

wise, the empties on rear will prevent the loads running in, and an emergency application can be made without bad results.

With a train of the first consist, 25 loads, 50 empties, running at 15 to 20 miles an hour, make a 12 lb. reduction, and when speed has been reduced to six or eight miles an hour, a jerk of 150,000 to 170,000 lbs. is registered and the train parts, as the knuckles will not stand more than 150,000 lbs. How much more this jerk would be, I am unable to state, as in all cases the train parted when this amount registered. As the draft gear would only absorb 40,000 to 60,000 lbs., you can realize that in a short time it has a telling effect on the equipment.

With a train of the second consist, 10 empties, 25 loads, 40 empties, the greatest shock did not exceed 40,000 lbs., first getting a buffing strain of 15,000 to 20,000 lbs., and as the slack adjusted itself in the train, no bad effects were felt, it being a gradual strain.

The breaking in two from other causes should be recorded by each division superintendent, showing name of engineer and cause, a monthly report of same to be made to the general air brake inspector, so that a remedy can be applied.

The general air brake inspector on any road cannot be of great value unless he has the co-operation of the transportation officials, and he is of great service to them in solving methods of dispatching trains with safety, lessening the account of damage and loss, and increasing regularity of train service. These are his future duties. He should not be confined to too much office work—his duties require him on the road, checking the work of inspectors in yards, to see that proper methods are used to facilitate in dispatching trains, and that the work is properly done.

I have not touched on the subject of passenger brakes, as I feel that the importance of this question is given such attention by all railway officials, and the freight brakes neglected, and that the question of future duties is in redeeming the freight brakes and getting as near 100% efficiency as possible.

1. With dynamometer car alone dropped at a speed of seven miles an hour over the hump and allowed to run into a cut of loaded steel hoppers, standing still, we got a buffing shock of considerably over 607,000 lbs. This being the limit of the dynamometer, we were unable to give the total amount of the blow. The dynamometer car weighs 51,000 lbs.

2. Two cars, the dynamometer car first, and a loaded class G1 car behind, were dropped over the hump at a speed of two miles an hour, into the cars, and showed a buffing shock of 207,000 lbs. This class G1 car weighed 130,000 lbs., making a total of 181,400 lbs. for the two cars.

3. With the same two cars as per the second test, with tests made in the same manner, but at a speed of 3 9-10 miles per hour, the buffing shock was 420,000 lbs.

4. We placed a loaded class G1 car, weighing 141,400 lbs., part way down the hump, or at the point at which usually stopped by car droppers until other cars are weighed and dropped against it when going to the same classification track. Then same two cars as used in tests 2 and 3, or dynamometer car and a class G1 car next, with total weight of 181,400 lbs., were dropped at a speed of four miles an hour against the car standing on the hump, the same as in actual practice, and the buffing shock was 445,000 lbs.

For the purpose of determining the magnitude of the blow when one car runs into another, we made four tests in one of our hump yards.

## Orders by Board of Railway Commissioners.

Beginning with June, 1904, we have published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearings took place, and not those on which the orders were issued. In many cases orders are not issued for a considerable time after the dates assigned to them.

16966. July 9.—Dismissing city of Ottawa's application re express delivery limits.

16967. July 6.—Authorizing G.T.R. to build siding for Carroll Bros., Humberstone tp., Ont.

16968, 16969. July 10, 11.—Authorizing G.T.R. to use interlocking plant at drawbridges built over St. Lawrence river and Soulanges canal; and to raise bridge 7 across Grand River on its Holmedale branch by one foot.

16970. July 6.—Authorizing G.T. Pacific Ry. to cross highway at mileage 28.3 North Alberta District.

16971. July 6.—Approving C.N. Ontario Ry. station grounds at Kilfoyle, Montague tp., Ont.

16972, 16973. June 28, July 9.—Authorizing C.N. Ontario Ry. to cross public road between cons. 2 and 3, Whitby East tp., Ont.; and to cross Montreal Park and Island Ry. at Sault au Recollet, Que., room to be left for second track.

