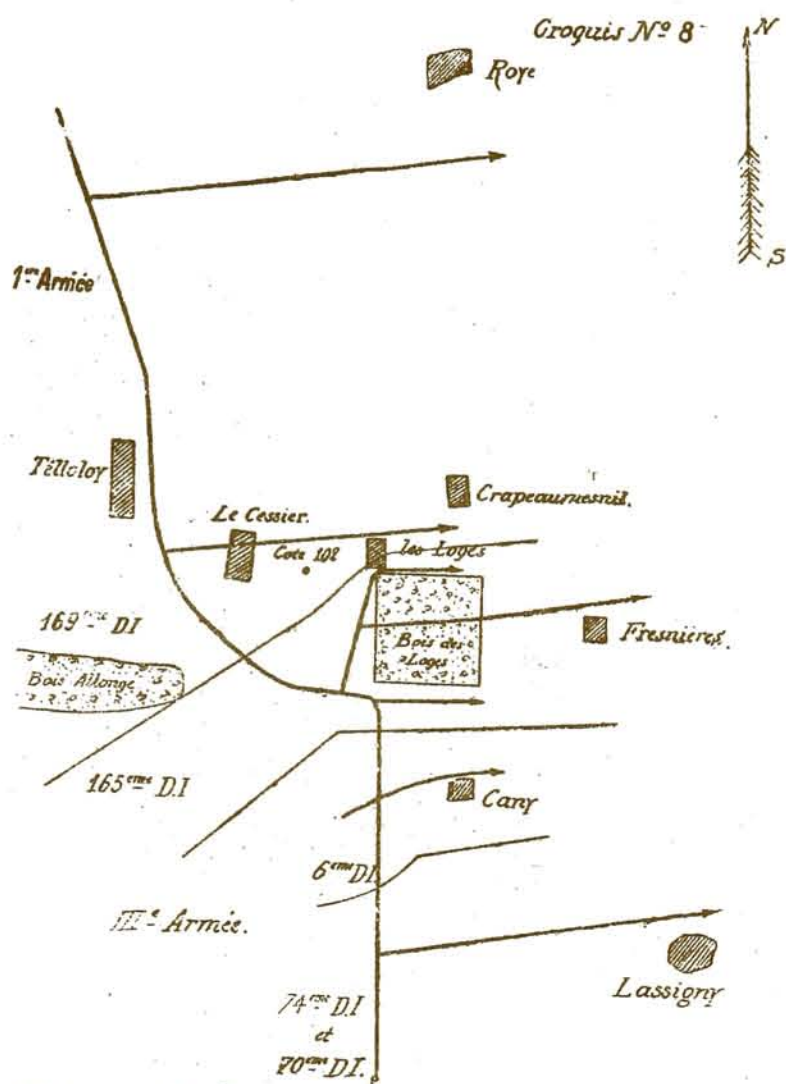


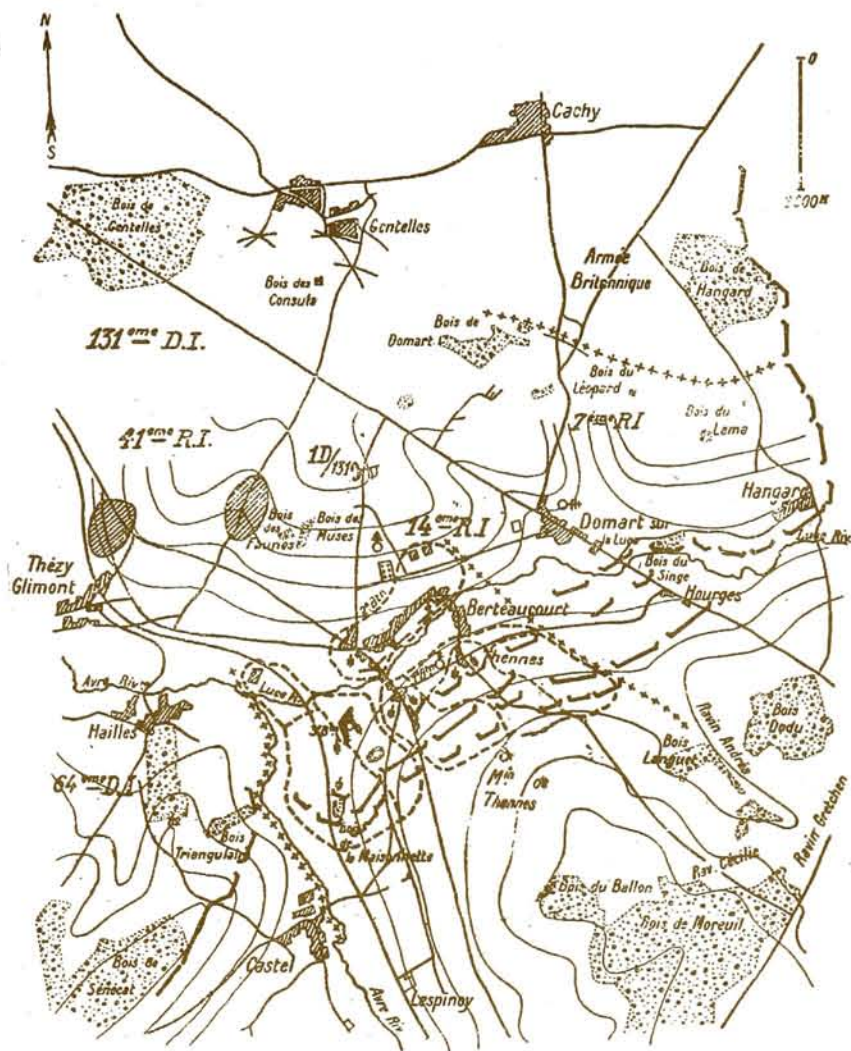
CROQUIS VI

COMB. D'ART.



Situation de la 165^{me} DI (et plus spécialement du 154^{me} RI) le 14 Août 1918.

