

all foundations are built at one place. Finally, if foundations are ever to be moved to accommodate changes in track layout, for example, the form-built foundation can be used again, while it is almost impossible to move one cast in place.

The possibilities in the line of wiring lower mechanism cases, relay boxes, terminal boards for battery wells, etc., are well illustrated by recent experiences of the Illinois Central on automatic signal work. The size of these installations made possible the organization of gangs to handle certain classes of work exclusively, and as much of the work as possible was carried on in shops centrally located with the best of results.

For smaller installations such a plan would not be feasible, but there is an opportunity to utilize more fully than is done in most cases the facilities of the manufacturers' shops in handling case wiring, etc. In one lot of material recently turned out by a large manufacturer, every mechanism case and relay box was wired complete before shipment, and each went out all ready for local connections even to the bundle of properly stamped tags for the incoming wires.

There is probably no road in the country that has gone further in the reduction of field work than the Buffalo, Rochester & Pittsburgh. In several cases when signal material was purchased from a plant adjacent to its own line, the signal department of this road has had the signals assembled complete in the factory and loaded on flat cars in the order needed along the road. They can then be erected in a very short time by a derrick car. This practice, of course, greatly cuts down the capacity of the cars used for handling the material, and would be prohibitive for a road located at a distance from a signal plant. The use of a derrick car for erecting poles, setting battery wells, etc., however is an important labor-saving plan on any road and such machines should be made available to the signal department whenever possible.

### THE R. S. A. STATED MEETING

THE Board of Direction of the Railway Signal Association, as previously announced, deems the importance of the work in hand great enough to fully warrant the holding of the June stated meeting in New York, and the plans for this meeting will accordingly be carried out. The Board of Direction at that time will give definite consideration to the further activities of the Association during the period of the war.

In addition to the committee reports referred to in the May issue of the *Railway Signal Engineer* there will be presented for discussion at this meeting a report by Committee II showing corrections which have been made in certain paragraphs of the previous report on field construction of pipe lines, and locking switches mechanically at interlocking plants, in accordance with criticisms brought out in the discussion at the March stated meeting; a report of Committee IV presenting drawing 1423, wire connections to rail, reprinted from the March Journal; a report by Committee VI, on specifications for hand lantern globes in addition to the proposed standard drawings previously referred to; and abstracts from the minutes of several regional committee meetings presented for information.

THE TELEPHONE AND TELEGRAPH SERVICE of the country, through the committee on telephones and telegraphs of the Council of National Defense, is being mobilized for the war. When all work is completed there will be about 500 long-distance wires radiating from Washington, as compared with 148 last January.

## Letters to the Editor

### SIGNALS OR SIGNS FOR HIGHWAY CROSSINGS

TO THE EDITOR OF THE RAILWAY SIGNAL ENGINEER:

The editorial in the May issue of the *Railway Signal Engineer* entitled "Standard Semaphores for Crossing Signals," and the article on the same subject are interesting.

In the first paragraph of this editorial you ask three questions: "Is the standard semaphore signal the solution of the grade crossing warning problem?" "Will standard automatic signal mechanisms and standard semaphore indications eventually supersede special mechanisms and indications for highway crossing protection on all roads \* \* \*?" and "Are the ingenious devices comprising swinging arms and discs, ringing bells or flashing warnings which have been placed on the market in such numbers in recent years to be relegated to the scrap heap?" You might well have added a fourth question, namely, "Are any of these devices desirable?"

In the article referred to, sketches are shown which indicate that, when the arm is at horizontal, a red light is displayed, and the warning shown by white letters on a red background is "Danger—Stop," and that, when no train is presumably approaching, the "Stop" indication is hidden, a white light is displayed and the word "Danger" shown. The display of the word "Danger" at all times, whether a train is approaching or not, rather implies that a grade crossing of a highway with a railroad is dangerous, and rightly so. If the travelers on the highway thoroughly appreciate this, are any movable signs necessary?

