

### Southern Uses Two-Unit Color-Light Signal

By W. J. Eck

Assistant to Vice-President, Southern, Washington, D. C.

WE are now using for situations of this kind a two-unit, color-light signal displaying the following colors:

#### Main Line Movements

Stop—Two vertical red lights.  
Approach next signal prepared to stop—Yellow over red.  
Proceed—Green over red.

#### Diverging Route

Proceed at slow speed prepared to stop—Red over yellow. The latter indication is displayed when the switch is set for the siding.

It will be noted that these indications are the same as the night indications which have long been used on two-arm semaphore signals for similar track layouts. We have had no criticisms from the trainmen, as the indications are the same as those which they have been accustomed to use.

### Pere Marquette Employs Two-Unit Signal, Using Three-Indication Lower Unit for Diverging Route

By H. C. LORENZEN

Assistant Signal Engineer, Pere Marquette, Detroit, Mich.

OUR standard method of signal protection for a switch in remote control or centralized control territory, is a two-arm semaphore, or a two-unit, color-light signal for both directions on the main line, and a dwarf signal for moves from the siding. The top arm or unit in both directions on the main line is a three-indication, semi-automatic signal. The lower arm or unit for the signal governing trailing moves over the switch is inoperative. The lower arm or unit of the signal giving head-in indications to the passing track is a three-indication signal. Yellow or 45 deg. indication is for slow-speed moves. Green or 90 deg. indication is used when the track is clear to the leaving signal at the other end of the passing track. The dwarf signal on the siding is a three-indication, tying in with the automatic signals.

We do not use any special circuit arrangement to provide additional protection in the event of a lamp burn-out. Our contention is that a lamp failure is a signal improperly displayed and therefore a stop signal. We have telephones located at all head-block signals, and in the event of a stop signal being displayed, the conductor will immediately get in touch with the dispatcher for further instructions.

### Medium-Speed Limit Must Be Strictly Enforced—Recommends Two Lights on All Color-Light Signals

By W. M. Post

Assistant Chief Signal Engineer, Pennsylvania, Philadelphia, Pa.

IF a signal, leading to a passing siding over a remotely-operated switch, has the red lamp in the top signal burned out, and assuming that the switch is lined for the passing siding, the engineman would receive a yellow signal from the lower unit. This he might accept as an approach signal and it would indicate to him, if Standard Code indications were in effect, that he could proceed prepared to stop at the next signal, but if exceeding medium speed he must reduce to that speed. As the engineman would have received an approach indication at the distant signal, he would not proceed by

the signal with one light at more than medium speed. The railroad would designate the meaning of medium speed, which would probably be about 30 m.p.h. This speed, of course, is too high to move into a passing siding.

In my opinion where color-light signals are used, there should be two lights on every signal. If one light goes out the engineman would receive an improperly displayed signal, which he would of course regard as giving its most restrictive indication. For this reason the Pennsylvania has two lights on all semaphore signals. If the railroad does not have the two-light system and is not prepared to establish such a system, a light out relay could be connected in the circuit so that when the top light is burned out, the second light would also be out. While it is undesirable to have both lights out, I know of no better arrangement where one-light, color-light signals are used.

## Should Call-On Arms Be Used?

*"Is a call-on arm necessary below the high-speed arm on an interlocking home signal in automatic signal territory where there is only one possible route to govern over?"*

### Does Not Believe That a Call-On Signal Is Safe to Employ for Main-Line Train Movements

By WM. F. ZANE

Signal Engineer, Chicago, Burlington & Quincy, Chicago

I AM not in favor of a call-on signal so used. On the Burlington, this type of signal is used as a *route signal only* governing into side tracks, passing tracks, etc., and so interlocked that this slow-speed signal cannot be obtained in place of any regular signal covering the prescribed route. I do not believe it is good signaling to spend money to install an interlocking plant, and then install a signal to use in case the regular signal cannot be obtained. I also find in following the reports on accidents throughout the country, that quite a few of them have been caused by the use of call-on signals, even though there was no excuse for the accident, as the rules are plain covering the use of these signals.

Personally, I believe it is advisable in case of any type of failure in an interlocking plant, to have the signals assume their most restrictive indication, and that other methods be employed to get a train through. The methods that should be used are covered by operating rules. I do not believe that a call-on signal is necessary below the high-speed arm on an interlocking home signal in automatic signal territory, where there is only one possible route to govern over.

### Monon Employs Call-On Signals to Advance Trains on Main Line

By E. G. STRADLING

Superintendent of Telegraph & Signals, Chicago, Indianapolis & Louisville, Lafayette, Ind.

ON the Chicago, Indianapolis & Louisville we use a call-on arm on all interlocking home signals which govern movements on the main track in automatic block signal territory. We feel that this is essential on account of the fact that the high-speed arm on such home signals is semi-automatic and is controlled by the automatic block signal circuits between such signal and the next block signal, therefore any interruptions to the

automatic signal circuits would cause the high-speed arm on the home signal to remain in the horizontal or stop position.

