

Pittsburg, is able to show very good returns on its capital and make extensive betterments to its system at the same time, on an average rate of .4 of a cent per ton per mile. The tonnage statistics as published in the annual report of this road are of great interest, and having one of the heaviest mineral traffic in the world, it has conditions for making a good showing, which are quite ideal; for instance its average load of freight for last year on south bound iron ore trains was 1,479 tons, and its average train load for north and south bound trains was 913 tons. These are remarkable figures and are more than 100% better than are shown by such roads as the transcontinental systems, all of which handle a mixed traffic, and the train load results which they show of from 300 to 480 tons a train mile is all that can be expected under the circumstances.

With regard to the future of railway rates, a study of the subject forces one to the conclusion that railway companies are so progressive and enterprising that, given a large and steady volume of traffic, they will equip themselves to carry it cheaply, as the Bessemer and Lake Erie Ry. and others have done, and that in the future we shall see rates that are substantially lower than those we have considered in this paper. It is generally conceded that the rapid progress that has been made by the railways in operating economics has been largely brought about up to the present time by the improvements that have been made in locomotive and car construction. The latest statistics obtainable on the train load questions, as given below, would indicate that the rate of improvement in the train load figures has not been so well maintained during the past year, and that the yearly improvements in the train load which have been accomplished by increasing the size of locomotives and cars, have about reached their limit.

TRAIN LOADS INCREASED.

	1903.	1902.	1901.	1900.
Lehigh Valley.....	485	466	453	439
Atchafalaya.....	279	247	242	221
Illinois Central.....	288	274	235	221
New York, Ontario & West.....	287	285	290	287
Norfolk & Western.....	486	476	461	345
C. C. & St. Louis.....	333	332	333	335
St. Louis & San F.....	195	186	200	154
Wabash.....	302	285	283	269
Toledo, St. Louis & W.....	295	285	250	
Wisconsin Central.....	303	286	260	258
Erie.....	406	376	375	369
St. Louis South West.....	252	232	210	207

TRAIN LOADS UNCHANGED

	1903.	1902.	1901.	1900.
New York, N.H. & H.....	218	218	208	204
Louisville.....	231	231	222	239

TRAIN LOADS DECREASED.

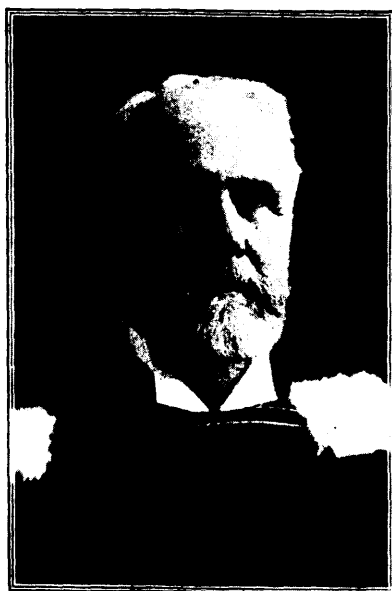
	1903.	1902.	1901.	1900.
Northern Pacific.....	344	346	324	317
St. Paul.....	244	254	237	205
Southern.....	193	195	192	176
Chesapeake & Ohio.....	493	509	511	488
Chicago & Great West.....	277	291	313	261
Chicago & New Orleans.....	231	249	232	235

In order to make further reductions the railways must continue the work of cutting down their gradients, and will also probably obtain additional economy from the adoption of the alternating current electric locomotive.

The question of coal consumption in relation to ton mileage is also of interest. In large freight vessels fitted with marine engines of the most advanced type for fuel saving, a consumption of 2.5 lbs. of coal per 100 tons miles of freight carried, has been claimed as a record, but marine engineers generally regard a consumption of 5 lbs. of coal per 100 ton miles as the average, whereas the consumption of coal upon railways is about 19 lbs. per 100 ton miles.

I commenced my early engineering training in locomotive work, and have the highest appreciation of the locomotive in all the stages of its wonderful development. But it would seem that it has now nearly reached its limit, and is destined to be outclassed by a

machine which will merely consist of a group of four or more electric motors mounted on as many driving axles. There is no doubt that such electric apparatus has been designed and can be built upon the basis of the electrical engineering science as it now exists, and that such a machine would give better results than the locomotive in fuel economy, Draw Bar Pull, and the economical and elastic distribution of wheel load with reference to wear and tear on rails, roadbed and bridges. There is no data in existence based upon results that can lead us to any definite conclusion as to what the relative consumption of fuel and power would be as between the handling of freight trains as they are now handled by steam locomotives, compared with results that might be obtained by the use of the electric locomotive driven from a central power station. Still we have the very instructive and significant comparison which exists between the fuel consumption on steam tram cars as compared with the consumption on electric cars in street railway service. In the case of the former, the consumption of coke, which is the usual fuel used, is 15 lbs. per car per mile, and in the latter 8 lbs. of coal per car per mile.