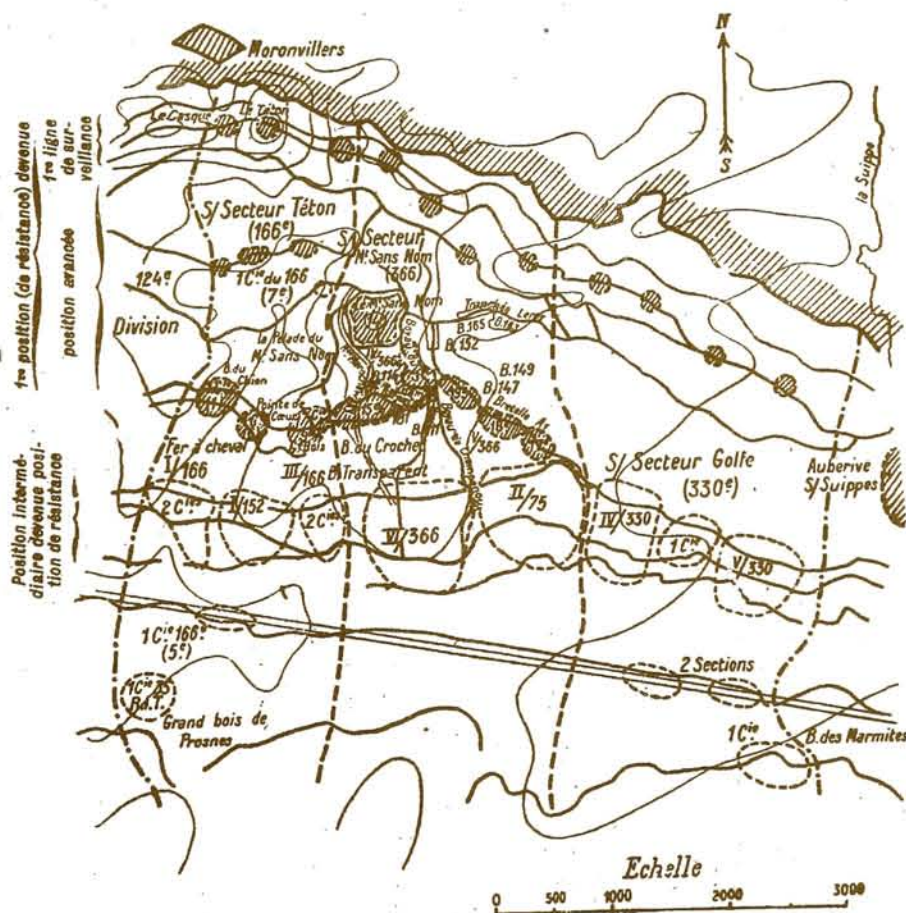




CROQUIS X

ATTAQUE ALLEMANDE DU 15 JUILLET 1918

Dispositif de défense de l'infanterie de la 132^e D. I.



