

EDITORIAL COMMENT

Detector Bars in 1932

A TRAIN accident occurred recently at Indianapolis, Ind., when a towerman inadvertently operated a switch lever while a train was passing, throwing the switch under the train, and derailing two cars. Of course, the leverman had disobeyed the rules by restoring the home signal lever to normal before the train had cleared all the switches in the route. But, as the Bureau of Safety points out, a contributing cause was the fact that the detector bar, which should have prevented the operation of the switch under a moving train, failed to perform its intended function. According to the reports "There was lost motion between the switch machine and the bar; and the bar was $\frac{1}{4}$ in. lower than it should have been. This condition is one which adequate inspection and maintenance should have corrected."

Thus the direct cause of the accident was the failure of the detector bar to function properly. This antiquated device, with hundreds of others of its kind, should have been relegated to the scrap heap long ago, and replaced by detector locking controlled by track circuits. As a matter of fact, the switches on the other roads in this plant were protected by detector locking, and doubtless the particular road on which the accident occurred, recognizes the superiority of track circuits as a means of protection but had not been able to secure authority to replace the bars. To this road as well as many others this accident is a forceful example of the inadequacy of detector bars to afford protection, especially when used with the heavier and wider rails and larger locomotives. Inadequate inspection and maintenance of any equipment, even detector bars, is to be criticized, but the use of detector bars on highspeed main lines in 1932 is also to be criticized.

The Annual Convention

THE 1932 annual convention of the Signal Section, A.R.A., held in Chicago, May 10 and 11 of this week, was a success from several viewpoints. The attendance was better than expected, 238 members being in attendance, and the representation from various parts of Canada and the United States was good. Fewer representatives were present from certain roads, but the number of roads represented was practically on a par with previous meetings.

The convention was strictly a business meeting. Chairman Rice made a brief opening speech and the remainder of the program was confined to a consideration of the committee reports as published in the advance notice. The reports on technical subjects, including specifications, were well prepared and although the discussion was lively, the action to be taken was arrived at expeditiously. Great interest was evinced in the report on highway-crossing protection, the chairman bringing the members the very latest information on developments in this field. Many roads are experiencing delay in applying the new reflector-type signs, "Stop on Red Signal," because definite standards have not as yet been developed to guide

the manufacturers in producing the signs. The results of tests made in New York on April 5 will soon be tabulated and will then be available for the benefit of both the railroads and the manufacturers. More details about these and other outstanding happenings at the convention will be found in an article elsewhere in this issue. The mailing of this the May issue of *Railway Signaling* was postponed only long enough to enable us to include this report. We hope that the delay, which amounts to about 10 days, will be offset by the reader's interest in this account of the convention.

Besides including this story of the convention, this issue differs somewhat from usual numbers in that all of the feature articles are devoted to special problems of maintenance and operation; two articles are devoted to the development of two different types of bonds; two more are given over to two different types of power supply for signaling, while other articles explain the maintenance of centralized traffic control and automatic block signaling on two different roads.

Likewise, certain roads have for years discussed the desirability of providing an adequate signal repair shop. The savings to be effected are readily apparent, but the problem is to decide on the equipment required, arrange for the housing of the shop and secure authority to proceed. The Canadian Pacific recently passed through such a procedure, and now has a modern, well-equipped signal shop, which is described in an article in this special number.

Now That It Has Happened

THOSE interested in the development and installation of automatic interlocking plants during the past 10 years, have been waiting, figuratively speaking, with their fingers crossed, for a disastrous collision on a crossing protected by such a plant. However, now that such an accident has occurred, as set forth in an article elsewhere in this issue, we should study the situation sanely before we blame the automatic principle, or load up such installations with a lot of attachments that, in themselves, may defeat the efficiency of these plants, which to date have given an excellent account of themselves in reducing operating expenses.

In the first place, in spite of all rules and safety devices accidents do happen occasionally at ordinary interlockings. As the number of automatic plants has increased, it is inevitable that an accident would eventually occur at one of the 310 plants now in service.

In the collision referred to, the evidence, as reported by the Bureau of Safety of the Interstate Commerce Commission, tended to show that the plant was operating as intended, and that the train which was struck had been the first to enter upon the control track circuit and had been authorized by proper signal indication to proceed. However, the engineman and fireman on this train were killed in the accident, as was also the fireman of the train on the other road. The engineman of the second train, the only remaining source of information,

contends that he saw his home signal change to a proceed indication as he approached. Therefore, in the words of the Bureau of Safety, the "reason for the occurrence of this accident could not be definitely determined," a statement which has been applied to numerous other accidents that occurred under conditions where the important party may have had, or at least conscientiously believed that he had, the proper signal. Therefore, this accident should not be marked up against automatic interlocking as such.

