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DUTIES AND EMPLOYMENT OF THE 4th ARTILLERY SURVEY SECTION (Artillerie-Messtrupp) AND THE 49th SOUND RANGING SECTION (Schallmesstrupp).

A.—DUTIES.

The duties common to both sections comprise:—

- (a) The fixing and plotting of the enemy's artillery positions.
- (b) Assisting the artillery to register on the enemy's positions.
- (c) The preparation of a weekly report on the activity of the enemy's artillery.

In addition to the above, the Artillery Survey Section is responsible for:—

- (d) The observation of all activity on the part of the enemy which bears upon the tactical situation and the observations of the infantry and artillery.
- (e) The arrangements for giving warning of the approach of aircraft. (See Instructions of the 12th Infantry Div., dated 23/3/16.)
- (f) The preparation of sketches by means of stereo-telescopes with a view to constructing panoramas for observation posts, proposals for demands of Battery Plans, and the care and maintenance of Battery Plans which are not in use. For the execution of these duties the Sections have survey posts (*Mess-Stellen*) and artillery plan sections (*Messpläne*) at their disposal.

B.—EMPLOYMENT.

I.—4th Artillery Survey Section.

The locating of the enemy's batteries is effected by the survey posts which obtain bearings on the flashes at night by means of the *Richtkreisdiopter* ("flash-spotter"). The readings on these "flash-spotters," and the time the bearings are taken, are forwarded to the artillery plan section (*Messplan*), who plot on their plan the angle between the zero line (*Haupttrichtung*) and the enemy's battery, and thus obtain inter-sections which give the position of the enemy's batteries. These results, which are based on pure geometry, serve the *Feld-Flieger-Abteilung* as a basis for their reconnaissance flights and also serve as a basis for plotting the positions of the enemy's batteries on the map.

When registration is being carried out, the positions of the points of impact or bursts will be ascertained by the same means as are employed for locating the enemy's batteries. As the target is plotted on the plan, it is possible to obtain the position of the shots with reference to the target.

When registering with the aid of an Artillery Survey Section, this section must work entirely visually (in contrast to the Sound Ranging Section which works by sound). The 4th Artillery Survey Section can be employed for registration in the following cases:—

- (a) Ranging with percussion fuzes on targets which can be seen from at least 2 survey posts. If the target lies in a hollow and does not fulfil the above-mentioned condition, the battery must range on a visible point close to the enemy's position, if possible on a line between the battery and the target: when proceeding to fire for effect, the battery switches or increases or decreases its range as required. When ranging with time fuzes, especially with large or medium calibres, the Sound Ranging Section can frequently be successfully employed (compare the remarks under B).
- (b) Ranging with time fuzes against all targets, unless the bursts, in order that they may be observed, have to be raised so much that their position relative to the target can only be approximately determined or not determined at all.

The two following cases must be clearly distinguished:—

- (i) Ranging with time shell when it is intended to fire for effect with time shell (for instance, against cross-roads, etc.). Having regard to the effect of time shell, ranging will be carried out on the centre of the hostile position. The battery will be considered as ranged when, with the same elevation and setting of fuze, one shot is observed to fall over, one short shot, and, if possible, one shot close to the target. No correction is necessary for fire for effect.
- (ii) Ranging with time shell when fire for effect with percussion shell is intended.

In this case we can:—

- (a) Register on a point in the line of fire lying between the battery and the target and at a distance from the target corresponding to half the length of the zone covered by the burst of time shell. It is advisable, when employing this procedure, first of all to determine, by means of one or two rounds, what height of burst is necessary and sufficient for observation. Fire for effect will be opened without any correction.