It is a well-recognized fact among signalmen that the audible signal is, as you state, "not adapted to modern conditions." It is an annoyance to those living adjacent; it is not loud enough to warn automobile drivers in time; and it is constructed on the wrong principle in that a failure of the local battery or breakage of the local wires causes it to fail to give warning. The same is true of some of the wig-wag signals; one of the manufacturers, recognizing this, has added an attachment to the signal so as to indicate when it is out of order.

The principal argument in favor of the wig-wag is that it will attract the attention of the traveler better than a stationary sign. If this is the case, the semaphore will not answer. On the other hand, the semaphore is probably more reliable than any of the other appliances. But we all know that track circuits cannot be used on sidings where cars may be stored and on which these stored cars are frequently moved, and that, therefore, when movements are made on such sidings, no warning is given, thereby constituting a trap, and that there are other conditions under which these warnings may be misread or misunderstood.

The great disadvantage of having various types of these devices is the lack of uniformity. They give different aspects to indicate danger and different other aspects to indicate proceed, while the great desideratum is uniformity.

The state highways are marked with fixed signs placed at some distance from sharp curves and bad crossings. These signs are becoming more and more prevalent throughout the United States and are considered sufficient for the purpose intended. We could hardly expect state highway commissions, municipalities or other local organization to erect wig-wags or bells at sharp curves

and road intersections, and the question arises why they should expect the railroads to take such measures.

Throughout the country it is considered sufficient to indicate by approach signs that there is a crossing or sharp turn or steep grade just beyond, and it is the driver's duty to reduce speed and take proper precautions. The fact that they do not always do this and that there are accidents between motor vehicles at the crossing of one highway with another or on steep grades or sharp curves, does not alter the fact that it is up to the driver to obey the directions set forth.

It would, therefore, seem that, in all fairness, if a driver is warned in ample time that he is approaching a railroad, such information is all that could reasonably and fairly be required, and that, if such information is always conveyed in exactly the same way all over the country, so that there may be no possible misunderstanding as to what is ahead, the duty of the driver is plain. Signs such as those mentioned do not get out of order, do not give false indications, and do not give explicit and accurate information. Signs indicating railroads would appear to be analogous to those mentioned and to properly cover the situation.

I believe I am correct in stating that such signs and such protection have already been agreed upon by a special committee of the American Railway Association, a subcommittee of the National Association of Railway Commissioners and representatives of the American Automobile Association, and laws have been suggested by these associations to compel the installation of such signs. It would, therefore, appear to a good many of us that the uniform signs prescribed, properly located and efficiently maintained, provide the fairest and best solution of this problem.

Philadelphia, Pa. A. H. RUDD,  
Signal Engineer, Pennsylvania R. R.

### ANOTHER SET OF MOTOR CAR RULES

TO THE EDITOR OF THE RAILWAY SIGNAL ENGINEER:

I have read with interest the articles in the *Railway Signal Engineer* regarding the handling of motor cars, and it occurred to me that our motor car rules might be of interest to your readers. They are as follows:

1. When cars are to be operated on the main track, the person in charge must, when it is possible, secure information from the train dispatcher covering the movement of trains which may affect the movement of car in his charge.
2. The employees directly in charge of cars are held responsible for their proper and economical operation and maintenance and must familiarize themselves with their use and care.
3. Cars must not be operated unless they are in safe condition for use. Keep dirt and unnecessary grease wiped off, nuts and fastenings properly tightened and inspect all parts with sufficient frequency to know they are in proper and safe condition.
4. Motor cars must not be run over torpedoes placed on rails, and must avoid striking any obstructions.
5. Motor cars must not exceed speed of 15 miles per hour; must approach road, street or railway crossings at slow speed, not over 5 miles per hour, and if necessary to avoid accident, must stop before reaching crossing.
6. When clear view of track is obstructed, stop and listen with sufficient frequency to hear an approaching train and avoid accident.
7. Do not leave cars unprotected on main track or set them off on highways or private crossings, if other places are available, except to permit passage of trains. When removing car from track to permit passage of a train on double track both tracks must be cleared.
8. Do not run cars alongside of moving trains.
9. A moving train, or other cars, must not be followed closer than 1,000 ft. and cars must not be run closer than 500 ft. to standing trains.
10. Push cars, hand cars or velocipede cars must not be pushed ahead of motor cars. When necessary to move such cars by motor cars they should be coupled behind the motor car and never pushed by it.

