mander, in making his plan of maneuver and distribution of troops, must consider the capabilities of the enemy and his power to take countermeasures.

■ 414. The *attack* is characterized by fire and movement so combined as to create an impulse of force in a decisive direction where success will insure the attainment of the objective.

■ 415. In the offensive, troops are distributed into two principal tactical groupings: a *main* or *decisive attack* in which the greatest possible offensive power is concentrated to bring about the decision; and a *secondary* or *holding attack* designed to contain the enemy, to force him to commit his reserves to action on the threatened front, and to prevent him from reinforcing the front attacked by the troops making the main attack.

According to the situation, the main attack aims to envelop or turn a hostile flank or to penetrate the hostile front. The decisive results following successful action on the enemy's flank favor adoption of the enveloping form of attack whenever practicable.

In each tactical grouping, the mass of the available means of combat is concentrated in a *main effort* and applied in the decisive direction. The choice of front on which the main effort is to be made is often determined by the possibilities which the terrain offers for the effective employment of artillery and of tanks or mechanized units.

In order to insure *unity of effort*, the command must constantly endeavor to prevent the attack from breaking up into a series of separate combats. Unity of effort is promoted by prescribing where and in what direction subordinate units are to make their main effort. The combat action and direction of attack taken by subordinate commanders must then be such as to build up the main effort of the tactical grouping in accordance with the intentions of the superior commander.

■ 416. An *envelopment* is effected by directing a portion of the forces against the hostile flank or rear while other forces contain the enemy along the front.

A successful envelopment requires skillful maneuver; superior mobility increases the prospect of success. An envelop-

ment carelessly executed loses surprise and exposes either the main or the holding attack to defeat by hostile counter-attack.

The envelopment is simpler of execution if the troops in the main attack are launched at a distance from the enemy. An enveloping maneuver executed in proximity to the enemy is dangerous and ordinarily can succeed only when conditions of terrain are favorable or visibility is poor (darkness, fog, etc.).

In the initial deployment, a simultaneous envelopment of both flanks generally requires considerable superiority of force. Favorable conditions for a *double envelopment* through the use of reserves may, however, be created during the course of battle when the success of our own troops has placed the enemy in a disadvantageous situation. In such situations, double envelopment should always be attempted on account of the decisive results which are thereby attained.

■ 417. The enemy's preparations to meet an envelopment of his flank ordinarily cannot be as completely organized as the defense of his front. An enveloping maneuver avoids attacking on the ground selected by the enemy; it seeks to endanger the enemy's lines of communication and strike him in a decisive direction.

The defender usually strengthens an unsupported flank by reserves echeloned in depth and in width, and when threatened with envelopment moves them in part into position to meet the enveloping maneuver. He may attempt to envelop the flank of the attacking forces, or extend his flank beyond that of the attack up to the limit of his strength. An attempt on the part of the attacker to meet such hostile extension may lead to overextension or to a dangerous separation of the enveloping forces from those making the holding attack. It is usually better to take advantage of the enemy's extension and consequent weakness by retaining a deep formation of our enveloping forces and protecting their exterior flank with reserves than to overextend in an effort further to outflank the enemy.

■ 418. The general attack may be so timed that the enveloping and holding attacks take place simultaneously, or that the holding attack precedes the enveloping attack in order

to force the enemy to commit the greatest possible portion of his forces to frontal defense.

The success of the enveloping attack will depend to a large extent upon the ability of the holding attack to contain the enemy and force him to commit a large part of his forces to frontal defense. If sufficient forces cannot be spared from the enveloping attack to force the enemy to make a strong frontal defense, the holding attack is given a limited objective or conducted so as to contain the enemy along the critical part of the front. If the enemy attacks in turn, the troops engaged in the holding attack adopt the defensive until the enveloping attack can bring about a decision.

419. When the enemy takes up a defensive position, the commander of the attacking forces should always consider the possibility of turning the enemy out of his position, and forcing him either to withdraw or to fight on ground more favorable for the attacker. A favorable direction of approach in a turning movement may result either from the previous direction of advance or from a flank march.

Since a *turning movement* ordinarily requires the division of the command into two tactical groupings which are beyond mutual supporting distance, each grouping must be made strong enough so as to avoid defeat in detail. Initial deception and mobility are important factors in executing a successful turning movement.

Situations may occur, especially in the pursuit of a defeated force, in which the enemy can be forced by direct attack to take up a defensive position while a portion of the attacking forces executes a turning movement against his line of communications.

420. When the situation does not favor an envelopment, the main atack is directed with a view to a *penetration* of the hostile front. Conditions which favor a penetration are: enemy's flanks unassailable; lack of time to make an enveloping maneuver; overextension of the enemy; terrain and observation favorable for more effective cooperation of the combined arms. Such an attack can often be organized more quickly than can an envelopment, especially if the objective is limited or a quick initial success is desired.

A penetration seeks to break the continuity of the enemy's front and to envelop the flanks thus created. The essential conditions for success are surprise, sufficient artillery to neutralize the front of penetration, favorable terrain for the advance of infantry and supporting tanks within the hostile position, and sufficient forces to carry the attack through to its objectives.

The greatest distribution in depth is placed in front of the prospective front of penetration. The distribution of the troops takes into account that after a penetration of the hostile front has been effected, forces must be available for attacking and enveloping the hostile flanks created by the penetration. The mission of the troops designated for the execution of the penetration is to effect a complete break-through of the enemy's dispositions so that he will be unable to reconstitute his front on a rearward line; until this mission has been accomplished the attacking troops do not divert any of their strength to the attack of the flanks of the gap. Hostile counterattacks against the flanks of the penetration are met by reserves, by the fire of the artillery, and by the support of combat aviation.

■ 421. In the penetration of a defensive position, the main attack must be launched on a front wider than that of the contemplated break-through in order to hold the enemy in place on the flanks of the penetration. The attack on the remainder of the hostile front is designed to contain the enemy and prevent him from moving his reserves.

The amount of artillery available has a direct bearing on the width of the front of penetration. The wider the front of penetration, the deeper can it be driven. The deeper the penetration, the more difficult will it be for the enemy to close the gap and the more effective will be the action of reserves in rolling up the hostile flanks.

As a general rule, the mission of rolling up the flanks of a gap created by penetration and of exploiting the break-through is assigned to the reserve of larger units. Army cavalry and mechanized units are the first troops to be employed. These units are supported by combat aviation operating against hostile reserves and important objectives beyond the range of the supporting artillery.

■ 422. Whether the main attack is based upon an *envelopment* or a *penetration*, the battle generally develops into local conflicts along two opposing fronts. During the course of battle the combat action of units may undergo a change as between envelopment and penetration. A force that has successfully enveloped the enemy's flank may have to make a frontal attack to defeat a hostile reserve; or a force that has penetrated the hostile position may find a favorable opportunity to attack in flank the hostile troops on either side of the penetrated front. Likewise, in an envelopment the attack of all small units must to some extent be frontal; in a penetration, the outflanking action of small units is the most effective means of reducing the stronger hostile centers of resistance.

■ 423. The *main attack* is characterized by narrow zones of action, by reinforcement of artillery and heavy infantry weapons, by successive concentration of fire on critical objectives, and by proper timing in the engagement of tanks and reserves. When the situation is such that it is impracticable to determine initially when or where the main attack is to be made, the commander of a large unit preserves his freedom to act in the decisive direction at the proper time and place by disposing his forces in greater depth, by holding out stronger reserves, including tanks, and by maintaining more centralized control of his artillery.

■ 424. While the main attack is delivered against the weak points of the enemy's dispositions, hostile forces holding the strong sections of the enemy's front are contained by holding attacks. *Holding attacks* are characterized by lack of depth and limited objectives; reserves are reduced to a minimum; wide zones of action are assigned to attacking units. On the other hand, the effectiveness of the fire which the defender is able to develop in the defense of his stronger sectors may make it necessary to give the holding attack additional fire support. Holding attacks executed by large units are given contingent support by artillery located in adjacent zones of action; holding attacks executed by small units are similarly given contingent support by heavy infantry weapons.

■ 425. The *frontage* assigned to any unit in an attack is, in general, based upon its rifle strength. It varies with the mission and combat power of the unit, the terrain, the amount of fire support available, and the probable hostile resistance that will be encountered. As a general guide, it may be estimated that an infantry battalion at full strength in a decisive attack is ordinarily assigned a *frontage* varying from five hundred to one thousand yards measured in the hostile position.

Units assigned to make the main effort are distributed in relatively great depth with strong reserves; such units are, therefore, assigned relatively narrow frontages.

■ 426. *Depth of formation* for combat rather than a wide extension of front is necessary in the initial deployment. Sufficient depth makes available the means to meet contingencies and unforeseen developments in the situation as they arise. The progress of battle will call for an extension of front that cannot be foreseen at the time of the initial deployment and that can only be met by adequate distribution in depth. When the situation requires an unusually wide extension of a command, the increased extension is generally effected by increasing the gaps between units. Troops are seldom uniformly distributed along a battle front. Units usually fight in tactical groupings determined largely by the advantages which the different sections of the terrain offer for combat action.

■ 427. In deploying for attack, units are ordinarily assigned a *zone of action* and a *direction of attack*. These zones of action regulate the limits for battle reconnaissance of the unit. It is not necessary that the zone of action of a unit be completely filled with troops. To do so places restrictions on maneuver in combat and prevents the commander from building up a main effort. (See par. 415.) A preponderance of force on any particular part of the front is obtained by varying the zones of action of subordinate units.

Zones of action may be defined by designating their lateral *boundaries* or by the assignment of a front of deployment and the designation of the lateral limits of the objective. An open flank is ordinarily not bounded. In certain situ-

ations, the designation of the objective may be sufficient to indicate the zone of action. In large units the designation of objective and boundaries is made from the map; in small units these designations are made on the terrain. Points designated should be easily identified on the ground.

Zones of action of units in the main attack extend through the depth of the hostile position at least as far as the position area of the hostile artillery. Important localities and terrain compartments should lie wholly within the zone of action of a tactical unit; if it is desired that an adjacent unit assist in the attack, its area of responsibility should be clearly defined. During the progress of combat and especially when reserves are committed to action, appropriate changes in zones of action must be made.

In order to take advantage of favorable routes of approach, units may temporarily move into adjacent zones. Such movement must not, however, interfere with the action of adjacent units or result in a dangerous massing of troops. The movement of artillery and heavy infantry weapons in zones of action adjacent to the zone of the units they support is always permissible.

The battalion is ordinarily the smallest unit which is assigned a zone of action. Smaller units are usually assigned directions or objectives.

■ 428. Experience shows that an attack is seldom executed exactly as planned. Since the enemy also has a certain freedom of action, unexpected difficulties are encountered which finally culminate in a crisis. The approach of this critical phase of the attack must be recognized by the commander and his staff so that timely measures may be taken to prevent a reverse and to shape the course of action so as to secure a favorable outcome.

■ 429. Infantry units once committed to action lose their availability for employment in the execution of other missions. Infantry deployed and under fire can change front only at the risk of incurring heavy losses. The commander can materially influence the course of an action once begun only through the employment of his reserve, the fire of his artillery, and the intervention of combat aviation placed at

his disposal. If these are not available, it is better to suspend the attack and make a redistribution of forces rather than to persist in a plan of action that offers no promise of success.

In reaching his decision to commit his *reserve* to action, the commander must consider that he thereby loses one of his principal means of influencing the action. Nevertheless, at the decisive moment of action, every man that can be used to advantage must participate in the battle and the reserve must be launched without hesitation. As far as practicable, the reserve is sent in by complete units. Reinforcement by driblets is avoided. Commanders endeavor to reconstitute reserves from troops which the course of the action has made available.

■ 430. The *location of a reserve* is controlled by the nature of the maneuver to be executed by the unit to which it belongs.

When the maneuver involves a penetration of the hostile front, the strength of reserves is greatest in front of the enemy's weak points and least in front of points which are naturally strong and difficult to reduce. If the maneuver involves an envelopment, the strength of reserves is greatest toward the flank on which the envelopment is to take place. Reserves disposed on the flank of a unit for the purposes of envelopment or flank protection are usually echeloned laterally and in depth.

■ 431. In general, every offensive battle involves certain phases of combat which follow in natural sequence and when properly coordinated constitute the commander's *plan of action*.

Whether an offensive battle is the termination of a maneuver resulting in a meeting engagement or is based on the attack of an organized defensive position, a sharp distinction in the tactics of offensive combat is difficult to make. Whatever difference there is, exists principally in the power and rapidity developed in the opening phases; in general, the conduct of the attack from the time the enemy is engaged until he is defeated is essentially the same in all offensive situations.

COMBINED ARMS IN THE ATTACK

¶ 432. The doctrines which underlie the employment of the combined arms in the offensive are to conserve the combat power of the troops in the attacking echelon, assist them to close with the enemy, and thereafter support their attack until the enemy's power of resistance is finally broken. As a general rule, the attainment of this objective requires that the hostile artillery be taken or forced to retire.

¶ 433. In attack, it is the special mission of the artillery of direct support (see par. 42) to open the way for the troops in the attacking echelon by engaging enemy elements which directly impede the advance. Its fire conforms to and accompanies the movement of the assault echelon; it executes its displacements in such manner as to insure the continuity of artillery support.

In the zone of close combat the close support of the rifle units is taken over by heavy infantry weapons, tanks, and mechanized units; the rifle units in turn afford each other mutual support.

At critical moments in the battle, the fire of all the available artillery, both that of direct and of general support, is concentrated against objectives of decisive importance.

¶ 434. The best guarantee for success in the attack is the effective *cooperation* between the troops in the attacking echelon and the supporting artillery. The superior commander, acting through his artillery commander, coordinates the fire support of his artillery with the plan of maneuver of the attacking troops.

In order to assure close cooperation with the attacking troops, some artillery units are normally assigned for the direct support of designated infantry or cavalry units with which they maintain constant connection either through common command posts or by means of liaison detachments. Ordinarily, an artillery battalion is placed in direct support of an infantry regiment or a cavalry brigade. Cooperation is facilitated by habitually associating the same units on the march and in combat.

■ 435. In general, the *command post* of the division artillery commander is at the division command post. The same principle applies in the case of the senior artillery commander of a smaller force of the combined arms.

Subordinate artillery commanders establish their command posts where they can most effectively exercise tactical command and fire direction. If this requires that an artillery commander locate his command post at a place other than the command post of the supported unit, he establishes liaison and maintains signal communications with the commander of the supported unit. Very often commanders of supported units will find it advantageous to locate their command posts near the artillery command posts in order to facilitate a prompt interchange of information and ideas.

