Canadian Railway and Marine World

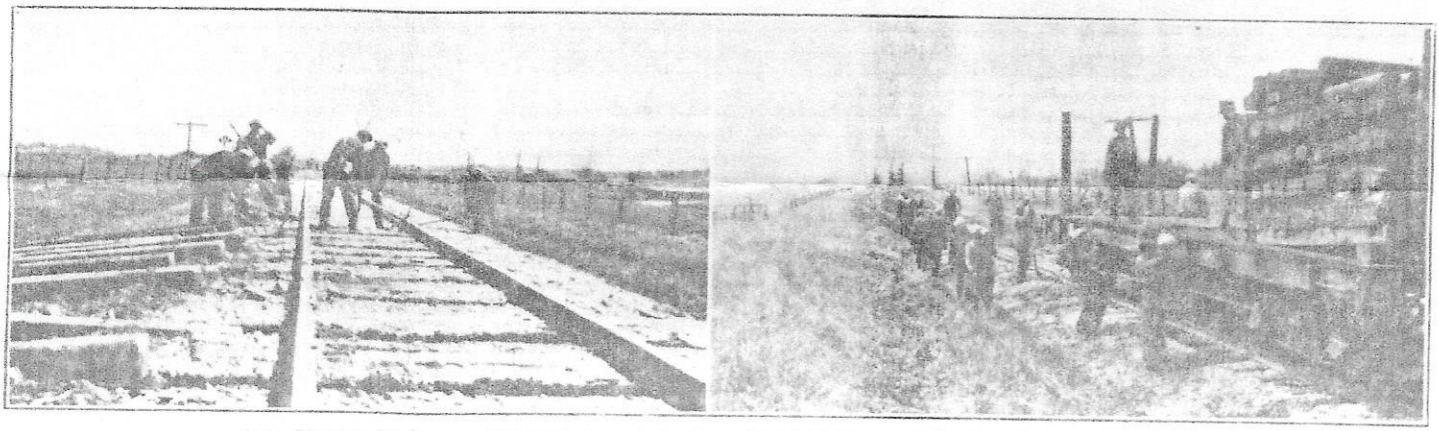
August, 1933

Dismantling of Canadian Pacific Railway Line Between Bolton and Melville.

