

Editorial Comment

Continued Activity and Development in Signaling

THE construction of signal, interlocking and high-way crossing protection during 1927 was in excess of even the previous high record of 1926. This continued activity, with good prospects for 1928, is evidence of the fact that railroad managements are recognizing signaling as the most economical method of expediting train movements and thereby deriving the greatest capacity from existing trackage. It is the duty of those in the signaling field not only to use the means available to assist in solving traffic problems but also to develop new equipment and applications to expedite train movements.

The tendency of modern methods of train operation is to use larger locomotives to handle longer trains. The successful operation of such trains depends obviously, on the possibility of reducing the number of train stops to an absolute minimum and especially of eliminating stops on adverse grades.

Developments of Signaling to Meet New Operating Requirements

Early automatic signaling was installed as a safety measure to stop trains in case of danger ahead. Modern signaling should include enough indications and be so located as to keep trains moving, even at reduced speeds, and to avoid stopping them unless the track immediately ahead is actually occupied. The desired result can be accomplished in dense traffic zones by using more indications such as on a portion of the Delaware, Lackawanna & Western, where a six-indication system is used, i.e., clear, clear-restricting, approach-restricting, approach, slow-speed and stop. The track capacity is increased and train stops are reduced, also by using short blocks and controlling the speed in accordance with the indications, so that the spacing between trains is reduced with safety while, unless a dangerous condition arises, trains are seldom required to actually come to a stop.

Many roads are using a special indication or marker, authorizing tonnage trains to proceed at low speed past permissive automatic signals indicating danger, without stopping. The Chicago, Rock Island & Pacific is deriving considerable benefit from its train control by means of which trains are permitted to proceed at low speed past permissive signals indicating danger without stopping. The same result is obtained by the Atchison, Topeka & Santa Fe and the Illinois Central where intermediate automatic wayside signals are not used. The Chicago & North Western does not approve of the idea of training enginemen to disregard stop indications, therefore, the wayside automatic signals on its automatic train control territory are being removed. The Chicago & North Western cab signals are unique in that only two indications are given, i.e., green for clear and yellow for caution. The only stop indications are a wayside interlocking signal, the tail lights of a train in the block or a flagman's hand signal. The effective block lengths for the cab signaling are 1,000 ft. long. Therefore, signaling either on the

wayside or in the cab is gradually conforming to the ideal of "signals keep trains moving."

Eliminating Written Train Orders

On multiple track lines equipped with automatic signals the majority of the roads have for years, directed scheduled train movements in the normal direction by signal indication, the only necessity for written train orders being in the case of irregular movements. On single track the circumstances are evidently different and ordinarily written orders are required to direct train movements; however, where automatic signal protection is provided, the majority of the roads are now using the Form 19 train orders, thus eliminating the necessity for train stops to pick up orders.

Answers to a questionnaire sent to all of the leading roads show that trains are operated by signal indication on short stretches of single track on at least a dozen roads. The Missouri Pacific has used such a system for several years on a 60-mile single track sub-division. Early in 1927 the Central of Georgia completed a unique installation whereby train movements are directed by signal indication on 24 miles of single track and in July the New York Central completed a centralized dispatching system on 40 miles of single track, in which territory the operation of all signals and passing track switches is controlled from a central point. The year 1927, therefore, saw great strides in the use of signals to direct train movements without written train orders.

These methods of centralized dispatching can be applied to advantage, especially on busy single track divisions. Various railroad officers estimate that such a system is not justified unless the traffic averages 20 to 30 trains a day, although the type of traffic, schedules of delivery, and local grade conditions perhaps have more influence than the minimum number of trains. Recognizing the advantages of operating trains by signal indication without written train orders, many roads no doubt will proceed with installations of centralized control of the signaling, installing power switches where most needed and spring switches where trailing movements predominate on one route, thereby reducing the cost of the complete installation to meet present traffic conditions and securing an installation that may be added to as traffic grows.

Protection and Operation of Outlying Layouts

Interest in automatic interlocking has increased rapidly in the last few years, especially on roads in the middle west. Thirty such plants were installed in 1927, seven of which are on the Chicago, Milwaukee & St. Paul. This system of interlocking was applied first to simple crossings of single-track lines, where the results were so successful that several installations have been made where an important double-track line is crossed by a branch line of another road. Examples of this are the plants at Delmar Jct., Ia., on the Chicago, Milwaukee & St. Paul and on the Wabash at Raisin Center, Mich. The traffic over this crossing on the Wabash includes 12 passenger trains and about 16 freight trains a day, while the New York Central single-track line has about 10 passenger and freight trains a day.

