

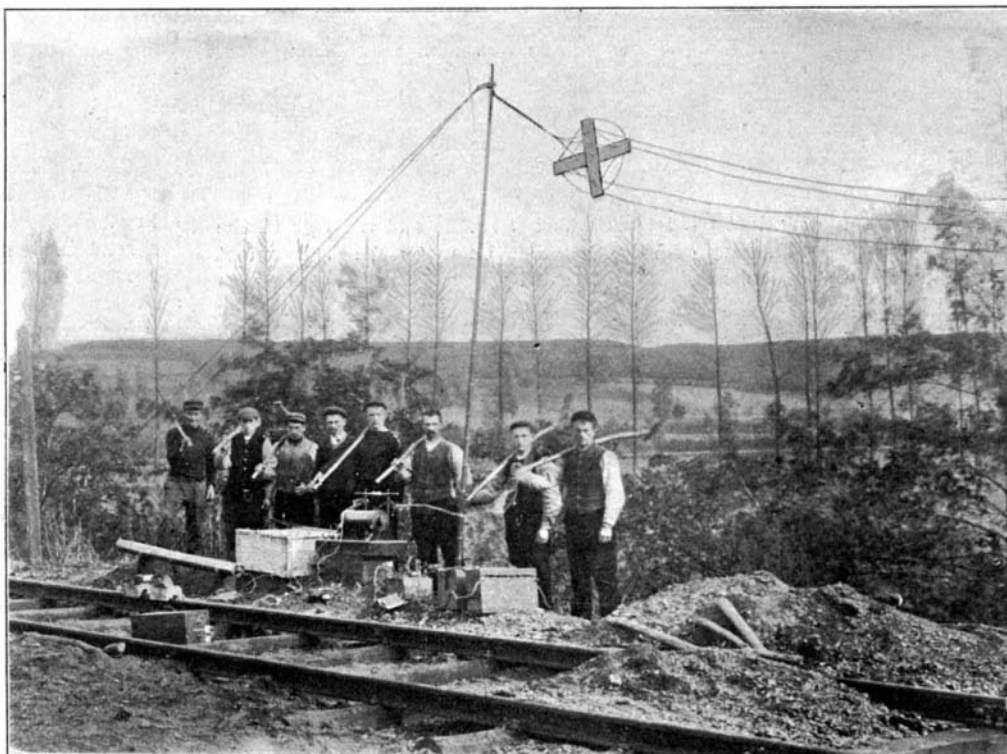
THE HYPOSCOPE.

Our successful contestants for the Palma trophy at Bisley this year brought back with them a little instrument which is destined to play a very important part in the warfare of the future. The instrument is called the "hyposcope," and its purpose is to enable a marksman to fire with accurate aim without exposing his head to the fire of the enemy. The device was invented by Mr. William Youlton, of Brighton, Eng. Mr. Youlton first conceived the idea of such an instrument after the battle of Colenso in the Boer war, during which it is stated that not a single Boer was to be seen, and it occurred to Mr. Youlton that a combination of reflectors might be arranged which would enable the British soldier to remain entirely concealed when in action. The rough model which he constructed as a result of these deliberations immediately elicited favorable comments on all sides, and it was not long before he received an order for a number of these instruments from the British War Office. The instruments were employed with good results during the remainder of the war, their use at Mafeking having received particular mention.

The hyposcope is adapted to be secured to the stock of the rifle near the breech. It consists of a series of mirrors mounted in a tube of inverted L shape; the shorter arm lies across the barrel of the rifle, while the longer arm hangs down at one side. The first mirror reflects the light coming in along the barrel of the rifle to a second mirror at the elbow of the instrument, which directs the rays downward to a mirror at the lower end of the tube, and thence it passes out at right angles to the eye. Thus on looking in at the eyepiece one can see the sights of his rifle, and take accurate aim while holding the gun above his head. The vertical arm of the instrument comprises two telescoping sections,

so that, by means of a thumbscrew at the side, this arm may be extended to elevate the device for long-range shooting. The amount of elevation may be accurately determined by means of a fine scale on the upper section. In order to allow for windage, a thumb-

of this instrument in actual warfare will be apparent to all. Only the muzzles of the rifles are exposed to the enemy, and the soldiers are entirely concealed in the trenches. But aside from its advantages as a means of protection, the device will be found to greatly increase the effectiveness of the firing. It is stated that during the Boer war only one cartridge out of seven thousand was effective, which only goes to show how nervous a man is under fire, for no such work would ever be tolerated in target practice. The fear of being shot while taking aim makes the soldier fire hurriedly and at random; with the hyposcope attached to his rifle no fears will be entertained, and the soldier may fire deliberately and with perfect aim. Aside from its advantages in connection with a rifle, the hyposcope will be found very useful in scouting. By applying it to the end of a field glass, an observer can watch the movements of the enemy without danger of discovery. The same instrument has also been designed for use on Maxim guns, on which it will be particularly useful, judging by experiences in the Boer war, for these guns were always the center of a concentrated fire.



