

which accomplishes this purpose adequately. Where electrical checking devices are used, they are usually so arranged that the rail must be in the normal position before a release is secured. The controller should be so mounted, preferably on the fixed span, so that if the rail end "hangs up" there will be a difference between the relative position of the controller and the rail end.

It might be said that the committee, in making its recommendation, ignored the fact that many of the older bridges are not equipped with rail-centering devices to bring the ends into line laterally and that there is little or no provision to prevent the running of the rails. One answer to this is that where a dangerous condition exists, it should be corrected, or else the signal engineer will have to provide some special means of checking the lateral and longitudinal movement of the rail ends.

Letters to the Editor

Crossing Protection Situation

St. Paul, Minn.

To the Editor:

Judging from the amount of discussion following the presentation of report of Committee XII, Signal Section, A.A.R., at the March convention, the question of highway crossing protection is, apparently, satisfactorily settled.

I am of the opinion, however, that a great many questions will bob up to be answered by the Signal Section of the A.A.R., as the interested members of those organizations which have so readily adopted their so-called standards for highway crossing signals begin to learn something about the specific problem involved.

There is nothing very strange or even complimentary in the fact that the National Conference on Street and Highway Safety, the American Association of State Highway Officials, and others, adopted whole-heartedly the standards of the Signal Section. They have never been greatly concerned about protection at railroad grade crossings up to this time, but undoubtedly some of their members will eventually show an interest in this phase of highway traffic.

The Institute of Traffic Engineers may also become interested. They have been told by one writer in referring to highway crossing protection in general use, that "most of the crossing signs, signals, and practices were developed before the Institute of Traffic Engineers was organized and before the highway officials had gotten the farmer out of the mud." They have also been told that "in the future the motor transport industry should be represented by highway and traffic engineers who will know what can be done to safeguard and expedite traffic." These are without doubt good things to start on. What this writer did not tell them is that it is one thing to know what can be done to safeguard and expedite traffic, but an entirely different thing to safeguard a traffic which only wants to be expedited. Nevertheless, some of them are bound to become interested, and when they do, questions will arise. These questions should be considered and answered out of the experience and knowledge of the railway signal engineers without waiting for the traffic and safety organizations to learn of their importance, and then present them as something new.

The protection for highway-railway grade crossings has always been, and should remain, a signaling problem, although it should not remain entirely a railway obligation. It must be continually kept in mind that a crossing is more dangerous after automatic signal protection has been installed than before. Drivers of highway vehicles let down in the use of their senses of sight and hearing, their greatest safety devices, and depend on signal indications for protection.

Highway crossing protection has long since ceased to be a question of prevention of damage to life and property of the users of the highway. The nature of highway traffic has become such that there is more danger to rail traffic than to highway traffic, and the possible costs of damage to railway property and railway employees and passengers, so greatly exceeds the possible damage to highway traffic that there is no comparison. We need only to recall a few of the destructive derailments which have resulted from collisions between heavy, high-speed passenger or freight trains, and relatively valueless automobiles, to make this understandable.

The construction of the steadily increasing number of automobiles and trucks on the highways is such that the very lightest car possesses many parts which may easily derail the heaviest locomotive. One such derailment makes the cost of the very highest degree of protection obtainable at a crossing appear extremely small.

When considered from the standpoint that the highway crossing signal primarily protects the train rather than the highway traffic, can any railroad afford to approve of the use of a device not founded on the fundamental principles of railway signaling?

Why should a loss of power, due to a blown fuse, an open circuit breaker, an exhausted storage or primary battery, a broken wire, a high-resistance relay contact, a burned-out relay coil, a broken contact ribbon, faulty terminals, open-circuit flashers, or any one of many other possible causes, be required to result in a "stop" indication of a railway signal, and, in direct contrast, a "proceed" indication of a highway crossing signal? Why should a burned-out electric light be required to result in a "stop" indication of a railway signal and a "proceed" indication of a highway crossing signal? Why require two sources of power for a highway crossing signal consisting of lamps, without emergency standbys for the lamps themselves?

Why decide that the crossbuck "Railroad Crossing" sign should only be illuminated or reflectorized at crossings where no automatic train approach signals are in use? Is not the crossbuck "Railroad Crossing" sign the very foundation of highway crossing protection, the most universally used and best understood indication everywhere? If this "Railroad Crossing" sign is not needed at night, why use it in the daytime when conditions are entirely more favorable for omitting it? Is it not a fact that a very high degree of protection for a railway-highway crossing is obtained by plainly indicating the existence of that crossing both day and night? I am of the opinion that had it been practicable to illuminate or reflectorize the crossbuck "Railroad Crossing" sign in the beginning so that it plainly marked the existence of a grade crossing, the requirement of train approach signals may never have developed. The obligation of a railway should be completely fulfilled when the presence of a crossing is clearly shown at all times.

