

The discussion of the subject of railway fencing is not complete without considering cattle guards. The danger of wrecking a train in which a pair of wheels may be derailed has led to the abolition on all good roads of the open pit cattle guards, in which the rails are laid on the stringers. The danger of such guards to trains is not much reduced by placing ties and guard rails on the stringers, as cattle and horses are frequently caught in them by the legs, and in such positions are a very serious menace to the heaviest locomotives. I know of no surface guards that will actually stop horses or cattle when seeking food, when driven by men or dogs, or when frightened by a train. There are a number of excellent surface cattle guards (both metal and wood) in the market, and I favor the wooden ones with inverted wedge-shaped longitudinal-slats, painted white for the purpose of exaggerating in appearance the depth between the slats. These, with white painted board wing fences and return fences to the right-of-way fences proper, form a very efficient cattle protection. In the case of oblique public road crossings, I have been in the habit of locating the cattle guards and wing fences just clear of the public road boundary, and carrying the return fences back from the middle of the cattle guards to the right-of-way side fence by the shortest straight line. This excludes from the fenced-in-right-of-way two small triangles, but gives a space for frightened animals to turn in and clear the track, if caught approaching the track in the face of a train. It is probable, in my opinion, that the lengthened spans which will probably be used in fencing, and which demand heavier posts, may ultimately lead to the use of some form of iron post set in concrete base or some design of hollow concrete steel post when the cedar available becomes more expensive. Under present conditions, it is highly desirable to set the tension posts (at gates and corners) in a pyramidal concrete base, as the cost is low compared with the advantages gained in increased strength and durability, and in preventing heaving from frost. There is such a diversity of opinion evidenced by the large number of different styles of fencing, gates, and cattle guards in common use in the country, that I hope to elicit a discussion on this paper that will prove of value.

The foregoing paper was read at a recent meeting of the Canadian Society of Civil Engineers.

**Marconi System for Steamships.**—The American Line, which has had the Marconi Wireless Telegraph system in operation for some time on the S.S. Philadelphia, has issued an illustrated circular, with cuts of the Marconi station and of the St. Louis at sea, announcing its intention to equip the St. Louis, the St. Paul and the New York at once with the system. In addition to the facilities offered to passengers in the way of sending or receiving telegrams while at sea, arrangements have been made with news companies for supplying current news, which will be sent by wireless telegraphy to east-bound steamers from the Poldhu station on the coast of England, and to west-bound steamers from the Siasconset station, Nantucket. The steamers of the lines when fitted with the wireless telegraph apparatus will be practically in continuous communication with either shore stations or with passing steamers.

The C.P.R. Club at Toronto Jct., Ont., is progressing very satisfactorily. Mr. Brumbaugh, Inspector of Steam Heating, C.P.R., Montreal, recently read a paper before the club on the heating and lighting of cars, and L. R. Johnson, Assistant Superintendent of Rolling Stock, C.P.R., Montreal, lectured on a trip in China, illustrated with views.

### Dominion Subsidies to Railways.

The following subsidies were paid during the year ended June 30, 1902:

Atlantic and Lake Superior Ry.....	\$ 14,800 00
Canadian Northern Ry.....	939,891 00
Thousand Islands Ry.....	5,440 00
Ottawa Northern and Western Ry.....	8,192 00
C.P.R. Crow's Nest pass.....	22,946 00
C.P.R. Pipestone branch.....	67,200 00
Inverness and Richmond Ry.....	86,800 00
Quebec bridge.....	167,430 00
Montreal and Province Line Ry.....	58,560 00
York and Carleton Ry., N.B.....	18,336 00
Algoma Central and Hudson Bay Ry.....	380,624 00
Lake Erie and Detroit River Ry.....	137,120 00
Atlantic and Northwestern Ry.....	186,600 00
Total.....	\$2,093,939 00

The following additional subsidies were paid from July 1 to Dec. 31, 1902:

Great Northern Ry.....	\$ 37,777 20
C.P.R. Crow's Nest pass.....	50,000 00
C.P.R. West Selkirk branch.....	81,650 00
C.P.R. Dymont branch.....	22,336 00
Inverness and Richmond Ry.....	55,600 00
Quebec bridge.....	108,840 00
Atlantic and Lake Superior Ry.....	46,500 00
Algoma Central and Hudson Bay Ry.....	202,912 00
Cape Breton Ry.....	65,280 00
Total.....	\$ 680,295 20

Following is a statement of the subsidies paid since July 1, 1883:

Year ended June 30, 1884.....	\$ 208,000 00
" " " 1885.....	403,245 00
" " " 1886.....	2,171,249 00
" " " 1887.....	1,406,533 00
" " " 1888.....	1,027,041 92
" " " 1889.....	846,721 83
" " " 1890.....	1,678,195 72
" " " 1891.....	1,265,705 87
" " " 1892.....	1,248,215 93
" " " 1893.....	811,394 07
" " " 1894.....	1,229,885 10
" " " 1895.....	1,310,549 10
" " " 1896.....	834,745 49
" " " 1897.....	416,955 30
" " " 1898.....	1,414,934 78
" " " 1899.....	3,201,220 05
" " " 1900.....	725,720 35
" " " 1901.....	2,512,328 86
" " " 1902.....	2,093,939 00
Total.....	\$24,806,580 37

\*In these amounts the subsidy of \$186,600 a year payable to the Atlantic and North-west Ry. Co. for 20 years from July 1, 1889, is included.