COMMUNICATION WITH TRAINS BY WIRELESS TELEGRAPHY.

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screw at the end of the horizontal arm may be rotated to move the mirror contained therein slightly to one side or the other. A scale on this arm shows just how far the mirror must be moved for different velocities and directions of the wind. The entire instrument is very compact and light, weighing about a pound. It is provided with a holster, in which it may be incased to prevent it from sustaining any injury when not in use. The parts, however, are not liable to be easily injured. In case a mirror is broken, a new one can readily be slipped into the old frame. The advantages

Although certain railroad managements, those of Belgium, for example, question the necessity (especially when they are provided with the block system) of communications of trains with each other and with stations, inventors in the domain of wireless telegraphy have, in recent times, directed their attention to this interesting branch, and experiments are being made on all sides. In England, the Marconi system has been experimented with; in America, the De Forest system; and in Germany, the Braun-Slaby.

All such experiments have permitted of ascertaining the fact that great energy is necessary, even for slight



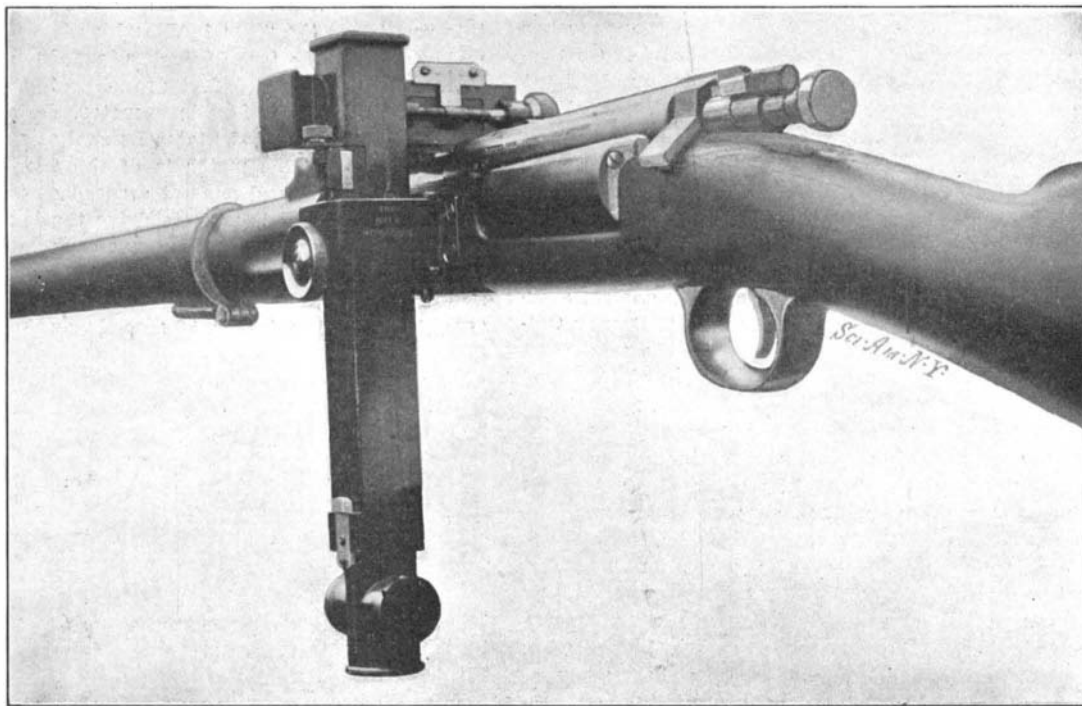
Marksman Concealed Behind a Sand Bag and Sighting Through Hyposcope.



Aiming with the Hyposcope Over Breastworks.



Seated Marksman Entirely Concealed While Firing.



The Hyposcope Attached to a Rifle.

THE HYPOSCOPE; BY WHICH A MARKSMAN CAN TAKE ACCURATE AIM WITHOUT EXPOSING HIMSELF.