CROQUIS XI

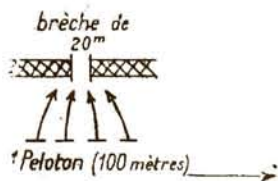


Fig. 1

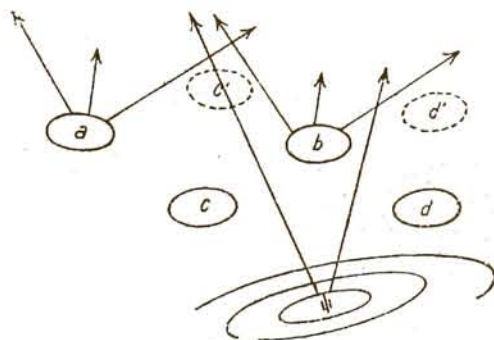


Fig. 2

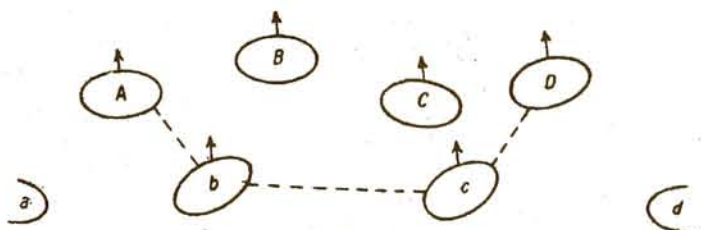


Fig. 3

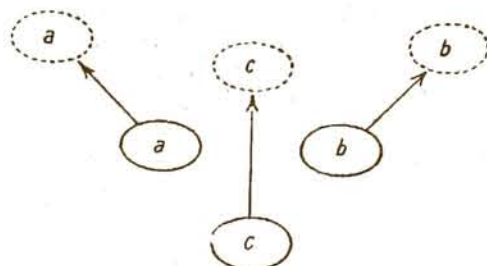


Fig. 4

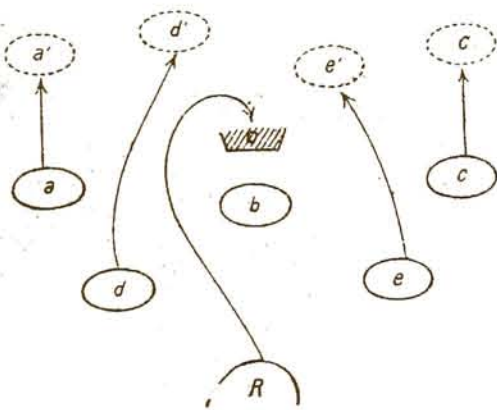


Fig. 5

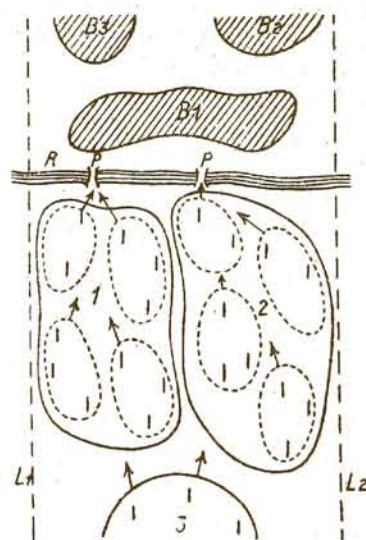


Fig. 6

