(Continued from page 180) trouble, and two at the Duluth (Minn.) drawbridges, where an airoperated horn is used when the bridge operator wishes to call the maintainer.

Air Signal

By W. C. MILLER Supervisor Telegraph & Signals Pennsylvania, Harrington, Del.

THE Clark Cooper Company's Model EP-D two-way Electro-Phonic air signal is being used by the Pennsylvania as an emergency horn at outlying C.T.C. houses, drawbridges, etc., for calling maintainers, track foreman and others, signaling boats at bridges and for signaling train and engine crews to are instantaneous with or without make departure brake tests in large the motor compressor.

freight yards. The air signal is is likely to occur, and a pole line electrically operated, produces its is available, we would install aerial own compressed air, and has two cable. horns facing in opposite directions. With it, we use a relay with heavyduty contacts near the horn, as the heavy cables and messenger wire, compressor motor pulls around 10 and earth conditions are favorable, amp. (torque), immediately dropping back to 4 amp.

The same duplex horns, but without the compressor, are used where air is already available, our standard valve body and 400-ohm magnet being used in lieu of the motor. I have been using these horns since sufficient, or the pole line is not 1938 on all big signal construction jobs on our Philadelphia, Maryland and Delmarva divisions after trying every other type of klaxon horn and air whistle. The blasts

DIFFERENTIATION BETWEEN SIGNALS[×]

"From the standpoint of simplicity and least expense, what is the best way you have found to differentiate between absolute and permissive signals of the light type?

Light Units Vertical or Staggered on Mast

By B. J. SCHWENDT Assistant Signal Engineer New York Central System Cincinnati, Ohio

FROM the standpoint of simplicity and least expense on the New York Central System, we distinguish between absolute and permissive signals by using a vertical configura-tion of lights for absolute signals, and a diagonal configuration of lights for permissive signals. This, of course, requires a minimum of two color-light units per mast.

This means of distinguishing between absolute and permissive signals is the simplest and least expensive for us, where we are already committed to a minimum of two light units per mast. On roads using only one unit per mast, they may be able to find a cheaper way in the sense of first cost, but it might not be cheaper in the long run everything considered. With two light units, we gain increased protection against light outage that would not exist if we used only one unit. We also get increased visibility, as compared with using one light unit and a number plate or special painting or marking.

BURIED OR AERIAL CABLE?*

"Within interlocking limits, where signal cable is to be used in runs of 300 ft. or more, and where space is available for a pole line, do you install buried or aerial cable? What are the advan-tages of both types of construction?"

Set Policy Unpractical

By H. A. MAYNARD Assistant Engineer Signals Baltimore & Ohio, Cincinnati, Ohio

IT has been our experience that a set policy is not practical, but each project must be studied on the

site to determine whether aerial or underground cable should be used. If the track layout is on a new fill containing considerable large stones where underground cable would be subjected to damage by the stones settling or shifting, or if the installation is to be made on an embankment where slippage

*Other answers on this subject were published on page 112' of the February -Editor. ssue-

If it is necessary to rebuild and strengthen the pole line to support we would install underground cable on runs of moderate lengths. It has not been a common practice with us to install long stretches of underground cable if a pole line is available. In some instances, where overhead clearances are inproperly located, we have found it advisable to construct an independent cable line by suspending the messenger and cable from concrete cable posts.

It is true that aerial cables involve some maintenance costs. To offset this expense, they can usually be salvaged and rearranged when it is necessary to relocate or retire controlled equipment, due to track changes or other revisions. While it has been our experience that expense of salvaging underground cable can seldom be justified, it has been my observation that we have less trouble with grounded circuits in aerial cable than in underground cable, and when we do have trouble in aerial cable it is easier to locate the trouble and simpler to make repairs.

We have found that when it is feasible to locate all relays, batteries and charging facilities in a tower or centrally-located bungalow, and run underground cables from the centrally-located housing directly to the controlled facilities. and rail connections, this not only makes a neat appearance with economic advantages but also affords shelter, permitting inspection and repairs of relays and associated appliances under adverse weather conditions. In our opinion, the question of whether aerial or underground cables shall be used must be decided for each installation individually, and no set policy can be adopted.

(Continued on page 184)

If you have a question, answer or Kink you think would be of interest and help to others in the field, please write. Your comments will be welcomed-Editor.

x Other answers on this subject were published on page 112 of the February issue—Editor.