

The use of metal versus concrete houses is not a vital question, both types should be constructed and ventilated so as to eliminate sweating on the inside. The house should be large enough to eliminate crowding of the relays, etc., also leaving head room so that terminals can be readily accessible. The house should also be provided with wired glass windows in the end opposite the door, and the house should be set parallel to the track so that the maintainer, when working within, can have full view through the window, or through the door, of the track and signals. Another convenience where a-c. power is available, is an electric light with a long drop cord and an a-c. plug to be used in connection with electric soldering irons, small electric drills, etc. A house so arranged is convenient for the maintainer and his efficiency is increased because he is out of the weather when working or making tests, rather than out in the weather in front of individual relay cases.

The use of a house eliminates all underground or aerial connections between cases, requiring only the termination of aerial cable and underground parkway or trunking in the house. All other wiring between other apparatus is open and visible inside.

It is also advisable to locate all the operating storage batteries for switch machines, signals, etc., with their proper charging apparatus, in the house even though it does take a few feet more of aerial or parkway conductors to reach the signals and switches on the ground.

Where individual relay boxes are used, either bunched or scattered over the plant, one maintainer loses considerable time in making tests, tracing his circuits and making any necessary repairs. Also, a maintainer working at individual relay boxes is inconvenienced by weather conditions. Opening the cases during wet, damp or cold weather is detrimental to the apparatus. It is my opinion that the use of a small fire-proof house, either metal or concrete, is very efficient, and contributes to the economy of the maintenance and operation of any centralized system.

Time-Table Schedules and Signal Indications

"In preparing rules for the operation of trains by signal indication, using the centralized-dispatcher controlled system, is it desirable to leave the time-table in effect, or should the signal indications supersede all other rights?"

Trains Should Be Flagged Through Territory in Case of Failure

By G. W. TROUT

Signal Engineer and Superintendent of Telegraph,
Pere Marquette, Detroit, Mich.

IN the centralized-control territory on the Pere Marquette, signal indications supersede time-table rights and written train orders. The only trains affected by the time-table are passenger trains scheduled to stop at stations in centralized-control territory, and these are not permitted to leave scheduled stations ahead of time.

The matter of leaving the time-table in effect, in case of a failure of signal and communication circuits, has been given consideration by our operating department. However, it is their opinion that, even though the time-table were to supersede signal indi-

cations, in case of failure of both communication and signal lines, train and enginemen in the territory would not know when such a condition existed, as the failure insofar as any one train is concerned, might be purely local for that train, and trains in adjacent territory might be operating under signal indications. Therefore, it would not be a safe operation to attempt to revert to time-table rights, owing to the fact that no method has been found of advising trains, when there is a complete failure of both communication and signal circuits.

It is the opinion of our operating department that it would be necessary, in case of such a failure, for trains to be flagged through the territory, and until either communication, signal lines or means of transmitting the orders could be established.

Time Card Only Needed to Show Departure Time at Stations

By J. H. SCHUBERT

Signal Engineer, Nashville, Chattanooga & St. Louis,
Nashville, Tenn.

TIME-TABLES are used to confer rights, class and direction, train orders being distinct from, but used in conjunction with, time-tables for the same purpose. When centralized-dispatcher controlled signaling is applied, we have ruled that the signal indications supersede time-table superiority, and take the place of train orders. Such being the case, the necessity of a time-table for train operation has disappeared.

We do believe however, that a time card should be used, showing the time of passenger trains at a station, and that trainmen on such trains be instructed that they must not leave a station ahead of the leaving time shown on the time card. This however is not essential to train operation, but is maintained as an accommodation to the public. Should there be a failure of either a power-operated switch or a home block signal, the train is stopped, and, after examination of switch, or possibly operation of it by the dual-control switch machine, the train controller may grant permission for the train to proceed. Such permission is granted by telephones, which are located at all power-operated switches.

Should either of the above failures occur, and lines of communication be broken down at the same time, the train can only advance under flag protection, until communication is restored, or the signal defect remedied.

We have operated under these rules for five months during which time heavy traffic prevailed, and considerable ice and snow was present. To date we have had no serious delays.

Signal Dispatching Installation Must Be of Substantial Character, if Time Table Information Be Reduced

By B. J. SCHWENDT

Assistant Signal Engineer, New York Central, Cleveland, Ohio

A TIME-TABLE is the authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains, and also special instructions relating thereto. A schedule, however, is that part of a time-table which prescribes class, direction, number and movement for a regular train. By movement is meant the time, regular and flag stops, meeting and passing points, between what stations and on what days it runs. A schedule is simply a part of a time-

table; the authority for a train to run; while a train is the equipment that is run on the schedule; a schedule can be in effect without a train running on it, but a regular train cannot be run, without a schedule for it; a train can be stopped, but a schedule cannot.

Your question, therefore, relates to how much of a schedule may be omitted under signal dispatching, or centralized control, or whatever it is called. Assume that a subdivision on a railroad is fully equipped with signal dispatching. It is obvious that regular through trains need be recorded on the time-table in no other way, except to show their initial and terminal stations, but under conditions even this information might be eliminated. If the train is a local train, it is necessary for the information of the crews to show the time at the various stations at which stops are made; however, meeting and passing points no longer mean anything, as these are determined by the operator, or dispatcher, in charge of displaying the signals which determine such meeting or passing points. If the section on which signal dispatching is applied is less than a subdivision, of necessity the foregoing information will apply only to such part of a subdivision as is equipped.