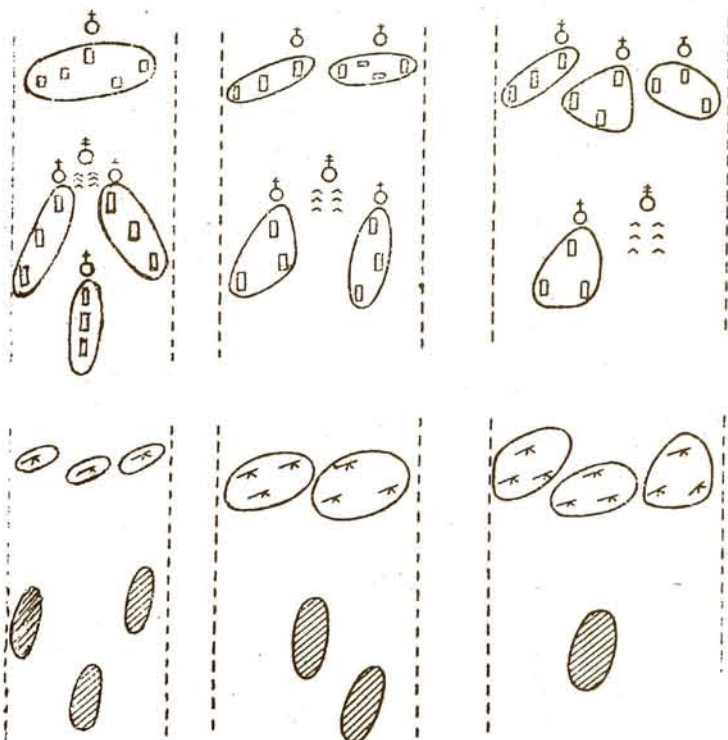


Fig. 7

I₁ I₂ I₃ Origine et terme des bonds de l'infanterie.
A₁ A₂ A₃ Positions successives à occuper alternativement par les échelons de l'artillerie d'appui direct, pendant toute la durée du bond correspondant de l'infanterie.

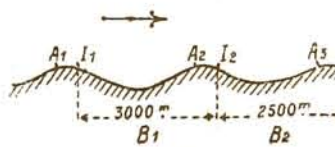
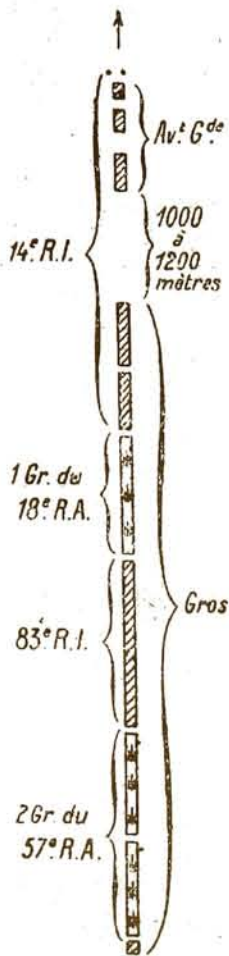