■ 436. In arranging for the coordination of the action of their units, the commander of the supported unit informs the associated artillery commander of the location of his command post and leading troops, the results of battle reconnaissance, his plan of attack, and the terrain which can be covered by the heavy infantry weapons. Based upon the plan of attack of the supported unit, a study of the terrain, and the facilities for observation, the supporting artillery commander informs the commander of the supported unit of the number and general location of his batteries, the present location of the artillery OP's and those that must be seized during the advance, and the terrain which the artillery commands with observation and fire. (See par. 480.)

As a result of the above exchange of information, the associated commanders come to an agreement as to support to be given by the artillery and the heavy infantry weapons in the execution of the plan of attack.

The artillery commander meets the requests of the supported infantry or cavalry to the limit of his capabilities, subject only to orders received from higher authority. If he receives a fire mission which conflicts with the needs of the supported troops, he makes the situation clear to the commander ordering the mission and then complies with the resulting decision. If the urgency of the situation is such as to preclude this report, the artillery commander acts on his own initiative in accordance with his knowledge of the

situation, reporting his action to his superior at the first opportunity.

Artillery liaison detachments are employed wherever required to meet the demands of the unit which the artillery supports. As a rule a liaison detachment is assigned to the infantry battalion or cavalry regiment making the main effort in an attack. A mutual obligation rests upon the commanders of supported and supporting units that liaison once established is maintained. It is of especial importance to the supporting artillery commander that he know at all times the location of the leading elements of the attacking echelon and the position or OP's of the heavy infantry weapons. The close proximity of the OP's of the artillery and heavy infantry weapons is avoided whenever practicable.

■ 437. The fire delivered by the artillery of direct support should be observed fire whenever possible. Unobserved fire lacks the accuracy required for the close support of infantry and cavalry in the attack. It is also wasteful of time and ammunition. When artillery of direct support is unable to deliver effective fire in close support, it lifts its fire to more distant targets.

■ 438. In attack, *rifle units* are advanced to assaulting distance of the hostile position under the supporting fire of the artillery, heavy infantry weapons, and their own alternating fire support. Until the main hostile resistance is broken, rifle units advance by bounds to successive terrain lines on each of which the fire support for the next bound is organized. Fire and movement are alternated in such manner that a rifle unit whose advance is made possible by the combined fire of adjacent and supporting units moves forward to an advanced position and by its fire from that position assists the advance of the adjacent rifle units.

The *base of fire* covering the advance of the rifle units is constituted by the heavy infantry weapons and the artillery of direct support. Continuity in the support of heavy infantry weapons is assured by echeloned advances. Alternate fire and movement finally bring the assault echelon within such distance from the hostile position that the defender can no longer support his leading troops by the fire of his artil-

lery and rearward machine guns without endangering his own troops. As the rifle units approach assaulting distance, it becomes necessary for friendly artillery to lift its fire in order to avoid endangering the assaulting troops. The loss of the direct support of the artillery is compensated for by the increased fire of the heavy infantry weapons and the action of tanks which intervene at this stage of the attack. Artillery, tanks, and combat aviation support the attack through the depth of the hostile position; supports and reserves protect the flanks of preceding echelons.

■ 439. *Superiority of fire* rests chiefly upon the mutual support of infantry and cavalry units, and the coordination of their action with the fire support of the artillery. It depends not only on volume of fire but also on its direction.

Fire effect is greatly increased by enfilade action. Flanking or oblique fire is especially effective when frontal fire is delivered simultaneously against the same objective; a convergent fire results which forces the enemy to defend himself against attack from several directions and thus creates a powerful moral as well as material effect.

In the attack, small units seek for enfilade fire by enveloping action. Enfilade fire is also secured through the lateral echelonment of heavy infantry weapons. Heavy machine guns, from positions in adjacent zones of action, deliver oblique fire over the troops in their front and protect the flanks of troops in the assault echelon. Light machine guns are habitually pushed forward behind the leading rifle units to deliver enfilade fire through the gaps along the front. Rifle units which have succeeded in gaining advanced positions deliver enfilade fire across the front of adjacent rearward units.

Lateral echelonment of artillery for purposes of enfilade fire increases the difficulties of fire control and of communication between the artillery and supported units. The fire of supporting artillery is more reliable and effective when its positions and OP's are in the zone of action of the supported unit.

■ 440. *Tank units* are ordinarily assigned the same objective as the troops they support. The piece-meal employment of

tanks is avoided; in principle, the mass of the tanks is engaged on that part of the front where the main attack is to be made. The suitability of the terrain is a major factor.

Normally tanks do not operate beyond the effective fire support of the infantry and other supporting arms. Tanks are, therefore, given successive objectives which they attack. When the hostile resistance at each objective is subdued, they reorganize and prepare for further employment. Tanks should not be tied too closely to foot troops; if so, they will sacrifice their mobility and become a vulnerable target for antitank weapons. Tanks attack in several echelons disposed in depth; the leading echelon will normally be composed of medium tanks, if available.

The advance of the leading echelon is carefully coordinated with the supporting fire of the artillery and heavy infantry weapons. These tanks have the mission of dominating the hostile antitank guns. The second echelon, closely followed by the foot troops, advances with the mission of dominating the enemy's machine guns; these are the accompanying tanks that break into the hostile position with the assault echelon.

The troops of the attacking echelon take advantage of the tank action to advance promptly and occupy each successive intermediate objective. The tanks are supported by the artillery, heavy infantry and chemical weapons, and combat aviation in order to neutralize hostile antitank weapons and artillery which may threaten the tank advance. Observation aviation cooperates in detection of tank obstacles, hostile artillery and hostile mechanized forces assembling for counterattack. Whenever the necessity for their services can be foreseen, engineer troops may be attached to tank units for assisting their advance.

The employment of tanks in no way lessens the need for strong artillery supporting fire. Artillery supports tanks in the attack by neutralizing hostile antitank weapons, blinding hostile OP's, placing protective fires on woods and localities which tanks must pass, and blocking the movement of hostile reserves. Communication between the tanks and the supporting artillery, both radio and visual, is indispensable.

■ 441. The allotment of tanks in combat and the general plan for their employment are determined by the higher commander. The subsequent action of the tanks is controlled by the commander of the tactical grouping in whose zone of action they operate, or by the infantry regimental or battalion commanders to whose units tanks are attached. The higher commander is responsible for the proper coordination of the action of the supporting arms under his control.

In some situations it may be advisable to delay the entry into action of the tanks until a later phase of the attack because of the character of the terrain or the diminishing fire of the artillery during the assault or when batteries are displacing forward.

■ 442. In moving situations, the ability of the *cavalry* to transport its fire power quickly from one locality to another is utilized to attack the enemy by surprise at a vulnerable point, usually his flank and rear. Cavalry is especially adapted for use in an envelopment or a turning movement and in the exploitation of a break-through. Its employment in the direct attack of an enemy in a defensive position is exceptional and is avoided unless required to contain the enemy.

The value of cavalry in exploiting a success is so great that after having executed its reconnaissance missions for the attack it is ordinarily held in readiness with the reserve until the infantry has launched its assault. When committed to action to exploit a success, both horse and mechanized elements of a cavalry command push past the hostile disorganized elements and by a rapid advance endeavor to engage the hostile reserves, artillery, and vital installations in rear. In an envelopment, the mechanized cavalry is employed to make a wide turning movement to strike the enemy in a vital area in conjunction with the direct flank attack of the horse cavalry. In the exploitation of a break-through, the mechanized cavalry penetrates deeply into the hostile rear area while the horse cavalry operates against objectives at less depth in rear of the gap. Infantry in trucks and artillery may be attached to the cavalry.

The rapid changes in the situation and the numerous tasks that confront the cavalry commander require that aviation be placed at his disposal for reconnaissance and liaison missions and that he be well forward in the zone of attack in order to get a personal view of the terrain and the situation.

■ 443. The use of *chemicals* by the enemy as a combat weapon must be considered as a possibility. In the attack the important consideration is to take adequate protective measures. (See pars. 263–268.)

Because of the difficulty of establishing and maintaining effective chemical concentrations in mobile operations, the use by the attacker of chemical agents other than smoke is limited. The employment of smoke must be carefully limited in respect to both time and space. Under favorable conditions of wind and weather, smoke is used to blind hostile OP's and heavy infantry weapons, to conceal the approach of the assault echelon, and to protect the flanks of an attack. It is especially useful during short periods when troops must traverse exposed ground.

In the approach to the hostile position the attack must not permit its advance to be long arrested by the enemy's attempts to bar movement by means of chemical concentrations. Contaminated terrain which cannot be avoided is posted and passed with the protection of gas masks. The area is decontaminated at the earliest opportunity by special chemical detachments which follow up the attack. As gas settles in ravines and valleys, its effects may generally be avoided by moving to higher ground.

Chemical warfare reaches its greatest development in stabilized operations and chemical agents become very effective weapons.

■ 444. Early measures are taken to provide *antiaircraft protection* of the principal troop concentrations in the zone of action for the attack (see pars. 245–253). In the rear area, antiaircraft artillery may be employed to protect important supply establishments and critical points on the lines of communication; in the forward area it is employed to protect the assembly position of the attacking troops and critical

points in the zone of action of the main attack. All troop units take the necessary measures for their own immediate protection against low-flying hostile aircraft.

■ 445. In the attack, the principal duties of the *engineers* are the construction, improvement, and maintenance of routes of communication to facilitate movement of troops and supplies. Based on a vigorous engineer reconnaissance, early provision is made for removing mine fields and other obstacles and for providing sources of potable water. The necessary means are assembled for assisting the advance of artillery, tanks, combat cars, and heavy infantry weapons across difficult terrain in the zone of attack. In emergencies, engineer troops may be used as a combat reserve.

■ 446. The early establishment of the division command post is essential in offensive situations since its location determines the general plan for the establishment of *signal communication*. (See pars. 210, 229–235.) This plan must conform to the plan of maneuver of the division and make provision for the extension of the system of signal communications in support of the decisive attack.

During the preparations for the attack, radio silence is ordinarily imposed to maintain secrecy; dependence is placed primarily on wire systems supplemented by motor messengers and couriers. As soon as the attack is launched, radio becomes one of the principal means of communication, especially in the forward area where the fire of hostile artillery and the movement of vehicles will cause frequent interruption of wire communications.

ASSEMBLY FOR ATTACK

■ 447. In offensive operations against an unshaken enemy, deployment for attack directly from march columns without organizing the attack in an *assembly position* runs great risk of loss of control of troops and of deficient support of the attacking echelon by artillery, cavalry, tanks, and heavy infantry weapons.

■ 448. The infantry division ordinarily organizes its attack in the assembly position. (See par. 339.) The *development order* for the attack prescribes the infantry assembly posi-

tions, the position areas of the artillery, the security measures to be taken, the missions of the units already engaged, and the instructions for further reconnaissance. In addition, the order provides for certain essential administrative details so that the necessary preparations can be made. An effort is made to give as many of the necessary instructions as practicable in the development order so that the order for the attack may be concise.

■ 449. As each unit arrives in its *assembly position*, march conditions cease. Measures are immediately taken for security and for clearing the roads. A plan of traffic circulation is made and traffic is regulated in and out of the assembly position. It is essential that all units be met by guides before reaching the assigned assembly position in order that movement of units marching at the rear of the column be uninterrupted. Communication is established without delay between the division command post and the major subordinate units.

For selection of the assembly position and security during the development, see paragraphs 335 to 340.

■ 450. While units are moving into their assembly positions, the division prepares its combat orders and *completes arrangements* for the execution of its plan of maneuver, which include the necessary arrangements for coordinating the action of the troops in the attacking echelon and the artillery; assignment of artillery units to direct and general support; attachment of tank units to the infantry; provision for the establishment of signal communication; and such other measures as may be necessary to assure the success of the attack. Commanders of troops in the attacking echelon and the commanders of artillery units which support them make arrangements for coordinating the action of their units. Battle reconnaissance is initiated by all unit commanders at the latest when they arrive in the assembly position.

When the terrain affords insufficient cover, and a long approach march must be made by bounds from the division assembly position, battalions may find it necessary to occupy another assembly position for the purpose of organizing their attack. The final assembly position of an infantry unit must

not lie in advance of the last cover affording protection from hostile small-arms fire; it should also, when practicable, afford cover from both ground and air observation.

If the plan of attack involves an enveloping maneuver, the assembly positions of the enveloping force are set off at a sufficient interval from the troops in the holding attack so as to preclude interference between units when deployed for attack.

■ 451. Whenever practicable, the artillery is so deployed that it can protect the occupation of assembly positions and support the subsequent attack from the same position areas. When, because of unfavorable terrain and the effect of hostile fire, the assembly positions of the attacking troops are too distant from the enemy, the artillery of direct support must displace forward by echelon in order to be in close liaison with the attacking echelon in its final assembly positions.

While the infantry is organizing its attack, the artillery completes preparation of fire and arrangements for supporting the attack. Artillery airplanes are placed at the disposal of the senior artillery commander in order that the hostile artillery and large troop assemblies may be located and fire conducted on important targets at long range.

The result of the complete development of the command is to distribute the troops in accordance with the commander's plan of action in an approach formation adapted to minimizing the effects of hostile artillery fire and air attack.

MEETING ENGAGEMENT

■ 452. GENERAL.—A *meeting engagement* is a collision between two opposing forces each of which is more or less unprepared for battle. Ordinarily, the collision is unexpected and caused by uncertainty or obscurity in the situation. This aspect is more often present in the operations of smaller units and in situations where the means of reconnaissance have been unable to function.

A meeting engagement may also ensue when each opponent is cognizant of the other, yet one or both decide to attack without delay to retain some tactical advantage, to gain a decisive terrain feature, or simply out of a feeling of

superiority; or it may occur when one opponent decides to deploy hastily for defense while the other attacks before this defense can be organized. (See par. 519.)

453. In a meeting engagement, immediate orders and rapidity of action are essential; by a prompt exercise of initiative, endeavor must be made to throw the enemy on the defensive and prevent him from organizing his defense. A great advantage accrues to the force which first succeeds in making effective preparations for battle. Action cannot be delayed awaiting the results of detailed reconnaissances. Prompt estimate of the situation, quick decision, and an early development and deployment of march columns are essential to success.

The tactical situation which develops as the result of first contact has a strong influence on the subsequent course of action. Unless commanders are well forward when the enemy is engaged, units may easily get out of hand and a severe handicap be placed upon their troop leading.