Train operation by signals no longer requires train orders, neither does it require superiority, as between trains, of right, class and direction. Rights are changed by signal instead of by train order. Class and direction, as above explained, still remain on the time-table schedule for such purposes as might be required.

How much information should remain on the time-table in the way of schedules, etc., even though signal dispatching be used, may be influenced considerably by the type and security of the dispatching arrangement used. If the system be constructed in a flimsy way, so that a storm of any consequence will wipe it out, the question immediately arises as to how trains will be operated during the period of an inoperative signal system. It is probably true that the only good answer to such a question is that the road should revert to the immediately preceding practice of using train orders and time-table rights. In order to have this available at any minute, should such an emergency arise, it might be desirable to print all schedules in full as required for such practice, and then suspend them during the period that signal dispatching is in use, and until such time as revoked due to storms or other emergencies.

This reversion is not as simple as it may sound, as with all communication lost, it would be impossible to notify crews on the road, when such an emergency existed. It is obvious that every crew must properly understand this instruction schedule, for it might be fatal to start operation under the old process, on the

part of some crews, with other crews not understanding the matter the same way. From this it naturally follows that the signal system should be so built that storms will not interfere. Our experience in just such matters has pointed out the wisdom of this decision. Below is a sample bulletin such as might be used to place signal dispatching in effect. It will be noted that the wording is such that it can be revoked, and the old system resorted to upon receipt of proper information by train crews:

Cleveland, Ohio, February 5, 1930.

TRAIN AND ENGINEMEN:

Effective 9:30 a. m. Monday, February 10, 1930, between and, trains will run by block signals, whose indications will supersede time-table superiority, and unless otherwise provided, will take the place of train orders. Rules and are modified accordingly. See "Instructions for the Operation of Trains Under Signal Dispatching."

All train orders held by trains at the time above mentioned will be considered annulled. At the same time, train order and manual block signals in this territory will be discontinued. All trains between and will stop at first signal after 9:30 a. m., call dispatcher, give engine number and number of governing signal and then proceed.

JOHN SMITH, Superintendent.

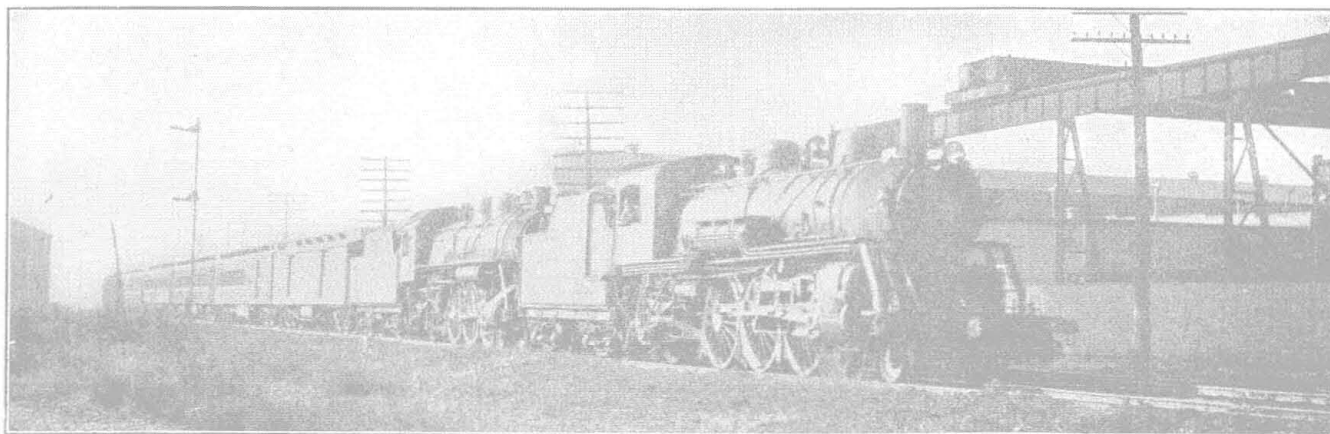
B. W. Molis, signal engineer of the Denver & Rio Grande Western, replies:

"In preparing our rules for the operation of trains by signal indication, we specifically mentioned, in part, 'the superiority of trains will be void within these limits.' We do not show, or convey by time-table, or train orders, any rights in the territory. We do retain as information only, the schedules of first-class trains, with further notations that certain local first-class trains must not depart prior to the time shown, where a stop or flag is indicated."

P. M. Gault, signal engineer of the Missouri Pacific, replies:

"In my opinion, the time-table in effect on centralized-control territory should show only such time for trains as is necessary for the information of the public, or of those who have work to do in connection with the handling of materials which are to be shipped. If the railroad is to be operated efficiently, the signal indication should supersede all other rights in the movement of trains."

[Editor's Note—This subject was also referred to in the editorial on page 66 of the February, 1930, issue. Additional information will be found on page 107 of the March issue, wherein reference is made to the operating rules of the Southern Pacific governing centralized-control territory.]



A Monon train in the Chicago terminals