The absolute signals are continuously lighted for two reasons: One, to give information to a train not on the approach section, and the other, for the benefit of motor car operators and other employees, who may secure the benefit of the indication to govern their movements in anticipation of the approach of a train.

The entering signal is continuously lighted for the benefit of motor car operators and also to make it possible to use it as an indicator of the approach of a train from the next station beyond the other end of the siding.

All of our red units are provided with back-lights so that the signal indication may be checked from the rear of the signal and to make possible the use of signals for indicator purposes.

We use commercial power with storage battery standby for all of our color-light signals, and we believe we are well repaid for the small cost of the additional power required to light these signals continuously. If we were not using commercial power it might be desirable for the sake of economy to approach-light all signals and to use push-buttons or other devices to light the absolute signals when the approach-lighting track circuit is unoccupied.

Dwarf Signal Aspects

"What colors do you use for the indications of dwarf signals? Is red preferred to purple for the stop indication? Where and why?"

Purple at Outlying Interlockings

By W. H. ELLIOTT

Signal Engineer, New York Central, Albany, N. Y.

WHERE dwarf signals are used in lieu of high signals, as around terminals where a considerable amount of switching is done and where all movements are made at moderate speed, it is proper to use red for a stop indication. Red is more readily distinguished and due to the frequency and importance of the movements it is desirable that the best indication practicable be used.

Where dwarf signals are used at outlying interlockings where speed of trains is high it is not desirable that the engineman's attention be taken from the high signals or switch stands as might be the case if red were used on dwarf signals. At such locations purple lights for dwarf signals are preferable as this color gives an indication amply distinctive. Dwarf signals are cleared at such locations only to give slow-speed indications, which are read from a short distance.

Enginemen Favor Red and Yellow

By W. Y. SCOTT

Signal Engineer, Boston & Maine, Boston, Mass.

THE Boston & Maine uses red for stop and yellow for proceed. For years we used purple for stop and green for proceed, but when we commenced to install light-type signals, we found that a purple light in the daytime gave a very poor signal indication and red gave a very good indication, and as red is the proper stop signal, we at that time changed our dwarfs to red for stop. We find that this change meets the approval of our enginemen, as they now have only one purple light and that is on a sidetrack derail.

Purple at Interlockers; Red at Drawbridges

By C. H. MORRISON

Signal Engineer, New York, New Haven & Hartford, New Haven, Conn.

AT interlocking points, we use purple for stop and yellow for proceed. For back-up signals at drawbridges, we use red for stop and yellow for proceed. In manual-control block signal territory the absolute signal aspects are red for stop and green for proceed. The object of using purple at interlocking points is, first, to differentiate between a dwarf signal indication and a red lantern either on the ground or being carried by a man and, second, purple rays of light with a given amount of light intensity, do not carry so far as the other colors and, therefore, the number of aspects that are visible to an engineman at a distance is decreased. Where red is used, enginemen are not permitted to pass the dwarf signal except by authority of written orders.

Aerial Cable or Open Line?

"To what extent do you use aerial cable for line control circuits for automatic block signaling and centralizer control installations? Why?"

Aerial Cable for Centralized Control Installations and Where Pole Line is Heavily Loaded

By G. H. DRYDEN

Signal Engineer, Baltimore & Ohio, Baltimore, Md.

IN automatic block signal territory, either single or double track, we generally use No. 10 AWG double-braid weatherproof Copperweld 30 per cent conductivity line wire. We believe this to have a longer life and to be cheaper to install than aerial cable and, furthermore, all line wires required for such installations can be placed on one crossarm.

However, we use cable where Western Union pole lines are heavily loaded and there is not sufficient room to receive an extra crossarm; also where the number of control wires is greater than can be placed on a ten-pin crossarm, for example, in controlling outlying switches.

In controlled manual block territory we have installed braided aerial cable between the telegraph office and passing siding outlets for the reasons named above. Centralized traffic control presents a different problem. Station operators are removed and all dependence is upon the signal system plus telephone communication between the trainmen and dispatchers. High strength construction is necessary. Neither signal nor telephone circuits should be destroyed by weather conditions. Breakage of telephone and telegraph wires located on upper crossarms should not cause interference with the dispatcher's circuits and for that reason we feel that such wires should be in cable, the latter supported on not less than 3/8-in. messenger.

C. A. Christofferson, signal engineer of the Northern Pacific, states that "except in a few cases, we have never used aerial cable for line control circuits for automatic block signals. The Northern Pacific is practically a single-track railroad, having only 600 miles of double track, and on a single track railroad changes are being made continually. Aerial cable would be an expensive nuisance as the aerial circuits are being shortened and lengthened at frequent intervals. Why use aerial cable when single wire is cheaper and there is plenty of room on the pole line?"