

# Editorial Comment

## The User of Signaling

THE enginemen are, in reality, the actual users of signaling, and, therefore, comments from these men may often-times lead to improvements in the design, operation or maintenance of signaling facilities. An important consideration is that, in addition to watching for signals, an engineman has numerous other things to do in order to handle his train, and especially is this true when his train is late and he is trying to make up time.

An important comment from enginemen is that they want a distinctive aspect that they can recognize, without doubt, the first time the signal comes within their view. If they are required to keep looking at the signal for some time to determine whether it is lighted, and to ascertain whether it is red, yellow or green, the uncertainty causes apprehension which leads to inefficiency in other duties of handling the train.

Complaints of this nature may in some instances be justified if the signal foundation is settling, so that the beam from a light signal is not directed properly. Such conditions usually develop gradually from good to bad, and it should be the responsibility of someone in the signal department forces to anticipate such changes and take the action required to prevent criticism.

### Lighted Before He Sees It

On territories where approach lighting is used, enginemen complain that some of the signals do not light up until after the signal comes within the engineman's view and, therefore, he is uncertain whether it will be lighted. Even though extra expense may be involved, perhaps a good practice would be to extend the approach control so that the lamp would, in all instances, be lighted before the enginemen come within view of the signal.

One reason for a "poor light" may be that the first filament of a double-filament lamp may be burned out. The purpose for this double-filament design is that the second filament will give enough light to keep trains moving, whereas when a single filament lamp burns out, the signal is "dark," thus requiring trains to stop. One advantage of a dim light from the second filament is that the difference can be noted by enginemen and reported so that the lamp can be replaced. In many instances the enginemen are so grateful for the signaling that they hesitate to make any minor complaints, and they will get along with the dim light rather than report it. This leaves a situation in which some one in the signal forces must check the lamps at frequent intervals, especially after lighting storms in

territories where there is a tendency for lighting and static electricity on line wires to burn out the lamps.

### In Line With Other Lights

Another complaint often expressed by enginemen is that some of the signal lights are in line with advertising signs including red, yellow or green neon lights, and as a result the engineman cannot know for sure that he sees the signal until he is too close to it. At other locations on tangent track, enginemen complain that two successive signals, such as at interlockings, are so close together that if the lamp in a first signal is burned out, the engineman may see and accept a green in the far signal, whereas he should have been governed by a red in the first signal. At some locations there may be train order signals that are in line with home signals at interlockings, so that if the lamp in the home signal is burned out, the enginemen may erroneously accept a green in the train order signal. In a few locations there may be some justification for complaints on these scores but in the majority of instances there is little or no reason for confusion. Nevertheless, such circumstances may be used effectively as an alibi by enginemen in case of an accident. Be that as it may, some one in the signal forces should search out such conditions and apply the necessary corrective measures. For example, "light-out" relays in series with lamp filaments can be used to prevent the display of proceed aspects in a certain signal if a lamp in a first signal is burned out. If a train order signal is in line with a home signal, perhaps the train order signal can be moved or replaced with a different type signal at another location. Also, perhaps the circuits can be arranged so that the aspect of the train order signal cannot be "clear" unless a proceed aspect is displayed by the home signal.

### Far-Fetched Reports

In some instances enginemen report the display of aspects which are not in accord with actual circumstances. Regardless of how far-fetched these reports may seem to be, they should all be investigated carefully. For example, enginemen reported a peculiar yellow in a color-light signal early in the morning just soon after the sun came over the horizon, on a day early in June. By using a large mirror to reflect sunlight into the signal at any hour of the day, the signal forces were able to duplicate the condition at will, and to develop means to eliminate the possibility of the display of the peculiar light.

An effective means of quickly checking signals for dim lamps, improper alinement and confusion with other lights, is to observe the signals from the cab of a locomotive.

tive, in other words, to see the signals as the engineman sees them. A good practice, therefore, is for the signal supervisor, assistant supervisor or maintenance foreman to ride locomotives over their territories at regular scheduled intervals. During such trips, as well as in conversation at other times with enginemen, road foreman of engines, and others, various ideas may be expressed which will lead to improvements in signals from the standpoint of enginemen as users of the signaling.

