

that a real change in methods has been inaugurated. As further proof of a change in policy, *The Signal Engineer* has on file a letter to it, signed by the president of the company and a representative of the advertising agency that has charge of the publicity work for it, in which it is stated that they now realize that the statements quoted in our former editorials from their advertisements and circular letters are "derogatory to such an institution," that "such statements have been eliminated," and that in future they will "make every effort to see that these or similar statements are omitted from any advertisements or correspondence with prospective or enrolled students."

In view of the above it has been decided to accept this company's advertising in *The Signal Engineer*. The signalmen of this country, however, are entitled to further proof that the radical changes inaugurated have been carried to completion, and the school can best furnish this proof in the form of evidence that its work is measuring up to reasonable expectations. Our action does not carry with it any retraction of our published statements in regard to the former methods of this company, nor does it imply an unqualified endorsement of its course of study, any more than the acceptance of the advertising of a railway supply company guarantees all of the products of the company to be perfect. It does guarantee, however, that to the best of our knowledge the firm is now engaged in a legitimate business, is employing proper methods and is trying to give full value for the money paid to it. As was stated in an editorial in our issue for February, 1913, "if the course isn't meritorious, our condemnation would be superfluous; if it is meritorious, it doesn't need our praise." The final decision as to its value must, of course, be made by the signalmen who enroll.

NEW YORK MUNICIPAL SPEED CONTROL

The system of cab signals and speed control, which is being installed by the General Railway Signal Company on the lines of the New York Municipal Railways, was described in the August issue of *The Signal Engineer*. This article should have stated that this installation is being made by reason of a license given by the Simmen System, Buffalo, N. Y., to the General Railway Signal Company, covering the Simmen cab signal and speed control patents.

PENNSYLVANIA EFFICIENCY TESTS.—In the first six months of 1915 the Pennsylvania Railroad made about 2,000,000 efficiency tests, and 99.9 per cent of them showed perfect observance of all rules. Over 10,000 tests were made with signals set at stop, and in only 13 cases did the trains fail to stop before passing the signal by so much as a foot. The number of employees killed in the first six months of 1915 was 28½ per cent less than in the corresponding period of last year—85 this year, 119 last year. This, it is said, was not due to a heavy decrease in train mileage, as passenger train miles were only 6 per cent, and freight train miles 8 per cent less than in 1914. No passenger has been killed in a train accident on the Pennsylvania since 1912.

A PLACE TO REST IN SAN DIEGO.—A special feature of the Salt Lake Route-Union Pacific building, at the Panama-California Exposition, at San Diego, Cal., is a rest room for the entertainment of visiting railroad men. This building, which has been awarded a gold medal for the unique features of the structure and the attractions displayed therein, also contains rest rooms for ladies and children, information bureau and telephone booths, smoking rooms for gentlemen and other accommodations. At either end of the main reception room large painted maps of the Salt Lake Route and of the Yellowstone National Park are shown on the walls, with the exact topography of the country tributary. The entire front of the building is of glass transparencies, showing the natural resources of the country covered by the Salt Lake route and the Union Pacific system.

Letters to the Editor

GUARD RAILS

TO THE EDITOR OF THE SIGNAL ENGINEER:

It is the practice of some of the larger railway systems, both in the United States and Canada, to place a guard rail in connection with derails at interlocked crossings extending from the derail to within 100 ft. of the crossing. I understand that in some states and provinces it is required by law, and that the guard rail must be in place before an interlocking can be approved by the state or government inspector. The use of these guard rails does not seem to me to be proper as it would appear to have a greater element of danger than of safety.

The object of a derailling point, as I understand it, is safety and protection. If a derail is placed 500 ft. from the crossing of an opposing line, and a guard rail is extended from this derail to within 100 ft. of the crossing, it can be clearly seen that the safety features are largely, if not entirely, overcome, and that no sure protection for the opposing line exists.

Will some of the readers of *The Signal Engineer* kindly say what length of guard rail might be considered safe, and whether it is thought advisable to use them at all.

Montreal, P. Q.

