

EDITORIAL COMMENT

The Safety Feature of Signals

DURING the past few years, a great deal of emphasis has been placed on the increase in track capacity and the reduction in running time that can be effected by signaling, and justly so, but the fact that signaling is primarily a safety facility should not be overlooked. As stated at a recent convention, there is no way of compiling statistics on the accidents that have been prevented by automatic signaling. But it is very easy to secure copies of reports on train accidents, which occur regularly due to the absence of automatic signaling.

On August 26, of last year, there was a rear-end collision between two freight trains on the New York Central near Cedar Run, Pa. This was on a single-track line over which trains are operated by time table and train orders, and a manual block system. In brief, this accident was caused by the engineman of one of the trains failing to control the speed of his train when running under a permissive signal in an occupied block. On March 6, of this year, there was a head-on collision between a passenger train and a freight train on the Chicago, Milwaukee, St. Paul & Pacific near Spechts Ferry, Iowa. This is a single-track line on which trains are operated by time table and train orders, and a manual block system. The accident was caused by failure to obey a meet order, the failure being due to non-observance of several rules designed for the purpose of insuring that employees have uniform and correct understanding concerning orders. On January 3, of this year, there was a head-end collision between two freight trains on the St. Louis-San Francisco at Swift, Mo. This is a single-track line over which trains are operated by time table and train orders, no block system being in use. This accident was caused by a failure to obey a meet order. Elsewhere in this issue is an abstract of a report concerning a head-end collision at Kylesburg, Ohio, on April 19, this accident being caused by the failure of an operator to deliver a train order.

These statements are the high points of only a few of the reports of accidents investigated by the Bureau of Safety. The investigations are thorough, and the reports give complete details of the circumstances contributing to the accidents. Therefore, any railroad man interested in train operation can increase his knowledge of operating hazards by a study of these reports. In so doing, one important point, which comes to attention frequently, is that train accidents continue to occur in spite of stringent rules and close supervision, and that many such accidents could have been prevented by automatic signal protection. On the other hand, it may be contended, in many cases, that the installation and maintenance of signaling are not justified by the traffic being handled. This points to the necessity for signal engineers to design a system that will include automatic protection and C. T. C. for directing train movements, by signal indication, that will meet the requirement of train operation, and that will at the same time be just-

fied on an economic basis. In some instances this may include nothing more than semi-automatic remotely-controlled signals at each passing track.

Necessity Forces Ingenuity

BY using standard plans and accepted practices, it may be a comparatively simple matter to design a signal or interlocking installation to correct certain train operating conditions that need revision. However, in far too many instances plans and estimates prepared during the past few years have found their way to the files without any action being taken, principally because of the amount of money required for a complete layout.

A complete installation with all the frills, even to nickel-plated cotter pins, may be desirable when money is coming easily. However, an attitude of "whole hog or none" under present conditions, prevents the signal department from doing the work, and likewise prevents the railroad from securing the benefits of the project.

For example, an interlocking had been needed for years, at a crossing of two roads. However, on account of the expense of interlocking several infrequently used house-track and connecting-track switches, the entire project had been postponed from year to year. More recently the plans were revised to include a desk-lever interlocking to control the signals, the switches remaining hand thrown and being equipped with switch circuit controllers, to afford the same protection as at any switch in automatic block signal territory. With its reduced first cost, the project was so attractive, from an economic standpoint, that it was authorized at once and is now in service.

Likewise on another road a revision in the routing of trains brought about either-direction train operation on a section over which trains had previously been operated in one direction only. The operation of trains under single-track rules, with time table and train orders, would have introduced serious delays. Therefore, the problem was put up to the signal department to devise an arrangement for directing train movements by signal indication. Knowing that a limited amount of money was available, a simple arrangement of centralized traffic control was devised. Unique schemes were developed to economize on control and indication circuits, although, no fundamental principles of safety were violated. As a result of the exercise of considerable ingenuity, it was possible to design a system which could be installed for a sum that could be authorized readily. The project is now in service and the benefits to train operation are readily apparent. When traffic increases and more money is available, more power-operated switches will, no doubt, be added; in the meantime, the present installation is greatly benefiting train operation. There are numerous other projects on various roads which, might be authorized and installed in the near future if new designs and estimates were prepared.