

Consolidation of Interlockings

THE double-track main line from Toronto, Ottawa and points west, enters the diagram herewith at the left, and extends east through Montreal West and Westmount to Windsor Street Passenger station in the Montreal business district. On this line, at Ballantyne, a track branches off to St. Luc Junction to connect with a double-track main line running more or less north and south.

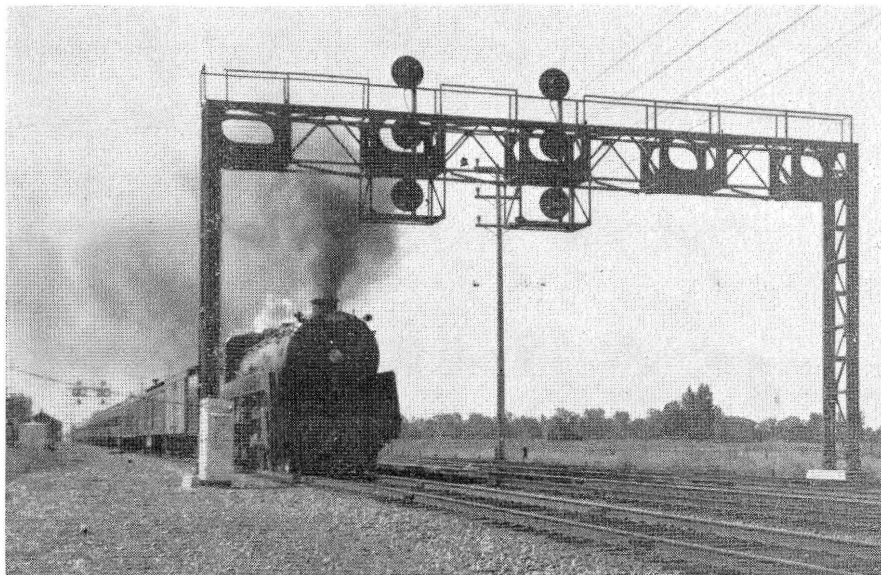
This north-and-south line at the bottom of the diagram extends to the south side of the St. Lawrence river to lines of the Canadian Pacific extending east to Saint John, N. B. and Halifax, N. S., as well as to Wells River, Vt. Also from junctions just south of the St. Lawrence, connections are made with the New York Central line to Utica, N. Y., and the Delaware & Hudson to Albany, N. Y. The line north from St. Luc Junction, as shown on the diagram, extends through junctions at Outremont and Breslay, and from there to another junction from which a line goes east to Quebec, and a line goes west to Ottawa. Also, from Outremont, a connection extends to Mile End and the docks.

To provide for the control of two new junctions and three existing

junctions, for trains to enter and leave the new yard, a concrete and brick tower, known as Hampstead, was constructed at a location near

trol machine at this tower is of the C.T.C. type, with a center and two wing sections; with space for including at some future time, the mechanical interlockings at Breslay, Mile End, South Junction and Ballantyne.