16974, 16975. July 10.—Authorizing C.N. Quebec Ry. to extend siding on Prince Albert Ave., Tetreaultville, Montreal, crossing Laurier and Azilo Sts., and to build spur for American Canning Co., Maisonneuve.

16976 to 16978. July 11, 6, 11.—Approving location of Campbellford, Lake Ontario and Western Ry. (C.P.R.), mileage 177.3 to 183.51, from King St. West, Port Hope, to mileage 127.32; and authorizing it to build across Oshawa Electric Ry. at mileage 158.85, interlocking plant to be installed.

16979. July 6.—Authorizing C.P.R. to build its Harrowby ballast pit spur across four highways in Manitoba.

16980. July 8.—Rescinding order 16517, May 11, re C.P.R. spur at Blind River, Ont.

16981, 16982. July 9, 4.—Authorizing C.P.R. to build spur for Crushed Stone and Gravel Ltd., on s.e. ¼ sec. 34, tp. 35, r. 14, w. 3 m., and to build transfer track to connect with Midland Ry. of Manitoba, in lots 44 and 45 outer 2 miles, St. James parish, Winnipeg.

16983 to 16985. July 10, 9.—Authorizing C.P.R. to build bridge 103.3, Sudbury subdivision and rebuild bridge 91.5, Toronto subdivision, and approving plans for bridge 112.2, Cascade subdivision, B.C.

16986. July 8.—Authorizing C.P.R. to revise main line in Woodstock, Ont., subway to be built at Dundas St., 20% of cost to be paid from railway grade crossing fund.

16987. July 12.—Ordering G.T. Pacific Ry. to build station on lot 882, group 1, Cassiar District, B.C., with leave to apply for approval of station site that will give adequate facilities to Hazelton, and rescinding order 16891, June 29, in same connection.

16988. July 2.—Ordering G.T.R. to install two electric bells at Elgin and Elizabeth Sts., St. Marys, Ont., 20% to be paid from railway grade crossing fund.

16989. July 13.—Amending order 16912, June 28, re taking of G.T.R. lands by Campbellford, Lake Ontario and Western Ry. (C.P.R.) by providing that if parties do not agree as to compensation for land taken within 30 days, same shall be fixed by one of the Board's engineers.

16990. July 8.—Authorizing C.P.R. to build subway at Syndicate Ave., Port William, Ont.

16991, 16992. July 13.—Authorizing C.P.R. to build additional track across Rogers St., Victoria Drive and Salisbury Drive, Vancouver, B.C.

16993. July 13.—Dismissing C.P.R. application re renewing of station case at St. Francois de Sales, Que.

16994. July 13.—Authorizing C.P.R. to build main line and additional track across Wall St., Hastings, Vancouver, B.C.

16995. July 13.—Dismissing application of F. Gravel, Chateau Richer, Que., with leave to renew, re farm crossing on Quebec Ry., Light, Heat and Power Co.'s line.

16996. July 12.—Approving plan of G.T.R. cross-over switch east end of Cardinal yard, Ont.

16997. July 11.—Authorizing G.T. Pacific Branch Lines Co., to build industrial spur in Yorkton, Sask.

16998 to 17001. July 8 to 15.—Authorizing C.P.R. to build spurs near Longue Pointe, Que., and certifying correction; for Saskatoon Public School District Board, Saskatoon, Sask.; Ogilvie Flour Mills Co., Fort

William, Ont., and McGregor and McIntyre, lot 28, con. 2, from Bay, York tp., Ont.

17002. July 8.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.), to connect at mileage 183.51 from Glen Tay with Ontario and Quebec Ry. (C.P.R.), at mileage 87.41 west from Havelock, Ont.

17003. July 13.—Authorizing G. Mailloux to build farm crossing across G.T.R. near mile-post 23½ from Windsor, Ont.

17004. July 13.—Ordering G.T.R. to install gates within 60 days at crossing of Main street, Victoriaville, Que.

17005. July 13.—Approving change in C.P.R. station building at St. Augustin, Que.

17006. July 8.—Authorizing C.N. Ontario Ry. to build across public road in Ste. Genevieve parish, Que.

17007. July 13.—Authorizing Empire Lime-stone Co., to build tunnel under Carroll Bros.' siding in lot 5, con. 1, Humberstone tp., Ont.

