

Colors for Night Signals.

At the last meeting of the Railway Signaling Club, Chicago, a committee, Messrs. W. B. Turner, J. W. Peck, H. C. Wilson, G. M. Bassford and E. D. Wileman, made a report on the above subject. The committee begins with a description of the present practice in this country, on most roads red for danger, green for caution, white for clear; on three roads in New England, lamps, three at each signal, with suitable blinders, to show a semi-position indication at night; and Carter's arrangement, on the Chicago & Northwestern, of red for danger, green for clear and a distant signal showing red and green side by side to indicate caution. One small road uses green for clear and white for caution.

The report contains a letter from Mr. H. R. Wilson, of the Lancashire & Yorkshire, suggesting that the "calling-on arm," used in England, would be suitable for use in this country where permissive blocking is practiced. Mr. Wilson quotes the regulations for the use of calling-on signals. The arm, a small one, is attached to the lower part of the home signal post, and when pulled down authorizes the train to move forward as far as the line is seen to be clear. [Mr. Wilson does not state, however, what we understand to be the fact, that such signals are used only for short distance movements in yards.] The rule requires the signalman to stop

construction of a lamp made by Saxby & Farmer, which is something like the two-face lamp used on the Chicago & Northwestern. Saxby & Farmer's device has not come into general use, however. Mr. Sperry believed that the cost of changing signals now in use so as to show green for all clear would not be so great as had been supposed. The ordinary semaphore casting costs \$2.25, the Chicago & Northwestern type only 75 cents more. The combination lamp costs \$4, which is 75 cents more than for an ordinary lamp. The speaker intimated that some people who thought they made lamps for much less than these figures were not sure whether they were getting their money's worth. He estimated that on the New York Division of the Pennsylvania road, with 1,100 signals, the lamps could be changed for \$5,000, to which it would be necessary to add about \$1,000 for changing glasses in switch lamps. Roughly speaking, all the signals on the Pennsylvania east of Pittsburgh could be changed for from \$30,000 to \$50,000. Many railroads could make all the changes necessary for \$5,000 each. Continuing, he said: "When we consider that it is the opinion of many that this change will have to be made some day, I think it is about time to think about it and make some preparations for it. I am informed by reliable authority that one of the strongest reasons why the American Railway Association did not indorse the

greater pains should be taken to get the best, as inspection is less frequent and careful.

Mr. ELLIOTT offered a resolution declaring the present general practice the best, but it was voted down and the question of making any recommendation was then ordered submitted to a letter ballot.

The Committee on Rules submitted a code of regulations for the operation and maintenance of interlocked signals, which will be discussed at the May meeting.

A Ride on a Compound Locomotive.

A ten-wheel compound locomotive built by the Richmond Locomotive Works has been hauling freight on the Southern Railway for several months, and has recently been assigned to a regular passenger run between Danville, Va., and Charlotte, N. C. The engine leaves Danville at 5 o'clock in the morning, hauling a train that, upon the occasion of which we are writing, consisted of four sleeping cars, a day coach, a baggage and a mail car, or seven in all.

As the engine backed down to take the train at the Danville station, the steam gage indicated 195 lbs. and the furnace door was on the latch. Leaving Danville for the south there is an up-grade for a couple of miles or more, but there is no trouble experienced in starting the train, and gradually increasing the speed until the head of the grade was reached. The pressure fell to 185 lbs. and vibrated between that point and something more than 200 lbs. all of the way to Charlotte. Once it dropped to 170 lbs. for a few minutes just after the fireman had sliced and cleaned his fire. In short the engine showed that the boiler had ample capacity to supply the demands of the cylinders. While there were some variations in pressure the pointer was very steadily kept in the range of from 185 to 195 lbs.

If any one of those who think that the compound locomotive is always a matter of careful solicitude, and is favored in a way that the simple engine is not, would take this ride from Danville to Charlotte, his delusions in this respect would be dispelled. Neither in the firing nor the use of the injector is there any apparent difference in the treatment of the engine. The firing is kept up at approximately even intervals, just as we find it wherever the fireman has any regard for his own back and the coal pile of the company. In this instance the injector was used at regular intervals and always full on. The water was allowed to fall until steam just began to show at the second gage; then the injector would be started and the water level raised to the third gage when the feed was stopped and the water allowed to fall again. This was done with an absolute disregard to the profile of the road, which, though not showing any very severe grades, is sufficiently undulating to permit an engineer to favor his machine had there been any necessity for so doing.

Our readers are aware that in the Richmond compound there is an emergency attachment to the intercepting valve, whereby, in cases of necessity, that valve can be held open and the engine be run single expansion. There was no necessity for any use of this attachment upon the run we are considering. Three starts were made, at Danville, Greensboro and Salisbury. In each instance the reversing lever was simply thrown down in the corner and the throttle carefully opened as in the case of the simple engine, and then, as the speed was increased, the reverse lever was drawn back until the cut-off was at about 8 in., and this may be taken as the point of average cut-off during the whole run. There was nothing to indicate to the casual observer that he was near a compound locomotive except the softness and infrequency of the exhaust. The throttle was sometimes wide open and sometimes partially closed so as to wire-draw the steam; but that the engine was to be coddled was the last thing that would have entered the mind of either the engineer or fireman. Their sole idea was to get over the division on time, but they did think enough of the working capacities and possibilities of the machine for the engineer to express his regrets that he were not behind time so that he would have a chance to do some fast running.