JAMES MILLS,

Member of the Board of Railway Commissioners, for Canada.

Recent British Columbia Legislation.

At the recent session of the B.C. Legislature the following acts affecting transportation interests were passed:

Incorporating the Coast-Yukon Ry. Co.
Incorporating the Cowichan, Alberni and Fort Rupert Ry. Co.

Securing to pioneer settlers within the Esquimalt and Nanaimo Ry. land belt their surface and under surface rights.

Amending the Granby Consolidated Mining, Smelting and Power Co. Act, 1900.

Amending the Midway and Vernon Ry. Co. Act, 1901.

Providing an additional sum for the completion of the New Westminster bridge across the Fraser river.

Canadian Ticket Agents' Association.

W. Bunton, Chairman, and W. Jackson, another member of the Executive, recently went to St. Louis, Mo., to make arrangements for the visit of the Association there in May. A meeting of the Executive will be held in Toronto on Mar. 7 to receive their report and to arrange the itinerary, etc.

March Birthdays.

Many happy returns of the day to

P. S. Archibald, C.E., General Manager Elgin and Havelock Ry., at Moncton, N.B., born at Truro, N.S., Mar. 21, 1848.

C. N. Armstrong, ex-General Manager Atlantic and Lake Superior Ry., at Montreal, Que., born at Maskinonge, Que., Mar. 19, 1850.

D. E. Brown, General Agent C.P.R. for China, Japan, etc., at Hong Kong, born at Owen Sound, Ont., Mar. 20, 1855.

G. J. Bury, General Superintendent Central division C.P.R. at Winnipeg, Man., born at Montreal, Que., Mar. 6, 1866.

J. A. Cameron, ex-Superintendent C.P.R. at Cranbrook, B.C., born at Pictou, N.S., Mar. 5, 1855.

F. G. J. Comeau, General Freight Agent Dominion Atlantic Ry. at Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.

A. E. Cox, Storekeeper Canadian Northern Ry. at Winnipeg, Man., born at Huddersfield, Eng., Mar. 12, 1863.

H. B. Curtis, General Superintendent Newfoundland Express Co. at St. John's, Nfld., born at Adrian, Ohio, Mar. 21, 1848.

Hon. L. J. Forget, President Montreal Street Ry. Co., born at Terrebonne, Que., Mar. 11, 1853.

C. O. Foss, Engineer of Maintenance Halifax and Southwestern Ry., at Bridgewater, N.S., born at Wentworth, N.H., Mar. 20, 1852.

H. W. Gays, President and General Manager Ottawa and New York Ry., and Receiver New York and Ottawa Rd. at Ottawa, Ont., born at Brant, Erie co., N.Y., Mar. 21, 1848.

F. Grundy, General Manager Quebec Central Ry., at Sherbrooke, Que., and President Temiscouata Ry., born at Bury, Lanc., Eng., Mar. 28, 1836.

J. Halstead, chief clerk to Assistant General Freight Agent C.P.R. at Vancouver, B.C., born at Bracebridge, Ont., Mar. 2, 1877.

R. M. Hannaford, Engineer Permanent Way, Buildings and Bridges, Montreal Street Ry., Montreal, born there, Mar. 22, 1865.

W. Hart, M.P., President Canadian Locomotive Co., Kingston, Ont., born in Biddulph tp., Middlesex, Ont., Mar. 8, 1847.

C. A. Hayes, Assistant General Freight Agent G.T.R., Chicago, Ill., born at West Springfield, Mass., Mar. 10, 1865.

H. S. Heydon, New York Agent Freight Department Canada Atlantic Ry., at New York city, born at Newark, N.Y., Mar. 28, 1861.

C. B. Hibbard, General Manager Quebec Southern Ry., Montreal, born at St. John's, Que., Mar. 31, 1858.

C. H. Hines, Electrical Engineer C.P.R., Montreal, born at Buffalo, N.Y., Mar. 6, 1865.

J. Hobson, Chief Engineer G.T.R. at Montreal, born at Guelph, Ont., Mar., 1834.

C. E. Lytle, General Superintendent Duluth, South Shore and Atlantic Ry., at Marquette, Mich., born at Newark, Ohio, Mar. 2, 1859.

L. Macdonald, Division Freight Agent G.T.R. at Hamilton, Ont., born Mar. 15, 1860.

D. D. Mann, of Mackenzie, Mann & Co., and 1st Vice-President Canadian Northern Ry. Co., Toronto, born at Acton, Ont., Mar. 23, 1853.

Owen McKay, Division Engineer Buffalo division Pere Marquette Rd., Walkerville, Ont., born in Ross tp., Renfrew co., Ont., Mar. 13, 1848.

W. C. Orchard, chief Freight Tariff Bureau C.P.R., at Montreal, born in London, Eng., Mar. 16, 1865.

H. Parry, General Agent Passenger Department, New York Central Rd., at Buffalo, N.Y., born at Hamilton, Ont., Mar. 27, 1865.