11. Cars must be kept ready for immediate use at all times. They must be equipped with torpedoes and red flags, and when used at night, with a red light and a white light which can be seen from the track in both directions. Except in cases of emergency, motor cars must not be operated at night.

12. When necessary to leave car outside of tool house, it must be locked and left in such condition that unauthorized persons cannot operate it.

13. Materials or tools carried on cars must be fastened so they will not fall off while car is running.

14. Employees in charge of cars must see that they are not used for any purpose except that for which they are furnished, to wit, to facilitate the work of officers and employees directly in charge of the cars or their superiors, unless special authority to do so is received from proper officer.

15. Keep open flame or lights away from gasoline and do not use cars with gasoline leaking. Do not strain gasoline through chamois skin. When lubricating oil is mixed with gasoline, mix thoroughly before pouring into gasoline tank.

16. Tighten nuts and parts carefully with tools of proper size and kind. In lining the wheels do not hammer the boxes into position.

17. Turn in all old parts when corresponding new parts are received and put on cars.

18. When cars are not being used, see that they are protected from the weather.

19. Do not use more battery on motor cars than prescribed.

20. In ordering parts, give catalogue reference.

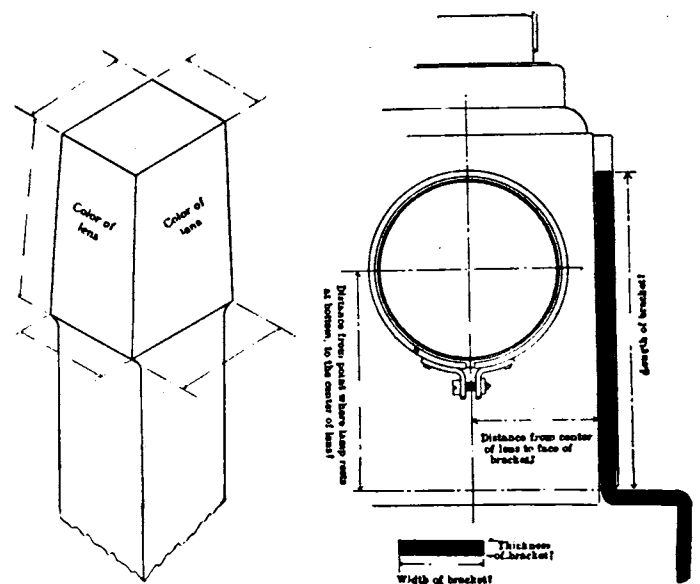
Cincinnati, Ohio.

D. M. CASE,  
Southern Ry., Lines West.

### DIMENSIONING DRAWINGS OF SIGNAL LAMPS

TO THE EDITOR OF THE RAILWAY SIGNAL ENGINEER:

Referring to the letter signed, "Chief Draftsman," which appeared in the May issue of the *Railway Signal Engineer*, there are practically five measurements necessary for the lamp manufacturer to have in his possession. These are shown in one of the sketches. The standard R. S. A. signal lamp includes the five measurements referred to by "Chief Draftsman," but it has been my experience that blue prints submitted by railways do not



Measurements of Switch Rod Tip and Signal Lamp Needed by a Lamp Manufacturer

always have these measurements. The same thing applies to the dimensions of switch-rod tips, where the lamp manufacturer must know the dimensions and taper as well as the proper location of the colored lenses. These necessary details are also indicated in the sketch reproduced above.

C. K. FREEMAN,  
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