# Railway Signaling

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## Seeing Ourselves As Others See Us

THE excellent information presented at the March convention of the Signal section of the A. R. A. on the movement of trains by signal indication has attracted favorable comments from many railroad officers. Not a few operating officers recognize the fact that signals are being used successfully to direct train movements without train orders in certain special cases, but are reluctant to give consideration to extensive operation by signals exclusively. In order to bring the results of their studies on this subject closer home to the averaging operating officer, the members of the Signal section might well give consideration to a thought dropped by an experienced operating officer who was present at this recent convention of the Signal section. His comment was to the effect that, "the signal engineers are now alive to the situation and are confident of their ability to meet requirements, but generally they are not sure of what the requirements are, and by reason of this uncertainty are disposed to study it alone and are slow to approach officers responsible for operation."

These comments are worthy of consideration. Perhaps the situation can be met by the Signal section suggesting to the officers of the American Association of Railroad Superintendents that representatives be appointed to co-operate with the Committee on the Economies of Signaling in the development of this study of the operation of trains by signal indication. Members of the Signal section can also be of assistance by cultivating acquaintance of the operating officers on their roads, thereby learning the operating man's viewpoint of problems that may later be solved by an installation of automatic signaling.

## Mechanical or Power Interlocking

WHEN considering the installation of new interlocking plants there is ever the question as to whether to install a mechanical plant or a power plant. The representatives of one road that recently installed a large mechanical interlocking with color-light signals for a universal facing point crossover layout on a four-track line, explained in detail the reasons why a mechanical plant was installed at this location in preference to a power plant. The crossovers are not used frequently enough for the handling of the lever to be any undue physical burden for the towerman. Crossover movements are planned ahead of time by the dispatcher and, therefore, speed of operation of the plant is no factor in causing train delays such as might be caused at a large terminal. The original cost of installation of the mechanical plant was approximately 35 per cent less than for a power plant. The actual cost of maintenance and hours of service required would be considerably less for a mechanical plant than for a power plant. It was also considered that interruptions of traffic due to failures of interlocking equipment would be less for a mechanical plant.

In reality the basic reason for selecting a mechanical plant in the case outlined was that the traffic requiring movement of switches did not justify the larger expenditure for the installation and maintenance of a power plant. We are presenting no brief in favor of mechanical plants but we believe that every case must be considered on its own merits with a due study of the traffic to be handled. For busy yards and terminals, also for extensive layouts, including widely separated crossing or junctions, power plants are without question best adapted. However, where the track layout is relatively compact the signal engineer should make a close study of requirements to be placed on the interlocking by the volume and frequency of train movements.

## Light Signals, Color, Position or Color-Position

ACCORDING to information furnished by the railroads 1,964 light signals were installed in 1924 as compared with 1,843 semaphore signals. These figures are evidence of the rapidly growing preference for the light signal for both day and night indication. Some roads, although using light signals for automatics, prefer the semaphore for interlocking signals, while others are using light signals for both the automatic block and interlocking.

With this tendency to adopt light signals it is interesting to note the different types and indications that are being developed and promoted. Of the 1,964 light signals installed last year, 1,600 were the color-light type and 364 were the position-light type. The color-light type has several variations of which the three-indication type with the lights arranged in a vertical row was installed in the greatest numbers. For example, the Great Northern installed 298, and the Illinois Central, 240. Another variation of the color-light is the so-called searchlight unit, using the one light unit with a change of color, there being some 354 of this type installed by the New York Central last year. At interlockings where close spacing of signals on a pole is required two arrangements of color-light units are being used, one with the lights spaced in a triangle instead of a vertical row, while another idea, as explained in an article elsewhere in this issue, is to arrange the three color units in a horizontal instead of a vertical row.

The position-light signal as developed on the Pennsylvania has been adopted by some other roads; the Norfolk & Western installed 204 and the Lehigh Valley 56 of this type in 1924. Recognizing the advantages of both the factors, position and color for a signal indication, the Baltimore & Ohio has standardized on the color-position-light signal, and has recently ordered equipment for a large installation of this type of signals.

In this gradual change from the semaphore to the light signal three factors must be considered by those develop-