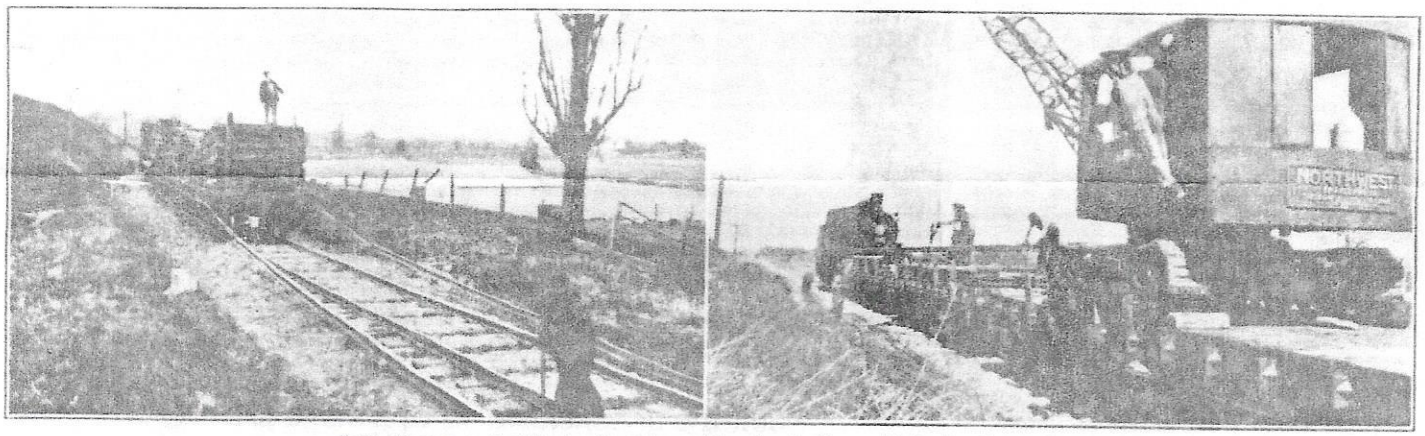
The Canadian Pacific Ry. line between Bolton Jct. and Melville Jct., Ont., which was a part of the Owen Sound Subdivision, Bruce Division, Ontario District, and which was dismantled in April and May, was one of the most difficult and expensive sections of track to maintain on the entire Ontario District, and was also very expensive to operate, because of long and heavy grades against westbound traffic, ranging over 2%, and extreme curvature, between Mono Road and Caledon, the two stations on the section. The grades on the Caledon Mountain were such as to restrict train loads greatly, and the famous Horseshoe Bend and other curves on the line were of such restricted radius as to prohibit operation of heavy modern locomotives. The line was built in 1869-71, as a part of the Toronto, Grey and Bruce Ry. from Toronto to Teeswater, and was originally of 3½ ft. gauge, which necessitated the excessively sharp curvature. Before the track was taken up, the Owen Sound Subdivision extended from Bolton via Melville Jct. and Orangeville to Owen Sound. Now the Owen Sound Subdivision extends from Orangeville to Owen Sound. Formerly, the Orangeville Subdivision extended from Streetsville Jct., on the Toronto-Windsor main line, to Melville Jct., but since the abandonment of the Bolton-Melville section, the Orangeville Subdivision has been extended to include the section between Melville and Orangeville. The line extending from Streetsville Jct. to Melville is now being used to handle traffic which formerly went over the line between Bolton Jct. and Melville Jct., and it is a much more satisfactory line, as concerns maintenance and operation, than the latter. Formerly, trains from Toronto to Owen Sound went to Bolton Jct., thence to Melville Jct. and on to Owen Sound. They now proceed from Toronto to Streetsville Jct. and thence to Owen Sound via Inglewood Jct., Cataract Jct., and Melville. In addition to being very expensive to maintain and operate, the Bolton Jct.-Melville Jct. line was really an unnecessary duplication of railway facilities, and as revenue, depleted to some extent in recent years by motor vehicle competition, did not equal expenditure, abandonment was a logical action. In addition to the Streetsville Jct.-Melville Canadian Pacific line, the territory is served by the Canadian National line (former Grand Trunk Ry.) from Burlington to Allandale. Those provided formerly with railway service at Caledon station can now use the station at Alton, a short distance south of Melville, on the Canadian Pacific Streetsville Jct.-Melville line, and those given service formerly at Mono Road station can now use Caledon East station on the Canadian National line referred to.

The accompanying profile of the section between mile 8 and mile 12 of the Bolton Jct.-Melville Jct. line furnishes a good idea of the difficulties met with in maintenance and operation. A short distance east of mile 8, the elevation above sea level is 955.37 ft., while a short distance west of mile 12, at the Caledon Mountain summit, it is 1,372.03 ft., which means that in a distance of slightly over four miles the climb was 416.66 ft. The curvature exhibited some surprising total angles; beginning with a 2° curve with total angle of 10° 50′, and another 2° curve with total angle of 34° 20′, between miles 8 and 9, the really excessive curvature was not encountered until about mile 9.5 was reached; there then followed, between mile 9.6 and 11, a 5° curve with total angle of 16° 45′; an 8° curve with total angle of 28° 45′; a 5° 56′ curve with total angle of 14° 42′; a 7° 56′ curve with total angle of 21° 20′; a 4° 23′ curve with total angle of 56° 33′, and then the Horseshoe Bend curves between miles 10 and 11 with total angles

Continued on page 364.



Left. Skeleton track gang removing some of the ties. Right. Lifting gang loading ties on last car of train.

