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# Development 

## OBSTACLES.

By Lt. E. T. Adney, C.E.
An obstacle, in field engineering, is a mechanical device of any kind for blocking, temporarily, the infantry or cavalry attack. It serves two purposes,-namely, to guard against surprise, and to hold the enemy in an effective field of fire of rifles, machine guns and artillery. Obstacles are placed in front of field defenses and inside of trenches. Trees felled toward the enemy with the limps sharpened and pointed, sharpened stakes at the bottom of concealed pits, "crow's feet" of iron sown in the path of cavalry, etc., were among the more common sorts of obstacles in use at the commencement of the present war. We should not omit mention of the moat, or wide ditch of water around the fortress, this being one of the most ancient examples of a military obstacle. In the Boer war, ordinary agricultural barbed wire was extensively used in the form of fences in front of, and around, positions.

## Barbed Wire.

In the present war in Europe, barbed wire has superceded almost every other type of obstacle. At first the familiar type of fencing wire was used, and is still used, but this soon gave place to a heavier wire, with barbs about 4 inches apart, and very formidable. The Germans, it is said, employed a very heavy variety, almost impossible to cut with the ordinary wire cutters carried by the attackers. Plain wire is also used for certain purposes. We will,
however, only describe the more
common ways in which wire is common ways in which wire is used.

## Two General Kinds of Wire.

In a rough way, obstacles are of two kinds,-"portable" and "fixed". But this distinction does not constitute a real difference. Portable obstacles in many cases will need to be secured, or else the enemy will carry them away.

## Portable Obstacles.

Portable obstacles are made up so that one or two men can carry and place them in the desired position. They are used as "gates" for closing narrow passage ways, or may be put out in front of trenches, when the enemy fire will not permit of the erection of the usual fixed types of obstacles.

## "Knife Rests".

The name "Cheval de friese", is given to a type of obstacle consisting of a long pole to which crossed stakes are secured. The ends of the stakes are sharpened, and, when arranged a few inches apart, make about as pleasant an object to run into as a porcupine with his quills up. By using barbed wire, however, the number of crossed stakes has been reduced to one pair at each end. Sometimes another pair is provided in the middle, the wire being strung from point to point, and coils of loose wire added. A very formidable obstacle is thus created with much less trouble than in the old way. Such obstacles, from their resemblance to the metal rests for
carving knife and fork, were soon dubbed "Knife Rests". In general, they are of round or square poles, about three inches in diameter and six and a half to eight feet or more in length. The crossed stakes, lashed at right angles to each other, and to the pole at or near the ends, are four to five feet long. They are further stiffened by stay wires secured to the pole. In one type, the pole is detachable from the crossed ends, in such a way that the latter may be removed. The crossed ends may also be so secured that they will pack flat, and one man will thus carry a prepared obstacle, from the work shops to its place in the front line. The Germans use a somewhat similar device, with the difference that the legs are spiked to the pole, and fold along side of it. The wire is added after it reaches the front area. The French have employed a very long type of "Knife Rest" having a third pair of legs in the middle.

## How the "Knife Rest" is Used.

'Knife Rests" are pushed over in front of the parapet, when the trench is so close to the enemy, that no fixed type of obstacle can be set up. They will be pushed over by poles, and if possible after dark, are pegged fast to the ground by a wire and picket. Failure to attend to this detail, cost a certain Canadian battalion all its obstacles of this type. The Germans carried them off during the night, and they were to be seen next morning in front of the German line. That night the Canadians went across to recover them, only to find them
securely staked down. "Knife rests" simgly or in series are used to block a road. They are also stood on end in recesses in the side of communication trenčhes, and may be dropped over to block the trench when the enemy makes a raid. In such cases, the obstacle is "covered" by a loophole suitably arranged, (generally at traverse), at the end of a straight run of trench. For throwing out in front, the Germans also use a cylinder, or coil of steel wire, 39 inches in diameter and about six feet long. This is over wound in all directions with barbed wire, secured by pieces of binding wire.
(To be concluded next week)

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O.C. 2nd C.O.R.:-"You're Irish?" Pte. O'Brien: - "From Tipperary, Sir!"
O.C.:- "Oh! yes, that's where they