Fig. 8



Arr. G. de
Fig. 9

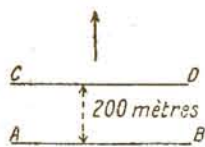


Fig. 12

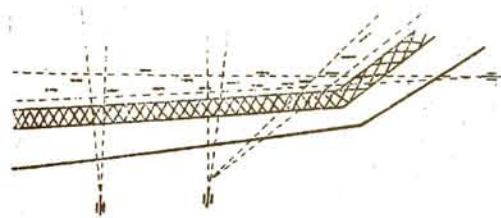


Fig. 14



Fig. 15



Fig. 16

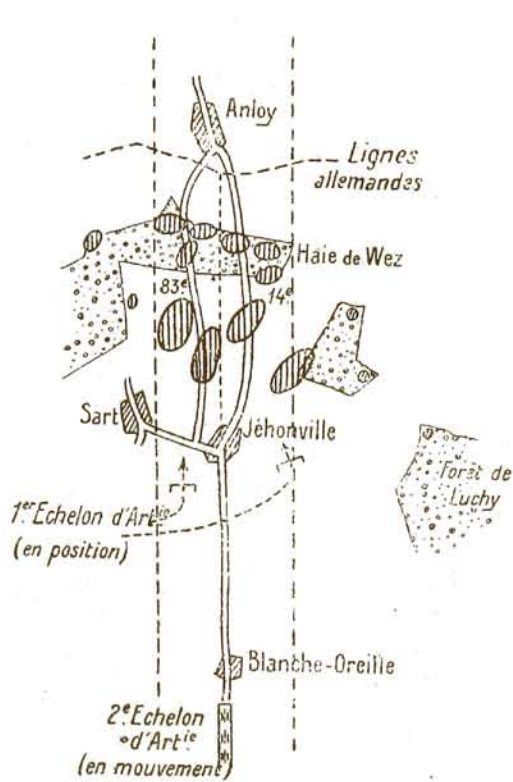


Fig. 10

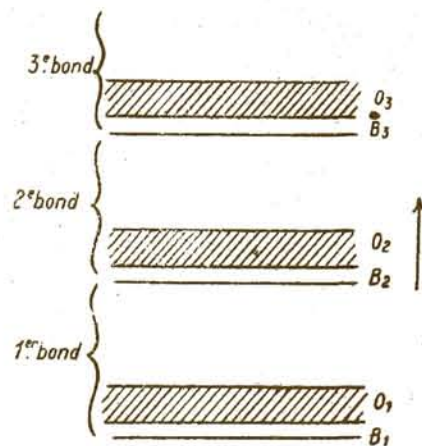
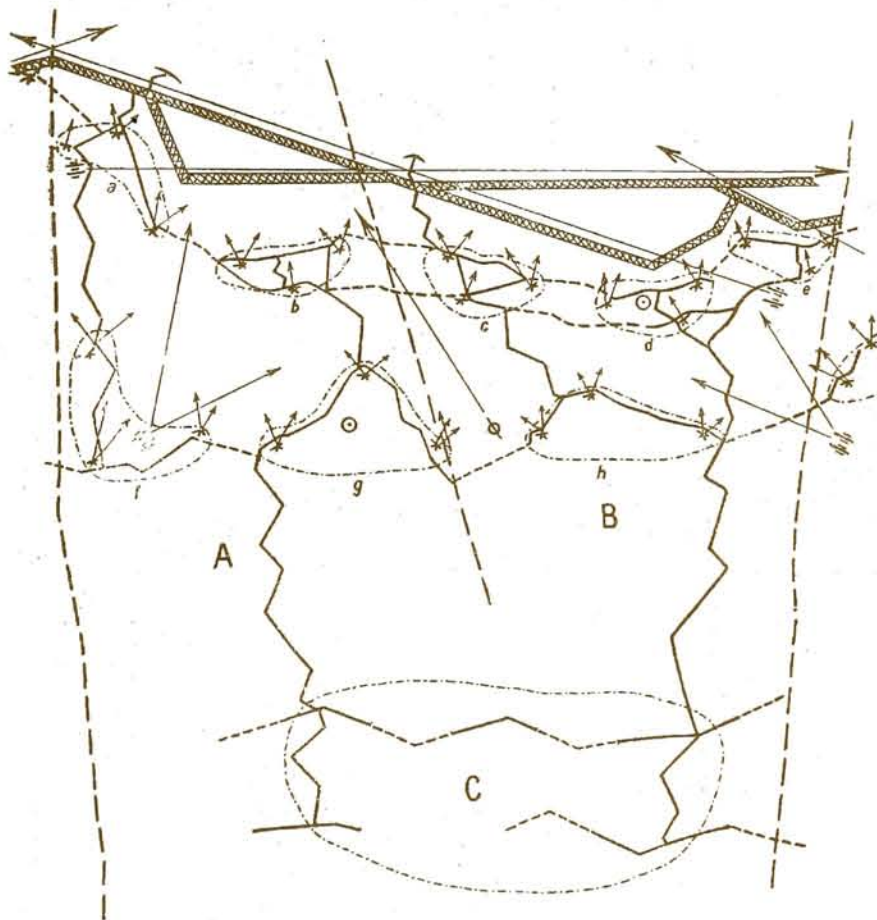