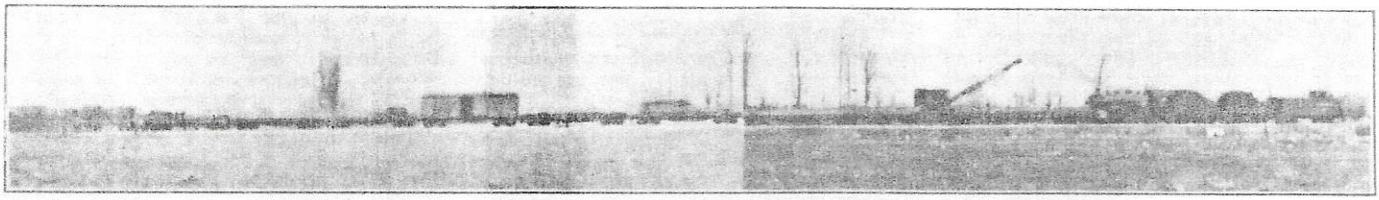


Left. Moving a "pull" of rails into position for loading. Right. Loading rails.

Dismantling of Canadian Pacific Railway Line Between Bolton and Melville.

Continued from page 359

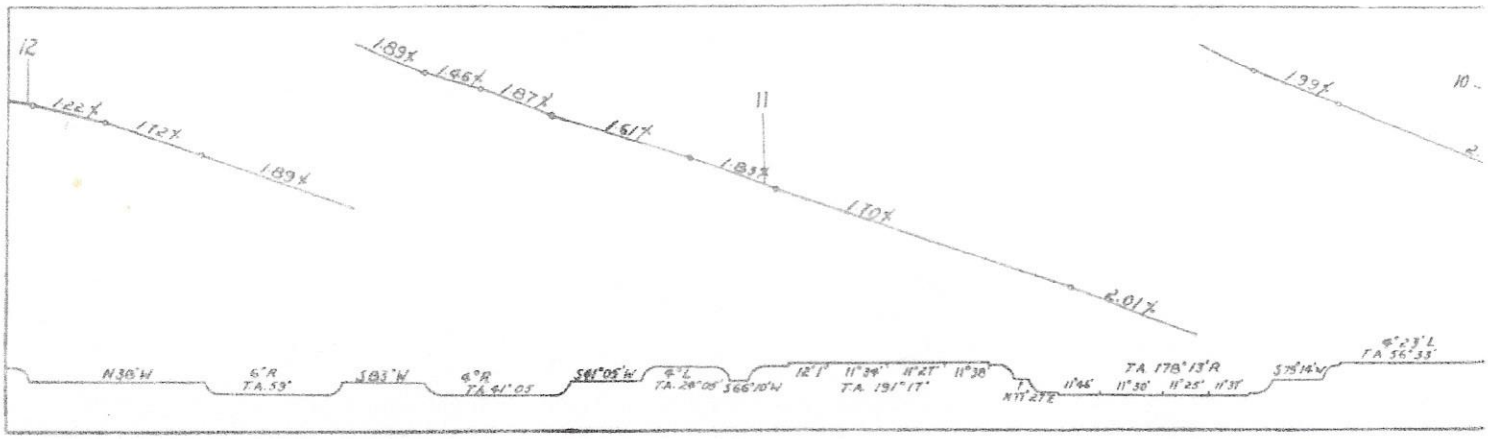
of 178° 13′ and of 191° 17′, the degree of curvature there having been over 11° throughout and exceeding 12° at one point. There was also considerable curvature between miles 11 and 12, including two 4° curves with total angles of 24° 5′ and 41° 5′ respectively, and a 6° curve with total angle of 59°.



Work train used in taking up track between Bolton Jct. and Melville Jct., Canadian Pacific Railway.

