

## ENTRENCHMENTS AND OBSTACLES.\*

By G. Bertram Hartfree.

IN selecting a site for defensive purposes, natural features are the first consideration, and these will be supplemented by entrenchments; another factor is its advantages to the defenders for counter attacks and to allow a powerful rifle-fire from the position, and it is necessary that the defenders be well screened and protected from the enemy's fire. In deciding the type of entrenchment, time, of course is a great factor, and if this be unlimited, a substantial and well-screened type can be

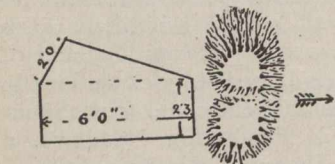


Fig. 1.  
Alternative Shelter Pits for One Man Kneeling.

adopted, but there is the possibility, however, that time will allow only of earthworks of a hasty character; these may be divided into three headings:—

1. Pits for sheltering skirmishers, sentries, etc.
2. Trenches for sheltering the main body of infantry-men and other reserve forces.
3. Pits to give cover for artillery.

The simplest type is a pit to shelter one man, from which he would fire lying down; in such position the legs are usually inclined to the left. The length of the pit is about 6 feet, and the width 2 feet 3 inches, its depth about 9 inches. Two small adjoining mounds that leave a depression on which the rifle would rest, are constructed with the excavated earth to a height of 15 inches. When making the mounds, as the men's legs would incline to the left, as far as possible, shelter must be made in that direction. With a pick and shovel one man should construct such pit (Fig. 1) in 10 minutes. A better type of pit (Fig. 2) 2 feet 6 inches in width and 18 inches in depth, could be constructed in half an hour; in this a man can kneel when firing; should time allow, an hour's work would make a more comfortable and better protected pit, as shown by the dotted mound and hatching. By connecting adjoining pits, small shelter trenches may be formed, providing for groups of men. The usual allowance in width is 2 feet 6 inches per man. For a man to fire standing, a pit 3 feet in depth is required: this, with the excavated earth, gives a cover of 6 feet; the time taken in excavating and completing this by one man would be one and a half hours. For the foregoing, by commencing a shallower pit, as opportunity occurred, the greater depth could be reached. The ordinary earth mound necessitates a man firing over the top, which leads to an exposure of the head. For better protection loopholing is adopted, and is generally done by the use of sandbags, four of which

are required per loophole, two being laid three inches apart as headers, and two resting on the top as stretchers. Fig. 4 shows how a kneeling pit may be developed, the original excavation "A" and embankment "a" may be increased as follows:—

1. For men to stand close to bank, remove space marked "B"; by excavating part marked "C," a seat will be formed. Should a step or kneeling space be required, "B" would remain, and D, C and E would be moved. The breastwork shown on Fig. 5 is a development of the latter, the earth near the firing trench being pushed forward and an outer trench cut on the enemy's side.

The chief points to be considered when constructing shelter trenches are: (1) The making possible of an effective fire, uninterrupted by the configuration of ground or trees. (2) Presenting the smallest obtainable mark to the enemy's fire. (3) Wherever practicable, arrange for drainage, to avoid quagmires in rainy weather. (4) Sand and light earths are better defence than hard earths or plastic clays. (5) A trench should not be made in front of an elevation, particularly if not bullet-absorbing. In respect to the latter, a high sandbank of usual batter would be less disadvantageous to the defenders; but, given a hard rock or wall, on its being struck by a shrapnel shell, the contents would scatter at the rear of the trenches.

Infantry in the second line, either as supports or reserves, are, when possible, protected by natural depressions in the ground. In the absence of these, shrapnel-proof shelters may be requisitioned. These consist of excavations, roofed with timber and covered with earth dressed over to resist bullets and affording no mark to the enemy.

When cover is required for guns there are two

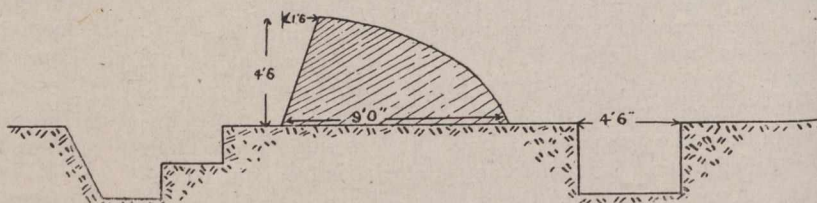
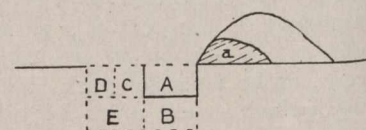
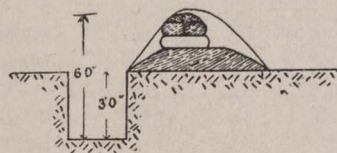


Fig. 3.—Standing Pit. Fig. 4.—The Development of a Kneeling Pit. Fig. 5 (below)—Breastworks.

courses open: (1) Construction of an epaulment, or (2) sinking a gun pit. The choice depends on local conditions; given a soft soil with no natural shelter, the latter is preferable, as the excavated earth forms the embankment, and a reduced height above ground is required with less exposure to the enemy's fire. A roughly pitched base to take the wheels would be of advantage. Given a hard soil with natural banks, an epaulment would be preferable, the banks giving, in some part, natural shelter, and their existence requiring less soil for the completed earthwork. The advantage of the latter over the pit is the fact that it can be completed after the gun is in action,

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