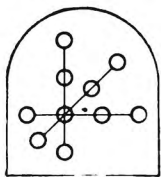


## BEAM-LIGHT SIGNALS ON THE PENNSYLVANIA

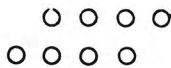
The Pennsylvania Railroad, in connection with the introduction of electric traction on its main line from Philadelphia westward, will introduce, in place of semaphore block signals, a novel arrangement of uncolored lights, by which both motion and color will be done away with, the lamps being used day and night. Mr. Rudd, the signal engineer, has given us the following description of the new signals:

"We have developed what we call, for lack of a better name, the 'beam-light' signal, and are to install it between Overbrook and Paoli, about 16 miles of four-track road with five interlockings. The signals will give three-block indications, and will be located approximately 3,500 ft. apart. If the scheme proves satisfactory it will be useful especially where a. c. track circuits are installed, as with it the only moving part in the system is the control relay, which is necessary with any system. As designed, each unit is generally arranged as shown in the diagram. There are four fixed lights in each row, one light being common to all. The containers for the lamps, lenses, etc., are adjustably clamped to steel tubes diverging from a center casting, a suitable background being attached to the center support, but back of and separate from the tubes supporting the lamps.

The lamps are spaced 18 in. apart, center to center, and each is a 12-volt, 4-candlepower, 5-watt Mazda having a concentrated filament with adjustable base, burning at 11 volts in bright daylight or in fog, 6 volts at twilight and 3 volts at night. The current consumption will average about ten watts for the four lights. Special inverted 5 $\frac{3}{8}$ -in. lenses and very



Arrangement of Lamps in Beam-Light Signals.



light yellow-cover glasses are placed in front of the lamps, and a reflecting mirror above the cover glass throws some of the rays down for close range. There will be a hood over each unit. These lights are readily seen in brightest sunlight at 4,000 ft. or more. Scareheads of newspapers can be read by them at night 1,000 ft. away if the full day voltage is used; hence the necessity of dampening down at night.

"The voltage will be controlled from the nearest signal cabin by the signalman. The entire arrangement is immovable, the rows of lamps being lighted as conditions require. Two units—equivalent to two semaphore arms—will be used on all signals, thus making a uniform system, the aspects corresponding to the position of the arms as in standard practice, but at interlocking signals the bottom (low speed) arm will not be displayed in the stop position at all. When it is required, two short-range lights will be shown, diagonal or vertical, in addition to the two upper arms horizontal. This is a decided advantage, as the engineman will know that unless two full-size beams appear, the signal is improperly displayed. No permissive aspect will be required, but if needed it can be shown by a row of lights diagonal (45 degrees) in the lower right-hand quadrant.

"The staggered light effect, to distinguish stop and proceed signals from stop and stay, will be produced by having the bottom horizontal beam moved to the left one light, the difference being required only in the stop indication.

"For dwarf signals, which cannot be hooded lest close range reading should be obscured, frosted white cover glasses and higher candlepower lamps will be used.

"This arrangement will eliminate all failures due to moving parts of signals and mechanisms (except the relays), and all

chances of freezing or sticking clear. From our records it appears that this should reduce all failures, with their consequent delays, at least 10 per cent., and all dangerous failures 40 per cent. The scheme solves the colored-light problem for night indications completely, by eliminating all colors and establishing signaling by position only.

"With current supplied from a power line, generation of current is cheaper, as there is no 'peak of the load' to be provided for as in motor-signal work. This reduces the cost of operation. The initial cost of installation is less; the cost of maintenance, aside from necessary policing, should be less, and the cost of delays will undoubtedly be reduced. The risk to employes is reduced, as all their work will be on the ground, except occasional inspection of wires, adjustment of lights, renewal of lamps and cleaning the lenses."

## A LITTLE SUGGESTION FOR THE EMPLOYEE

BY R. HARVEY WHITE

In a big organization like one which is necessary to operate a railroad, no matter how hard the officers and the heads of the various departments strive to prevent it, occasionally there will be found an employee who does not fully appreciate the fact that he is not only expected to be polite and courteous at all times and under all circumstances, but it is his bounden duty to be so.

The fellow who forgets himself and assumes the air of indifference and gives sharp and abrupt replies to inquiries, when politeness and a display of good humor would have no doubt been much easier and at the same time made a friend not only for himself, but for his company as well, is found not only among railway employes, but in all branches of business—in banks, stores, etc.

Each employee, whether he is a president, engineer, machinist, conductor, brakeman, flagman, clerk, stenographer or office boy, should realize that he is working for the public and that his capacity to earn is made possible only by the people or community which he or his company serves.

How often has the railway been unjustly criticized because one out of many thousands of its employes was rude or impolite. The ticket seller, the freight agent, conductor, brakeman, flagman, down to the porter, should remember that while they have nothing tangible to sell, they are just as much—if not more—salesmen than the men behind the counter, or the traveling representative.

Probably every employee at one time or another encounters gruff and unreasonable persons. Whether the person be one of influence or the most humble, the employee should try to train himself to be courteous and polite in the most trying circumstances. If the person in question is doing no harm, or is in no danger, and if it be merely an argument, let him have his way—for sooner or later he will find out that he was wrong, and will think and feel more kindly towards the employe and the company.

Politeness and courtesy are the cheapest things in the world, and yet they will buy and stand for the most. Safety first and courtesy first are equivalent. They are so closely akin that one cannot well be had without the other.

**THE FIRST DESTRUCTIVE STORM OF THE WINTER.**—During the sleet and rainstorm of December 7 and 8, 25,000 miles of wire and 1,200 poles of the toll and local lines of the Southern New England Telephone Company were blown down. By December 10 every toll line to every exchange was re-established. The emergency shipments of material for making temporary repairs were made by the Western Electric Company's warehouse, at West Haven, Conn.

From 7 o'clock p. m., December 7 to 7 p. m., December 10, there was shipped over 1,000,000 ft. of twisted pair copper steel distributing wire, 93,000 lbs. of bare copper wire and 19,000 lbs. of iron wire, over a ton of copper tie wire and 26,000 sleeves, making a total weight of over 100 tons.