The track was taken up from 1.8 miles west of the switch at Bolton Jct., to Melville Jct., mile 19.2 from the switch at Bolton Jct., the switch at Melville Jct. having been removed. The total mileage of track lifted was thus 17.4. The work was done between April 24 and May 27. On April 24, an extra gang of 30 men started dismantling the track, the preliminary operation having been the removal of many of the ties in about a mile of track. The work was started at Melville Jct. and proceeded toward Bolton Jct. On April 25, the work train arrived at Melville Jct., and the lifting of the rails was begun. Two extra gangs were employed, one for skeleton trackwork, i.e., the work done on the track preparatory to the last passage of the work train over it, and the other for lifting the rails following the last passage of the work train. At the start, each gang consisted of a foreman and 26 men, a total force of two foreman and 52 men, but the gangs were finally built up to two foreman and 63 men, resulting in more feet of rails per man being lifted. As the work proceeded, improvements in the method of handling it were adopted, and the procedure described in the following was decided upon and utilized until the work was completed.

The skeleton track gang consisted of four spike men, four bolt men, with pneumatic operated nut removers, one compressor operator, one man taking out ballast at end of ties, six men pulling out ties, two men collecting and depositing scrap, three men grading and fencing at crossings, and a cook and a water boy, a total of 23 men in addition to the foreman. The four spike men pulled out all spikes from the ties to be removed, in the operation of converting the track to skeleton track, and left four spikes per tie in the remainder. The bolt men, with pneumatic nut removers, could remove eight bolts from two joints, replace one bolt with all washers at each joint, and insert a spike in an adjacent bolt hole, in two minutes. The spikes were inserted as an aid in holding the rails together when pulling them ahead for loading. Despite delays experienced by the bolt men when encountering badly rusted nuts, long bolts, high spikes or adzed ties, they were able to keep well ahead of following operations, and were transferred to the work of pulling ties from the track, from time to time, when they became far enough ahead with the removing of the bolts at the joints. The one man taking out ballast at the ends of ties preceded the six assigned to pulling the ties from the track, who used picks, track jack and bars, pulling about 700 ties a day. The general procedure was to pull two creosote-treated ties and leave one on tangents, and to pull every other treated tie on sharp curves. Untreated ties as had arrived at, or were nearing, the end of their useful life period, were left. The joint ties were left until after the final passage of the work train, as a precautionary measure. The two scrap men, with a lorry and shovels, followed the spike pullers and bolt men, picking up the spikes, bolts (with nuts replaced) and rail anchors, and depositing them in separate heaps at intervals of from six to eight rail lengths and leaving them to be picked up later by the lifting gang. The three men assigned to grading and fencing at crossings followed behind the lifting gang. They graded all farm and highway crossings, leaving a liberal shoulder, and at the highway crossings they closed in all the return fences with three runs of board fencing salvaged from snow fences, using abandoned ties for posts. The foregoing indicates the general line of activity of the skeleton track gang; the size of the gang was increased or decreased daily, depending upon the distance it had got ahead of the lifting gang, and, during the first hour of each morning, the skeleton track gang assisted the lifting gang in loading ties taken out ahead of the work train for a distance of about three-quarters of a mile from end of steel, thus cleaning up sufficient track for a day's work for the lifting gang. While the ties were being loaded, three or four men were loading spikes, bolts and tie plates, as much of this material being loaded as time permitted, to reduce the amount to be handled later by the lifting gang. The spikes and bolts were loaded separately on flat cars, in bins made with ties, and tie plates were loaded in a box car.



Track profile and alignment, mile 10 to 12, Bolton Jct.-Melville Jct. line.

