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HEADQUARTERS,
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DIVISION.

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(Translation of a German Document.)

THE CONSTRUCTION OF FIELD DEFENCES.

(Being the Introductory Chapter of the German Handbook on
"The Construction of Field Defences" (*Stellungsbau*), dated 20th June, 1916.)

The varied conditions under which defensive positions have to be prepared (before or during a battle, in the course of an advance or a retreat, etc.) prevent definite rules for their construction being laid down. It is only possible to establish the general principles underlying it.

1. A stubborn defence, organized by sectors, must be absolutely assured. This calls for several successive positions—at least 2—and, in addition, in order to prevent the enemy from extending after the partial capture of the front line position, the provision of switch lines from which the enemy can be taken in flank.

2. The distance between positions must be sufficient to exclude the possibility of the rearward position being attacked simultaneously with the one in front. Each successive position must entail a completely fresh attack, and above all oblige the enemy to push forward his observation posts and at least a portion of his batteries. Depending on the ground, this distance will, therefore, be from 1 to 2 or more kilometres.

3. Each position will consist of at least 2 continuous lines, one behind the other. As a rule, the front line will be the main fighting line. This principle may only be deliberately abandoned when the first line is unfavourably situated. Support lines ought not to lie within the zone of artillery fire directed on the front line. On the other hand, their distance from the front line must not be too great, as this might prevent a rapid advance from the support line to repel an assault, to counter-attack, etc.: it will thus vary between 50 and 100 metres (*see also para. 8, "Communication trenches"*).

4. A field of fire of a few hundred metres, or even less in certain circumstances, is sufficient for the front lines of an infantry position. The greater the extent of our own field of fire and the more extended the view from our own position, the easier it will be for the enemy to observe and carry out counter-battery work.

On the other hand, a very limited view from the position necessitates an increased state of preparedness for attack, which in time will wear down the troops. It is of still greater importance that support lines, in which further resistance may be offered after the loss of the front lines, should be screened from hostile reconnaissance and observation, and consequently from artillery fire. They will therefore be traced, in certain circumstances, along reverse slopes, through woods, etc.

5. The entire circumference of natural strong points (villages, farms, small woods) will be organized for defence and exceptionally strongly fortified. Where no such points exist closed works will be constructed as required. Strong points and closed works may be sited with advantage either within a position or between two positions, and formed by organizing sections of the front and support line and their corresponding communication trenches as redoubts, capable of all-round defence.

6. Reliable obstacles will be erected in front of all lines of defence, switch lines, strong points and closed works. As they will be very heavily bombarded by artillery and trench mortars, it is advisable to construct them in several rows with intervals. Electrified wire entanglements are only of value as long as they are not exposed to heavy fire. In quiet times they permit of the garrison being reduced with safety. Where electrified entanglements are used, precautions must be taken for the safety of our own troops.

7. Skilfully traced communication trenches must be liberally provided to connect the various lines of each position. They considerably facilitate the execution of counter-attacks, and when it is otherwise tactically feasible, they enable a large part of the garrison to be kept in the support and reserve trenches. This diminishes casualties and spares the troops.

In addition, there must be a sufficient number of approach trenches leading up to the position, if sufficient cover is not provided by the form of the ground. When constructing communication and approach trenches they must be organized according to requirements, to serve at the same time either as switch lines or as the flanks of closed works.

8. **Deep and narrow trenches** afford good cover but circulation in them is difficult and they soon fall in. A certain ratio must, therefore, be observed between depth and width. High parapets are to be avoided if possible, as they are very visible, are easily destroyed and then fill up the trenches. As a general rule, as a protection against enfilade fire, infantry trenches should be well traversed, while a zig-zag trace should be given to communication and approach trenches.

9. **Shell-proof dug-outs** (mined and concreted) have proved of great value. Their occupants, when not overworked, have lived through repeated bombardments of long duration and of the greatest intensity. It is advisable to construct numbers of small dug-outs (for 20 men at the most), each provided with several convenient and safe entrances. In the main fighting line, or close behind it, a garrison capable of repelling a surprise attack must be accommodated in shell-proof dug-outs, the rest of the garrison being in similar dug-outs in the support and reserve lines of the position. Previous to operations of our own, in which large masses of troops will be employed, a sufficient number of shell-proof dug-outs must be constructed in the front line trenches. It is essential to provide underground shelters for troops held in reserve close behind the infantry position, in order to protect them as long as possible from the fire of the enemy's artillery.

10. **With a view to the rapid detection of a hostile attack, observation of the enemy's position** both from the front and support lines, even under the heaviest fire, **must always be possible.** In the front line, the most suitable means of observation are periscopes passing through the roofs of the dug-outs. Observation from loop-holes is certainly preferable, but since it is hardly possible to hide them, most of the loopholes in the front line will be destroyed or buried by the enemy's fire.