454. The meeting engagement calls for the widest possible exercise of *initiative* by division and subordinate commanders in the execution of the general mission assigned to the command. Information gained by reconnaissance agencies (aviation, cavalry, motor elements, advance guard) during the advance of the division affords a basis for the commander's preliminary disposition, and may enable him to determine the general line of engagement with the enemy and the plan of attack. As a rule, however, the enemy's intentions will remain obscure and will seldom be clarified until after the initial engagement.

If an important terrain feature lies in the common zone of advance, the enemy's capabilities for a rapid advance to seize this objective must be considered; if there is no suitable terrain objective and the enemy lacks readiness for deployment, it may be assumed that he will act with due caution.

When timely information of the enemy is lacking, subordinate column commanders must be relied upon to exercise their initiative and make important decisions in consonance with the general mission of the command and the intentions

of the superior commander. It is the duty of the latter to regain control, as quickly as possible, of the operations which his subordinates have initiated and to coordinate their actions without delay.

■ 455. DEVELOPMENT AND DEPLOYMENT.—The employment of the advance guard and the artillery constitutes the commander's first problem and the basis for the employment of the infantry of the main body.

The initial orders for a development are ordinarily issued in fragmentary form to the various elements of the command. The sequence in which orders are issued is based upon the priority of execution and the time required for execution.

■ 456. When hostile resistance is encountered, it is the special mission of the *advance guard* to secure possession of terrain that will afford good observation for the artillery and heavy infantry weapons, and to gain time and space required for the development and deployment of the main body. Ordinarily, this mission requires aggressive action against the enemy's leading troops; however, unfavorable terrain or an encounter with superior hostile forces may make a defense or a limited retirement advisable in order to preserve the commander's freedom of action.

As a general rule, the advance guard most effectively performs its mission when, after securing possession of the essential terrain features, it is disposed so as to cover the deployment of the main body. Its artillery, deploying on a broad front, opens long-range fire on enemy columns forcing them to an early extension and interdicting the principal routes of approach.

The *divisional cavalry*, after withdrawal from the front of the advance-guard infantry, is employed on the flanks either to screen our own dispositions or to execute reconnaissance against the hostile flanks and rear, or it may be held in mobile reserve.

■ 457. The early entry into action of at least a part of the *artillery* with the main body is essential in order to protect the development of the infantry into its assembly positions,

give support and cohesion to the battle front, and gain an early preponderance over the hostile artillery.

Occupation of temporary firing positions or of positions in readiness by a portion of the artillery may be necessary in order to insure that as far as practicable infantry does not come under hostile fire without artillery protection. The mass of the artillery occupies its firing positions as soon as practicable.

The employment of the artillery in a meeting engagement varies considerably with the situation, the principal factors being the previous distribution of the artillery to the several march columns, the nature of the initial contact with the enemy, the location of the infantry assembly positions, the terrain, and the ability of the artillery to concentrate its fire on the decisive objective.

Although initially the separate column commanders are permitted to employ their attached artillery as the local situation may require, direct control of the artillery is obtained by the division commander at the earliest practicable moment. As the first reinforcing batteries go into action, he gradually centralizes control of the mass of the artillery in the hands of the division artillery commander.

■ 458. The division commander develops the *infantry* of the main body by assigning march objectives to the larger infantry units. Such objectives are usually the sections of the assembly position to be occupied by the units concerned. If the situation requires a reinforcement of the advance guard in order to seize or hold an initial tactical advantage, the necessary troops are promptly committed to action.

■ 459. Should the commander decide that rapidity of action is essential in order to retain a tactical advantage, he may forego an occupation of assembly position and issue the necessary orders to the larger infantry units while they are in march columns. Such action is also indicated when occupation of an assembly position may be endangered by hostile air attack or long-range artillery fire.

A plan of development once begun can still be modified if a change in the situation makes this desirable. For example, the division commander may deploy certain units

for attack before a development into assembly positions, already ordered, is completed; or having deployed the leading units for attack directly from march column, the remainder of the command may be developed into an assembly position in order to obtain better coordination in the attack.

■ 460. The action of the main body is prepared at an early stage of the advance by the command and artillery reconnaissance details marching with the divisional cavalry or other leading elements of the division. (See par. 166.) Their *reconnaissance* forms the basis for the deployment of the artillery and the development of the main body. The reconnaissance details operate in accordance with instructions of the division commander and the commander of the artillery based on the information obtained by the reconnaissance aviation, the divisional cavalry, and other agencies of information.

The division commander endeavors to clarify the situation by intensifying reconnaissance during the development of the main body. He gives the division aviation, the cavalry, and the advance guard the necessary instructions to this effect and in addition sends staff parties to points on the front about which he particularly desires information. He indicates the essential elements of information desired so that the activities of the reconnaissance agencies will be properly oriented and coordinated. Reconnaissance seeks especially to discover the weak points in the enemy's dispositions, the location of his flanks and his artillery positions, and the most favorable routes of hostile approach. Artillery airplanes are placed at the disposition of the artillery commander as soon as the artillery deploys for action.

■ 461. An advanced message center is located as soon as possible in order to permit of the prompt establishment of signal communications. The necessary instructions are given for the employment of signal troops.

Service trains are directed to proceed to designated rendezvous positions. Officers of the supply and evacuation services initiate reconnaissance for the location of their respective installations and establishments.

462. ORDERS FOR ATTACK.—After considering the information of the enemy and friendly troops, his mission, the terrain, and the recommendations of the artillery commander and other staff officers, the commander makes his decision, completes his plan of attack, and issues his attack order so that it will reach units by the time they arrive at march objectives or assembly positions.

The plan of attack is based upon an envelopment or a penetration. (See pars. 415–422.)

The *attack order* gives such information of the situation as is essential for the proper guidance of subordinate commanders, states the general plan of attack, gives instructions relative to reconnaissance and security, assigns zones of action, objectives, and other missions to the several units of the division, and gives the location of the division command post, the axis of signal communication, and the advanced message center if one is to be established.

Depending on the maneuver to be executed, a general line of departure is designated from which the attacking troops are launched at a prescribed hour, or separate lines of departure and hours are assigned to the several attacking units.

463. When the necessity for protection by the advance guard ceases, its units are assembled when relieved and placed in reserve or returned to the control of their organic commander.

464. CONDUCT OF THE ATTACK.—The commander of each infantry unit directs its advance in the assigned zone of action in accordance with his plan of maneuver. Each assault unit provides reconnaissance elements to reconnoiter its zone of action, and supports the action of these reconnaissance elements with its heavy infantry weapons. In order to keep troops well in hand, it is advisable to regulate the advance of units prior to contact with the hostile main forces by successive bounds from one terrain line to the next, and with reference to a designated base unit. Terrain features which afford extended observation, or which are otherwise of tactical importance, constitute the objectives of each bound.

Each infantry battalion of the attacking echelon directs its movement to the most advanced position in which it can make its final preparations under cover from hostile small-arms fire.

■ 465. Artillery supports the infantry attack by successive concentrations as far as practicable in accordance with the requests of the infantry commanders. The division commander regulates concentrations of artillery fire so as to bring the greatest possible volume of fire on objectives of decisive importance at the critical moments of the attack. Economy of ammunition generally requires artillery fire to be delivered in short bursts. Infantry units must take immediate advantage of artillery fire effect to gain ground to the front.

■ 466. The conduct of the attack in advancing from the first firing positions of the infantry is executed in accordance with paragraphs 436 to 439. These principles apply whether the deployment for attack is made from an assembly position or directly from march column. The *assault and the continuation of the attack* are executed in accordance with the principles enunciated in paragraphs 488 to 496.

ATTACK OF AN ORGANIZED POSITION

■ 467. PRELIMINARY OPERATIONS.—In the general case, the enemy will attempt to screen his main position and deceive the attacker as to his dispositions by the employment of covering forces. Therefore, a thorough *reconnaissance* of the hostile position and its foreground is of primary importance. This reconnaissance seeks especially to determine the location, depth, and extension of the hostile battle position, the hostile occupation of the foreground of the position, gassed areas, and the general deployment of the hostile artillery.

It involves also a thorough study of the map and air photographs of the enemy's combat zone, and the combined use of all available air and ground reconnaissance agencies, including the special means at the disposition of the artillery and Signal Corps.

■ 468. If our air reconnaissance and the action of our advanced detachments fail to establish definitely the main hostile position or its organized outpost, these leading troops are strongly reinforced by artillery and heavy infantry weapons, and if necessary by tanks; rifle reinforcements are reduced to a minimum. As thus reinforced, the leading troops execute a *reconnaissance in force* against critical points in the enemy's outpost zone in order to break through the hostile screen and drive in the enemy's covering forces. Their general mission is to seize the terrain which will permit the proper deployment of the command, especially of the artillery, and give an insight into the hostile battle position.

■ 469. The action of the leading troops results in a series of engagements for the possession of important points in the foreground of the hostile battle position. The result of these preliminary operations determines either that the leading troops have established sufficiently close contact with the main enemy forces or that a further advance of the leading troops is required. This advance is usually made by bounds until the leading troops finally encounter a well-organized system of defensive fires of the hostile artillery and heavy infantry weapons, which circumstance may be taken as a reliable indication that the hostile battle position has been developed. The leading troops establish themselves on the critical points which they have reached and take over the security of the deployment of the mass of the artillery.

During these preliminary operations, the cavalry seeks to locate the flanks of the hostile position. The main body of infantry is held back in a position of readiness beyond the range of hostile artillery fire. Measures are taken to protect the troops against mechanized attack and hostile air observation and attack.

■ 470. The continued advance of the leading troops eventually places them in a position which faces the terrain of attack. The hostile outpost is driven in and *battle reconnaissance* is continued to obtain information to be used as a basis for the conduct of the attack. This reconnaissance provides more detailed information for the assignment of objectives in the plan of fire of the artillery and heavy infantry weapons.

Reconnaissance of the terrain of attack is executed with a view to determining the most favorable routes of approach to the hostile position, the nature and strength of barriers and obstacles, and the possibilities for employment of tanks.

Air photographs of the hostile main position are taken and distributed to subordinate commanders. They furnish indications of the enemy's attention to particular sections of the front where decisive operations may be contemplated.

The terrain of the attack is studied both on the ground and on air photographs to determine the terrain compartments which the defender will organize for defense and cover with defensive fires, and the lateral compartments in which the attacker can best advance by flanking fire and maneuver.

Artillery conducts reconnaissance to determine the possibilities of artillery observation and fire, and the location of its firing positions and the routes of approach thereto.

Reconnaissance of the hostile position is intensified with especial reference to the features affecting the cooperation of the arms and the commander's decisions relative to his plan of action. For the latter purpose, determination of the weak points in the enemy dispositions is of especial importance.

■ 471. By artillery fire and the fire of heavy infantry weapons delivered from different directions, and by raids made on the hostile outpost or battle position, the enemy is tempted to disclose his dispositions for defense and his plan of defensive fires; or he may be deceived as to the plan of attack.

■ 472. In the attack of a defensive position on a stabilized front, the location and extent of the enemy's defensive positions are fully known and the approach to the hostile position has already been effected. The prolonged period during which the opposing forces have been in contact makes available more detailed information relative to the enemy's defensive dispositions and his plans for defense. In case of a relief of units prior to the attack, the information is transmitted to the relieving units.

¶ 473. PREPARATIONS FOR THE ATTACK.—Based on the mission, the terrain, and the results of reconnaissance, the main attack is made either as an envelopment or a penetration. The necessary orders are issued for the preparations for the attack, the completion of signal communication, the organization for combat of the artillery, and the regulation of its fire. Ordinarily, the corps gives the divisions general instructions regulating the employment of the division artillery during the preparatory phase.

¶ 474. All preparations for the attack are as far as practicable completed before the occupation of final assembly positions by the attacking troops. Preparatory measures most likely to betray the imminence of the attack are deferred as long as possible.

Strict surveillance is imposed on the use of radio communication; restrictions are also imposed on those activities within our front lines and in rear areas, which may disclose preparations for the attack to hostile air reconnaissance.

In the determination of priorities for the execution of *preparatory measures*, especial attention is given to measures which will insure the continuity of the attack.

¶ 475. The *positions of the artillery* are selected so that its fire can be concentrated on the objectives of the attack. Deflade, concealment from air reconnaissance, and requirements for observation are also considered. Sufficient time must be allowed for the preparation of fire, the establishment of communications, and the organization of the artillery ammunition supply.

The artillery usually moves into position by echelon; the movement is frequently wholly or partly executed at night. Units assigned to positions screened from hostile air reconnaissance are moved first. The movement of the artillery is so regulated as to avoid interfering with the infantry in its occupation of final assembly positions. In order that artillery support may be continued as long as possible without change of position, the division artillery is emplaced as far forward as practicable. It will frequently be advantageous to emplace units that are to remain longest in position in the

most advanced locations. Long range artillery is placed well forward so as to be able to take under fire the most distant echelons of the defender's light and medium artillery.

■ 476. The first *mission of the artillery* is to protect the approach march and assembly for attack of infantry units. During this phase, the hostile artillery and observation posts constitute its principal initial objectives. All means at its disposal are employed by the artillery for the preparation and registration of fire.

In preparing for its employment, the artillery gives special consideration to those measures which will enable it to attain surprise in the opening of effective fire, gain fire superiority over the hostile artillery, and concentrate the mass of its fire on the decisive objectives of the attack. Special observation units (sound and flash) reach their maximum use in the attack and defense of organized positions.

■ 477. Infantry commanders must receive early information relative to their *assembly positions* and *zones of action* in order that they may make their own reconnaissances and formulate tentative plans of action.

Protected by the leading troops, infantry usually moves at night into its final assembly positions, preparatory to an attack at or shortly before daybreak. Movement of the infantry units into their assembly positions by day is generally practicable only when visibility is poor or when an overwhelming artillery support is available.

The *final assembly positions* of the infantry must be well forward but not beyond the last cover or trenches affording protection from hostile small-arms fire; they should also provide suitable observation for the artillery in direct support and the heavy infantry weapons in immediate support of the attack.

When tanks are to be employed, their assembly positions and routes of approach are reconnoitered, marked, and when necessary, prepared. Reconnaissance agencies, both ground and air, investigate the suitability of areas within the hostile lines for the use of tanks.

■ 478. In the attack on a stabilized front, reconnaissance continues throughout the period of preparation in such manner that the appearance of normal activity is maintained. Information collected by reconnaissance is disseminated to the units concerned in the form of intelligence summaries and maps, and air photographs.

Commanders of supporting aviation units are given an opportunity to familiarize themselves with the terrain in the zone of attack.