The lifting gang was composed of four spike men, three line men, two men lifting ties, 10 men carrying ties, eight men loading spikes, bolts and tie plates, seven men loading rail, one man staking flat cars, cook and water boy, a total of 40 men in addition to the foreman. The four spike men removed the spikes, beginning at the end of steel and following the work train as it proceeded in its work of loading the rails. The three line men shifted the rails as released off the ends of the ties to the ballast shoulders. The two men lifting ties, using picks, lifted all treated ties which had been left in the track by the skeleton track gang, and also lifted any untreated ties which were

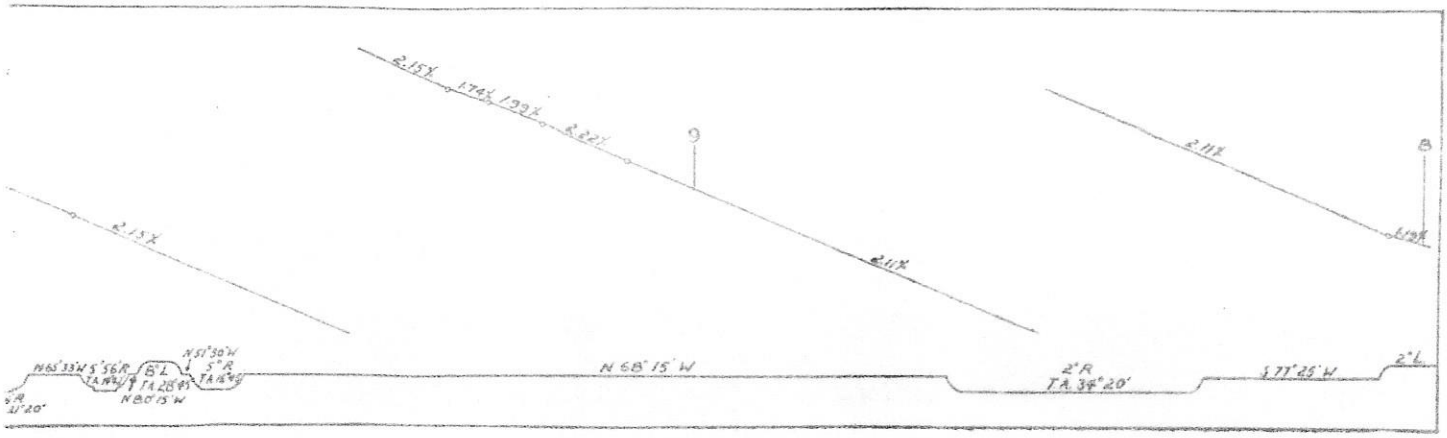
worth salvaging. The 10 men assigned to carrying ties carried them, after they had been loosened from the ballast, to the tie cars at the end of the work train. The three men loading ties on the flat cars loaded 350 to 450 ties per car, the ties being cross-piled at the end of the car. The eight men picking up spikes, bolts and tie plates used boxes 30 in. x 16 in. x 6 in. deep, with end handles, the boxes being filled and carried to the cars ahead of the tie cars. One man was stationed in the box car to store the tie plates as they were handed in.

Before describing the work of the seven members of the lifting gang for loading the rail, the description will be clarified by a reference to the make-up of the work train, shown in one of the accompanying illustrations, which, however, does not show three flat cars, coupled next to the caboose, which were used for loading the ties removed from the track by the skeleton track gang. Those cars could be set off when loaded and were detached from the train when the photograph was taken. The locomotive was equipped with an extra tender, to enable the train to operate throughout the day without running for water, the two tenders having been connected by a standard tank hose. In front of the locomotive were four flat cars, over which a crawler crane operated, three of the cars having been used for loading rails and the fourth to accommodate the crane after it had completed loading the three cars. Next was a flat car for spikes and bolts, followed by the box car for tie plates, the remaining three flat cars, at the end, having been to receive the ties loaded by the lifting gang, following the last passage of the train over the track.

The method of lifting and loading the rails was as follows:—With the train standing on the skeleton track, with the last flat car at the end of a section of about 36 lengths of rails which had been thrown off the ties and on the ballast shoulders, a stake was driven in the ground exactly opposite the rail tongs of the crawler crane. The ends of the two lines of rails deposited on the ballast shoulders were then connected by cable to the last flat car. The train was then backed up until the last rails in the two lines came to the stake which marked the previous position of the crawler crane rail tongs. The cables were then detached from the ends of the two lines of rails, the work train backed up to the end of steel again, and loading proceeded, the train being moved so as to spot the crawler crane for each pair of rails. Each three pulls of 36 rail lengths of track made a good carload of rails. When the flat car next to the locomotive was filled, the crane was moved from the second to the third flat car and loaded the second one, and when the second one was loaded the crane was moved from the third to the fourth flat car and loaded the third one.