Why reflectorize the sign indicating the number of tracks and place it high above the range of an automobile headlight and the driver's line of vision, so that it will not be seen by a driver standing facing a "stop" indication? Is this not the condition under which its effectiveness is most beneficial? Is this sign of any im-

portance whatever when a crossing signal indicates "proceed"? Why not put it down on the mast where it cannot be overlooked when it is most needed? Why feel elated over the fact that the National Conference has "established the principle that the flashing red light means 'stop' and then proceed when safe," when this same Conference is immediately forced to adopt the "Stop on Red Signal" sign required in an effort to make the same flashing red light understandable? Is there anything permissive in the meaning of such a sign?

These are some of the questions which may be asked as those beginners in the highway crossing problem gradually acquire some of the fundamental knowledge. It seems to me some of them may prove somewhat embarrassing.

With all of these things to consider, and bearing in mind that no duplicate sources of power or standby equipment has ever had to be provided for the protection against failure of the "closed-circuit principle" or the force of gravity, I wonder if the members of the Signal Section can, with a satisfied feeling of security, "urge the officers of their railroads to insist on the adoption of A.A.R. standard signals when dealing with public authorities." Would it not be better to make available, signals about which so many questions cannot be raised, and use the energy thus relieved in an effort to convince public authorities that the highway crossing condition is not a result of increased railway traffic, but is due entirely to highway traffic, and that the responsibilities resulting therefrom are not entirely railway obligations?

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Improving Crossing Protection

To the Editor:

Has the pendulum swung too far in the omission of the audible part (bells) of highway grade crossing signals? I feel it has. The bell has a definite value to pedestrians and to vehicles starting up from the side of a highway, street or driveway, out of range of the visual signal (red lights). A bell is a very effective close-up warning. About the only objection to the bell is the possible annoyance to nearby residents. A judicious use of so-called pedestrian bells for such places should readily solve that problem. I know one large trunk line which has a bell on every crossing signal.

It is usually very difficult to obtain permission to eliminate grade crossings of secondary streets in cities and villages. I wonder if a determined and general effort is made to close such crossings to vehicles but continue them as foot-walk crossings! Probably many neighborhood residents object to walking around a block or two but would not object to driving such extra distances. In cases of rather heavy pedestrian traffic, a relatively inexpensive, old fashioned crossing bell with short ringing sections would be sufficient protection for such sidewalk crossings.

Probably no relatively inexpensive device has proved so easily adaptable and effective as reflector buttons for marking highway and railway signs. Their use will undoubtedly be greatly extended. Unfortunately, the railroads have not directed the application of this highly effective device to highway-railroad grade-crossing marking and protection as they should have. Already other interests, Federal and State Highway and State

Railroad Commissions, have established practices which may not logically fit into a comprehensive properly-correlated and uniform application for the entire country. The A.A.R. should take further action to co-operate with Federal, State and other public bodies to establish such a uniform practice for reflector-button signs, etc., for railroad-highway grade crossings.

Another mystery to me is why railroads do not have high-grade telephone circuits the length and breadth of their property for handling more important routine business now done by telegraph. Telephone train dispatching has proved so satisfactory that there is no question of the practicability of maintaining high-grade telephone circuits on railroad pole lines. The installation expense would be relatively small considering the advantages to be derived. Additional maintenance would be practically nothing.

Iconoclast.

Use of Cab Signals

To the Editor:

That report on the fatal collision at Lagny, France, in 1933, killing 200 people, printed in *Railway Signaling* for March, page 170, has a bit of a lesson for us in America, it seems to me. As this lesson is not explicitly stated in your report, it will be worth while to recur to the subject for a moment.

The Railway Gazette speaks of the rule requiring an engineman to surely see every roadside signal, regardless of any information that he may receive from the apparatus in the cab, treating the latter simply as an adjunct; but points out that a rule like this is not good for much except as a legal technicality: for "the fact remains that in the cab we have to do with human beings" and the temptation to a man who has missed a roadside signal to rely on the cab signal is a very strong one.

What experience have American enginemen had with this "temptation"? Cab indications have now been in service on hundreds of engines on numerous large roads in this country for several years, and have been in service on one road for *over twenty years*; and hundreds of engine runners today must have in their minds very definite conclusions, formulated or unformulated, as to the best and safest practice.

Under the latest theories of government in the United States, the questionnaire is a popular instrument for gathering information throughout a wide field. Why not try it here? A thorough-going review of modern enginemen's minds ought to improve our thinking on this general question; the question of whether cab signals should still be considered as an adjunct, or should be treated as the main thing.

It would perhaps require some little skill and finesse to get from enginemen their real inmost feelings or their actual everyday practices, as distinguished from their "views for publication"; but the thing could be done.

Your older readers will recall that automatic block signals were used on American railroads for several years as "adjuncts" while the time-table, with its sometimes slightly confusing rules, continued to hold its position as the main thing. The change came very slowly. But there is no need of being as slow in the twentieth century as we were in the nineteenth.

B. R. B.