Fig. 11

exemple de répartition des moyens et organisations sur une position de résistance



LEGENDE

- | | | | |
|-------------------|--|---|--|
| Mitrailleuse | | Tranchées, parallèles et boyaux | |
| Fusil-mitrailleur | | Obstacles (réseaux) | |
| Canon de 37 | | Limite de zone de Bataillon (quartier) | |
| Observatoire | | Limite de zone de Compagnie (sous quartier) | |

Fig. 13

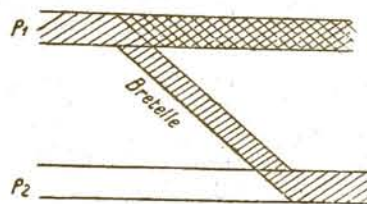


Fig. 17

— « Un échelon de surveillance, composé de postes de

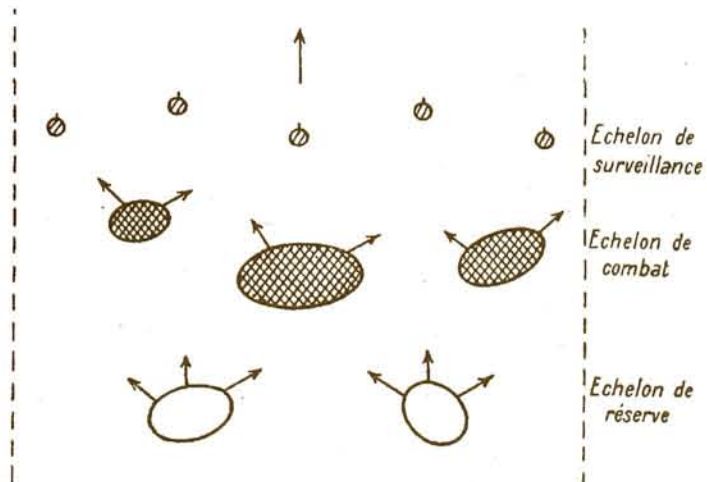


Fig. 18

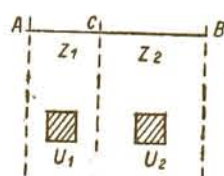


Fig. 19

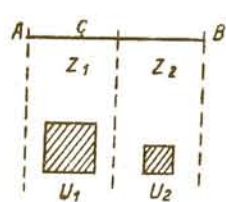


Fig. 20

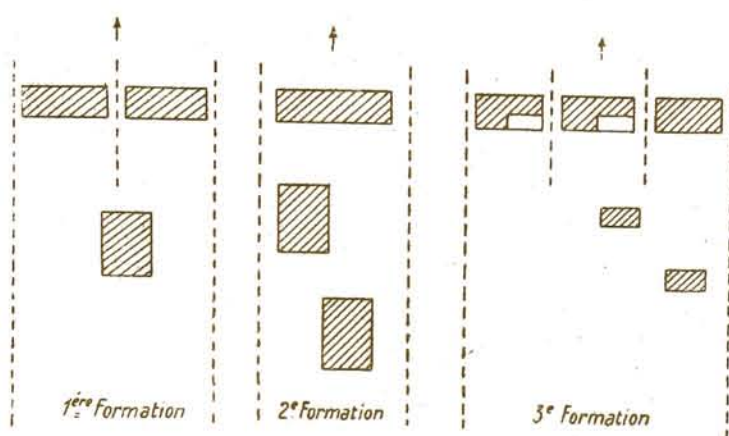


Fig. 21

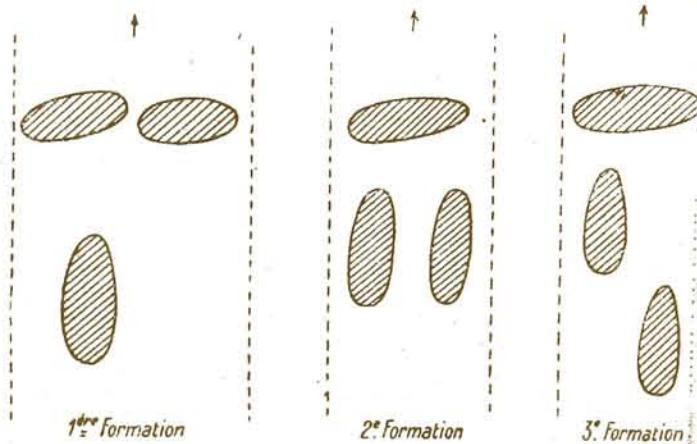


Fig. 22

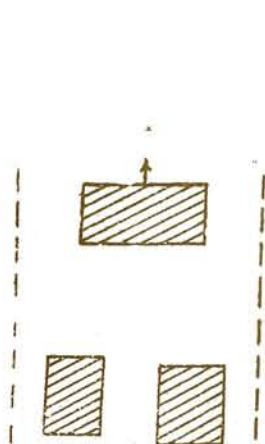


Fig. 23

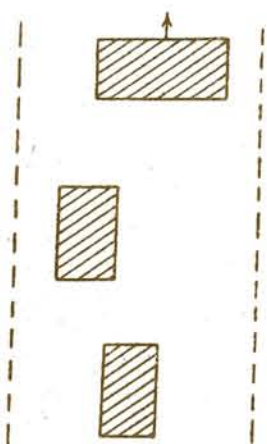


Fig. 24

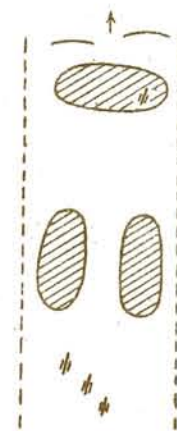


Fig. 25

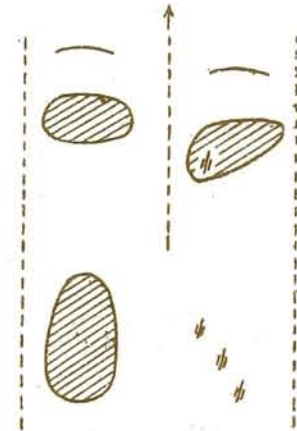


Fig. 26

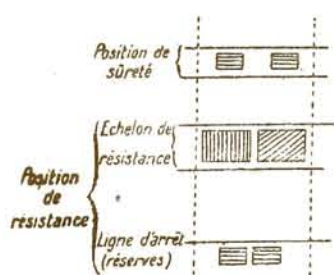


Fig. 27

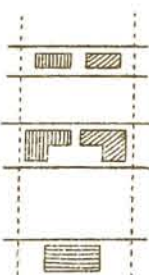


Fig. 28

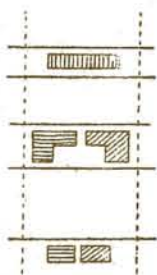


Fig. 29

Les hauteurs sont multipliées cinq fois.





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THE COMMAND AND GENERAL STAFF SCHOOL
Fort Leavenworth, Kansas

LIBRARY REGULATIONS

1. Books, pamphlets, and periodicals must be charged at the loan desk (signature on book-loan card) before being taken from the Library.
2. Any item drawn from the Library must be returned within one month.

Exceptions to this regulation are as follows:

- (1) Material issued to classes as a whole.
 - (2) Material issued to instructors for professional use.
 - (3) New books which are in demand must be returned within one week.
 - (4) Books required for faculty use are subject to recall at any time.
 - (5) All persons having library material in their possession will return same before leaving the post permanently.
 - (6) Books loaned outside the School must be returned within two weeks.
3. Reference books and current periodicals will not be removed from the Library.

LIBRARY
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