Editorial Comment

Signaling and Rules

SAFETY of train operation necessitates that enginemen be governed by the aspects of block signals and interlocking signals. When an engineman encounters a signal displaying an “Approach” aspect, a “Stop” aspect, or a “Stop and Proceed” aspect, the action which he should take is set forth in the operating rules. A conclusion of this discussion is that with all forms of signaling—including automatic block, cab signaling, train stop, and train control—strict compliance with operating rules in connection with signal aspects is necessary, and that, where there is a possibility that such compliance of rules may not be satisfactory, the officers of the operating department, with the aid of the signal department, can employ means for developing better compliance with these rules.

Microwaves on Railroads

WITHIN a short time, information will be available to demonstrate whether the microwave system of transmitting communications will be practicable for use on railroads. Microwaves use super high frequency energy, such as in radar, but rather than being broadcast in all directions, as in conventional radio, the energy in microwaves is transmitted in a beam, which, at the receiving station or repeater stations, is received by parabolic antennas. By means of multiplexing equipment, the one beam can be utilized, to transmit numerous channels for telephone and telegraph service or other circuits. The transmission is by line-of-sight, so that repeater stations are required at intervals of, for example, 15 to 30 miles, depending on the terrain. This microwave system was developed and used extensively for military purposes during World War II. Since then, commercial communications companies have made extensive installations between New York, Boston, Philadelphia, Washington, Pittsburgh and Chicago.

With a general knowledge of this progress in microwaves by commercial communications companies, railroad communications officers have expressed various opinions concerning the practicability of, and economic justification for microwaves to replace pole lines along railroads. Of importance, therefore, is the fact that the Rock Island, in cooperation with the Philco Corporation, has made an installation of microwaves on 106 mi. of main line railroad, and is now completing the testing of this project. Information concerning this installation of microwaves will be given in an address by C. O. Ellis, superintendent of communications of the Rock Island, during the convention of the Communications Section, A.A.R. October 17. An illustrated article, giving technical details of construction of this microwave project has been prepared, and will be published in an early issue of this magazine. In the meantime, the installation will be in service, and further information will be accumulated concerning its operations. Also in these considerations, reference may be made to results of extensive tests of microwaves and sub-carrier equipment on the Long Island, using equipment made by the Union Switch & Signal Company and by the Sperry Gyroscope Company. And of interest is the microwave project now under construction between Galveston, Tex. and Beaumont, Tex., 70 miles, on the Santa Fe. Thus, the railroad communications fraternity has, at last, the basic information to determine whether microwaves are to have an important place in railroad communications.