

THE RAILWAY & SHIPPING WORLD,

With which is incorporated
The Western World, Established 1890.

AN ILLUSTRATED PERIODICAL DEVOTED TO STEAM AND
ELECTRIC RAILWAY, SHIPPING, EXPRESS, TELEGRAPH
& TELEPHONE INTERESTS.

The Official Organ of
The Canadian Freight Association.
The Canadian Roadmasters' Association.
The Canadian Ticket Agents' Association.

PUBLICATION OFFICE,
33 MELINDA STREET, TORONTO, CANADA.
Bell Telephone, Main 3201.

SUBSCRIPTION PRICE, postage prepaid to Canada &
the United States, \$1 a year; to Great Britain & other
countries in the Postal Union, \$1.25 (5 shillings sterling).
The best & safest way to remit is by express or post office
money order payable at Toronto.

ADVERTISING RATES furnished on application.

TORONTO, CANADA, MARCH, 1902.

Copyright Notice.

The contents of every issue of this paper
are copyrighted. Contemporaries may re-
produce matter appearing in this paper
provided they prefix it by the words "THE
RAILWAY AND SHIPPING WORLD, Tor-
onto, says:—" or "From THE RAILWAY
AND SHIPPING WORLD, Toronto," but not
otherwise.

Canadian Excursion Agreement Meeting.

CHAIRMAN, J. H. Walsh, Sherbrooke, Que.
SECRETARY, A. V. Fabian, Passenger Department,
C.P.R., Montreal.

Canadian Freight Association.

PRESIDENT, W. Woollatt, Walkerville, Ont.; 1st VICE-
PRES., M. T. Donovan, Boston, Mass.; and VICE-PRES.,
E. Tiffin, Moncton, N.B.; SEC.-TREAS., J. Earls, To-
ronto.

CLASSIFICATION COMMITTEE.—W. B. Bulling, S. P.
Howard, F. J. Watson, J. H. Hanna, J. Hardwell, W.
P. Hinton, T. Marshall, C. Howe, C. A. Jaques.

FREIGHT INSPECTION COMMITTEE.—G. Collins, F. Con-
way, F. F. Backus, J. Hardwell, C. A. Jaques, C. E.
Dewey, W. B. Lanigan, W. N. Warburton.

CAR SERVICE COMMITTEE.—J. B. Morford, T. Mar-
shall, M. C. Sturtevant, G. S. Cantlie, W. P. Hinton, J.
J. Mossman, E. Fisher, J. F. Chapman.

EXECUTIVE COMMITTEE.—W. B. Bulling, J. Pullen,
W. P. Hinton.

OFFICIAL ORGAN.—THE RAILWAY & SHIPPING WORLD,
Toronto.

Canadian Roadmasters' Association.

PRESIDENT, A. McAuley, Toronto Jct., Ont.; VICE-
PRESIDENT, J. R. Brennan, Ottawa, Ont.; SECRETARY-
TREASURER, J. Drinkwater, Winchester, Ont.

EXECUTIVE COMMITTEE.—The above & J. Jelly, Carle-
ton Jct., Ont.; T. Graham, Depot Harbor, Ont.; F. J.
Holloway, Toronto Jct., Ont.; N. Delaire, Montreal.

OFFICIAL ORGAN.—THE RAILWAY & SHIPPING WORLD,
Toronto.

Canadian Society of Civil Engineers.

PRESIDENT, M. Murphy, Halifax, N.S.; VICE-PRESI-
DENTS, G. H. Duggan, W. P. Anderson, E. Marceau;
TREASURER, H. Irwin; SECRETARY, C. H. McLeod; LIB-
RARIAN, E. A. Rhys-Roberts.

COUNCILLORS, H. N. Ruttan, W. B. Mackenzie, K. W.
Blackwell, J. Kenney, J. M. McCarthy, W. G. Matheson,
R. B. Rogers, W. R. Butler, E. V. Johnson, E. A.
Hoare, W. Chipman, C. P. Baillarge, S. Howard, C. B.
Smith, N. J. Ker.