■ 479. PLAN OF ATTACK.—Based on the objective to be taken, the resistance anticipated, and the forces available, the division commander decides on his general plan of attack, including the front on which the main attack is to be launched, and issues the necessary orders for the organization for combat of the principal infantry and artillery groupings, their missions and zones of action, and for the supporting operations of the other arms and services.

If the division is operating in close proximity to adjacent divisions as part of a corps, the corps commander may prescribe initially the organization for combat and employment of reinforcing artillery units, and regulate the fire missions to be executed by the division artillery outside the division zone of action; or he may issue other instructions required to coordinate the fires of the artillery of adjacent divisions.

■ 480. The division plan of attack constitutes the basis for the *infantry plan of maneuver* and *artillery plan of fire*. Infantry and artillery commanders make detailed arrangements for coordinating the action of their units to carry out the common mission. (See pars. 435, 436.)

In coordinating their respective plans, it is essential that subordinate infantry and supporting artillery commanders carefully study the successive compartments of terrain in which hostile resistance may be encountered and identify the successive intermediate objectives of the attack.

It is of prime importance that agreement be reached as to the known targets to be taken under fire respectively by the artillery and the heavy infantry weapons, and the areas to be kept under surveillance by these supporting weapons for targets appearing after the attack is launched, especially

those targets in adjacent zones which are dangerous to the advance of the infantry. In general, associated infantry and artillery commanders must arrange for mutual reinforcement of fire so that should the support given by either the artillery or the heavy infantry weapons be deficient, due to change of position or difficulties in conduct of fire, the other will compensate for this deficiency by increasing the intensity and effectiveness of its fire on the critical targets.

■ 481. During the advance of the infantry from its assembly positions, the hostile artillery constitutes the principal target of our artillery fire. Superiority over the hostile artillery is indispensable for the success of the infantry attack; it can rarely be attained after the infantry attack is launched.

As a rule the known and located hostile batteries are silenced early in the artillery preparation and their neutralization is then maintained by a portion of the corps artillery in order that the mass of the corps artillery may be employed for counterbattery fire as new hostile batteries appear. If our counterbattery fire is unable to gain superiority over the hostile artillery, then the neutralization of the hostile observation just prior to the attack becomes of great importance.

■ 482. The duration of the *artillery preparation* varies with the situation. A prolonged preparation is destructive of the effect of surprise and gives the enemy time to assemble reserves and take other countermeasures. The length of the preparation is influenced by the extent to which tanks are to participate in the attack and the role assigned to them. According to circumstances, the duration of the artillery preparation may vary from 15 minutes to several hours.

The nature of the artillery preparation depends upon its purpose and the circumstances attending each particular case. Concentration of effect is greatly favored by dividing the preparation into *phases*.

In general, the object of the *first phase* of the artillery preparation is to neutralize the defender's artillery, dislocate the most important hostile agencies of command and

fire control, isolate the defender's forces from their communications with the rear, and protect our own troops from the enemy's counterpreparation fires. Artillery fire of the first phase of the preparation thus comprises counterbattery fire, destruction or neutralization fire on command posts, message centers, and signal communications; interdiction and destruction fire on enemy communications, and protective fire on the hostile centers of resistance.

In the *subsequent phase* of the preparation, sufficient artillery continues counterbattery fire to maintain neutralization of the hostile artillery. The fire of the mass of the remaining artillery is concentrated on the hostile centers of resistance. Heavy infantry weapons execute interdiction and destruction fires on hostile accessory defenses and sensitive points in the advanced zone of resistance.

■ 483. CONDUCT OF THE ATTACK.—The *hour of attack* is determined by the time required to make the essential reconnaissance; the time required by the cooperating arms to coordinate their plans; and the time required by the infantry to organize its attack in the final assembly positions. It is published to the command in orders at the latest practicable moment.

The infantry advances to the attack from its final assembly positions so as to cross the *line of departure* at the prescribed hour. If the line of departure is at a considerable distance from the final assembly positions and the intervening terrain is open and easily dominated by hostile artillery fire, it will be necessary to make the advance to the line of departure under cover of darkness or a smoke screen.

■ 484. *Infantry units* are distributed in depth to provide flexibility of maneuver and continuity in the attack. The heavy infantry weapons, initially emplaced well forward, follow by echelon close behind the leading companies.

In case of an attack over difficult terrain against an unshaken enemy, any mass formation of infantry units during the advance runs grave risks of incurring heavy losses from hostile counterpreparation fires and air attack. The leading infantry echelon is therefore thinned out initially, and the fire power of the assault echelon is gradually built up in front as the enemy discloses his plan of defensive fires.

When the hostile artillery and heavy infantry weapons have been located and our artillery and heavy infantry weapons have succeeded in gaining fire superiority, the infantry reinforces its leading echelon and closes to assaulting distance under the protection of this supporting fire.

■ 485. When the attack does not succeed in reaching or penetrating the hostile position during the day, the infantry intrenches itself at the points which it has reached. The night is utilized to extend the advance; strong patrols with machine guns are sent forward to occupy advance positions; the infantry intrenches itself in a new position under the protection of its patrols. Several progressions of this character may be necessary to bring the troops within assaulting distance of the hostile position. These night advances must be coordinated with the artillery preparation for the following morning.

■ 486. During the attack, the *supporting fires* of the artillery and heavy infantry weapons are concentrated against the fronts where the infantry has succeeded in making greatest progress. The fire of the heavy infantry weapons is placed on those areas and targets which cannot be effectively engaged by the artillery. When the infantry arrives at close range of the hostile position, the fire of all the artillery, including the artillery of general support, is concentrated on the hostile centers of resistance. Artillery ground and air observers observe fire effect and adjust the fire upon the enemy elements which offer most serious resistance to the assaulting troops.

■ 487. The fires of the artillery in support of the attack comprise *accompanying fire* in direct support of the infantry and *protective fire* directed against those points in the terrain compartment of the zone of attack from which the enemy can bring fire to bear on the attacking infantry or carry out observation for the direction of the fire of his artillery.

The purpose of the *accompanying fire* is to prevent the enemy from manning his defensive works in time to meet the assault. Its progression to successive objectives is arranged between associated infantry and artillery com-

manders and may be regulated by a time schedule based upon the probable rate of advance of the assaulting troops, by signal given by the assaulting troops, or by a time schedule based upon a desirable duration of the artillery fire.

Protective fire on critical points in the hostile position is lifted to correspond with the infantry advance. Its principal purpose is to protect the attacking echelon from hostile long range and flanking fires and from counterattack.

A part of the division artillery prepares for early movement forward in order to maintain close support of the assault units as the attack progresses. Engineer units supplied with the necessary matériel and transportation are attached to the artillery when necessary to assist in its forward movement across the combat zone. The artillery remaining in position continues its fire up to the limits of its effective ranges.

■ 488. THE ASSAULT.—In case of a strong resistance and well-organized defense, it will be necessary for the superior commander to prepare the assault of the first hostile organized line of resistance by concentrating the fire power of the supporting artillery and all available heavy infantry weapons in order first to neutralize the enemy and wear down his power of resistance before launching the assault. Thereafter, the hostile resistance is broken by a series of local assaults delivered by units of varying strength on their own initiative. Each unit delivers the assault at the earliest moment that promises success.

The commander of a unit preparing to deliver an *assault* either arranges for its delivery on a time schedule, or notifies the artillery liaison officer that he is about to assault by a prearranged signal (i. e., radio or rocket). The artillery increases the intensity of its fire and then progressively increases its range. Under the cover of the supporting fire of artillery and heavy infantry weapons, the assaulting unit advances as close to its objective as possible, and when the supporting fires are lifted from the objective overruns the hostile resistance in a single rush. Any delay in launching the assault allows the enemy to man his defenses and resume the fire of automatic weapons.

■ 489. During the attack, the artillery must employ all means at its disposal (observers, liaison detachments, artillery airplanes, wire and radio communication to infantry assault units, etc.) to obtain exact information of the location of the front line infantry; infantry must cooperate by employing all its means of transmitting information to the artillery (display of panels, flares, various means of signal communication, etc.). Artillery never attempts to deliver fire of direct support in ignorance of the location of the infantry; when uncertain as to the infantry situation, it either executes such change of position as will bring it into closer contact with the infantry or transfers its fire to more distant targets.

■ 490. In an attack on a stabilized front, the approach has already been effected and the attack opens with a coordinated assault. The assault frequently takes place at daybreak at an hour fixed in the orders of higher commanders. The hour of attack is kept secret until the latest practicable moment.

Each infantry unit follows the accompanying fires of its supporting artillery and heavy infantry weapons and pushes on to its successive objectives without deviating from the prescribed general direction of attack. Engineers attached to assault infantry units destroy the enemy obstacles that impede the infantry advance and assist in the forward displacement of the heavy infantry weapons.

■ 491. When the infantry approaches to assaulting distance, the division commander sends out *infantry airplanes* on contact and liaison missions to observe the situation of our own and the hostile advanced infantry. They report to the division commander and the commanders of infantry units the points on the front where the attack is stopped, those where penetrations have been effected, hostile counterattacks, and other features of the situation of our own and the hostile advanced infantry. Command airplane observers inform higher commanders as to developments farther in rear of the battle front—shifting of hostile reserves, arrival of reinforcements, train movements, etc. These reports and information received from other sources enable commanders

to direct the movements of reserves toward those portions of the hostile front that offer the greatest prospects for decisive success and to support the attacking troops in repulse of counterattacks.

When *pursuit aviation* is committed to action by higher commanders, it is concentrated to protect those portions of the front where the plan of attack seeks to secure decisive results. Pursuit aviation is launched either at the hour fixed for the assault or during the artillery preparation. Successive formations of pursuit aviation advance at least as far forward as the position areas of the hostile artillery, driving the hostile aviation from the air and crippling the action of the hostile artillery by attacking hostile observation airplanes and balloons engaged in the adjustment of artillery fire.

The action of *combat aviation* placed in support of ground troops is closely coordinated with the plan of attack. Its first objectives are hostile reserves and tanks forming for counterattack and troop columns moving into the zone of action of the main attack. During battle, support aviation is especially useful as a means, immediately available to the division or corps commander, to exploit a success, to restore an adverse situation, or to reinforce ground troops in overcoming unexpected resistance.

■ 492. CONTINUATION OF THE ATTACK.—The general attack after the assault of an organized position usually breaks up into a series of *separate combats* throughout the depth of the hostile position. These separate combats are directed by subordinate commanders within their zones of action and supported by all the means at their disposal. Their first task is to penetrate the position as far as the line of hostile artillery. As far as practicable, resistances are either outflanked by fire or reduced by envelopment.

The utmost importance attaches to maintaining the *continuity and direction of the attack* by the use of reserves and the timely displacement of the supporting artillery and heavy infantry weapons. Reserves sent in at points where the greatest progress is being made protect the flanks of the leading units and support them in the repulse of counter-

attacks. Artillery and air observers especially observe for probable assembly areas of hostile reserves so that enemy preparation for counterattack may be broken up by artillery fire and air attack. If the attack is unable to make further progress, the terrain already captured is organized for defense and held until the attack can be renewed.

■ 403. The enemy's reaction following the successful assault of his main line of resistance, the road conditions, and the possibility of maintaining ammunition supply largely determine when and in what strength the artillery will be moved into advanced positions.

The artillery endeavors to execute its missions with the fewest possible changes of position. Frequent changes of position reduce the volume of fire support; the occupation of new positions and renewal of preparations for fire require considerable time. Nevertheless, change of position should unhesitatingly be made when fire effect or deficiency in the means of communication with the infantry requires it. Changes of position are generally effected by echelon and are prepared by timely reconnaissance of advanced positions.

The artillery supports the action of infantry in repelling counterattacks, in attacking any rearward position on which the enemy may attempt to reconstitute his defense, or in exploiting a decisively successful attack by pursuit.

■ 404. If the tide of battle turns against the enemy, he may endeavor to disengage his forces from action either to renew the defense on a rearward position or to fight a delaying action until battle can be renewed under more favorable conditions. Ordinarily, the enemy will strive to hold out until nightfall and effect his withdrawal from action under cover of darkness.

Frequently the enemy will disclose his intentions to withdraw by the action of his front line units and the decreased intensity of his artillery fire. Troops in contact must, therefore, exercise the greatest vigilance in observing the conduct of the enemy in their front, pressing their attack with energy and maintaining close contact with the enemy. At the same time, reconnaissance aviation keeps rear areas under observation for indications of retrograde movements of artillery and trains.

■ 495. If the enemy succeeds in withdrawing his major forces from action, the commander must intensify reconnaissance by all available agencies to obtain the necessary information on which to decide whether to pursue or to renew the attack. Aggressive night action may prevent the enemy from reconstituting his defense on a rearward position. However, if the enemy does succeed in occupying a new position, the attacker must ordinarily wait until daylight before advancing in force. In the face of the enemy's countermeasures, and especially the counterpreparation fires of his artillery and heavy infantry weapons, the mass of the infantry must advance by bounds and establish itself in assembly positions favorable for the attack against the new hostile position.

In general, the attack of the enemy's rearward position cannot be launched until the mass of the attacker's artillery has been displaced forward to advanced positions. It is of great advantage to the attacker if he can regroup his forces during the exploitation of the previous success and renew the attack with the main effort on another part of the front. Engineers must be well forward; preparations for the attack shortened; only the most essential signal communications are established. Every effort is made to exploit the moral ascendency by a quick and powerful blow before the enemy can reconstitute his defense.

■ 496. In case the enemy is fighting a delaying action on an extended front, the attacker will ordinarily attain his objective more quickly by concentrating adequate forces on a decisive part of the front and pushing home this attack with energy and dispatch. Any endeavor to outflank the enemy by a wide enveloping maneuver usually loses time and thereby plays into the enemy's hands, whereas an attack pushed deeply and energetically through the hostile front will force the enemy to an early evacuation of the whole front.

PURSUIT

■ 497. The important decision confronting a commander during the progress of a successful attack is when to exploit that success by pursuit. Overconfidence in an impending

victory may lead to a premature pursuit and result in a serious reverse.

In general, a pursuit is not launched until the enemy is decisively defeated. A commander is able to recognize the arrival of this moment by various indications, among them the continued advance of his troops in a decisive direction and the capture of critical objectives; reports from front line troops that they have penetrated the hostile position, captured prisoners and abandoned weapons, and reached the position area of the hostile artillery; the diminution of hostile artillery fire; the relaxation or cessation of hostile countermeasures; and reports from reconnaissance aviation and adjacent commanders that the enemy is withdrawing.