J. E. GREGORY.

RULE 55 AND THE GRETNA ACCIDENT

TO THE EDITOR OF THE SIGNAL ENGINEER:

In the July issue of *The Signal Engineer* some comments appeared on the recent terrible disaster at Gretna on the Caledonian Railway, and the causes which led up to it. It must indeed be surprising to Americans to read in British railway journals endless argumentation about rule this and rule that, about lever-collars and antiquated devices which have again and again shown themselves worse than useless, and nothing about the track circuit which is the proper scientific and "engineer-like" way of preventing such deplorable calamities. It is true that accidents are in general very rare on British railways, and that the ordinary manual block is operated successfully day in and day out for an enormous number of train movements, without mishap; but the accidents of the last ten years have shown that it is imperatively necessary for some step to be taken to provide proper security for standing and shunted trains, and to do away with the celebrated Rule 55, the neglect of which has constantly been the cause of accidents. It may be well to quote this rule, which is as follows:

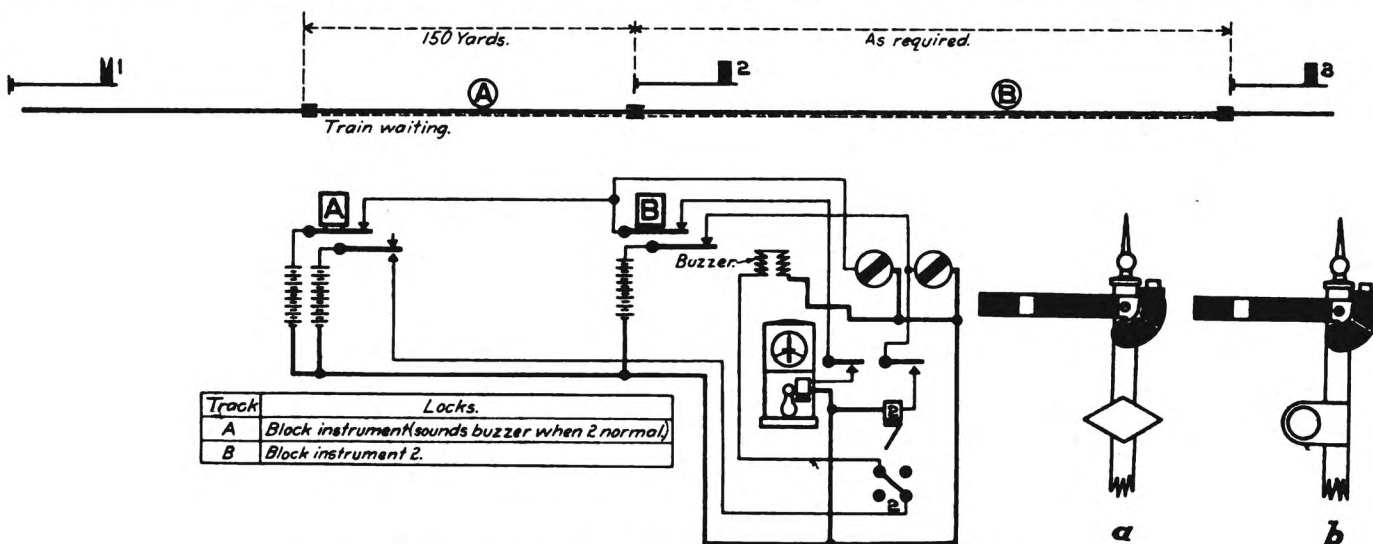
"In case of detention at a home, standing or advance signal, the engineman must immediately sound his whistle, and, if still detained, the guard, shunter or fireman (except where instructions are given to the contrary or where the lock and block system of train signaling is in operation) must go into the signal house and remind the signalman of the position of the train and remain there until the signalman can give permission for it to go forward. In foggy weather or during falling snow, the guard, shunter or fireman must immediately upon the train coming to a stand, proceed to the signal box."

The circumstances which determine which man shall go to the signal box form the subject of sub-sections, but these are not necessary for our purpose. It only remains to notice that the head guard is supposed to satisfy himself that the responsible man has performed the duty stated in the rule. There are many difficulties in practice in carrying out this rule to the letter. The expression "if still detained" is very vague and leaves the matter entirely at the discretion of the train men—the responsible man of whom always persuades himself that the signal will be cleared every minute and that the odds are that if he starts for the box (signal tower) the signal will be cleared when he is half way there and that he will have a walk on the ties for nothing. Furthermore, it not infrequently happens that trains running, standing or

