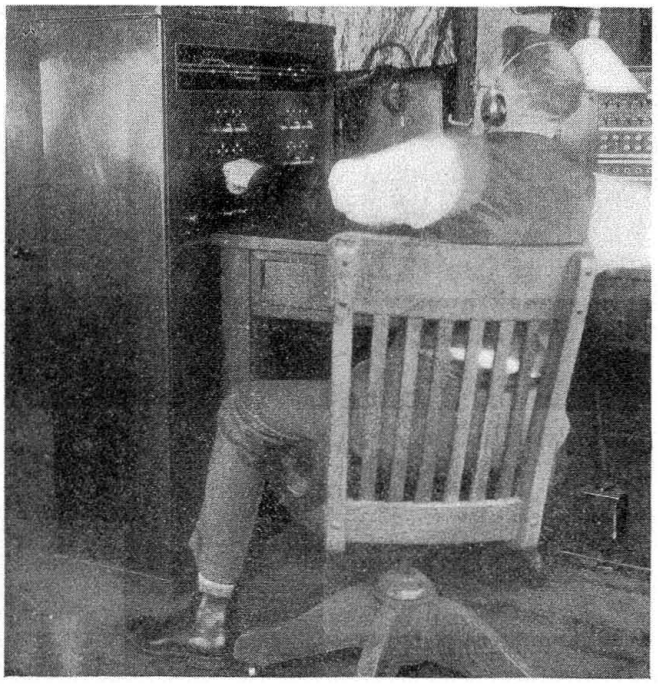
Pennsylvania Uses Remote Control for Switches

Passing tracks and crossovers on 10-mile section controlled from existing tower

THE practicability of using remote control facilities on a busy double-track line, controlled in conjunction with existing interlockings, has been clearly demonstrated by the Pennsylvania on an installation completed recently on the Ft. Wayne division between Vandale, Ind., and Berlin, a 10-mile section of double track, involving four passing tracks and one crossover, as well as the signals for directing train movement in this area.

A single-track branch line of the Pennsylvania crosses the main line at Vandale, near Columbia City,



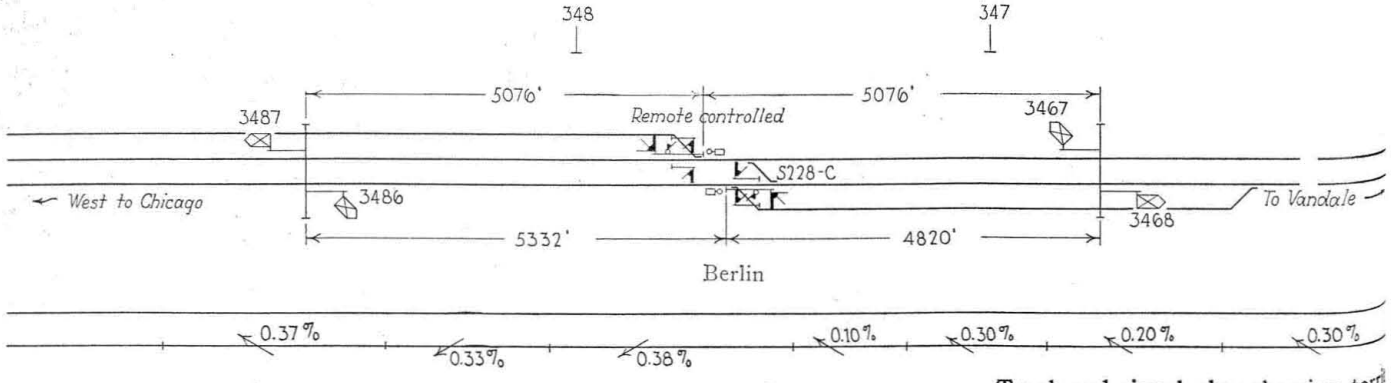
The control machine at Vandale

a mechanical interlocking for the protection of this crossing and for the operation of connecting tracks and crossovers having been in service at this point for years. The switches for the east end of the two