The seven men of the lifting gang engaged in rail loading worked as follows:—Upon the two lines of rails being pulled up into loading position, two men removed the bolt, spike and angle bars at each joint. Two men handled the double rail tongs of the crawler crane and the other three men were on the flat cars. The man handling the tongs loaded the angle bars at the ends of the rails on the cars. By fastening back the angle bars at the end of steel, after each cut, a pair of angle bars went forward with each rail in every pull. Pairs of angle bars were used to stake the flat cars and 2-inch planks were used to carry ends of rails on the flat cars. The average time for making a pull of 36 rails, and loading of rails, ties and other materials, was from 40 to 45 minutes.

The track was lifted from Melville Jct. only as far as mile 1.8 from the switch at Bolton, the balance having been left to serve as a tail track for a Y. The work of taking up the track was done at re-



Track profile and alignment, mile 8 to 10, Bolton Jct.-Melville Jct. line.

markably low cost, under direction of Lt.-Col. Blair Ripley, C.B.E., D.S.O., District Engineer, Ontario District, Canadian Pacific Ry., under supervision of V. A. G. Dey, Division Engineer, Bruce Division, with T. Munford, Assistant Division Engineer, Bruce Division, and J. McCarthy, Roadmaster, Owen Sound Subdivision, in direct charge.

Use of Rail Motor Cars.

W. J. Warnick, Superintendent, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., presented a committee report at the American Association of Railroad Superintendents' annual meeting at Cleveland, Ohio, recently, as follows:—During the last ten years the number of new units placed in service each year was:—1922-49; 1923-71; 1924-112; 1925-136; 1926-135; 1927-164; 1928-167; 1929-132; 1930-56; 1931-30. While the number of units ordered during the last four years has shown a marked decrease, the capacity of the power plants has indicated a very substantial increase in horse power rating. In 1926, 86% of the 135 cars ordered had power plants of 300 h.p. or less (the greater number having ratings between 200 and 250 h.p.) while in 1931 there was only one new unit of less than 350 h.p., and all the other cars had power plants of 400 h.p. or over. This indicates a general tendency towards the use of more powerful units, which enlarges the field for their use, as with such increased power they are capable, in the majority of cases, of handling satisfactorily three or more trailers, either passenger or freight, and can be used in both main line and branch line service. In addition to their use as substitutes for steam equipment in branch line passenger service, they are now being more generally used to operate mixed trains, and there is still a field for them in local way-freight service, thereby expediting the handling of merchandise shipments in territories where competition from other types of transportation is keen, and at the same time reducing the cost of operation to the minimum.

It is apparent that the field for the rail motor car has hardly been touched. This is forcibly brought to our attention when we find some railways using 30 to 40 of these cars, while other railways operating under similar conditions, and frequently in the same territory, have as yet only a few of them in service. This is difficult to understand when it has been demonstrated that there is a saving of at least 50% in operating cost in favor of the rail motor cars as against steam service.

The committee feels that this type of unit can be used to advantage: To operate main line local passenger service and relieve through passenger trains from making local stops. To operate suburban service where steam equipment is still in use. To handle branch line passenger and mixed train service. To handle way-freight peddler service on main lines, which can be handled in conjunction with a pick-up and delivery system by making use of the present express company's service in terminals or large centers, and by the use of the local drayage service in smaller towns and villages.

These cars have proved that they can maintain their schedules under practically all weather and climatic conditions, and in territory where considerable snow is encountered, proving that they are capable of operating as well, if not even better, than steam power.