Similarly, infantry sentries posted without shelter in the front line will soon be put out of action, and do not therefore ensure timely warning of a hostile attack.

In the 2nd Line Position, observation will be mainly carried out through loop-holes. Observation posts must be hidden and made as shell-proof as possible.

11. **Frontal infantry fire to repel an assault** will be delivered over the parapet, from rifles, machine guns and automatic rifles.

When the distance to the enemy's position is very small, before allotting machine guns to the front line for frontal fire, it must be considered whether they can be brought into action with sufficient rapidity; if not, they must be posted further in rear and, whenever possible, in commanding positions.

12. **After frontal fire, the chief consideration is flanking fire.** The latter enables an extended front to be defended with a minimum of effectives. It may be brought to bear from the position itself, the trace of which should be suitably broken, or from flanking positions, situated to a flank and slightly retired.

Automatic rifles and machine guns are particularly suitable for this work.

Flanking fire from a position to a flank and slightly retired (from the 2nd Line or from special flanking positions) presents the advantage that the emplacements are not so liable to be put out of action by the enemy's fire. In positions with a good command, in certain circumstances concrete emplacements with suitably masked loop-holes can be constructed and will be of great utility.

Light Q.F. guns are also suitable weapons for flanking fire.

13. Infantry positions must be selected, wherever conditions permit, with an eye to the **deployment of artillery.** The artillery require:—

(a) Suitable positions for main observation posts.

Observation posts must be covered by the infantry positions and, whenever feasible, must be sited so far back that they are not exposed to fire directed on the infantry lines. In addition, they should afford a view of the whole of the ground in front of the infantry position.

(b) **Concealed battery positions at a suitable distance** (i.e., a distance at which the artillery can carry out its task) from the enemy. The long range of our guns should not lead to their being kept as far in rear as possible. The length of the telephone lines entailed by this is a reason for avoiding it. On the other hand, batteries should not be placed in positions which are in the zone of artillery fire directed against the infantry.

(c) **Cover** that blends with the landscape, in particular, shell-proof shelters for both the personnel and the ammunition.

Suitable arrangements, in accordance with the above, will be made for the **artillery reserves**, when these are engaged.

14. **To enable commanders to exercise their command** even during a hostile attack, the **battle headquarters of Sector (Regimental) and Sub-sector (Battalion) Commanders** will be shell-proof, and situated sufficiently far forward and so sited that the commanders concerned can maintain constant communication, even by means of runners, with

each other and with the most advanced points of the firing line. They should thus be in a position to throw in their reserves at will at decisive points. Touch between commanders and their troops, and their personal influence on the fight, must be ensured in all circumstances. It is most desirable that battle headquarters should command a view of the battle-sector concerned and of the surrounding country. (See para. 10).

The same remark applies to the **battle headquarters of the higher commanders**. Where this is out of the question, owing to the nature of the ground, or on account of the zone swept by the enemy's artillery fire, a sufficient number of observation officers from the staff concerned will be pushed forward to suitable points. Communication with these officers and with other important observation posts must be ensured.

15. Reliable transmission of information from the front to the higher commanders, and *vice versa*, is of special value, and requires most careful organization.

Large numbers of telephone lines are required; nevertheless, they cannot be counted upon during a heavy bombardment. Other means of communication (light-signal apparatus, other methods of signalling, carrier pigeons) must, therefore, be always available, and their efficiency frequently tested.

Sound signals (gongs, bells, sirens, etc.) have proved very useful for **alarming garrisons**.

16. Speaking generally, the improvement of conditions of living among the troops should be considered in the organization of defensive positions.

This includes: Hutting, water supply, the improvement and construction of roads, bridging, and cutting tracks. Of especial urgency is the development of a **field and light railway system** for bringing up ammunition, supplies (dumps in 2nd or 3rd Line if required), building material, etc.

17. Positions will be constructed in accordance with definite working plans draughted after careful reconnaissance.

The rainy season will be taken into consideration in both the construction and the improvement of positions; for example, an approach trench will not be taken along the bottom of a depression but along the side. Drainage arrangements must be completed during the dry season.

18. The maintenance of extended positions, requires a considerable amount of labour. In the case of retired lines and positions, owing to a scarcity of labour, the construction of the main framework must frequently suffice, that is to say, the construction of dug-outs, obstacles, observation posts, flanking positions, ammunition stores, drainage system, etc. Fire trenches and communication trenches will be marked out, but their execution either entirely or partially postponed. The maintenance of such positions must be taken in hand periodically unless the completion is to be abandoned.

ISSUED BY
GENERAL STAFF (INTELLIGENCE),
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