

for the projector. The light is thus worked under cover, all that is exposed being the thin stretched metal mirror mounted on a pole, duplicates of which could be easily and cheaply provided in case of accidents, and could be quickly substituted for the broken one.

Many experiments have been tried in England with search lights of various degrees of portability with a view to developing an apparatus for field operations, but the portable generating plant was considered to be too heavy and noisy. Gen. Sir Evelyn Wood said that he found the electric light of inestimable value in Egypt, and that he never went to sleep at night without throwing the light in the direction of the enemy to see if he were moving. For the defence of a port, recent manoeuvres have demonstrated that the simplest and most effective adjunct is the search light in sufficient number to illuminate the entire approach.

The projectors carried by a man-of-war should be placed as near the water line as possible, in order that the diverging beam of light shall be far-reaching; care should be taken at the same time that the position be not so low as to make the lights useless in a seaway. Their position should also be influenced by that of the guns. They must be placed with due regard to the concussion on firing the heavy guns; also, they must not interfere with the firing of the secondary batteries. Just at the critical time when a torpedo boat is discovered by the search light, then are the rapid fire and machine guns wanted to repel torpedo boats, so that it would not do to allow the proximity of the beam to blind a man sighting one of the guns.

As an instance of the difficulty in picking up dark objects with the search light compared to objects of light colour, it was considered necessary in some of the torpedo launches where the crew were exposed, to have everything about the launch painted black, even to the men's faces.

Besides torpedo defence, there are numerous other applications of the electric search light on board ship. At the bombardment of Alexandria by the British squadron, the search lights of the latter not only illuminated the harbour, but they also served to keep the British constantly informed of the nightly progress of the Egyptians while erecting their batteries. When engaging at night the search light is of value in directing the fire of the battery. It is also useful in chasing and in keeping fleets or convoys together, and in reconnoitring a coast. It is useful in preventing collisions, in entering harbours, passing through narrow channels or going alongside a wharf. Even when coaling ship or taking in stores, it enables the work to be done as rapidly at night as by day. It is also useful for signalling, as instanced in the first part of this article. Many other useful applications follow as emergencies arise. Some time ago one of the ships of the British flying squadron shifted her foretopmast at night by the electric light of another of the squadron which lay near her; and it is but a few months ago that the search lights of the British squadron anchored in Gibraltar Bay were the means of saving hundreds of people from a sinking merchant steamer, who otherwise would have drowned.

During the recent military manoeuvres in England smokeless powders were used for the first time by English troops. The powder used was that known as Cordite, the invention of Hiram Maxim, the well known American inventor. It is reported that the new powder has not proved a success, at least in the new small-bore magazine rifle. It is said that nearly one hundred rounds had been fired with success, when, upon a slight increase being made in the length of the Cordite pellet, the rifle burst into a thousand pieces. The new powder is said to be lacking in keeping qualities when exposed to higher temperatures than 100° Fah.; when exposed to temperatures higher than that it becomes dangerous to use.

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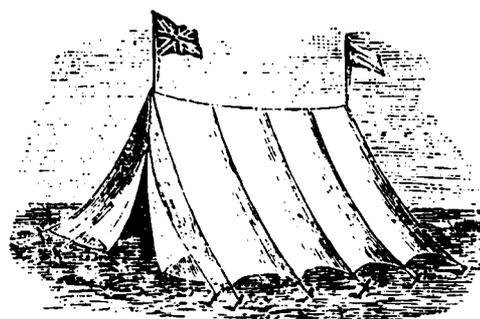
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