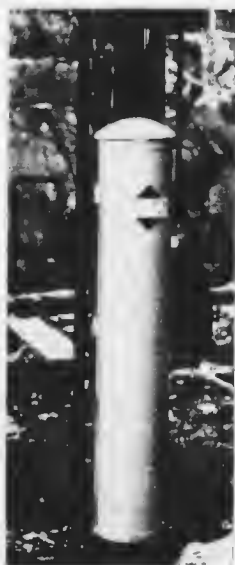


signal unconsciously, or has mistaken the home for the distant signal, while the instances where disaster has been averted



NEW TYPE ACCUMULATOR-BOX OF THE AGA FLASHLIGHT—SHUT.

narrowly because the driver has discovered his mistake in the nick of time are legion. Fortunately, the majority of drivers do not depend upon the eye alone, but are able to divine their situation with tolerable accuracy from the noise of the train, especially if they are thoroughly familiar with the road. Indeed, the sensitiveness of the ear in the expert driver is as remarkable as the quickness of his sight.

After all is said and done, however, it is obvious, seeing that so much depends upon the detection and interpretation of the distant signal, that it should be given a distinctive characteristic. On some systems an effort to this end is made by giving the light a violet tint, but the objection to this procedure is that this colour possesses a very indifferent penetrating capacity. It cannot be detected from such a distance as red or green.

How can the distant signal be given a distinctive characteristic, and one which will catch the driver's eye as easily, if not more readily than that in vogue? This question arose upon one of the private railways of Sweden, and the authorities embarked upon a series of experiments in this direction. A variety of suggestions were advanced and investigated minutely, but were abandoned as impracticable for various technical reasons. Then one of the engineers, conversant with the fact

that flashing lights are used at sea, and are highly appreciated by mariners owing to the facility with which they can be picked up and interpreted, suggested that trials should be made therewith.

It was not an experiment in the usually accepted sense of the word, because the marine flashlight had been reduced to a scientifically correct and practically commercial basis. Dr. Dalen, the eminent Swedish scientist, whose researches upon light phenomena are so famous, had solved the question very completely for marine purposes. Accordingly, the railway requested the organisation exploiting Dr. Dalen's inventions, the Gas Accumulator Company, Limited, of Stockholm, to apply the idea to railways, if at all feasible. Seeing that this was the first occasion on which the company had been asked to adapt flashlight signalling to railways, and realising that the conditions between land and sea travelling were so different, an interesting series of tests were undertaken with a view to

evolving the system of flashing best suited to railway working. Finally, it was found that, from the optical point of view, little modification was required; the question became resolved into the adaptation of the idea to railway operation, but as this was a mechanical issue no difficulties were anticipated, and, in fact, were not encountered.

The Swedish railway signalling engineers who had suggested the development were strengthened in their opinion that a flashing system of signalling would be more



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