railway company has its own power house, which supplies current at 25 cycles, while the 50-cycle current has to be purchased through a meter from the town supply, which is much more expensive.

The control current for both switches and signals, is 12 volts d-c. The battery used for control circuits has a capacity of 1,440 a. h., and is capable of maintaining a load of 30 amp. for 48 hours at a pressure of 12 volts. As the load on the track main is much less than the control, the battery used to feed this main is smaller and has a capacity of 528 a. h., capable of maintaining a load of 11 amp. for 48 hours at a pressure of 12 volts.

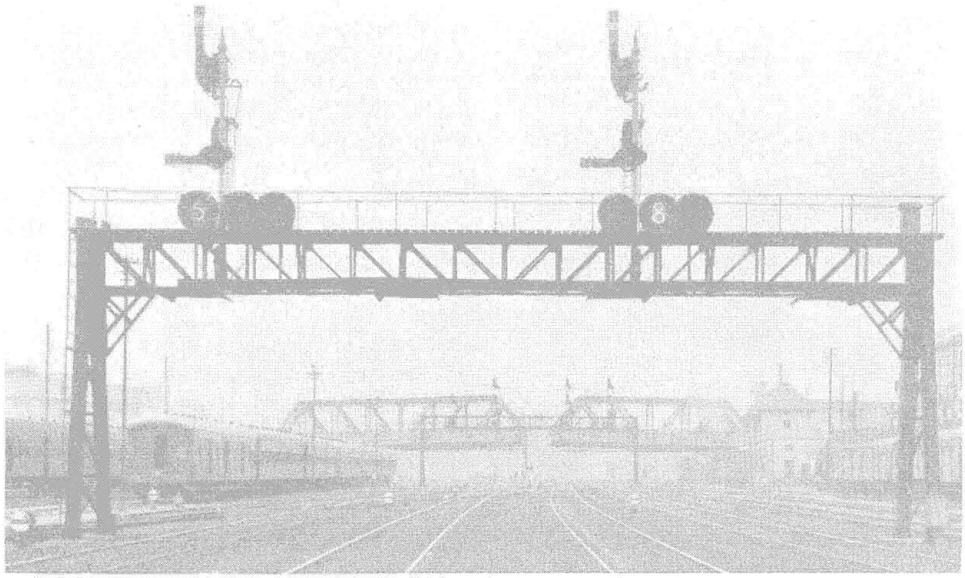
The relay room is of the same dimensions as the actual cabin upstairs. Underneath the power frame, which is supported on steel girders, was constructed a steel relay rack running from one end of the room to the other. As this rack is embedded in the concrete floor, it is quite firm and no vibration is transmitted to the relays. The shelves and cable runs are of cedar screwed to the steel framework. The total number of relays housed in this rack, which is double-sided, is 385. This arrangement has the advantage that wires going to the power frame contacts are taken straight up through wooden ducts, thus avoiding expensive cable runs and avoiding the use of more cable than necessary.

All cables above ground are carried in wooden trunking. As there is a wall extending for some distance throughout the yard, a considerable amount of trunking is run in iron supports which are secured to the bricks. Where there is no wall, the trunking is run on Quebracho stakes. Quebracho is a hard wood native to Argentina, and is very suitable for this work, as it will not rot when driven into the ground. It is found that the longer it is exposed to the elements, the harder it becomes.

Yard Control Tower

Two loud-speakers are provided on the instrument shelf of the power frame in the cabin. One is fixed over the portion of the frame that controls the east-side movements, while the other is fixed over the portion that controls the west side. These speakers are connected with two similar instruments in the inspector's yard-control tower, at the south end of No. 7 platform, from which point all the shunt movements of the yard are directed. Two inspectors are on duty during the day, one controlling all movements on the east and the other those on the west side, but at night only one inspector is required. The apparatus is constructed so that it is possible to receive and transmit from the same loud-speaker. A button is pressed when speaking, but normally speech is received without touching anything. The advantage of this method is apparent, as the leverman can attend to his work and at the same time hear all that the yard inspector has to say without having to go to a telephone.

The entire installation was designed and executed by the Westinghouse Brake & Saxby Signal Company, Ltd., under the personal direction of Hayes Bruxby, signal and telegraph superintendent of the Buenos Aires Great Southern Railway.



Optical route indicators on home-signal bridge

New Type of Lead-Out

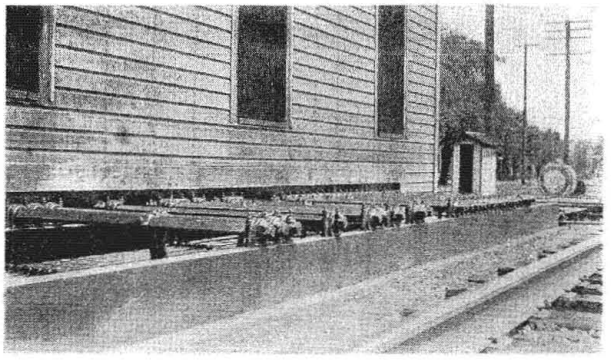
By T. G. Inwood

Signal Supervisor, New York Central, Chicago

RECENTLY the 56-lever mechanical interlocking at Porter, Ind., was completely overhauled and repaired. This plant protects a crossing of two main tracks of the Michigan Central with three tracks of the New York Central and a single-track junction of the Pere Marquette with the N. Y. C. The original machine was a Saxby & Farmer 54-lever machine with 53 working and one spare levers. This was replaced with a General Railway Signal Company 56-lever Style-A machine with all levers working. The new machine is equipped with Type-L lever-locks which replaced the old electric latch-locks formerly in use.