At Hampstead, a new crossover and a single switch were installed



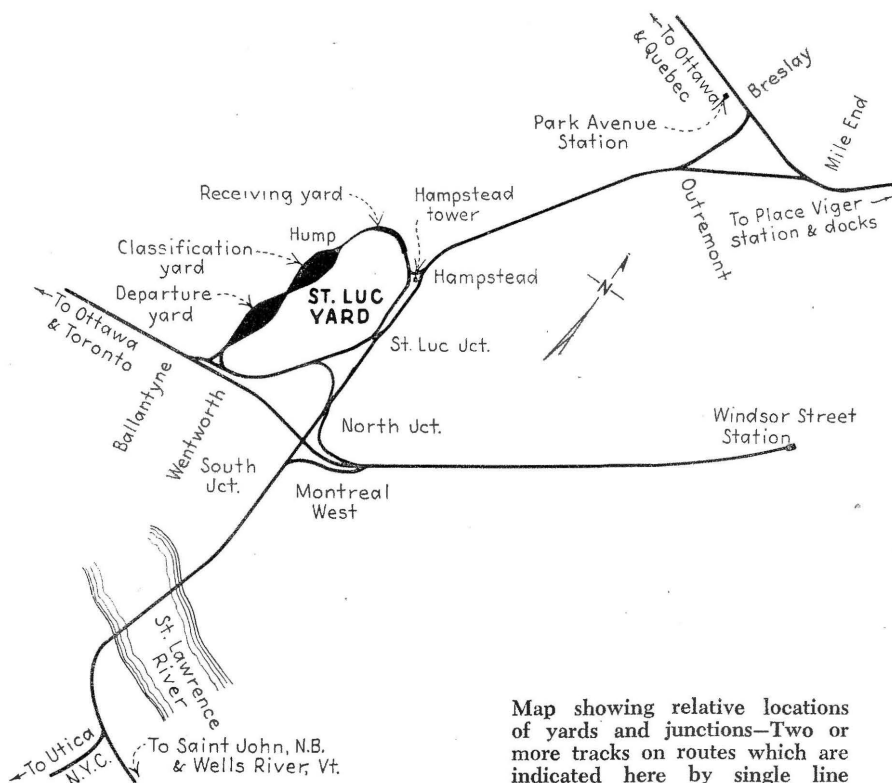
Eastward train passing through St. Luc Junction

the entrance to the receiving yard, so that the switches at the entering end of the receiving yard may be interlocked and controlled from this tower at some future time. The con-

for trains from Mile End and Breslay to enter the new yard. These switches and signals are controlled from Hampstead tower by unit wire. At St. Luc junction, the existing crossovers were changed to No. 13, a new crossover added, and all are controlled from Hampstead by unit wire. Trains from South Junction and Ballantyne enter one of two yard lead tracks at this point. North Junction previously included one crossover and a single switch controlled from Montreal West interlocking. A new crossover was added, and all functions were transferred to the new machine at Hampstead, and are controlled by line code.

Trains from the new departure yard leave by means of two lead tracks. The one leading to Toronto and Ottawa is connected in the mechanical plant at Ballantyne. The other lead for trains enroute to South Junction or St. Luc is connected to the St. Luc branch by two single switches, which with the associated signals are controlled from Hampstead tower by code. Provision is also made for code control of signals at Ballantyne, South Junction and Montreal West which lead to the territory controlled by Hampstead.

The layout at Outremont, 2 mi. north of Hampstead, includes one



Map showing relative locations of yards and junctions—Two or more tracks on routes which are indicated here by single line

crossover and three single switches and seven home signals, which formed an interlocking installed in 1933, that was controlled remotely by direct wire from a yard office $\frac{1}{2}$ mi. east of this junction. As part of the 1950 program, the interlocking at Outremont was rebuilt, and line code apparatus was installed to control this plant from the new machine at Hampstead.

At each of the five outlying interlockings, the principal control equipment and switch batteries are in sheet-metal houses, set on cast-iron pier foundations. Cables extending to the switch machines and signals or to relay cases at signals, are buried at least 18 in. In these new interlockings and the signaling between them, the track circuits are the modern coded type.

On each switch machine, there is a receptacle where the maintainer can plug in a portable telephone so that he can talk to the man at the control machine when testing the switch or making adjustments. This circuit, to the switch machines at each plant, is connected to the line code circuit by a double-pole switch in the relay house at that plant. This switch is normally open, thus minimizing grounds on the line circuit to the tower. The maintainer closes this switch when he has work to do

on the switches at that plant.

All signals are the searchlight type, arranged to display Standard Code aspects. Train movements are authorized by signal indication in this entire area, bounded on the north by Hampstead, on the west by Ballantyne, on the south by South Junction and Montreal West. The two main tracks between North Junction and Hampstead are signaled for train movements in both directions. Increased track capacity is required on this section where at certain times, trains are going north to enter the receiving yard and, likewise, trains are going north from the departure yard to Outremont and points beyond. Thus, the control of interlockings and signals to authorize trains to keep moving are all parts of an overall program to fit in with the operation of the yard.