■ 498. When a commander recognizes that the enemy is having difficulty in maintaining his position, he takes steps to press the advantage gained by ordering the timely forward displacement of his artillery and by directing all subordinate commanders of the attacking echelon to engage their reserves and maintain the *continuity of the attack* and exert a relentless pressure on the defeated enemy.

Effective pursuit requires the impulsion of *leadership* and exercise of *initiative* to the highest degree in all echelons of command. When their troops are victorious all commanders of troops in the attacking echelon press forward to spur on their troops and clinch the advantage gained by the use of their reserves. Pursuit of a decisively defeated enemy must be pushed to the utmost limit of the physical endurance of the troops and no oportunity given him to reorganize his forces and reconstitute his defense.

■ 499. The object of the pursuit is the annihilation of the hostile forces. This cannot be accomplished solely by a straight pushing back of the hostile forces on their lines of communication. *Direct pressure* against the retreating forces must be combined with an *outflanking or encircling maneuver* designed to place our own troops across the enemy's lines of retreat. By the concentrated employment of every agency of destruction and terrorization at the disposal of the field forces, the shaken morale of the defeated enemy is converted into panic, and the incipient dissolution

of his organization is transformed into rout. *Encirclement* of the retreating forces or *double envelopment* of the separate elements thereof is always attempted wherever conditions permit.

■ 500. In anticipation of the hour for launching the pursuit the commander causes suitable *preparatory measures* to be taken. Reserves are regrouped; control of the supporting artillery is decentralized; distant objectives are assigned to the principal tactical groupings; missions are assigned to combat aviation and the artillery in general support to obstruct movement on hostile avenues of withdrawal; preparations are made for launching one or more forces of great mobility in the encircling maneuver to strike the enemy in flank and rear and cut off his retreat; adequate provision is made for resupply of ammunition to all troops engaged in the pursuit.

■ 501. The pursuit is conducted on a broad front. *Reserves* sent in to exploit the success do not require the depth required in the attack of an unshaken enemy.

Troops before whom the enemy is giving way attack him on the front and send in their reserves to gain his flank and rear or break through his covering troops.

The forces engaged in the direct pressure and in the encircling maneuver are assigned directions, zones of action, and objectives designed to bring the pursuit to a decisive conclusion. According to circumstances, such directions and zones of action may be around the flanks or through the wider gaps which defeat has opened in the hostile dispositions, or in continuation of the zones of action of units exhausted by the attack. Motor transportation is employed to expedite the shifting of reserves and the movement of foot troops of the encircling force.

■ 502 So far as is permitted by the air situation, the action of supporting *combat aviation* is concentrated on centers of communication in the enemy's rear area, hostile columns in retreat and hostile reserves endeavoring to reconstitute the defense. It seeks to block defiles on the enemy's line of retreat and disrupts traffic on the main roads and railroads in the enemy's rear area.

Reconnaissance aviation reconnoiters the roads in the enemy's zone of retreat paying especial attention to the location and movement of hostile reinforcements.

■ 503. Because of its long range, flexibility, and continuity of action, *artillery* fire in pursuit constitutes a very effective means of defeating the enemy's attempts to reorganize his forces for defense or for movement in retreat.

The employment of field artillery is based upon the maximum exploitation of the mobility and the range of lighter pieces and the long range of the heavier types. So long as the withdrawing enemy can be engaged with observed and planned fire, a portion of the field artillery remains in position to take under fire the more distant objectives. Long range artillery working with observation aviation and balloons continues its fire on the enemy communications up to the extreme limit of its ranges.

The artillery attached to the pursuing forces, in addition to supporting directly the action of these tactical groups, takes under fire hostile elements attempting to re-form columns in rear of the enemy's covering troops, and gradually takes over the missions of the field artillery remaining in position.

■ 504. Whenever practicable, *mobile forces* in the *encircling maneuver* advance along roads paralleling the enemy's line of retreat and attempt to cut him off at defiles, bridges, and other critical points. These mobile forces have attached the necessary engineer, antiaircraft, chemical, and antimechanized elements. Reconnaissance aviation is placed at the disposal of the commander of the mobile forces. When these pursuing forces are unable to outdistance the enemy they push through to a critical locality to engage the enemy's main forces and attack the enemy in flank, cooperating with the forces in the direct pressure.

■ 505. In a pursuit it is important that the advance in the decisive direction be maintained and that hostile rear guards or flank positions be not allowed to draw the pursuing forces from this decisive direction. Every effort must be

made to strike the main hostile forces by pushing forward reserves and, when necessary, by constituting a new striking force to continue the pursuit.

When the enemy succeeds in establishing himself in a position from which he cannot be quickly dislodged, the superior commander must take prompt measures to coordinate the attack again, supporting it with all available artillery fire concentrated on the critical terrain.

■ 506. The enemy's attempts to organize his retreat under the cover of darkness must be frustrated. Under no circumstances must he be allowed to break contact. Units which have advanced without serious opposition continue their march during the night. Other units organize successive limited attacks against the enemy in their front. Combat aviation searches enemy routes of retreat with flares, and bombs all enemy columns discovered.

During a *night pursuit*, the leading infantry and cavalry detachments push their advance along all available roads, followed by the main pursuing forces. The attached field artillery advances by echelon going into successive positions from which it can interdict the enemy's routes of retreat either by map firing or fire conducted by artillery liaison observers which accompany the leading detachments. Prompt report is made when objectives are reached so that artillery fires may be coordinated.

The effect of artillery fire is supplemented by air attacks on critical points in the enemy's rear area.

■ 507. The situation during pursuit generally requires extensive reliance upon *radio* transmission for *communication* with the leading troops. The importance attached to hostile interception of radio communications in other situations does not obtain in equal degree in the pursuit. Every effort is made, however, to intercept the enemy's messages and communications. The construction of wire lines is concentrated upon the most important axis. Effort is made to establish command posts or advanced message centers close behind the leading troops.

■ 508. Adequate provision for the *supply* of ammunition to the pursuing troops is essential to the success of pursuit. Wherever practicable, the service trains of large units deliver ammunition direct to troop units; transloading to combat trains is reduced to a minimum. The division commander must relieve the pursuing columns of all worries concerning supply and evacuation.

CHAPTER 12

THE DEFENSIVE

GENERAL PRINCIPLES

■ 509. The general object of defensive combat is to gain time pending the development of more favorable conditions for undertaking the offensive or to economize forces on one front with a view to concentrating superior forces for a decision elsewhere.

Regardless of the considerations which dictated the adoption of a defensive attitude, the *tactics of defensive combat* are essentially to develop the maximum fire power against an advancing enemy, reduce our own losses by a better knowledge and utilization of the terrain, and thereby stop the enemy's advance or create a situation which favors a successful counterattack.

■ 510. The mission and the situation generally impose more or less definite limitations in respect to the locality where resistance may be offered. Within these limitations, the commander selects a position that will enable the defending forces to offer battle under the most favorable conditions.

The *position* on which battle is offered must conform to the operative objective sought and should facilitate future action without jeopardizing the success of the defense. It must be appropriate to the available troops and the contemplated defensive operations. It must force the enemy to a direct attack or a time-consuming maneuver. A flank position must draw the enemy from his original direction of advance. A position that can be readily turned has no defensive value.

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■ 511. The defense, no less than the offense, must wherever possible act with the effect of *surprise*. The visible lines of a defensive system must not betray the defensive dispositions but rather serve as a mask concealing the real defensive organization. Every available means must be employed to mislead the attacker as to the position on which the defense intends to make its principal effort.

■ 512. The character of the *terrain* exercises a decisive influence on the conduct of the defense. Ridges and valleys generally parallel to the front of advance constitute obstacles to the progress of an offensive and are natural lines of resistance for the defense. Natural obstacles (e. g., river lines, woods, swamps) frequently determine the general location of a defensive position, especially if the situation requires that protective measures be taken against tanks and mechanized units.

Commanding elevations and ridges delimit the compartments of terrain and form the framework of the system of observation, command, and fire control in combat. They determine directly the location of the observation posts and positions of the artillery and heavy infantry weapons, and indirectly the location of infantry defensive and assembly positions.

As a general rule, long gentle slopes afford better conditions for defense than commanding elevations. Positions along commanding heights are especially suited for delaying action. Successive ridges perpendicular to the axis of hostile advance afford observation and fields of fire favorable for a defense in depth.

■ 513. In principle, the enemy is brought under effective *fire* as early as practicable unless the situation requires that fire be withheld to obtain surprise. The intensity of the fire is so regulated that the enemy is subjected to heavier fire the nearer he approaches the defensive position.

The fire of infantry weapons forms the basis for defensive fires. Artillery fire is coordinated with the infantry plan of fire and is especially concentrated on the critical localities and on ground which is dead to or beyond the range of the fire of infantry weapons. The effective control of this fire

requires a good observation service and efficient signal communications.

The organization of systematic *flanking fire* constitutes the basis of defensive dispositions. Adjacent units mutually cover their fronts with flanking fire. Flanking defenses, however, require frontal protection, especially at night and during periods of low visibility; frontal and flanking defenses must mutually supplement each other. Dead spaces in bands of machine-gun fire are covered by the fire of other weapons. Fire effect is increased by obstacles which hold the enemy under frontal and flanking fire. Sectors of the defensive position especially exposed to hostile fire may be left unoccupied, except at night and during periods of low visibility, and defended by flanking fire from adjacent sectors.

■ 514. *Persistent gas* has especial defensive value by reason of the fact that concentrations established before the hostile attack retain their effectiveness during the course of the attack. During retrograde movements, persistent gas mines may be effectively employed between successive positions to contaminate localities and deny the use of abandoned areas to the enemy.

■ 515. The *fortification* of a position is limited only by the time and facilities available. Protection is, however, to be sought more in the distribution of defenses in depth and in width, their adaptation to the terrain, and concealment from hostile observation than in the strength of construction. Measures for increasing the effect of fire and for providing adequate signal communication take precedence over measures for maintaining the fighting power of the troops by field fortification.

■ 516. The development of a hastily occupied defensive position into a more strongly fortified defensive system is dependent upon the situation and the time and material available for construction. The degree of fortification varies, depending upon whether it is carried out on a stabilized front or immediately following an indecisive battle; or is executed in accordance with deliberately prepared plans or with improvised plans.

■ 517. The selection of a *rear position* at such distance from the main position that the attacker cannot direct the fire of his artillery upon it without displacing his batteries facilitates the conduct of a flexible defense. The amount of field fortification to be accomplished will depend upon the situation and the time available. The forces necessary for the construction of the rear position must not be obtained at the expense of jeopardizing the defense of the main battle position.

Withdrawal to a rear position is as a rule advisable only when the situation indicates that the enemy has massed a powerful concentration of artillery and tanks to support a renewed attack, and that heavy losses and defeat will result before reinforcements can arrive. (See pars. 554, 555).

■ 518. Measures are taken without delay to insure the security of the position in those directions from which a hostile attack is apprehended. These *security measures* are continued during the organization of the position so that troops may obtain the maximum amount of rest and occupy their positions in an orderly manner in case the enemy attacks.

The defense must gain contact with the enemy at the earliest opportunity and maintain such contact in order not to be taken by surprise. Every available means of reconnaissance is employed to locate the enemy and determine the direction of his advance and the distribution of his forces. As a rule, the enemy will seek to avoid disclosing the distribution of his forces and the front of his main effort until his deployment for attack is completed.

■ 519. If contact with the enemy has not been made, the commander is ordinarily free to make a detailed *reconnaissance of position*, select the terrain on which to defend, and decide on the best distribution of troops. In this case the command is usually developed into an assembly position preliminary to deployment for defense.

If, however, the defense must be assumed hastily as the result of tactical disadvantages in a meeting engagement, there will be little time for a detailed reconnaissance or a deliberate occuption of position. The defense is then as-

sumed directly from the development or from an advance in several columns. In unfavorable terrain, the commander must decide whether to delay the enemy while organizing his defense on more favorable terrain in rear, or to attack with a view to seizing the terrain to his front on which to organize the defense.

If the situation is obscure and the enemy's direction of advance or his capabilities are still undetermined, the commander may find it tactically advantageous in view of his mission to take up a *position in readiness* while making all preparations for assuming the defense on the most favorable terrain in accordance with the development of the situation.

Whatever the tactical situation may be, the commander must leave no doubt in the minds of his staff and subordinate commanders as to his intentions either to defend and hold a position, or to conduct a delaying action and retire to another position in rear.

■ 520. If, during the course of an attack, it becomes necessary to pass to the defensive, the leading infantry elements intrench themselves at points they have reached. The assault echelon is then thinned out and a distribution of forces made so as to organize the defense in depth. In order to establish the defense on favorable terrain and take advantage of the possibilities of flanking fire, it may be necessary to move certain elements to the front or rear for short distances.

■ 521. Whenever practicable, the defense is conducted along *mobile* lines. Mobility is acquired by increasing the defensive strength of a position, by improving facilities for movement within the position, by distribution of forces in depth, and by holding out reserves. Operative considerations may, however, require a rigid defense of certain critical sectors, the loss of which would render the general defensive front untenable or otherwise seriously affect the conduct of the operations on other sectors of the front. Mobile and rigid defense are so combined that possession is retained of the points essential to the maneuver of the defensive forces, the maximum forces are made available for counteroffensive purposes, and the enemy is kept in ignorance as to the character of the resistance with which he is confronted.

522. The conduct of the defense must be aggressive. It must be prepared to take advantage of errors or failures on the part of the enemy. The *counterattack* is the decisive element of defensive action. It is seldom feasible to hold a defensive position merely by passive resistance. A commander with an offensive mission may decide to assume the defensive because of temporary combat inferiority, or in order to create a situation which will place the enemy at a tactical disadvantage and thus offer opportunity for a decisive counteroffensive. In both cases, an early resumption of the offensive is contemplated. By inducing the enemy to attack first, the commander hopes to fix and exhaust him and then, when the enemy is disorganized, to launch the counteroffensive. (See pars. 94 and 413.)

In general, such a defense, if voluntarily adopted, demands the highest type of leadership and tactical skill. It promises decisive results only if the enemy acts as hoped and if secrecy and deception, the essentials of the requisite element of surprise, are achieved.

DEFENSIVE POSITION

523. SELECTION OF A DEFENSIVE POSITION.—The defense is built around a series of tactical localities, the retention of which will insure the integrity of the position. A defensive position comprises a *zone of resistance* consisting of a number of mutually supporting defensive areas, disposed irregularly in width and in depth, each organized for all-round defense as a *center of resistance* with its trenches, obstacles, and emplacements.

