close attention to trains during rush hours.

All of the relays in this installation are equipped with shock-absorbing springs. These are made doubly necessary by the unavoidable vibration of the tower and track structure. The integrity of the relays also requires strict attention from the maintainer. An interesting test was conducted at this interlocking to determine the number of track-relay operations that take place during the rush hours. The results of this test showed that one track relay responded a total of 1,876 times in a single day, while the track relay which registered the lowest number of operations during this same day responded in excess of 800 times.

Wiring Distribution

One of the outstanding construction features of this interlocking is the wiring distribution. All of the relays and the control-circuit battery are situated on the first floor of the tower. From the terminal boards of the eight-way steel relay cabinet, a 4-in. conduit extends upward to the machine. All of the local circuits are run on No. 16 stranded wire, each conductor being marked at each end with a fiber tag. Another 4-in. conduit extends from the tower to a central location at the signal group adjacent to cross-over No. 17 eastward on Van Buren street. A third conduit main connects with the Wells Street group in the vicinity of crossover No. 1. These conduits are fitted with cable outlets without terminals, for runs to the separate functions on the track level, the conduit being suspended underneath the ties. The outside conduit runs carry groups of five- and seven-wire Kerite cables, one for each signal and switch movement respectively. This arrangement greatly facilitates the grouping of the conductors with respect to the functions they control; that is, one separate cable serves each mechanism. One made-up cable is suspended from the steel structure. Parkway cable is utilized to connect this cable with the track functions, the connections being made at splicing boxes.

Compressed air at 85 to 95 lb. per sq. in. pressure, furnished by either of two adjacent towers which include air compressors.

This interlocking was installed by the signal forces of the Chicago Rapid Transit under the supervision of J. W. Stephenson, signal engineer, and M. Van Lennep, signal supervisor, under the jurisdiction of R. N. Wade, engineer maintenance of way.

Mechanical Color-Light Signals In England

By A. E. Tattersall
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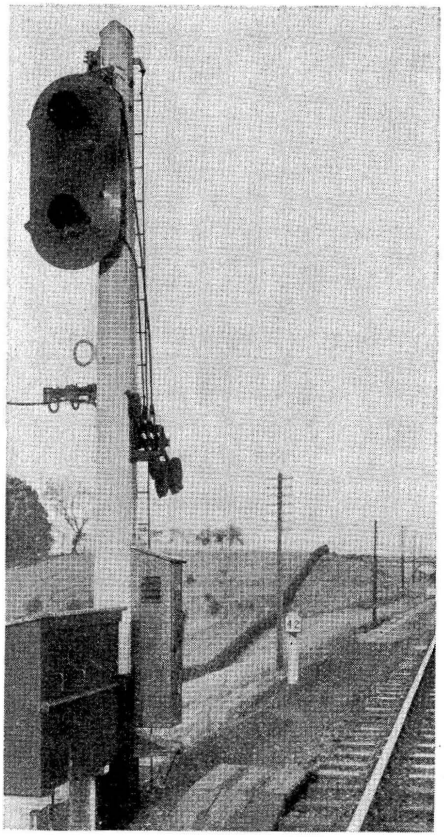
IN VIEW OF the increasing use of color-light signals, the signal department of the London & North Eastern has conducted experiments to determine whether certain of the advantages of these signals could be obtained in mechanical signal installations. The chief advantages sought were the abolition of the necessity for fog signalmen during inclement weather, and the ability to convey additional information to enginemen. An adaptation of existing mechanical signals to simulate color-light signals has resulted from the experiments.



One of the converted mechanical signals

The general method of adapting the mechanical signals involved the installation of a more powerful electric lamp behind the usual spectacle and an oblong background with hoods to resemble the usual type of light signal. The background covers the spectacles excepting the round area coincident with the lamp. The spectacle, from which the arm has been removed, is operated in exactly the same manner as it was previously.

As most of these signals are in country districts, remote from any suitable power supply, approach lighting from batteries has been adopted. A track circuit of suitable length, usually 2,400 to 3,000 ft., has been provided in the approach to each signal.

The trouble often experienced with multi-lens color-light signals as a result of phantom indications does not occur with these mechanically-worked signals, for any extraneous light falling on the lamp serves only to increase the aspect displayed at the time, and all other roundels are hidden by the oblong background.

Double-filament lamps are used, the main filament being rated at 6 watts and the auxiliary at 4 watts, both at 6 volts. No auxiliary lamp is considered necessary and none is provided. Should the main filament burn out, the secondary one will give an adequate but slightly inferior signal indication.

The spectacle and light are repeated in the signal tower on a five-position, needle-type indicator, in some cases utilizing the wire formerly used in repeating the indication of the semaphore arm.

The aspects are arranged so that a yellow indication invariably precedes a red, thus preventing a green light leading up to a red one, a situation which would result in a very misleading indication being given.

This type of signal incorporates several of the advantages of the modern color-light signal and is much less costly to install. About a hundred of such signals have recently been converted on the North Eastern Area, main line, between Northallerton and Alnmouth, a distance of 85 miles. Previous to their installation, most distant signals and certain home signals were fitted with mechanical cab-signaling apparatus, but owing to the increasing use of the inter-area engines, it was decided that it would be more economical to install new lights and to withdraw the cab-signal apparatus. Fog signalmen are not employed where the new power lights are provided.

The work was carried out under the instructions of John Miller, B.E., L.L.D. Engineer, to the designs and under the supervision of the author.