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## Artillery Notes.

ISSUED BY THE GENERAL STAFF AT GENERAL HEADQUARTERS.

No. 5.—WIRE CUTTING.

*General Headquarters,  
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# ARTILLERY NOTES.

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## I.—WEAPONS FOR WIRE-CUTTING.

1. The weapons for wire-cutting are :—

Medium Trench Mortar.  
18-pr. Q.F.  
Howitzers.  
60-pr. B.L.

In all cases close observation is essential to obtain good results.

## TRENCH MORTARS.

### 2" Trench Mortar.

2. The 2" Trench Mortar with the Newton fuze has been found the most suitable mortar for wire-cutting, for the following reasons :—

- (a) The bomb contains sufficient weight of metal to cut the wire.
- (b) The H.E. charge is sufficient to drive the fragments at a high velocity through the wire.
- (c) The bomb bursts immediately on impact, so the lateral effect is very great and the craters formed are small and shallow.



### **Effect with 2" Trench Mortar.**

3. The following experiments have been carried out, which show the results that may be expected when using the 2-in. Mortar with Newton fuze :—

(a) The wire consisted of a mixture of English and French barbed wire, strung with the least possible tension from wooden pickets about 4 ft. high. Each bay was 12 sq. yds. with 12 strands to each bay. Forty rounds were fired, of which 30 fell in the wire itself, and 1,200 sq. yds. were cut sufficiently to allow the easy passage of infantry. This is at the rate of one round per 40 sq. yds.

(b) The target consisted of crinoline wire crossed by strands of barbed wire. Forty rounds were fired, of which 25 fell in the wire itself, completely demolishing an area of 600 sq. yds. This is at the rate of 1 round per 24 sq. yds. The range was about 333 yards and the conditions easy.

From these experiments it would appear that one round per 10 sq. yds. of barbed wire, and one round per 6 sq. yds. of loose wire, would be a generous allowance when estimating the amount of ammunition required to cut wire with the 2-in. Trench Mortar, using the 107 D.A. fuze, and allowing a factor of safety of 4 for difficult conditions of firing, observation, etc.

### **Observation of Fire.**

4. Observation of rounds against wire is difficult, and flank observation should invariably be employed if the best results are to be obtained.

Wind will be found to have considerable effect on 2-in. bombs, so that in windy weather very careful observation and ranging is necessary.

### **III.—18-pr. Q.F.**

#### **Range.**

5. The best ranges for the 18-pr. are between 1,800 and 2,400 yards. Between 1,000 and 1,800 yards difficulties generally occur in clearing our own parapets, owing to the flat trajectory of the shell, and below 1,000 yards fuzes cannot be set to burn with sufficient regularity on account of its high velocity.



Wire can be cut up to about 3,500 yards, but more time and a considerable increase in the amount of ammunition are required. Above this range the shrapnel bullets have not sufficient remaining velocity to deal with wire effectively.

### **Calibration.**

6. Guns must be overhauled by the artificers and carefully calibrated before being used for wire-cutting.

### **Platforms.**

7. Good steady platforms are essential. The best platform has been found to consist of a foundation of brick, or sandbags with a covering of brick rubble, well pounded—wood is too springy. On chalky soil a special platform has been found unnecessary. A baulk of timber should be placed under the trail-eye and sandbags placed between the baulk and the spade. For accurate shooting the gun should recoil in prolongation of the trail, as jump and side-slip are then practically eliminated. To obtain this at the shorter ranges the trail should be raised and well supported in such a position that the gun has a little more than the correct elevation when it is in the travelling position. Steps for the trail can be cut to suit varying elevations if required. The traversing gear should be nearly at zero for the same reason.

### **Anchoring.**

8. With a good platform and the gun recoiling in prolongation of the trail, anchoring is often unnecessary—sandbags placed behind and in front of the wheels, and on the lower felloes between the spokes, will help to steady the gun.

If anchoring is necessary, a baulk of timber should be well dug in directly under the axle and secured; a rope being passed round it and round the trail as far forward as possible. The recoil of the carriage tightens up the rope. When a switch is required, it is only necessary to run up the gun, and the rope slacks off.

### **Observation of Fire.**

9. The observing officer should be as close as possible to the wire and his eye should be on a level with his task. It is generally advisable to have two observers—one close up and to a



flank to observe for range and height of burst, one further in rear and directly opposite the wire to correct for line. This is especially desirable when firing at wire in enfilade. It may sometimes be necessary to make special arrangements for close observation, *e.g.*, by sapping forward and establishing an observing station.

Before guns attempt to cut wire, infantry patrols should be sent out to report on the nature and extent of the wire, looking especially for low trip wires where the grass is long. They should also report on the progress of destruction. In the case of distant hidden wire, it may be necessary to resort to air photographs to obtain this information.

### **Ranging.**

10.—It is generally agreed that shrapnel is the most efficient projectile, but everything depends upon bursting the shell in the right place. Each gun should be accurately ranged on the near edge of the entanglement and the shell should burst about four feet above the ground and as close to the wire as possible. A burst even five yards short has little effect.

Instead of using the corrector, the length of fuze should be given, and small alterations in the height of burst obtained by raising or lowering the angle of sight a few minutes. About 30 to 40 per cent. of the rounds should burst on graze.

A proportion of H.E. shell (about 5 per cent) mixed with the shrapnel is useful when the wire is fixed on iron posts.

### **Method of Fire.**

11.—When plenty of time is available, a good method is to begin with two or three guns per battery and note which gun settles down to steady shooting. Continue with that gun, relieving the detachments. A gap should be made through the wire and then enlarged.

When there is a large amount of wire to be cut, each gun should be ranged separately, and then fire continued with salvos, gradually reducing the elevation as the guns get hot. Continual pauses must be made to let the guns cool down and to check the registration.



Once a battery has been detailed for wire-cutting, it should not be called upon to fire at other targets except in case of emergency. Night-firing, barrages, etc., should be carried out by other batteries.

### **Ammunition.**

12. The amount of ammunition required varies with the range and the depth and quality of the wire. A rough rule is to allow  $\frac{1}{3}$  the number of hundreds of yards in the range for each yard of front.

The ammunition required should be dumped beforehand as far as possible, so as to avoid throwing unnecessary strain on the personnel of the battery.

Fuzes should be sorted into "lots." Fuzes vary, and occasionally a good "lot" will burn very regularly and allow of a reduction in the number of grazes expected.

## **IV.—HOWITZERS.**

High explosives from howitzers (4.5-in. and 6-in.) should be used in conjunction with the 18-prs., to scatter the posts and the wire when cut. Heavy howitzer (8-in. and 9.2-in. will cut a lot of wire, but unless a quick acting fuze is employed (such as No. 106), they are liable to create awkward obstacles, owing to the size of the craters.

## **V.—60-pr.**

Wire beyond the range of field guns may be cut by 60-prs., provided accurate observation is obtainable, but the amount of ammunition required is very large. H.E. may be employed, but only a small portion of rounds can be expected to burst in the wire. The difficulty with shrapnel at long ranges is the irregular burning of the time fuze (No. 85); but this may be improved by taking out the set-screw, loosening the nut, setting the fuze and then tightening up the nut again. The set-screw is then replaced.

A good steady platform is a necessity. The trail should be raised above the level of the bottom of the wheels and the carriage allowed to recoil through about 2 feet.