A line joining the forward edge of the most advanced centers of resistance constitutes the *main line of resistance;* it is the line in front of which all elements of the defense must be able to concentrate their fire to break up the hostile attack.

The distance between successive echelons of the defense should not exceed mid effective range of small arms fire; it should, however, be sufficiently great to prevent any echelon from falling into the zone of dispersion of artillery fire directed against a more advanced echelon. This distribution in depth will diminish the effects of hostile fire, and

provides for continuity in defensive fires and movement against the enemy, even though he succeeds in penetrating the zone of resistance.

524. The general considerations governing the selection of the defensive position are given in paragraph 510. Within the limits fixed by those considerations, the *main line of resistance* is selected with a view to using the terrain to the greatest advantage. From the viewpoint of terrain, the most important factors are adequate protection for artillery observation, good fields of fire, concealment from hostile observation, and the presence of natural obstacles.

Observation is desired to the limit of range of the weapons in front of the main line of resistance and within the zone of resistance as well. Adequate observation posts for artillery are essential, and the main line of resistance must be so located that the essential observation will be retained even though the enemy succeeds in penetrating the position.

In selecting the main line of resistance, the defender seeks terrain which will permit the most effective exploitation of the fires of artillery and infantry weapons. Clear fields of fire at close and mid effective range for small arms are important and usually lead to the selection of a main line of resistance on a forward slope. Consideration of concealment from hostile observation may, however, make it desirable to select a reverse slope. Such a line is generally practicable only when possession of the crest to the front is not essential to the observation of artillery fire. When the main line of resistance is located on the forward slope, the zone of resistance may be extended to the rear to include the reverse slope; when located on the reverse slope, the front-line battalions push some of their machine guns forward to the crest with a view to firing on attacking troops during their approach to the position.

Natural obstacles, such as streams with steep banks, swamps, and bodies of water, serve to retard the enemy's advance. Natural obstacles which will stop tanks may be of prime importance. Not infrequently the commander selecting the main line of resistance may have to decide whether a natural obstacle or observation is the most important consideration.

■ 525. All parts of a position will not have the same degree of *defensive strength*. Avenues of approach which enable the attacker to reach the main line of resistance under cover are sources of weakness in the position. Rifle units of sufficient strength to meet the enemy in close-range combat must be near at hand. These same avenues of approach may, however, be entirely unsuited for enemy tank attacks. On the other hand, clear fields of fire over which the enemy must advance for some distance under the defender's fire are sources of strength, so far as a defense against foot troops is concerned, but may furnish excellent terrain for hostile tank attack. The defender must be prepared to meet that form of attack which will best fit the terrain.

The defensive strength of the position has a direct bearing upon the *depth of the zone of resistance*. Portions of the front which have great defensive strength can be held with fewer men, or units can be assigned wider sectors, while the reverse is true in weak portions of the front. There is thus a variation in the troops which can be made available for rearward centers of resistance. Adverse weather conditions, close terrain, and exhausted troops call for a greater density of troops forward toward the main line of resistance, thus decreasing the number available for extending the disposition in depth.

■ 526. A position combining all defensive advantages will seldom be available. The weak points of a position are strengthened by appropriate measures; a short field of frontal fire is compensated for by the organization of dense flanking fires and heavy artillery concentrations; exposure to hostile observation by distribution in depth, construction of numerous dummy works and masks; deficient observation by increased strength of local garrisons, etc.

■ 527. OCCUPATION OF POSITION.—The occupation of a defensive position is preceded by a more or less detailed reconnaissance as permitted by the situation. Commanders of large units usually determine the general location of the position from the map. Whenever practicable, the division commander, accompanied by the principal members of his staff and the commanders of the major elements of his

command, precedes the troops for the execution of a detailed reconnaissance on the ground.

A *general reconnaissance* by the division commander and his artillery and infantry commanders, fixing in a general way the observation stations required for the artillery and the location of the zone of resistance, is followed by the assignment of *zones of reconnaissance* to subordinate infantry and artillery commanders. This reconnaissance bears not only on the defensive position but also on the avenues of approach afforded the enemy.

Basing his action on his mission, his personal reconnaissance, the reconnaissance reports of his subordinates, and the available information of the enemy and friendly troops, the commander forms an estimate of the enemy's capabilities and the probable front of hostile attack, and makes his decision as to the location of the main line of resistance, the employment of the artillery, the assignment of sectors, the strength and location of the reserve, and the measures necessary for security. Successive reconnaissances by lower commanders finally fix on the ground the distribution of smaller units and the detailed location of their combat emplacements. Exact information as to the trace of the main line of resistance is furnished to the artillery.

■ 528. In order to form an estimate of the capabilities of the enemy, reconnaissance during the occupation and preparation of the defensive position seeks especially to determine the principal routes of hostile approach, terrain available for hostile observation, deployment of the hostile artillery, assembly positions of the hostile infantry, and the corridors of terrain and lines of approach most advantageous to the hostile attack.

■ 529. The *assignment of large units* to the various sectors of a defensive front is based chiefly upon operative considerations. (See par. 510.)

The *distribution of troops* of a *division* for the defense of its sector is based chiefly upon the relative defensive strength of the various parts of the position (see par. 525), the possibility of augmenting such strength by field fortifica-

tions, and the fire effect that can be developed in defense of the various parts of the position.

The width of sectors assigned to infantry units in the defense varies with the defensive strength of the various parts of the position, the relative importance of the sectors, the degree of control required, and the number and strength of units available for the entire defense. The necessity for control and the fields of fire offered by the terrain restrict the intervals which may be permitted between tactical localities with consequent restriction on the width of sectors. Some variation in the width of sectors may arise from the necessity for adjusting sectors to fix responsibility for defense of terrain corridors. By adaptation of the width of sectors to their natural strength, there results an economy of force which enables the commander to hold out the maximum strength for counteroffensive purposes.

The natural corridors of the terrain through which the enemy will press his attack have a decisive influence on the location of *boundaries* between sectors. Boundaries are located so that there will be no question of responsibility for the defense of a critical avenue of hostile approach. As a rule, high ground dominating a terrain corridor is included in the sector of a unit assigned to its defense; localities which facilitate cross fire between mutually supporting strong points are also included in the sector.

In the outpost zone, boundaries usually follow ridge lines in order to facilitate the coordination of artillery fires. The extension of boundaries to the rear is influenced largely by the existing road net and routes for movement within the position.

■ 530. The occupation of the defensive position by large units is, wherever practicable, covered by *outposts* located at sufficient distance from the main line of resistance to prevent the occupying forces from being taken under observed fire by hostile light artillery. (See pars. 302–334.)

The strength and composition of the outpost, its most advanced line of resistance, and its conduct in case of attack depend upon the situation, the terrain, and the mission of

the command. On a broad front, a different conduct may be prescribed for different sectors. If the position of the outpost is not within effective range of the artillery supporting the defense of the main position, some light artillery is attached to the outpost.

■ 531. The division commander determines the general distribution of the *artillery* and its subdivision for combat (direct and general support). (See pars. 41–43, 45.) The weaker the artillery the greater the need for its concentrated employment under the immediate direction of the division artillery commander. Centralized control of the artillery is also the rule prior to the actual engagement of the infantry.

The *echelonment in depth* of the artillery takes into consideration the range of the several classes of material, the location of the objectives of the different artillery groupings, and the possibilities of neutralization by hostile counter-battery fire. The echelonment is limited by consideration that the entire artillery, including the rearmost echelon, must be able to concentrate its fire in front of the main line of resistance and that the foremost echelon should, as far as practicable, be able to fire with observation from a rearward observation post in case of failure of observation in the battle position.

In order to assure that the batteries of direct support are not put out of action at an early moment and the infantry thus deprived of direct artillery fire support, they generally occupy a rearward position in order to be able to fire within the battle position. If necessary, some of these batteries are emplaced temporarily in advanced positions in the outpost zone in order to bring the approaching enemy under early fire without disclosing the eventual distribution of the artillery.

The more distant objectives of the artillery of general support usually require that its batteries be established in positions well to the front. In order to reach objectives deep in the hostile combat zone, it is often advisable to locate elements of long-range artillery temporarily in the most advanced positions.

532. *Antiaircraft artillery* is disposed initially so as to protect as far as practicable the organization and occupation of the battle position with special attention to the position area of the artillery.

Throughout the defense, protection for the artillery and the means of ammunition supply should be furnished. When the commander has determined on what front the enemy is making his main attack, the antiaircraft artillery concentrates its efforts on protecting from air observation and attack the threatened parts of the defensive position and the employment of reserves for counterattack.

If sufficient antiaircraft artillery is available, some units are assigned to the local defense of important roads and installations (railheads, ammunition establishments, airdromes, etc.). Maximum use is made of all passive measures of antiaircraft defense. The antiaircraft intelligence service gives prompt warning of the approach of hostile aircraft to all units concerned.

533. *Engineers* are employed to impede the advance of the enemy by the execution of demolitions and by the creation of a zone of obstacles. They increase the defensive powers of the other arms by the construction of field works requiring special equipment or training, by technical assistance in other works of organization of the ground, and by furnishing them with the necessary tools and engineer supplies.

In general, engineers are withdrawn to and employed in rear areas when the actual combat for the defense of the battle position begins. They are later available for use as reserves. (See pars. 74, 75, and 80.)

534. The direction from which the main attack may be expected chiefly determines the initial location of the *reserve*. According to circumstances, it is echeloned for protective purposes in rear of an exposed flank, held in a position in readiness from which it can deliver a prepared counterattack, or so disposed that it can take up the counteroffensive by striking in flank a hostile attack which breaks down in front of the main line of resistance.

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Tanks are essentially offensive weapons. They are held in reserve in a covered position out of effective artillery range until the situation is favorable for their employment. They constitute a powerful reserve in the hands of the division commander either to engage hostile tanks or to support a general counterattack or counteroffensive.

Reserves must be prepared either to occupy a defensive area to check an enemy penetration or to deliver a counterattack to restore the main defensive position. To meet such contingency, reconnaissance is conducted and plans are prepared, based on the probable lines of action which may develop during combat.

■ 535. ORGANIZATION OF A POSITION.—In the initial deployment for defense, combat groups construct squad and individual trenches which are organized into *strong points*. These strong points are irregularly grouped and unequally spaced so as to take best advantage of terrain conditions. Sited primarily with a view to frontal and mutual flanking fire, they are combined into *centers of resistance* held by larger tactical units. The contour of the main line of resistance is thus irregular in trace, with elements sited for frontal and flanking fire. Machine guns are so sited that as nearly as practicable they cover the entire front of the main line of resistance with continuous bands of fire, and are at the same time capable of delivering long-range fire during the hostile approach and of taking under enfilade fire hostile elements which succeed in penetrating the main line of resistance.

The general trace of *obstacles* depends chiefly upon the flanking fire and defenses. By a proper coordination of enfilade fire, demolitions and obstacles, and a suitable arrangement of gaps, attempt is made to canalize the hostile attack into avenues of approach where it will come under the destructive fire of all available weapons. Artificial obstacles in the front of the main line of resistance should be concealed from hostile observation; concealment of obstacles in front of the outposts is impracticable when in contact with the enemy.

In moving situations time will rarely be available for the construction and camouflage of *communication trenches*.

They are, however, indispensable in the prolonged occupation of a position since they greatly facilitate the exercise of command, the movement of troops, and the functioning of supply. Their construction for the purpose of affording a covered approach to the defensive position from the rear is advisable, however, in cases where natural or artificial masks cannot be relied upon for concealment from hostile ground observation. This consideration and the labor involved may lead to the construction of communication trenches only over exposed stretches on the routes of approach from the rear; in such cases the routes of approach are conspicuously marked. Communication trenches should be so sited that they will afford no indication to the enemy as to the location of the combat emplacements.

Dummy works, properly constructed, serve to mislead the enemy and disperse his fire. To be effective, they must closely resemble genuine works; dummy works easily recognizeable as such give the enemy valuable negative information. They must bear evidence of an attempt at camouflage.

536. Troops, divided into reliefs for the purposes of work, carry out the organization of the position in accordance with a systematic *plan of construction*. The priority of tasks in the main and outpost positions is determined by the principle that *fire effect takes precedence over cover*. After the location of combat emplacements has been fixed, first priority is ordinarily given to clearing the field of fire, removal of objects masking our own observation and those within the position capable of serving as reference points for hostile observation and fire, and the determination of ranges to points in the foreground. These measures are ordinarily followed by provisions for camouflaging the works to be constructed; then the construction of the various defensive works and obstacles, followed by the marking and preparation of routes of approach for reserves and ammunition supply.

Artillery and heavy infantry weapons give first priority to the construction of observation and command posts and signal communications. For the protection of guns, more reliance is placed upon camouflage and provision for numerous alternative positions than upon the fortification of gun emplacements.

■ 537. In the *development of the defensive position*, measures to augment the strength of the main battle position and to provide facilities for the whole position are given priority. These measures include the preparation or construction of observation and command posts, signal communications, obstacles, gun positions, shelters, supply and ammunition dumps, and communication trenches.

Great care is taken to camouflage the most important works and construct the more visible features of the position in such manner that they will not disclose the distribution of troops.

The artillery gives early attention to developing the means of observation and fire control, and providing the necessary roads for the supply of ammunition. Shelter is constructed for the personnel, and provision is made for camouflage of ammunition and its protection against weather.

Signal communications are strongly reinforced. Units are connected by wire lines not only with the rear but also laterally; the importance of lateral lines consists not only in affording direct communication between adjacent units but also in making available numerous alternative lines of communication between advanced units and the rear in event of the failure of a direct line.

■ 538. The *priority of work* in the construction of a *rear position* is largely determined by the time required for the construction of the various essential works and the extent to which they lend themselves to camouflage. Important works requiring a considerable period for their construction come first in order of priority; works that would disclose the position to hostile air reconnaissance are omitted. After reconnaissance and determination of the method of occupation of the position, command posts, observation posts, obstacles, and shelters for the troops are constructed; the construction of fire and communication trenches is deferred until troops occupy the position.

CONDUCT OF THE DEFENSE

■ 539. The defense of a position, whether it be hastily prepared or strongly fortified, is conducted in accordance with the same principles. The details of execution may vary

depending upon the commander's intentions, the strength of the position, the means available for its defense, and the action of the enemy.

■ 540. The commander provides for the coordination of the fire action of the infantry and the artillery in his *plan of defense*. To assure this coordination, both in time and place, requires centralized control of fire by all unit commanders.