Now as to locking the door after the horse has been stolen: After the accident, the road on which the engineman contends that he "had" the signal, replaced the semaphore home signals with color-light signals and installed smashboards. This road also revised its speed restrictions. The inclusion of smashboards in an automatic plant increases the first cost and the expense of operation; it also introduces numerous complications and devices that are bound to cause failures. The principal purpose of the smashboard is to ascertain whether a train passed a home signal when it was not indicating proceed. In other words, smashboards, or derails for that matter, are, in effect, only a means of fixing the guilt and of throwing fear into the engineman. The same results, with even more extensive benefit, can be accomplished by electrically-operated recording devices such as are standard in at least one state. Furthermore, these devices, in addition to recording the sequence of operation of the signals, also record the time of passing and the speed of all trains while traversing approach sections and the plant. The fact that such a device is in service at an automatic plant will be an important factor in insuring not only proper observance of signals but also compliance with speed restrictions, which in itself is a very important factor in eliminating accidents.

A Call-On Signal

Is Different from a

Stop-and-Proceed Signal

FOR several years there has been considerable discussion regarding the elimination of train stops at stop-and-proceed signals. In the current report of Committee I of the Signal Section, an extended explanation is given of the progress that is being made in this direction. For example, the Illinois Central has in effect, on its lines outside the Chicago terminals, a modification of the stop-and-proceed rule reading as follows: "On two or more tracks, trains may pass stop-and-proceed signals without stopping, at a speed not to exceed 15 m.p.h." These instructions have been in effect on 1,375 miles of track for the last two years

and the results have been entirely satisfactory. A similar rule has been in effect since 1928 on the train-control territory of the Rock Island, which now includes more than 342 miles of double track between Blue Island, Ill., and Des Moines, Iowa, on which it is reported that the results have been highly satisfactory in eliminating train delays.

An operating officer of another large road, in discussing this subject, said that his road was not yet ready to eliminate stops at stop-and-proceed signals, because of some recent accidents at interlockings where call-on signals are used, and that, on the contrary, they were considering a change in the rules to require a train to come to a full stop before accepting a call-on signal. Therefore, it was not likely that his road would adopt an exactly opposite policy for permissive signals.

In further discussion it was brought out that the function of a call-on signal is considerably different from that of a stop-and-proceed automatic signal. In the first place, on many roads the use of the call-on signal is limited to the directing of train movements into side tracks, passing tracks, etc., and this slow-speed signal is so interlocked that its indication cannot be obtained in place of any regular signal governing a prescribed through route. Other roads which use the call-on as a substitute for a high arm in case of a track circuit failure, etc. require a train to stop before accepting the call-on. This seems to be good practice, based on the idea that, at an interlocking, an engineman encountering a call-on signal is confronted with

various possible routes through the plant and although he may readily see a train ahead, he does not know that he may follow the same route, and may conclude that he is to follow a route which is unoccupied. On the other hand, an engineman encountering a stop-and-proceed automatic block signal knows absolutely that the block ahead is occupied or that a rail is broken, or a switch not lined properly, etc., and governs his speed accordingly. The operating officer admitted that there might be something to this point and said that he intended to follow developments on those roads which have revised their rules to eliminate stops at stop-and-proceed signals.

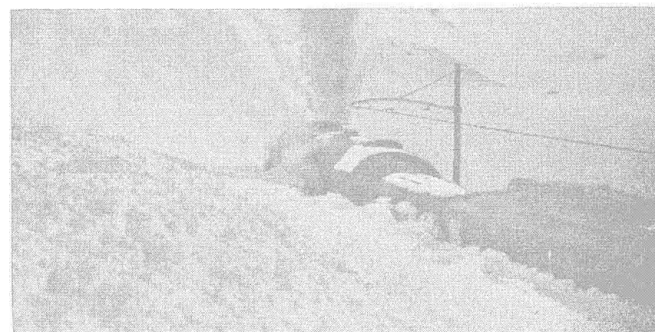
"Things Are Getting Better in This Country"

"Down here in the Reconstruction Finance Corporation we are in a position to know that things are getting better in this country—in a damn sight better position to know what is going on than are those fellows in that security peanut stand in Wall street.

"Bank failures are falling off. The banks are beginning to make loans again. It makes no difference what Wall street thinks down there where that peanut gambling is going on.

"You can take it from me we are approaching prosperity. The mass attitude of the people has changed from pessimism to optimism, but, of course, it will take time to realize the full results. Business is a ponderous machine and takes time to get in motion."

From a statement made by General Charles G. Dawes, president of the Reconstruction Finance Corporation, before the Ways and Means Committee of the national House of Representatives at Washington, D. C., on April 21.



A rotary snow-plow on the electrified Bernina Railway between St. Moritz, Switzerland, and Tirano, Italy