Each railroad has its own rules for moving a train past a home signal in the stop position at an interlocking plant. On the "Monon" with the high-speed arm in the stop position we require the train to come to a stop at the signal, but it can immediately advance upon receiving a permissive indication from the call-on arm. This call-on arm advises the engine crew that the route through the interlocking plant is clear, and the fact that the high-speed arm is at stop, informs them that they must comply with the rules for block signals in moving through the next block.

If we did not have the call-on arm, the only way we could get such a train past an interlocking home signal with the high-speed arm in the stop position, would be for the towerman to go on the ground and verbally inform the engine crew. This would result in considerable loss of time for each train affected, and when there is not anything wrong with the interlocking, there is not any need of requiring the towerman to leave the tower.

### Santa Fe Provides Short Track Section in Approach of Signal to Give Restricted Speed Indication

By THOS. S. STEVENS

Signal Engineer System, Atchison, Topeka & Santa Fe, Topeka, Kan.

**W**E do not use so-called "calling-on arms" because we never use more than one arm on any signal. We realize, however, the necessity for moving a train into an occupied block at an interlocking plant in a definite way which does not involve the difficult method of flagging. In order to accomplish this, we provide a short track section of two or three rail lengths which, when occupied by a train or engine, will allow the governing signal to assume the restricted speed position. We believe such a practice is slightly safer than the use of a calling-on arm, unless the display of a proceed indication by this arm is controlled somewhat in the same way.

I remember my own experience when occupying the rear end of a train which had entered an interlocking plant and another train was allowed to proceed into the same block by an uncontrolled calling-on arm. The second train was flagged, and it needed flagging, although perhaps it would have stopped safely. Of course, this does not condemn calling-on arms. There should be some way provided for the proper movement of a train into an occupied block by means of a signal and not by flagging. For those railroads who use three-arm signals it would seem that the display of the third arm in the 45-deg. position is good signal engineering practice.

### Rock Island Uses Call-On Signals

By LEROY WYANT

Signal Engineer, Chicago, Rock Island & Pacific, Chicago, Ill.

**W**E use the calling-on arm under all conditions in track circuit territory to reduce to a minimum the necessity of the towerman giving a hand signal through an interlocking plant. Our operating rules clearly indicate that such calling-on signals in automatic block signal territory authorize train movements only through the interlocking plant, and that our standard "automatic block signal standard rules" apply immediately after the train has passed through the plant and enters the automatic signal territory.

## Normal-Stop Versus Normal-Clear Signaling

*"With the present trend toward approach-lighted signals, both color-light and semaphore, there would seem to be a reversion to the old normal danger scheme of automatic signaling. Has experience disclosed any inherent disadvantages in normal danger signaling?"*

Both Schemes Are Equally Safe, but Normal-Clear Signals Are More Easily Tested

By F. B. WIEGAND

Signal Engineer, New York Central, Cleveland, Ohio

**M**Y opinion is that the normal-stop (I do not like your term "normal danger") system of signaling is as safe as the normal-clear system. The normal-clear system, however, lends itself to quicker test by the maintenance forces owing to the absence of the clearing circuits. With the color-light signal, it matters not whether the signals are burning constantly or are approached-lighted, except from the viewpoint of economy.

With the light signal of all types, color, color-position, and position, no means are provided for the reading of the indication from the back of the signal and, inasmuch as all observations must be made facing the signal, any inherent disadvantage in the normal-stop system must also be present in the normal-clear system.

## Parkway Cable Entrance Through Signal Foundation

*"Where passageways are left in concrete signal foundations to bring wires or cables up into the case from a point below the ground line, how are these chases or passageways formed in the foundation, and is any conduit used?"*

Four-Inch Pipe Used

By H. C. LORENZEN

Assistant Signal Engineer, Pere Marquette, Detroit, Mich.

**W**HEN building concrete foundations on the Pere Marquette we form the wire chase by placing a 4-in. straight pipe in the form. Our instrument cases are furnished with large openings in the bottom, and the 4-in. pipe is placed in the form at an angle. The top of the pipe is placed near the center of the foundation, and the bottom near the side at which the parkway cable enters. The 4-in. pipe is large enough to carry all necessary cable. After the concrete is set, the pipe is removed.

Grand Trunk Western Uses Two-Inch Pipe

By W. L. DAYTON

Superintendent of Signals, Grand Trunk Western, Detroit, Mich.

**O**N the Grand Trunk Western we have found the method of construction shown in the accompanying illustration to be effective and to present no great difficulty in installing. When the form for signal foundation is made, a piece of conduit is inserted so that the upper end is in the center of the top of foundation and the lower end projects from the lower part of the side. This conduit is left in the form, and the cement poured around it. When the cable is to be