■ 541. Constant reconnaissance and observation of the enemy's dispositions are conducted with a view to securing the earliest possible indications of the enemy's offensive preparations and the data required for the conduct of fire.

The enemy's radio traffic and reconnaissance operations are closely observed to determine his front of advance and the distribution of his forces. Air reconnaissance provides the information concerning the situation in rear of the enemy's leading elements.

A study of the terrain in which the enemy must carry out his preparations for attack will give valuable indications as to the enemy's assembly positions, the location of his artillery, terrain favorable for tank attack, and the area most advantageous for the main attack.

At the same time measures for counterreconnaissance are taken by all troops and agencies in order to screen from the enemy the preparations and dispositions made for defense.

■ 542. When the situation permits, *mobile covering detachments*, strongly reinforced by heavy infantry weapons and artillery, operate well in front and toward exposed flanks of the defensive position. By their fire, disposition, and movements they endeavor to deceive the enemy as to the defensive dispositions, lead him in a false direction, and cause him to deploy prematurely and on incorrect lines. Deploying on a broad front, they occupy successive positions on commanding ground and take advantage of every opportunity to open heavy surprise fire on formed bodies of hostile troops, without, however, allowing themselves to become closely engaged.

■ 543. The situation determines whether the *outposts* are to retain their position after the occupation of the main line of resistance has been completed. When the flanks of the

outpost are not protected by other troops, the danger of envelopment will usually require an early withdrawal of the outpost troops.

When the flanks of the outpost are protected by other troops, the outposts are ordinarily instructed either to hold their positions for a definite period or to withdraw on orders of the higher commander. In the latter case they are withdrawn when the enemy has deployed his artillery for the attack of the outpost position, thus imposing on him the necessity for a displacement of his artillery for the attack of the battle position; in this case relatively strong outposts are required.

In withdrawing on the battle position the outposts conduct a delaying action. The withdrawal of the outposts must be so arranged that they will neither interfere with nor be endangered by the fire from the main position. Coordination in this respect is facilitated by the use of prearranged signals and previously designated routes of withdrawal.

When decision is made to withdraw the outpost without awaiting the hostile attack, the foreground of the battle position is temporarily held by combat outposts detailed by the leading infantry units. (See par. 329.)

Whether or not an outpost position is held, the essential consideration is to maintain contact with the enemy and keep him in doubt as to the character of the first resistance he will encounter and the position on which the principal defensive effort will be made.

■ 544. The division artillery commander prepares the *artillery plan of employment* in accordance with the instructions of the division commander.

His first task is to provide as completely as possible for the immediate fire support of the infantry holding the main line of resistance.

The effective employment of the artillery requires careful planning especially in the selection and concealment of OP's and firing positions, the preparation of fire, the occupation of position, and the measures taken for ammunition supply.

In order to maintain itself in action in the face of hostile superiority, the artillery must fully exploit its mobility. If there are indications that the location of certain batteries

has been discovered by the enemy, such batteries effect a change to one of their alternative positions during the night.

In quiet periods, artillery units assigned to counterbattery and harassing missions take advantage of their mobility. For the delivery of fire, they occupy during the night previously surveyed positions removed from their regularly assigned emplacements; after delivery of fire, they are withdrawn from their temporary positions.

¶ 545. Higher commanders determine the conditions under which artillery fire is to be opened during the hostile approach. In determining the time for opening fire, consideration is given to the fact that premature opening of fire by the mass of the artillery gives the enemy information relative to the location of the position and the deployment of the artillery and that he may employ weak detachments for the purpose of inducing the defender to open fire and reveal his dispositions. Fire is not opened by the mass of the artillery until targets of sufficient importance are disclosed.

¶ 546. The *artillery plan of fire* prior to the engagement of the infantry is based primarily upon the execution of a *counterpreparation* which seeks to break up or cripple the hostile attack before it can be launched.

It is important to take hostile artillery under fire at an early moment, to interdict hostile routes of approach, and to dislocate as far as practicable the hostile system of command and fire control.

The artillery of the attacker is most vulnerable from the moment it comes within range of the defender's artillery until it has completed its deployment. During this period it constitutes the principal objective of the defender's artillery fire and air reconnaissance. The fire of all available artillery is concentrated with a view to crippling the hostile artillery as far as practicable before it can get into action. *Counterbattery* continues to be the principal mission of a portion of the artillery, especially the long-range medium artillery, throughout the battle.

The corps gives the division instructions regulating the employment of the divisional artillery in the execution of its more distant missions. The corps reinforces the action of

the divisional artillery and extends its objective zone in depth by the use of the longer-range matériel at its disposal. Long-range destruction and interdiction fire is directed especially on sensitive points in the enemy's rear areas and on his lines of communication (railheads, bridges, crossroads, supply establishments, airdromes, etc.).

Combat aviation extends in depth, and reinforces, when necessary, the counterpreparation fire of the artillery. Air attack against hostile ammunition dumps, supply establishments, airdromes, railroad installations, etc., may have important effects in delaying or dislocating the hostile preparations for attack. Combat aviation searches hostile lines of communication and attacks enemy columns, reserves, supply trains, etc., discovered in movement.

■ 547. When the imminence of the infantry attack is discovered, *counterpreparation fire* is directed upon the known or probable assembly positions of the attacking troops.

In case the enemy succeeds in launching his attack in spite of the counterpreparation, *barrage fire* is placed close in front of our own advanced infantry. If the attack succeeds in penetrating the line held by the combat outposts, the barrage is transferred in front of the main line of resistance.

Plans for the delivery of counterpreparation and barrage fires are designed to provide concentrations of fire only on the critical zones or fronts. Distribution of fire along the entire front is ineffective. Since the high rate of artillery fire, especially in barrage fire, may lead to a greater consumption of the ammunition than can be supplied, it is essential that front line troops carefully consider the emergency in their calls for artillery support.

Barrage fires are delivered either on the request of the front line troops, or on report by artillery observers that a hostile attack is being launched. Counterpreparations are general or local; the former are fired on the order of the superior commander; the latter on the request of subordinate commanders or on report by artillery air observers of the development of a hostile attack.

Heavy infantry weapons and a portion of the machine guns participate in counterpreparation and barrage fires; their fire plans are coordinated with those of the artillery in the division plan of defense. Provision may be made for reinforcing counterpreparation and barrage fires by artillery normally assigned to other missions, or by the artillery of adjacent divisions; their fire is ordinarily superimposed on that of the batteries normally assigned to missions of direct support.

■ 548. When the front and direction of the main hostile attack have been determined, the defense at once takes steps to meet it. Fire on the advancing infantry is continued, more machine guns participate, the combat outposts are withdrawn, and the defense on the threatened front is reinforced. The minimum reinforcement is employed to increase the strength of the troops holding the main line of resistance; the bulk of the available reinforcement should be held in mobile reserve prepared for aggressive action.

■ 549. *Infantry* defends its position by employing all the weapons at its disposal; it does not rely solely upon artillery fire for the repulse of the hostile attack. As the enemy comes within range, the heavy infantry weapons, including those of units in reserve, are brought into action. As the enemy attack draws closer, the light weapons of the infantry engage in the fire fight until finally the enemy is stopped or is driven back with the bayonet.

■ 550. A unit intrusted with the defense of a strong point or center of resistance under no circumstances abandons it unless authorized to do so by higher authority. Local commanders take the necessary steps to maintain their positions, rectifying gaps in their dispositions or plan of fire by the action of their supports. Plans are made for the employment of local reserves. As the area of their probable employment becomes apparent reserves are moved to be more readily available for action.

Measures are taken to insure security against mechanized attack. The artillery of direct support assists the infantry

in antitank defense. In addition, when a strong hostile mechanized attack is impending, a few mobile batteries are prepared for prompt movement to any part of the position where hostile tanks may succeed in penetrating the position. (See par. 260.)

■ 551. Should the enemy succeed in penetrating the position, the defender first seeks through fire to annihilate the enemy elements which have penetrated. The fire of the supporting artillery is called down on the rear of the hostile elements in the gap while local reserves supported by the heavy infantry weapons *counterattack* against the flanks of the gap to thrust back the enemy before he has had time to establish himself.

Should these measures for restoring the battle position fail, or should the enemy succeed in making a deep penetration and establish himself on the position, the defender seeks to strengthen the flanks of the gap and maintain his hold on the supporting points on both sides thereof, resisting all attempts to widen it. The situation is thus first stabilized in order to establish a firm base from which to launch a general counterattack.

The higher commander must then decide whether to make a *general counterattack* to defeat the enemy and restore the battle position, or to transfer the main line of resistance to a rearward echelon of the zone of resistance.

As a rule, a general counterattack requires a careful preparation and strong forces. Assembly positions, zones of action, objective, and time of attack are clearly specified. Employment of tanks, support of combat aviation and artillery, and the use of gas and smoke are regulated and controlled by the superior commander. Whenever practicable, the counterattack is launched against the flanks of the hostile salient. If it is desired to use the tanks in the main effort of the counterattack, careful consideration must be given to the suitability of terrain for tank attack and the adaptation of the plan of supporting fire to their scheme of maneuver.

■ 552. If the hostile attack breaks down in front of the main line of resistance, the enemy will be unable to withstand a

determined *counteroffensive*. The defense must be prepared to change to the offensive and exploit the results of successful defensive action, should a favorable opportunity present itself. Although the enemy will be somewhat disorganized, his artillery will still be superior and his troops will be distributed in depth. In view of the uncertain results which a frontal attack offers, an enveloping attack is to be preferred. If this is impracticable, the defender should take advantage of his temporary freedom of action and maneuver his command for an entirely new operation.

553. When the battle is interrupted by nightfall, combat outposts are established by the leading companies or battalions immediately in front of the main line of resistance. (See par. 329.) Any enemy elements which have penetrated the zone of resistance are ejected by local counterattack, if necessary by night attack. Provision is made for patrolling and illuminating the foreground and the intervals between tactical localities. Garrisons of strong points may be reinforced. Machine guns are laid for their final protective fires. Provision is made to place the defensive fires of artillery and heavy infantry weapons in front of the outpost line. These fires cover those areas that cannot be reached by rifle and machine-gun fire and should be prepared while there is still some daylight. They are delivered on prearranged signals from the outpost.

554. When the enemy succeeds in establishing himself on favorable ground at close range from the main line of resistance, it may be advisable to redistribute the defending forces in depth. In such case the main line of resistance may be transferred to a rearward echelon of the zone of resistance, and the original main line of resistance held by combat outposts; or the defense may be transferred to a rear position in which case the preparations for a withdrawal from action (see pars. 557–565) and a renewal of the defense on the new position must be prepared in advance. Withdrawal to a rear position is as a rule advisable only when the situation clearly shows that the first position is untenable or will soon become untenable.

■ 555. When battle ends indecisively and a stabilization of operations gradually develops, the decision must be made whether to push the outpost forward and continue to hold the present position, making the necessary rectifications; or to hold the old position as an outpost position and transfer the principal forces to a rear position (see par. 517) which then becomes the main battle position. In either case a redistribution of forces is necessary.

Measures are taken for the development and strengthening of the new defensive position. Obstacles are reinforced; additional mine fields are constructed; defense against chemicals is more thoroughly organized; shelter is provided for men and ammunition, and measures are taken to provide for the rest and comfort of troops.

■ 556. Where a stabilized situation develops or a defense continues for a prolonged period, the necessity for conservation of the fighting power of the troops requires provision for the periodic *relief of units* in line. For the sake of continuity in the execution of the plan of defense, it is as a general rule advantageous to avoid relieving the artillery and the infantry at the same time. The relief is preceded by a detailed reconnaissance of the sector by officers of the relieving unit. The execution of the relief takes place under the direction of the commander of the unit to be relieved; he remains responsible for the defense of the sector until the relief has been completed.

WITHDRAWAL FROM ACTION—RETIREMENT

■ 557. WITHDRAWAL FROM ACTION.—A withdrawal from action is the operation of breaking off combat with a hostile force. The general purpose of the operation is to regain or preserve freedom of action. Withdrawal may be either voluntary or forced. Although usually considered in connection with the defensive, a *withdrawal from action* may be required in a variety of situations. It is voluntary when existing combat has accomplished the mission, or when successful combat is suspended to permit disengagement of troops for employment elsewhere. It is forced when unsuccessful combat is broken off to permit disengagement of

troops as a preliminary to a delaying action or the renewal of the defense on a rearward position, or to avoid decisive defeat by effecting a retirement.

■ 558. The heavier the previous fighting and the closer the engagement with the enemy, the more difficult will be the process of breaking off combat. This operation is facilitated by concealment of dispositions and movements, by surprise in the delivery of fire and, when practicable, by local counterstrokes.

■ 559. A withdrawal by daylight involves such heavy losses and so great a degree of disorganization that it is usually preferable to hold out at all costs until nightfall and effect the withdrawal under the cover of darkness. As a rule, only rearward echelons can be withdrawn by day.

The commander who orders a withdrawal designates a *rearward or assembly position* on which the troops will prepare for a renewal of resistance or under the protection of which the troops may, if circumstances so require, be assembled for further retrograde movement.

■ 560. The troops engaged stubbornly hold their positions. If this is impossible, they avoid a decision by a delaying action and await the arrival of darkness before actually breaking off combat.

The commander makes special provision for holding as long as possible the road centers that control the communications to the rear, and the features of the terrain that afford extended observation over the areas in rear of the battle front.

Successful counterattacks create the conditions most favorable to the withdrawal. In this connection, combat aviation, mechanized units, and chemical troops can be of material assistance.

Pursuit aviation seeks especially to relieve the lines of retreat from air observation and the pressure of hostile combat aviation. The attack of balloons and observation airplanes adjusting hostile artillery fire is also of great importance.

If the commander still has a reserve available it is preferable to move it and a part of the artillery to occupy the rearward position and cover the withdrawal of the troops closely engaged, provided the mission can be performed from the new position.

When the rearward or assembly position lies at a considerable distance from the battle front, the commander selects a suitable covering position and details, from any available reserves, a mobile *covering force* strong in machine guns to occupy it and cover the withdrawal of the troops engaged. Artillery and antimechanized weapons are attached to the covering force.

If the withdrawal is effected under cover of darkness, the troops in contact may be able to provide the necessary security for the withdrawal. In any event, the commander must indicate the course to be followed and provide for disengaging his forces and insuring freedom of action to the disengaged troops.

■ 561. As soon as practicable the commander makes the necessary arrangements for clearing the rear of the combat zone and for starting unengaged units toward the rearward position. He takes the necessary precautions to prevent betraying his intentions to the enemy.

