

Editorial **COMMENT**

Entering the Main Line

THE information and authority conveyed by time tables and train orders are, under ordinary circumstances and with automatic block signal protection, sufficient for the safe handling of trains when moving out of passing tracks on to the main line. In addition, on the vast majority of the railroads, a telephone is provided at each passing track, and in single track absolute permissive territory, at each station-leaving head-block signal. Therefore, if the conductor of a train desires information concerning the location of extra trains or of scheduled trains which are running late, he can communicate with the dispatcher. Furthermore, the signals at the switch provide information concerning the occupancy of the block or blocks which the train will occupy when it pulls out, and this movement is protected by the signals.

A somewhat different problem exists, however, when moving a train onto the main line at an outlying hand-operated switch connecting to a spur track serving an industry or switching area where a local freight train or a switching run may clear the main line for an indefinite period. A similar situation is involved at a hand-operated outlying junction switch between a main line and an unimportant branch line on which local freight trains or mixed trains are operated on a more or less indefinite schedule. Telephones can be provided at such switches so that, when a train is ready to occupy the main line, the conductor can secure information from the dispatcher concerning approaching trains. Nevertheless, the rules on many roads, under such circumstances, require that the move to the main line be protected by flagging. Protection can be afforded by adherence to a rule to the effect that before a train fouls the main line, the switch should be thrown, and the train then wait at least two minutes while the first and second automatic signals, respectively, are held at Stop and at Approach so that any approaching train can be brought to a stop. On many roads, however, adherence to such a rule does not relieve the crew from the duty of providing flag protection preparatory to occupancy of the main line. With train speeds and braking distances such as they are to-day, full compliance with the flagging rule involves serious delays to a train entering the main line.

In order to improve safety and eliminate the delays occasioned by flagging in situations such as outlined above, either one or the other of two forms of protection may be justified. An electric lock can be installed to prevent operation of the main-line hand-throw switch stand unless conditions are safe. This electric lock can be controlled automatically by track circuits, as has been explained in articles published previously. If a railroad objects to the use of an electric switch lock, and prefers to use wayside signals to direct and authorize the operations involved, this practice can be followed. For example, on one railroad at such locations, a special type

of dwarf signal is located opposite the clearance point on the turnout. When a train is ready to enter the main line, the locomotive is moved onto a short track circuit in approach to the signal and then is stopped. If the main line is unoccupied within the necessary limits, a special unit on the top of the signal is lighted to show the letter "S," which indicates that no train is approaching on the main line within certain specified limits and that the trainman is authorized to throw the switch. After the switch is reversed, and providing no trains are occupying the main line within the specified limits, the aspect of the signal changes from red to yellow, thus directing the train to pull onto the main line with assurance that no train is approaching within the limits which might cause a hazardous condition. After occupying the main line, the train is protected in the usual manner by the automatic signals. Especially in single-track absolute permissive block signaling, certain existing line circuits can also be used for controlling the electric locks or the signals explained above.

Movable Interlocking Towers

IN THE past, interlockings have been installed as permanent railway facilities. To reduce investment charges, towers of wood frame construction have been provided at many of these interlockings. One disadvantage of this type of construction is the fire hazard, and, to minimize this hazard, as well as to improve appearances, many roads constructed towers of brick or concrete.

The earlier thought that interlockings were permanent facilities has changed decidedly within recent years due to the numerous track changes that are being made, and to the development of automatic interlocking, remote control and centralized traffic control. As a result, many of these old interlocking towers are needed no longer at their existing locations, and the investments in these buildings, for the purposes intended, is practically a total loss.

Looking to the future, therefore, and excluding permanent towers for large interlockings at terminals, a type of construction that differs from either wood frame, brick or concrete may well be considered for towers, especially at outlying locations. The problem, of course, is to develop a type of construction which will not only be fireproof, but will permit a tower to be dismantled, shipped to another location, and re-erected.

The practicability of this type of construction has been made possible within recent years by two developments. In the first place, steel members, in the form of angle or channel sections, are readily available for use as corner posts, beams and other units in the frame of a building. Furthermore, sheets of asbestos and other compositions, of various thicknesses, and possessing fireproof as well as insulating qualities, are available for walls and roofs. Floors can be of concrete or other fireproof material. This general idea was employed several years ago in the construction of the control towers at a car-retarder installation at a large yard, and the same practice is now being used in the reconstruction of the upper stories of two interlocking towers.