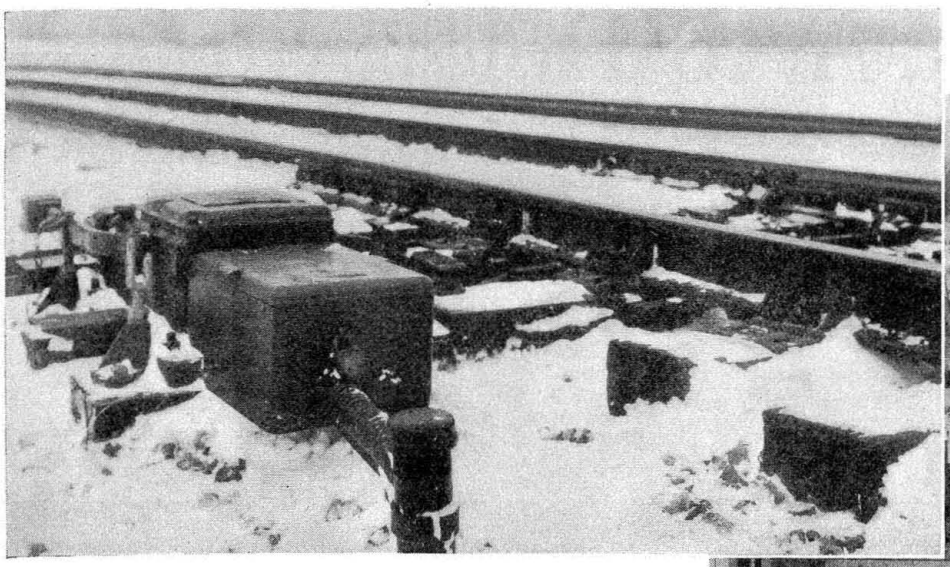
View looking west at Berlin

passing tracks just west of Vandale are connected into this interlocking. However, the switches at the west end of these passing tracks, about two miles further west, were hand-operated, and being located near the crest of a hill with a 0.38 per cent grade descending in each direction, considerable delay was occasioned to trains entering or leaving these passing tracks. Certain freight trains enter these passing tracks to set out and pick up cars in interchange for the Vandalia cross line, which requires from 30 to 45 min. When such an eastbound train is running close ahead of a passenger train, under the previous arrangement no chance was taken in delaying the passenger train, and as a result the freight took siding at Berlin, the next siding further west. Whereas with the power switch machines this freight can be run over to Vandale and into the passing track on close time ahead of a passenger, thus permitting the freight crew to proceed with its switching, while the following train goes by. From 45 min. to 1 hr. is thereby saved on each of several trains daily. Likewise, for westbound trains pulling out of these passing tracks, no stops are now required, thus saving 10 to 15 min. for each movement which often permits the advancing of a train when such a movement could not otherwise be made.

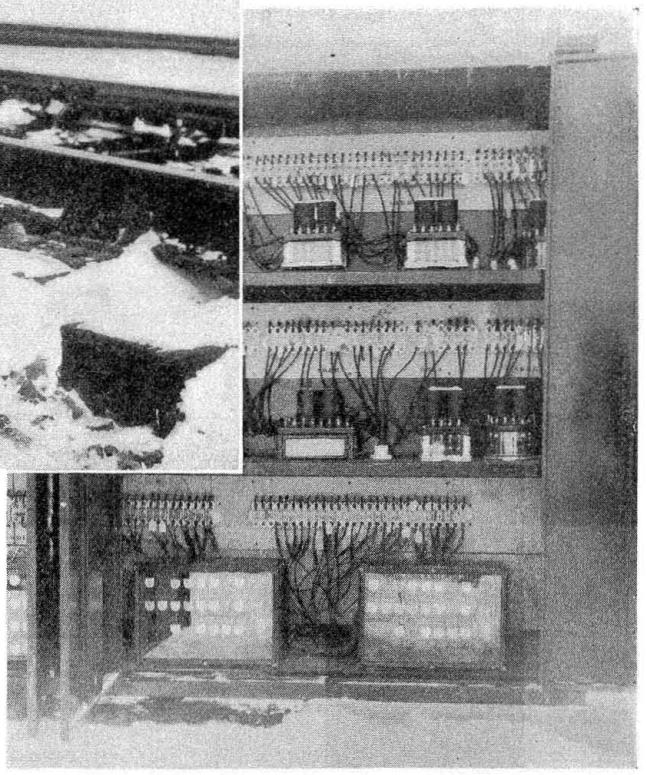
At Berlin, nine miles west of Vandale, there are two passing tracks, one for eastbound and the other