In his *order for the withdrawal* the commander assigns sectors and routes of withdrawal to the units of the command, prescribes the strength and conduct of the security forces, fixes the priority in withdrawal of units, sends ahead signal troops for the establishment of signal communication, and takes the necessary steps to clear the routes for the movement of the troops. Prompt starting of trains to the new areas, evacuation of the wounded, and the removal of supplies, energetic measures for the maintenance of traffic control, construction of the necessary bridges, and preparations for the execution of demolitions on the routes of withdrawal are of primary importance. Effective measures are taken for antiaircraft and antimechanized defense.

Wire lines not absolutely necessary are taken up; preparations are made to destroy those which must remain in operation. Strict measures are instituted to regulate or silence radio communication.

The new command post is designated early and preparations are made for establishing a landing field nearby.

562. In case the decision is made for *defense on a rearward position*, this new position is selected at such distance that the enemy will be compelled to regroup his forces, displace his artillery, and renew his preparations for attack. As a rule the commander determines the location of the position and the general distribution of troops thereon from the map. He then issues the necessary orders for reconnaissance of the position and routes thereto by reconnaissance parties of subordinate units.

563. The *withdrawal* of the greater part of the forces engaged commences at nightfall; only weak elements are left in immediate contact with the enemy. These outpost elements, formed from troops nearest the enemy, are well supplied with ammunition and pyrotechnics. In view of the broad front upon which they are deployed, a single commander ordinarily cannot maintain effective control. The orders of the superior commander must, therefore, regulate the artillery support to be provided, coordinate the action of the elements holding the various sectors of the outpost, fix the time of their withdrawal, and prescribe their action in case of hostile attack. They may be directed to withdraw either at a prescribed hour or when forced to do so by the enemy's advance.

The withdrawal is executed on a broad front; troops retire in small columns and after passing the covering position are assembled into larger units at designated initial points. Engineers keep the routes of withdrawal open and furnish guides to bridges when necessary.

The elements left in contact with the enemy screen the withdrawal by simulating great activity. By heavy firing from different positions, reconnaissances of strong combat patrols, and sending up numerous rockets and flares, they endeavor to create the impression of heavily held lines.

564. A part of the artillery remains in position to support the elements still in contact; it increases its fire activity to deceive the enemy and assists the front line troops in breaking off combat. Well-supplied with ammunition and pro-

tected for all-round defense, these guns remain in action to the last possible moment and do not hesitate to sacrifice themselves if necessary to insure the withdrawal of the security detachments left in contact with the enemy. The remainder of the artillery is withdrawn by echelon to the rearward or covering position, priority in movement being given to the heavier calibers.

■ 565. The position of the *covering force* is selected so that it will cover the routes of withdrawal and the assembly position of the main body. Under certain conditions, the occupation of a flank position may be advisable in order to force the enemy to execute a time consuming maneuver.

It is the mission of the covering force to cover the withdrawal of the main body of the artillery remaining in position and the outpost left in contact with the enemy. The successful accomplishment of this mission depends largely on the efficient execution of a systematic plan of artillery and machine-gun defensive fires.

When the withdrawal of the main body is assured, the covering force follows it to the rearward position or joins the march column.

■ 566. RETIREMENT.—Without competent orders to do so a decision to retire is justified only when *all* possibilities of accomplishing the assigned mission have been exhausted and a continuation of the battle will lead either to excessive losses or a decisive defeat.

No commander is authorized to order a retirement on his own initiative simply because of local misfortune or reverses suffered by an adjacent unit, or when such retirement will jeopardize the rest of the command. In a crisis, a commander must persevere and show a resolute will. (See pars. 103, 104, 108.)

■ 567. Having disengaged his forces from action, the most important consideration for a commander is to place *distance* and a *rear guard* between his main body and the enemy and regain his freedom of action.

Trains are put in march without delay, if necessary under escort, and sent to the next bivouac area. In their retire-

ment they establish dumps of ammunition, rations, and other supplies en route to meet the needs of the retreating troops.

As fast as troop units arrive in the assembly positions they are formed into small march columns and set in motion to the rear. The retirement is made on a broad front, using all available roads.

■ 568. A *rear guard* is detailed and assigned to a position from which it can cover the formation of the march columns and their uninterrupted retirement. Initially this rear guard consists of the troops which covered the withdrawal, reinforced by contingents of other arms as required by the situation. (See pars. 288, 561.)

When there is danger of a hostile encircling maneuver in pursuit, *flank guards* composed of mobile troops with engineer and antimechanized units attached are detailed to cover the exposed flank.

■ 569. In a retirement, clearing the *routes of march* for our troops and organizing an effective *zone of obstacles* to delay the enemy's pursuing columns are of greatest importance.

Engineers are sent back early to reconnoiter and improve the routes of retirement, repair bridges, and prepare obstacles and demolitions to be made effective by the rear guard. The location of these obstacles, and the nature of the demolitions and contaminations prepared, are carefully noted and measures taken to prevent their endangering our own troops.

Staff officers accompanied by detachments of military police are sent to critical localities to regulate traffic and prevent congestion, especially in towns and at bridges and defiles. Strong antiaircraft and antimechanized protection is established at these critical localities until they are cleared by the main body.

■ 570. As the distance from the enemy increases, the small columns of the main body are consolidated into larger march columns constituted as combat teams. During the march to the rear, a constant effort is made to increase the distance from the enemy and gain greater freedom of action for the commander. This will necessitate night and forced marches

as well as effective security measures to protect the flanks of the zone of retirement.

■ 571. The employment of *combat aviation* under control of the superior commander to assist in delaying the hostile pursuit is coordinated with the action of the rear and flank guards.

■ 572. The *subsequent action* of the rear guard is governed by circumstances. (See pars. 291–294.) The rear guard retires by bounds; it regulates its halts by the progress and security of the main body, and arranges its rests so as to take advantage of the cover and protection afforded by the terrain.

DELAYING ACTION

■ 573. A recourse to *delaying action* ordinarily implies either a lack of readiness for battle or a hostile superiority of force. Its purpose is to gain time while avoiding decisive action. This is attained by deceiving and containing the enemy.

Delaying action is often used in the opening phases of battle to gain time for the unified employment of the entire command; it may also be called for in later phases pending completion of preparations for counteroffensive action. (See pars. 94, 413, 522.) It finds especial application in the operations of cavalry, covering forces, and other security detachments. (See pars. 31, 292, 542.)

■ 574. Delaying action is based on a *limited resistance* on a defensive position with the intention of renewing this resistance in *successive positions* if necessary. The defense in each position must force the enemy to an early deployment and to time-consuming preparations for battle. Ordinarily combat is broken off in each position before troops become closely engaged. The situation may, however, require a *strong resistance* on some position or even a *counterattack* in order to accomplish the delaying mission.

The delaying measures are continued *between positions* in order to gain time for organizing the resistance on the next position. Because of the retrograde and long-range nature of combat, delaying action is most effectively executed by troops possessing a high degree of mobility and great fire power especially at the longer ranges.

575. In open terrain, the important consideration in the selection of a delaying position is a good field of fire at long range; field of fire at close range is of less importance. In close and wooded terrain, observation and field of fire are equally unfavorable for both sides; the defender can, however, make full use of the cover, concealment, and obstacles offered by the terrain, whereas the attacker is restricted in movement and unable to exploit fully his superiority of means.

The ground in rear of the position should favor a withdrawal by screening the troops from hostile view and fire as soon as the position is vacated.

In delaying action, field fortifications are reduced to the minimum; full use is made of obstacles, demolitions, and chemical interdictions in front and on the flanks of the position and in the areas between successive positions. (See par. 514.)

576. The *conduct of delaying action* is facilitated in open terrain by selecting successive positions at such distance apart that the enemy will be forced to displace his artillery in order to attack the next position in rear. In wooded terrain the infantry bears the brunt of combat, and successive positions may be much closer together.

In each position, the main line of resistance should insure facilities for artillery observation and for the delivery of effective long-range fire by heavy infantry weapons. In general, the depth of the zone of resistance is not very great. The firing positions of the artillery and heavy infantry weapons are located close to the line of resistance.

577. The *duration of the defense* in each position and the amount of delay obtained between positions depend upon the terrain, the facilities for observation, the effectiveness of obstacles, and the action of the enemy. The commander exerts his influence through the distribution of troops, the employment of the artillery and reserves, and the allotment of ammunition made for the defense in each position. The duration of the defense in each position is so regulated that the withdrawal can be made in an orderly manner and effective resistance organized on the next position in rear before the enemy is able to renew his attack.

■ 578. In fighting a delaying action, some troops are disposed on the rear position to cover the *withdrawal* from the positions in front. As a rule, the longer a delaying action is continued, the greater must be the strength of the combat echelon deployed on the rear position. Since this can be done only at the expense of the combat echelon deployed on the forward position, the width of the sector must be progressively reduced. The withdrawal from one position to the next is executed as discussed in paragraphs 562 to 565, inclusive.

■ 579. The commander controls the operation by prescribing the time of withdrawal and the time by which each successive position is to be occupied. In open terrain it is better to make a timely and simultaneous withdrawal from each position. In close terrain or when a command is deployed over a wide front this may be impracticable; the decision as to the time of withdrawal is then left to subordinate commanders; the commander exercising control by prescribing a general terrain line to which units will eventually withdraw or in front of which the enemy will be held until a designated hour.

■ 580. In order to coordinate the operations, the combat zone is subdivided into *sectors* the boundaries of which are extended to the rear to include initially the *first two delaying positions*, and later the *final position* in the commander's plan of action. In favorable terrain the width of sectors in delaying action may be taken as about double those suitable for defense. (See par. 529.)

To each sector a tactical grouping is assigned and given a combat mission. The strength and composition of each grouping is determined by the mission assigned, the terrain, the width of the sector, and the nature of the hostile threat. Mutual support between adjacent groupings is coordinated by the superior commander.

■ 581. In each sector, the *defense* is made by combat groups at extended intervals holding the natural strong points of the terrain and supporting each other with flanking fire.

In close terrain or during periods of low visibility, close contact between adjacent strong points is maintained by combat patrols. Supports protect the flanks of the strong points; reserves are posted well to the rear to cover the withdrawal of the forward elements.

The artillery in general support prepares a plan of interdiction fires covering the principal hostile avenues of approach and is prepared to engage the more distant targets; it is employed to reinforce the artillery in direct support in accordance with the requirements of the situation.

Engineers are employed to construct a barrier zone of obstacles and demolitions in front of the first delaying position and in the area between successive positions. Antimechanized units are attached to the outpost and to the principal combat groups covering the hostile avenues of approach. In case of an exposed flank, a mobile flank guard is detailed with engineers and antimechanized units attached.

¶ 582. As in the defense of any position, an *outpost*, strong in heavy infantry weapons, is deployed well in front of the first delaying position to harass and delay the enemy's advance and to keep him in doubt as to the location and character of the first resistance he will encounter.

The *defense of the position* is begun by the artillery in general support which lays down interdiction fires on the routes of hostile approach and covers the withdrawal of the elements of the outpost. As the enemy develops his columns preliminary to deployment for attack, the artillery in direct support joins in the counterpreparation fires placed on the hostile assembly positions. From the beginning of the action, the fire of the artillery is directed principally against the hostile infantry and mechanized units.

As the enemy drives in the outpost, all elements in front of the line of resistance retire in rear of the position. The defense of the line of resistance is based primarily on the fire of the artillery, light machine guns, and heavy infantry weapons. For this purpose, a plan of defensive fires is prepared in which the fire missions of the various weapons are properly combined and coordinated.

■ 583. Whenever practicable, the *withdrawal from position* is effected under cover of darkness. If a protracted resistance is necessary to accomplish this, measures are taken to extend the depth of the zone of resistance.

If the withdrawal must be made in daylight, the artillery and heavy infantry weapons are disposed in depth. A daylight withdrawal may also be facilitated by organizing an *intermediate delaying position* to be occupied by reserves assigned to cover the withdrawal of troops in front. The subsequent withdrawal of the troops from the intermediate delaying position is in turn covered by other troops on the next delaying position in rear. The retirement may thus be executed by the alternate withdrawal of successive echelons from one delaying position to the next.

The loss of a defended tactical locality to the enemy does not necessarily involve an early withdrawal along the whole front. Adjacent combat groups should take advantage of such situations to punish an impetuous enemy by heavy flanking fire and by local counterattacks whenever the conditions are favorable.

■ 584. Timely measures are taken for reconnaissance and for preparations necessary for the occupation of the successive delaying positions in rear.

Provision is made for the establishment of *wire communication* from the higher commander to the sector commanders and the senior artillery commander. Of especial importance is the efficient operation of the artillery wire net in order that the flexibility of artillery fire may be exploited to the maximum. In the case of distant or detached combat groups, communication is limited to radio.

The wire systems of subordinate units are limited to the most essential lines in order to reduce the work of recovery of wire and the amount that must be abandoned. Full use is made of prearranged visual signals and of mounted and motorcycle messengers.

■ 585. *Support aviation* available to the commander is employed to delay the hostile pursuit by harassing and interdicting hostile columns at critical localities.

586. The greatest importance attaches to keeping the enemy in doubt as long as possible concerning the location of the successive delaying positions and the delaying nature of the operations being conducted. The *antiaircraft artillery* is, therefore, employed to interfere with the operations of hostile reconnaissance aviation and to protect the defiles and critical localities in rear from hostile air attack.

CHAPTER 13

SPECIAL OPERATIONS

NIGHT COMBAT

587. GENERAL.—Night combat is characterized generally by a decrease in the effectiveness of aimed fire and a corresponding increase in the importance of close combat and the fire of fixed weapons capable of being laid on definite targets or areas by day; by difficulty in movement, troop leading, and the maintenance of direction, cohesion and communication; and by a more highly sensitive morale of the troops.

Decrease in the effectiveness of fire permits the use of closer formations without exposure to excessive losses; difficulty in the maintenance of control and direction indicates the necessity for designating limited objectives which may be approached by well-defined routes; the more sensitive morale of the troops increases the effects of surprise obtained by the offense and the importance of security measures on the part of the defense.

Night conditions decrease the effectiveness of air reconnaissance, but are especially favorable to air bombardment.

588. *Surprise* is the most essential feature of night combat. Whether made during daylight or darkness, preparations for night combat must be such as to avoid betraying the locations or intentions of the troops. The operation itself must be conducted with precision and secrecy.

589. An unexpected collision of troops at night, or combat which extends into the night, usually develops into a standing fire fight and a suspension of movement. As a rule,