But unless the compound can show a coal saving, the mere fact that it can be handled with the same ease as a simple engine will not serve to introduce it. The impression made upon the mind of the observer after having ridden over the same road on simple engines of the same general construction, and hauling trains of the same weight, is that this engine does save coal. On the simple engine it seemed that there was an incessant shoveling of coal only relieved by a slicing of the fire, while on this run the fireman appeared to be anything but overworked; he could climb to his seat for a rest; he could stand between the cab and the tank and look abroad, and at all times he appeared to be the master and not the slave of the situation. There was never any feverish watching of the steam gage, or an evidence of that nervous anxiety that is so commonly manifested where the fireman sees the steam pressure falling and feels that his best efforts are unavailing to check it. In short this fireman appeared to be taking matters easily; and that he did take it more easily than his mate on the simple engine is evidenced by the fact that the latter burns all of the coal that is put upon his tank, while the former had about a ton and a half or so to spare at the end of the run. The time occupied in the run is three hours and a half, the distance is 142 miles, and the saving in the shoveling of a ton and a half of coal makes the difference between a leisurely attention to the furnace and a nervous driving of the same to get all the fuel burned that is possible.

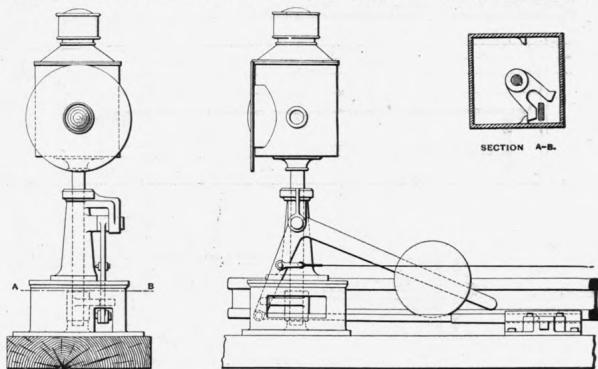


Fig. 4—Ground Signal—Toronto Interlocking.

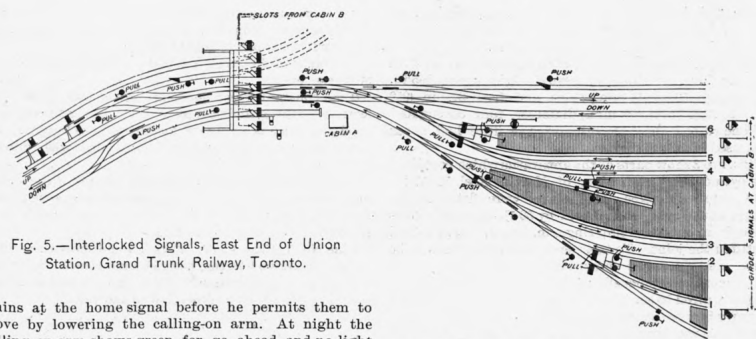


Fig. 5.—Interlocked Signals, East End of Union Station, Grand Trunk Railway, Toronto.

trains at the home signal before he permits them to move by lowering the calling-on arm. At night the calling-on arm shows green for go ahead and no light when it stands horizontal. It is interlocked with the home signal, so that only one of the two can be pulled off at the same time.

The committee refers to illuminated blades, but does not regard them as sufficiently perfected to recommend them. Neither does it approve the use of more than one light at a signal. It is mentioned that several patents have recently been taken out for illuminating a semaphore blade by a line of incandescent electric lamps.

In considering the general subject the committee rejects Carter's system because its general adoption would be too expensive, though the committee holds that the use of green and red together is no more inconsistent than our present practice of showing a green and a red light, one above the other, on the same post, at route signals. White is unsuitable for caution because a broken red glass might then give a cautionary indication where it should be danger. The calling-on signal would conflict with our present plan of route signals.

In view of these objections the committee deems it unwise to recommend any change from the present widely used system. The colored glasses should be thickened or have wire netting imbedded in them. Wire nettings have been used with good effect outside of common glass lenses. It is not considered an objection that some other white light may be mistaken for a clear signal, because "experience has shown that trouble is not to be anticipated on this account."

In the discussion on this report the first thing was a letter from Mr. A. H. Rudd, of Hartford, Conn., disagreeing with the conclusions of the committee. Rather than use white for all clear he would go to the extent of using red glass in distant signals, as is done in England. He would then, if necessary, put a large white light on the post to distinguish the signal from a home signal.

Mr. H. M. SPERRY (National S. & S. Co.) spoke in favor of the use of green or all clear. He explained the

use of the green light was due to the influence of the Pennsylvania Railroad. We have made great efforts in every other direction to perfect our interlocking appliances, and now we are at the mercy of a broken glass. As to the use of wire glass—manufacturers of this kind of glass are doing such a large business in making skylights that they do not care about making a few signal glasses for railroads, and it will probably be three or four years before they will make any effort to turn out railroad signal glass with wire netting incorporated therein.

Mr. SPICER spoke in favor of strengthening colored glasses with wire netting, and by making them thicker, and continuing the present system.

Mr. ELLIOTT (C. M. & St. P.) was satisfied to stick to white for all clear, though he spoke favorably of the Chicago & Northwestern plan. That road now puts a red lens in the lamp instead of using a plain [thin] red glass in the spectacle. It was found that "on account of the thickness of the spectacle casting, snow would collect on the rim and blot out the light and give a clear signal, and it has done that in two instances, one on our road and one on the C. & N. W."

Mr. MILES (M. C.) thought the club should not recommend the present practice simply on the ground that a change would be costly. The question of expense should be left to the general managers. He had known of cases where broken glasses were discovered which seemed to have been broken for at least two weeks, the signal having been seldom operated and the glass not frequently inspected. Such a case may come up on any road, and as the committee thinks the Carter light practicable why recommend the continuance of white?

Mr. SPERRY agreed with Mr. Miles that the question of cost should be left to the managers. Signal engineers should feel the great responsibility resting upon them to provide safe appliances. The fewer signals you have the