17008 to 17011. July 8.—Approving C.N. Ontario Ry. revised location through Boulter, Lauder, Pentland, Master, Stratton and Barron tps., Nipissing District; authorizing it to cross public road between lots 5 and 6, Ross tp., and approving revised location in Beau-cage tp., Nipissing District, Ont.

17012. July 13.—Authorizing Campbellford, Lake Ontario and Western Ry. (C.P.R.), to change its line and cross Bay of Quinte Ry. at mileage 43.86, in Camden tp., Ont.

17013. July 15.—Approving changes in location of C.P.R. station at North Wakefield, Que.

17014 to 17016. July 16.—Authorizing C. N. Ontario Ry. to cross public roads in Bristol tp., Que., and Westmeath and Torboiton tps., Ont.

17017. July 16.—Authorizing G.T.R. to build spur for J. Duff and Son, Hamilton, Ont.

17018 to 17020. July 16.—Approving revised location of G.T. Pacific Branch Lines Co., Cutknife branch, mileage 26.26 to 38.74, Sask., and authorizing it to build spur for McLeod Collieries, Ltd., from its Alberta Coal Branch, and to build spur for Jasper Park Collieries, North Alberta District.

17021. July 16.—Approving Montreal and Southern Counties Ry. location from Kane-lagh to boundary between Longueuil and La-prairie parishes, Que., 4,500 ft.

17022. July 13.—Ordering C.P.R. within 90 days to install electric bell at Queen St., Woodstock, N.B., 20% to be paid from railway grade crossing fund.

17023. July 16.—Ordering Temiscouata Ry. within 30 days to remove cattle guard and earth at crossing of Grand Falls road, under penalty of \$25 a day.

17024, 17025. July 15.—Approving revised location Campbellford, Lake Ontario and Western Ry., mileage 155.13 to 157, from Glen Tay, approving location through Whitby, Ont. and authorizing crossing of main line two additional tracks in con. 1, East Whitby, tp., Ont.

17026 to 17028. July 16.—Authorizing C.P.R. to build spurs for Fitzsimmons Fruit Co., Port Arthur, Ont., Crows Nest Pass Lumber Co., Calgary, Alta., and Rocky Mountain Cement Co., Blairmore, Alta.

17029, 17030. July 16.—Approving C.P.R. plans for span at eastbound nump in new yard, East Winnipeg, man., and bridge 131.3 Brandon subdivision.

17031. July 15.—Authorizing G.T.R. and C.P.R. to operate over interlocker west of Fergus, Ont., without stopping.

17032. July 15.—Authorizing G.T.R. to build three bridges carrying highways, Louth tp., Ont.

17033, 17034. July 18.—Ordering that work be commenced forthwith on separation of grades, Toronto, and completed by Sept. 1, 1914, under penalty of \$100 a day, and approving G.T.R. plan for new union station, Toronto, same to be commenced forthwith and completed not later than Sept. 1, 1914, under penalty of \$100 a day. These orders were given in full in Canadian Railway and Marine World, Aug., pg. 401.

17035. July 17.—Authorizing G.T. Pacific Branch Lines Co. to build its Prince Albert Branch across highway at mileage 101.5.

17036. July 11.—Reserving for further consideration, approval of location of Campbellford, Lake Ontario and Western Ry. (C.P.R.), mileage 121 to 124.83 and authorizing it to take lands of G.T.R. and C.N.O.R.

17037 to 17041. July 16.—Approving C. N. Ontario Ry. revised location through Westmeath, tp.; through unsurveyed territory in Algoma and Sudbury Districts, and authorizing it to build across Wanapitei river, Street tp.

17042. July 16.—Authorizing Canadian Northern Ry. to cross 14 highways with its Alaskan southeasterly line.

17043. July 15.—Authorizing C.N. Ontario Ry. to connect with Malleable Castings Co.'s siding in Smiths Falls, Ont., and to cross four streets.