A novel feature in connection with this change was the replacement of high rocker-shaft bearings in the leadout with low-type bearings supported by 12-in. channel-iron mounted on edge on concrete walls. This arrangement gives a very rigid as well as an easily maintained lead-out. By using this type of construction, which is illustrated by the accompanying photograph, we were able to replace the old timber-supported leadout without taking

the plant out of service or delaying a single train. First a concrete pier was installed at each end of the old leadout, then the old frame foundation and high rocker-shaft bearings were torn out, mounting the channel rail on the piers and fastening the new low bearings on the top of them. This gave a good rigid support and at the same time permitted us to clear away the original foundation



Photograph showing the new bearings mounted on 12-in. channel iron supported by concrete wall

and replace it later with a concrete wall and pit under the entire leadout.

The leadout changes were made in advance of changing out the interlocking machine, and this facilitated making other changes which were necessary when the change was made from the 54-lever to the 56-lever machine such as replacing a number of switch-and-lock movements on derails with direct-connected operating rods and facing-point locks. The changing of the location of the levers in the machine, and likewise the location of the rocker-shaft operating these units, were then made with minimum labor expense.

Experience With Snow Melters

By B. L. Smith

Signal Engineer, Chicago, South Shore & South Bend, Michigan City, Ind.

DURING the past two years the Chicago, South Shore & South Bend has been experimenting with various types of snow melters, including oil-pot, gas, and electric types. The first installation was of the oil-pot type, which proved very unsatisfactory because, due to the high speed at which our trains operate, it was necessary to have men at the switch continuously to relight the heaters after each train passed, although the heater in itself did a fairly good job of melting the snow.

The next heater tested was of the gas type, which was applied on a switch with 33-ft. points. The gas was fed in from the center of the heater and was ignited by an electric thermal unit. This installation proved to be satisfactory, and no men were required even during severe snow storms. In one particular point, Tamarack, Ind., the gas main was within 50 ft. of the switch and the cost of the installation was very low. In fact, the entire cost, including the heaters, was less than $150. However, in order to equip an outlying spring switch with gas heaters, it would be necessary to run a pipe line for a long distance, making the cost prohibitive. Too, during cold weather, freezing temperatures would cut down the gas pressure, and therefore, we were doubtful if they would do the work.

Out next experiment was with an 1,800-watt electric heater, also used on a 33-ft. point. The cost of this installation, was slightly higher than that of the gas installation, as we used a 10 kv.a. transformer tapped in on the 2,200-volt signal line. During light snows this heater worked very efficiently, but through a heavy storm we were compelled to put men on the switch to keep it in operation.

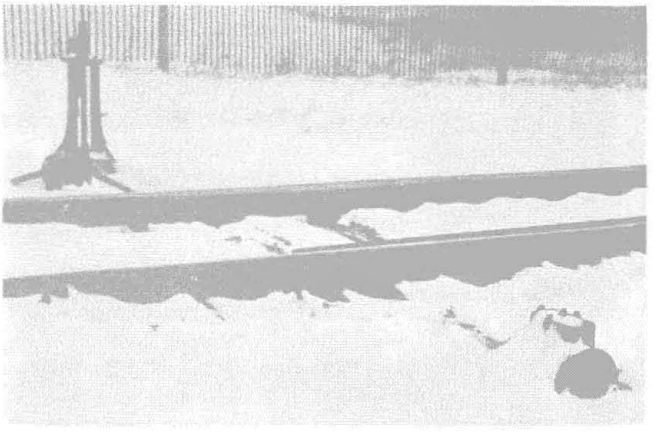
Larger Electric Heaters Satisfactory

The next installation was on five switches at various points. These were 3,600-watt electric heaters and were installed on 33 ft. points tapped to the 2,200-volt line, using 10-kv.a. transformers, each installation costing $250. These heaters operated satisfactorily, and even during the most severe storm it was not necessary to keep men at the switches at any time.

There has been considerable saving in operating expense over the old method of using men, which will be noted from the figures below:

Hand-labor for cleaning snow from eight switches for entire season	$360.00
Cost of operating electric melters on eight switches	93.36
Saving for the season	$266.64

I am of the opinion that much improvement can be made on the electric switchheaters in that the heating element should be enclosed in some insulating material so as to concentrate all the heat on the rail and not allow



The South Shore has shown that a considerable saving in switch maintenance can be made by using electric melters

so much to be dissipated in the cold air. Thus, the wattage could be reduced considerably, effecting an appreciable saving in current consumption. Furthermore the method of fastening the heater to the rail is rather crude and offers opportunity for decided improvement.

I believe there should be a cross heater used in the tie spaces occupied by the tie rods on the switch points, as I noticed that these spaces filled up readily with slush snow and had to be cleaned out. This slush snow might give considerable trouble if there were a sudden drop in temperature during the storm.