shunting on parallel tracks make getting to the tower an extremely awkward and hazardous undertaking, not at all to the trainman's liking; and also the delay caused in waiting for him to return to his post before the train can start may be appreciable. Very often trains are being continually pulled up on sections where traffic is dense and shunting frequent, and the delays and annoyance that would result if every time a train happened to be "still detained" after whistling, the man detailed were to start for the tower, can hardly be imagined. For a long time it has become increasingly apparent that this rule was impossible of compliance in the majority of cases on anything like a busy line. The necessity, therefore, for an adequate contrivance to meet the case and provide self-protection for the standing train has also been becoming obvious; but the conservatism of the Englishman has stood in the way and until comparatively recent years, the dangerous rule was still retained. However, matters are now much better. Some of the railways that formerly opposed the controlled manual block tooth and nail are now installing it, and we find lines whose officers were only a

depresses a plunger which actuates an indicator in the tower, and this in turn makes the horn sound to let the fireman know his action has been effective. If the horn fails to sound Rule 55 must be complied with. Where such an appliance exists a sign like the one shown at (b) is used. These signs are to be seen in many places now and are being further extended. It is to be hoped that soon the necessity for the antiquated rule will disappear, at least on all important sections. It is not usual to provide any marker light at night in place of the above signs, but the North British Railway does this, using a small purple light for the purpose. It would be interesting to know what amount of self-protection of this type could be obtained for the money that has been lost in the Gretna disaster.

The statements of the correspondent whose letter on this subject appeared in the August issue of *The Signal Engineer* are not entirely correct. It is wrong to say that the roads in Great Britain do not flag. Whenever a train comes to a stand between two block stations it is the duty of the guard to protect his train by flag and torpedoes. If the train



Control Circuits With Manual Block System and Markers Used on Signals.

short while since so overawed by the mysterious power contained in the Clearing House Rule Book, that to suggest any improvement was well-nigh high treason—we find these gentlemen timidly installing bits of track circuit as experiments! Surely American signal engineers must be entertained when they read our accident reports. Yet some railways have made great strides in a short while, and very extensive use of track circuit and controlled manual block has been made on their systems. It has been realized that Rule 55 must go—on busy sections at all events, and all signals are being fitted with some apparatus to meet requirements. The accompanying diagram shows a typical circuit in conjunction with the needle block instrument so very generally used, and is self-explanatory. It is not customary, except in special circumstances, to bring a train up to a home block signal while a train is standing at the advance signal, but should this be required the circuits are arranged accordingly.

Indicators are employed to show the condition of the track, and very often a buzzer or electric lever is fitted which sounds when the train is outside the home signal at "danger" to warn the towerman. The control on the block instrument prevents "line clear" being given to the adjacent tower. Where the above arrangement is in use with or without controlled manual features between towers, it is often the practice to provide a marker on the signals concerned to inform the trainmen that it is not necessary to observe Rule 55. This sign is shown at (a)—a white diamond plate fixed below the blade. Where track circuits are not installed it is sometimes arranged to have a hand plunger and electric horn contained in a box at the foot of the signal. The fireman

comes to a stand at a block station owing to adverse signals, then Rule 55 comes into play as described above.

Glasgow, Scotland.

T. S. LASCELLES.

MERCURY CONTACT CONTROLLER

TO THE EDITOR OF THE SIGNAL ENGINEER:

In regard to the editorial comment in the June issue of *The Signal Engineer* referring to the description of my mercury contact controller, published in that issue, I tried to explain in the description that there is no possibility of arcing in the mercury, since all contacts are made by the mercury and none are broken. The breaking of the contacts is accomplished by the relay D, since all the current going to the signal at the time it trips from proceed to stop is passing through the back contact of this relay. It is the picking up of this relay, thus opening the back contact, which trips the signal. The sole object of this relay is to prevent breaking any circuit through the mercury.

I cannot agree that there is need of bushing in the bearings of the mechanism. I recognize the fact that there is more weight on the bearings when the shaft turns in the frame than when the slot arm moves on the shaft, but the bearing is longer and the motion is slow and the rest of the moving parts, such as fork heads, toggles, trunnions and chains, will be worn out many times before enough wear will come on the bearings to cause any trouble. This controller has been operating on two signals for five months without a failure and without any attention. No wear on the bearings is noticeable as yet.

Oakland, Calif.

R. D. ASHLEY.