MEETINGS at 877 Dorchester St., Montreal, every
alternate Thursday, 8 p.m.

Canadian Ticket Agents' Association.

PRESIDENT, W. Jackson, Clinton, Ont.; 1st VICE-
PRESIDENT, M. McNamara, Walkerton, Ont.; and VICE-
PRESIDENT, W. H. C. MacKay, St. John, N.B.; 3rd
VICE-PRESIDENT, C. E. Morgan, Hamilton, Ont.; SEC-
TREAS., E. de la Hooke, London, Ont.; AUDITOR, R. J.
Craig, Cobourg, Ont.

EXECUTIVE COMMITTEE, W. H. Harper, Chatham,
Ont., Chairman; W. Bunton, Peterboro', Ont.; W. F.
Egg, Montreal; T. Linton, Port Hope, Ont.; C. C.
Young, London, Ont.

NEXT ANNUAL MEETING at Washington, D.C., in
1902, probably in Oct.

OFFICIAL ORGAN.—THE RAILWAY & SHIPPING WORLD,
Toronto.

Engineers' Club of Toronto.

PRESIDENT, H. A. Gray; 1st VICE-PRESIDENT, C. H.
Rust; and VICE-PRESIDENT, C. M. Canniff; TREASURER,
H. F. Duck; DIRECTORS, A. L. Hertzberg, T. R. Rose-
brugh, K. Gamble, E. B. Temple.
Rooms, 94 King St. West, Toronto.

Great Lakes and St. Lawrence River Rate Committee.

CHAIRMAN, W. J. Brown, Detroit, Mich.
SECRETARY, G. C. Wells, Montreal.
NEXT MEETING, at Detroit, Mich., probably in Jan. or
Feb., 1902.

National Association Marine Engineers of Canada.

PRESIDENT, T. J. S. Milne, Kingston, Ont.; VICE-
PRESIDENT, O. L. Marchand, Montreal; SEC.-TREAS.,
J. A. Morrison, St. John, N.B.; CONDUCTOR, F. S. Hen-
ning, Toronto; AUDITORS, R. Craig, Toronto, and Jos.
Gillie, Kingston, Ont.

NEXT ANNUAL MEETING of the Grand Council in Mont-
real, Jan. 1903.

Niagara Frontier Summer Rate Com- mittee

CHAIRMAN, J. M. Lyons, Moncton, N.B.
SECRETARY, G. C. Wells, Montreal.
NEXT MEETING, at New York, probably in Jan., 1903.

Track Supply Association.

PRESIDENT.—F. E. Came, Montreal.
FIRST VICE-PRESIDENT.—R. J. Davidson, Hillburn,
N. Y.
SECOND VICE-PRESIDENT.—A. O. Norton, Coaticook,
Que.
HON. SECRETARY-TREASURER.—Acton Burrows, 33
Melinda Street, Toronto.

Back Numbers for Sale.

THE RAILWAY AND SHIPPING WORLD:
March to December, 1898, price \$1.00
January to December, 1899, " 1.25
January to December, 1900, " 1.20
January to December, 1901, " 1.15
including postage.

Address

THE RAILWAY AND SHIPPING WORLD,
33 Melinda St., Toronto, Canada.

Cuts For Sale.

With few exceptions, all cuts which appear
in THE RAILWAY AND SHIPPING WORLD as
illustrations are for sale.

For prices, etc., address

THE RAILWAY AND SHIPPING WORLD,
33 Melinda St., Toronto, Canada.

Subscription Agents Wanted.

We want an agent at each railway and
shipping center in the Dominion to secure
new subscriptions to THE RAILWAY AND SHIP-
PING WORLD, for which we will pay liberal
commissions.

The work is easy, the paper recommending
itself; and is specially adapted for clerks in
transportation offices. It can be done at odd
times without interfering with other duties.