This main line signaling was installed by Canadian Pacific signal forces, under the jurisdiction of A. J. Kidd, signal engineer, Eastern Lines. The Union Switch & Signal Company furnished the control machine, line code equipment, relays, housings, and signals. The switch machines were furnished by the General Railway Signal Company, except that those at Outremont, installed in 1933, were made by the Union Switch & Signal Company.

Modern Communications Facilities

THE automatic telephone exchange at St. Luc yard has a capacity for 100 lines, with 15 trunks for simultaneous conversations. Thirty-five lines are now in service locally with 7 trunks. This system includes the "executive right of way" feature, by means of which, calls made by the general yardmaster or humpmaster take precedence. For example, if the general yardmaster dials a station that is then busy on a call with some other station, the yardmaster's dialing causes the previous connection to be broken, and connects the yardmaster's phone to the station he is calling.

Teletype for List

When an incoming train enters the receiving yard, the conductor delivers his waybills to the office in Hampstead tower at the entrance of the yard, from which point they are sent to the yard office by automobile. A clerk in the yard office then prepares a switch list which is sent by Teletype to the office at the crest

of the hump and to the retarder control tower.

Two-way talkback speakers are located: (1) in the office at the hump; (2) in the car inspection pit under the track on the approach to the hump; (3) on a bridge near the walkway where the foreman uncouples cars as they pass over the hump; (4) in the retarder control tower; (5) in the relay room in the ground floor of the tower; (6) on the two skate tenders cabins; (7) in the yardmaster's office; and in the general yardmaster's office. In the car inspection pit, there are three loudspeakers, thus making a total of twelve. Eleven of these stations, excluding the one in the relay room, are normally bridged across the listening pair.

Footswitches are provided for the hump office man and the retarder operator. Push-to-talk key switches are provided on the remainder of the loudspeaker stations. When a man at any station wants to talk to any other station on the listening

circuit, he operates his push-to-talk switch or footswitch and speaks into his loudspeaker to call the person wanted; thus the conversation is started. Operation of a footswitch or a push-button, transfers his loudspeaker to the talking pair to operate through the amplifier equipment. Such calls and conversations are, of course, heard at all the other loudspeakers on this circuit. This is no handicap, however, because all the calls are with reference to matters of common interest in the operation of the retarder yard. As for example, when the car inspectors find a defect on a car, all parties are concerned in changes required in the switch list to place this car on

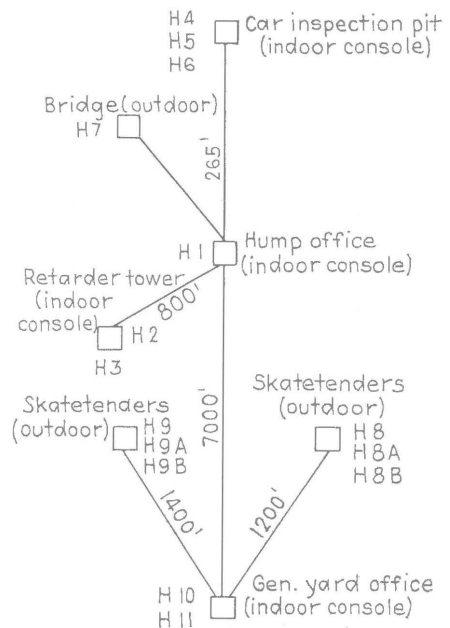


Fig. 1—Layout of loudspeaker system

rip track, rather than on the classification track to which it had previously been destined. The loudspeaker in the relay room of the tower is normally disconnected, being placed in service only for testing, in which case the key switch must be set to the "on" position.

Skatetenders' cabins are located, one on either side of the classification yard down near the lower end. These two men, one at each cabin, are responsible for placing skates on the lower ends of the yard tracks, not only to keep cars from going out on the leads, but also to establish the head end of cars routed to the individual tracks. These men get the information they need from the man in the office at the hump and from the retarder control man, as well as the yardmaster. Likewise they report information back to the men at those offices.

At each skatetender's cabin, there