To the above there have to be added the following exceptional subsidies:

Canada Central Ry., paid between 1878-83.....	\$ 1,525,250 00
C.P.R. extension from St. Martin's Junction to Quebec, paid in 1885.....	1,500,000 00

Total subsidies paid from Consolidated Fund to June 30, 1902.....	\$27,831,830 37
The main line subsidy to the C.P.R. was paid from capital, amounting to.....	25,000,000 00

Total paid as subsidies.....\$24,831,830 37

The above does not include \$2,394,000, due to the Province of Quebec for the railway between Ottawa and Quebec, which has been transferred to the public debt, and on which interest at 5% is paid, amounting to \$119,700 a year.

The total cost of the Intercolonial Ry. up to June 30, 1902, was \$68,645,852.58. The additions made during the year included: for increased accommodation at Halifax, \$71,928; at St. John, \$111,209; at Sydney, \$77,609; at Stellarton, \$20,488; at Pictou, \$42,661; and at Lewis, \$75,341; for increased sidings, \$157,998; for strengthening bridges, \$93,431; for engine houses, \$135,049; for additional rolling stock, including 32 locomotives and 1,302 box freight cars, \$2,066,879; for applying air-brakes to freight cars, \$23,688; for steel rails and fastenings, \$188,190; Strait of Canso ferry, \$293,000; arbitrators' awards, Eastern Extension Ry. in N.S., \$671,836, and in N.B., \$280,692.

The total cost of the Prince Edward Island Ry. up to June 30, 1902, was \$4,599,825.12, there being an addition during the year of \$475,997.94; the principal items being \$272,404.47, on the branch to Murray harbor, and \$177,595.53 for a combined railway and carriage bridge over the Hillsborough river at Charlottetown.

### Grand Trunk Ry. Betterments, Etc.

**Kingston Subway.**—The Railway Committee of the Privy Council has refused to reopen the matter in reference to the order to construct a subway under the tracks at the Montreal st. crossing, just outside Kingston, Ont., and directed the Kingston city council to pay the costs of the day. (Mar., pg. 89.)

**Dumfries Siding.**—The application to construct a siding from near Dumfries station through the property of the Ontario Portland Cement Co., at South Dumfries, has been granted by the Railway Committee of the Privy Council.

**Yonge St. Crossing, Toronto.**—The matter of the construction of a bridge over the tracks at the foot of Yonge st. has been before the Railway Committee of the Privy Council on several occasions recently. C. Schreiber, Deputy Minister of Railways, visited Toronto, and in company with G.T.R. and C.P.R. officials, as well as the Mayor and city officials, looked over the site and inspected the plans. The matter is still under consideration.

**Toronto Freight Yards.**—It is said nothing will be done in the way of laying out the new freight yards between Simcoe and John streets, Toronto, until after June, and it is expected the new buildings will be completed in the fall. (Mar., pg. 89.)

**Brantford Deviation.**—Grading has been resumed on the deviation of the main line from Lynden to Brantford, and it is expected that it will be ready for operation this year. The portions of the old line between Harrisburg and Paris, via Brantford, which will be used as the new main line, have been relaid with 80-lb. rails. (Mar., pg. 89.)

**Stratford.**—The Company is reported to have secured options on property adjoining the shops and station at Stratford, and it is locally reported that a new station building is to be constructed on a new site, while other portions of the land will be utilized for the extension of the shops. (Mar., pg. 89.)

**Paris to Sarnia Double Track.**—It is expected that the double tracking of the line between Paris and London, and Komoka and Sarnia, will be gone on with this year. The section between London and Komoka, which is heavier work, will probably be left till next year.

**Hamilton—Niagara Falls Double Tracking.**—The swing bridge over the Welland canal has been completed, and the bridge over Ten-mile creek was expected to be completed at the end of April. The whole of the double tracking is expected to be in operation early in May. (Mar., pg. 89.)

### May Birthdays.

Many happy returns of the day to Garret Vliet, Assistant Master Mechanic, G.T.R., at Portland, Me., born at Milwaukee, Wis., May 5, 1854.

W. R. Baker, Assistant to 2nd Vice-President, C.P.R., at Montreal, born at York, Eng., May 25, 1852.

S. Barker, M.P., President Muskoka Lakes Navigation and Hotel Co., Hamilton, Ont., born at Kingston, Ont., May 25, 1839.

F. T. Byrne, Commercial Agent, G.T.R., at St. Louis, Mo., born at Albany, N.Y., May 3, 1859.

G. S. Cantlie, Superintendent Car Service, C.P.R., at Montreal, born there May 2, 1867.

C. L. Coon, City Passenger and Ticket Agent, G.T.R., at Buffalo, N.Y., born at Watertown, N.Y., May 20, 1868.

G. H. Dodge, Assistant Treasurer and Superintendent, Levis County Ry., Levis, Que., born at Billerica, Mass., May 14, 1875.

M. Donaldson, General Superintendent, Canada Atlantic Ry., at Ottawa, Ont., born near Edinburgh, Scotland, May 1, 1851.