

Letters to the Editor

Flashing Light Crossing Signal

TO THE EDITOR:

I have read with much interest J. A. Peabody's article, "Highway Crossing Protection," on page 422 of the November issue of the *Railway Signal Engineer*. It seems to me that so good an article as this should not pass without mention of the flashing highway crossing beacon. Tests have been made which show that a flashing red light is more conspicuous than a stationary light. In fact, red has been the danger signal for so long that it is practically impossible to ignore a powerful flashing red light, no matter what condition an automobile driver may be in.

The use of short focus, parabolic reflectors with a red cover glass, makes it possible to secure, with a very small incandescent lamp, a red signal of such intensity that it would be easily discerned in daylight, even against the setting sun. Crossing beacons of this nature, operated through relays which cause them to start flashing upon the approach of a train, and to go out after the train has passed, are economical and more effective than any form of crossing protection which has yet been made. Any person who would cross a track with one of these signals operating would just as readily attempt to squeeze through signal gates placed directly across the road, and we cannot hope to secure protection for such characters.

The old crossing bell is entirely inadequate to meet modern conditions. Some automobiles are so noisy, and with others of the closed type, the sound is so effectively shut out that the bell is inadequate. The flashing red light, however, cannot be missed, and makes an exceedingly effective signal either by day or by night.

Harrison, N. J. L. C. PORTER,
Commercial Engineering Department, Edison Lamp Works of
General Electric Company.

A Rolling Pin as a Positive Staff

TO THE EDITOR:

I am sending you a copy of the Traction News, a bulletin issued, by the Houghton County Traction Co. Houghton, Mich. Your attention is especially called to the description of the staff system used on this road.

WOODEN TOKEN A KEY TO SAFETY

It is of utmost importance to the company, as well as yourself, that every precaution be taken to ensure your safety on our street cars.

A carved piece of wood, with all the appearance of a rolling pin, serves as a "key to safety" on the Calumet-Houghton line between the Pewabic switch and the double track at the Laurium sub-station, these two places being passing points for cars on this line. Usually a rolling pin is considered a very dangerous weapon, if it is not used for the purpose it was intended, but in the above case it is used as a "key" or token to insure your safety.

This company operates its cars on a system known as "positive meeting or passing points," since it does not maintain a regular day and night dispatching force.

The next time you ride on the Calumet-Houghton line take note how this key serves its purpose. The motorman holding this key has the right-of-way over this section of line, and no other car is allowed on this line, unless special dispatching orders are issued from the superintendent's office.

When a motorman running on this line reaches the Pewabic switch, he stops his car and passes the "safety key" to the motorman going in the opposite direction, with it the right-of-way to the Laurium double track, where he again passes it to the motorman going in the opposite direction, and so on throughout the day. No regular motorman is admitted to this section of line without this key, or unless he

has been given special dispatching orders by telephone from the superintendent's office.

This system of using a key for dispatching was started in the early days of the property to prevent any chance of one motorman mistaking a car from another line, which might easily happen in a heavy fog or a very bad snowstorm, as the car he was expected to pass before he could proceed over this line. Such a mistake might very easily cause a serious head-on collision between two opposing cars.

Chicago. H. B. PFLASTERER,
Hazard Manufacturing Co.

Fatigue and Vision

TO THE EDITOR:

Herewith is a newspaper clipping from the Chicago Daily News of October 23, that we believe would be of special interest to the readers of the *Railway Signal Engineer*:

TIRED MEN MAY FAIL TO DISTINGUISH COLORS

An interesting and curious effect of fatigue on the eyesight has lately been reported by the European scientist Boehmig. In proportion as people become fatigued, it appears, their ability to distinguish colors lessens, so that an actual color blindness may temporarily develop.

This, at all events, is what occurred in the case of certain athletes tested by Boehmig.

After the athletes had been thoroughly wearied by physical exercise they were requested to look at small objects of different colors and name the color of each. Many mistakes were made, and in particular some of those tested were unable to recognize the colors of red and green objects.

Yet, similarly tested before their exercise, none had shown any defect of color vision. Nor did any show defects when tested once more, after a good rest.

To explain these findings a correspondent of the Journal of the American Medical Association recalls the familiar fact of fatigue poisoning, concerning which he says in a passage that admirably summarizes present knowledge of the subject:

"The so-called fatigue substances will doubtless have to be assumed to be the cause of this hitherto unobserved disturbance of color vision. I have reference to the waste products of metabolism that collect in the muscular tissue following muscular activity and that cause the well-known painful feeling in muscles that have been used to the limit.

"As a rule these fatigue substances are removed from the muscular tissue through the blood stream, the skin, the kidney, and the intestine, and are eliminated from the body. If the muscular work is prolonged large quantities of the fatigue substance collect in the muscles or the blood stream, and, since in this case elimination cannot proceed so rapidly, their harmful effect is noted, and the subject feels tired and exhausted.

"Certain investigators have regarded lactic acid as the main fatigue substance; others have postulated phosphoric acid, either free or combined with acid salts. Their actual effect has been demonstrated by noting that when the blood of fatigued animals is injected into healthy resting animals distinct symptoms of bodily exertion and fatigue are produced."

Whether the phenomena reported by Boehmig are or are not due to a self-poisoning, the matter must be accounted one of sufficient practical importance to warrant further researches to determine to what extent there really is the temporary color blindness found in the tested athletes.

For, as everybody knows, ability to distinguish colors is in many occupations a qualification of vital significance. Certainly it is such in railroading and steamboating.

And, clearly, if Boehmig's findings hold universally true as regards larger as well as small colored objects, it becomes more than ever the part of wisdom to avoid any overworking of employees who may have to read colored signals, and to insist on their safeguarding themselves, so far as is possible, from fatigue when away from their work.

It would, just as clearly, do little good to shorten their working hours unless they were careful not to use the extra leisure in ways that exhaust. For then they would be fully as liable to misread signals as would be the case were they exhausted by overwork. H. ADDINGTON BRUCE.

W. M. Post,

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Pennsylvania Railroad, Pittsburgh, Pa.