Track and signal plan showing terr



One of the switch machines



The instrument case at Berlin

for westbound trains, with a main-line crossover. A block office was formerly in operation at this point with an operator on duty each trick. In view of the fact that the passing track switches at the west end of Vandale were being handled so successfully by remote control, it was decided to extend the control system west to Berlin and include the control of these passing track switches and signals for directing trains at this layout, thereby eliminating the Berlin block office, and releasing the operators at this point. The elimination of train stops to handle the entering switches for the passing tracks was a decided advantage at this layout also, because the ascending grade approaching from the east varies from 0.2 to 0.3 per cent, while from the west the grade is ascending on a 0.38 per cent.

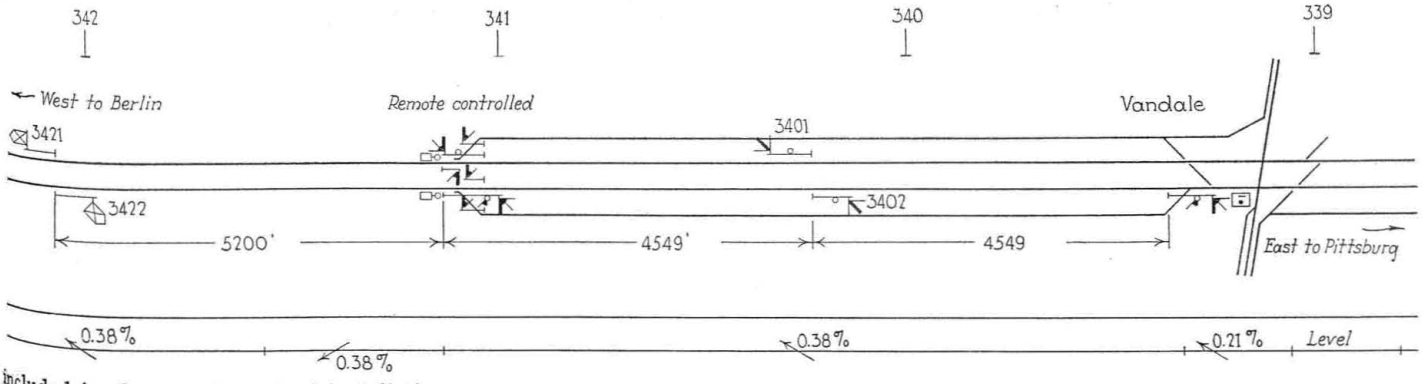
The Control Is Located at Vandale

The eight-lever dispatcher type control machine is located at the end of the operator's table in the tower at Vandale. By watching the indicators on this illuminated track diagram, the operator knows where each train is, and by conversation with the dispatcher as to which movements are to be made, decisions are worked out so as to utilize all the time available to advance trains without delaying other trains on the division.

Thirty-two scheduled passenger trains and about 30 freight trains are handled on this division daily, and with several extra passenger trains the traffic average about 65 to 70 trains daily. With so many trains, savings of 15 min. to 45 min. on each of several trains soon amounts to hours of train delay.

The Union Switch & Signal three-wire centralized coder-relay system of control is used for the control of the 4 switch machines and 12 controlled signals included in this installation. The three-line wires for the control circuit are No. 9 bare-copper wire, and are carried on the regular signal department crossarm.

The switch machines are the Union Model M-20, with a 20-volt motor designed to operate a switch in about 12 to 14 sec. The signals are of the position-light type. Storage batteries are provided for the operation of the switches, as well as the signals and control circuits at each layout. The relays, coder-relay units and battery at each layout are housed in a large sheet metal case as shown in one of the views. All underground wiring to the signals and switch machines is parkway cable. This installation was made by Pennsylvania signal department forces according to plans and specifications of this company.



included in the remote-control installation