## Improved Signal Performance

THE prevention of failures of signal apparatus, which may cause unnecessary delays to trains, is becoming increasingly important in this post-war period when many railroads are inaugurating new fast trains as well as reducing the running time of other important through passenger and freight trains. Therefore, more than ever before, the signal department forces of the railways are now faced with the problems of designing, constructing and maintaining their equipment so that it rarely fails; and if a failure does occur, to correct the trouble quickly, thereby minimizing the number of trains which may be delayed. This statement may seem trite because it covers the whole work of a signal department, but nevertheless when criticized by operating officers, many signal engineers are now being faced with the necessity for new viewpoints in order to improve signal performance.

### Study Experience of Many

Many supervisors and maintainers have been in railroad service for years, and some of these men have been on the same territories for extended periods, so that they have acquired valuable information concerning ways of inspecting their equipment to prevent failures, as well as to locate and correct trouble when it occurs. Many of these men have had special cases of trouble not as yet encountered on other territories or on other railroads. A complete explanation of the circumstances involved in these instances would be helpful to other signalmen, especially to those who may not have been in maintenance work very long. The information could be assembled in the office of the supervisor or signal engineer, and then prepared in mimeograph form for distribution to all maintenance forces, to be studied and kept on file.

This information may well be studied also by signal engineers, office engineers, circuit designers and others who are responsible for the practices and equipment as well as construction methods used. For example, if the reports from the field show several signal failures and resultant train delays caused by a certain type of material or construction practices, the necessary corrective measures or changes should be developed and applied promptly, rather than being hide-bound to so-called standard practices.

As an encouragement in this respect, *Railway Signaling* invites readers to submit brief articles, each giving in detail an explanation of an unusual case of signaling trouble, which was located and corrected. Articles of this character suitable for publication, which are received by the editor by June 15, will be paid for at the rate of \$5 each.

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## New Books

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*Two-Way Radio*, by Samuel Freedman, 506 pages, 9¼ in. by 6 in. Bound in cloth. Published by Ziff-Davis Publishing Co., 350 Fifth Avenue, New York 1, N. Y. Price \$5.00.

This book describes the mechanics and applications of two-way radio for all forms of fixed, mobile and portable communications. It is presented in non-mathematical form and in simple language fully understandable to persons using or intending to use such facilities. The entire radio frequency spectrum, with its present and forthcoming developments, is discussed. This covers all frequency bands between very low and super-high, as established by the Federal Communications Commission. Equipment described ranges from 5 kilocycles to beyond 10,000 megacycles. Also included is a thorough description of induction and carrier-current communication techniques.

The volume consists of 20 chapters and is well illustrated. Chapter 12, entitled "Two-Way Radio for Railroads," should be of particular interest to those in the railway signaling and communications field. This chapter, which covers 89 pages, includes descriptions and illustrations of railroad radio facilities, problems peculiar to railroad radio, the size of the railroad industry, signals versus radio, uses in railroad operations and radio electronic aids to promote railroad safety. The chapter also covers train power supply, automatic volume and squelch controls, the Union inductive system, Halstead induction radio system, the Aireon induction system, medium-frequency space radio communication, very-high-frequency space radio, micro-wave radio communication, functional equipment comparisons and typical railroad communication problems.

*Rights of Trains*, by the late Harry W. Forman, and revised by Peter Josserand, 561 pages, 4½ in. by 7¼ in. Bound in cloth. Published by Simmons-Boardman Publishing Corporation, 30 Church Street, New York 7, N. Y. Price \$3.50.

This is the third edition of the book, the first and second of which appeared in 1904 and 1925, respectively. It analyzes the Standard Code of Operating Rules of the A.A.R. as applied to single and double track, and completely explains and illustrates train rules, train orders and transportation problems of the operating department of any American railroad. The book will be invaluable to those in the railway signaling and communications field requiring the use of such information.

Written by the late Harry W. Forman, formerly assistant to general manager of the Western Pacific, one of the greatest rules examiners of his time, the book is based on his experience extending over half a century, and has long been recognized as standard authority. The new edition was revised by Peter Josserand, formerly night chief dispatcher of the Western Pacific at Sacramento, Cal., and was reviewed by rules experts of the Western Pacific, Chicago & North Western, and the Central of New Jersey.

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