For terms and other particulars, address

THE RAILWAY AND SHIPPING WORLD,
Toronto.

probably nearer 15 ft. when finished and
settled. Cuttings were 24 ft. in width. The
quantities of materials of all kinds moved
averaged about 11,500 cubic yards per mile.
The right of way purchased was generally 66
ft. in width—which was too little to provide
conveniently the necessary borrow, and it
was only with great difficulty that the sub-
contractors were kept within the fence lines
and prevented from trespassing on the neigh-

boring lands. In a large number of cases
extra land had to be purchased outside the
right of way for borrow pits, and it was
generally found more troublesome and expen-
sive to settle for these pieces than it was to
buy the original right of way. The habitant
seems to know by instinct when his enemy is
in a hole, and is quite capable of taking ad-
vantage of the situation. The fencing consists
of 11 horizontal strands of coiled steel wire,
with vertical binder wires about 1 ft. apart,
locked to the horizontal strands. The posts
were of cedar, set 3½ ft. in the ground, and
16½ ft. apart. The lower ends of the posts
were pointed, so that in case any heaving
should take place they could readily be driven
back into place.

Clearing was done to the full width of the
right of way, and in large and heavy timber
for a width of 100 ft. Under embankments
of not more than 12 ft. in height wooden box
or beam culverts were put in, beam culverts
being used in only a few cases. Where it was
found impossible to do the work with a box,
wooden culverts were built of 8 x 10 in. or
10 x 10 in. cedar squared on three sides and
laid flat. Beam culverts had regular bridge
floors of pine.

Wooden trestles were built according to
standard plan, and were founded on piles
where it was possible to drive them. Single
decks as high as 32 ft. were used, but where
they exceeded 25 ft. they were divided into
two parts by a collar brace and a double set
of sway braces put on. This was found to be
more economical than dividing the bent into
two decks, and in the opinion of the writer
made a more substantial job. A great length
of trestle work was authorized by the Do-
minion Government, but this was materially
reduced by the contractors, as it was found
that up to a height of about 20 ft. an earth
embankment was cheaper than a trestle—
although, of course, the size of the waterway
required would considerably modify this rule.
The highest timber trestle on the line was at
the East Yamachiche, 3 miles from St. Boni-
face, a three-decker 74 ft. high, and the long-
est, apart from that at Hawkesbury, was at
the Cache river—17 miles east of Joliette—
where there were 32 bents, a total length of
480 ft. The quantities of timber in trestles
were as follows:—

Eastern division	1,244,000 ft. b. m.
Western division	135,000 "
Hawkesbury bridge	908,000 "
	2,287,000 "

The iron bridges were the heaviest item of
construction on the line. Commencing at the
St. Boniface end, the first structure was at
the East Yamachiche, three miles west. This
valley is somewhat in the shape of a W, with
the main river in the western depression some
feet lower than the eastern. The eastern
valley was crossed by a wooden trestle, as
described above, and the western by a steel
viaduct, consisting of four 40 ft. braced
towers with three 60 ft. plate girder inter-
mediate spans. The total length of steel is
thus 340 ft., and the extreme height from top
of pedestal to base of rail is 74 ft. The total
weight of steel in the structure is about 424-
000 lbs. The masonry consisted of 14 pedes-
tals and one abutment, founded on hard gray
clay. About three miles further west comes
the West Yamachiche river. This was crossed
by a steel viaduct, consisting of two towers
of 30 ft. each, and an intermediate plate
girder span of 60 ft., with a wooden trestle
approach at either end. The height from top
of cap to base of rail is 32 ft. The masonry
consisted of eight pedestals on pile and timber
foundations. Piles were spaced 3 ft. apart,
and driven about 18 ft. The piles were
capped with 12 x 12 in. timbers, and on the
caps a flooring or grillage of 12 x 12 in.
timbers was laid and the masonry started.
The next stream, about four miles further