N. T. R.
CAP ROUGE

of the total cost of the [illegible]
for the line.

Quebec Bridge.—Preliminary work was started on the reconstruction of the bridge over the St. Lawrence at Quebec, Dec. 8, when about 100 men were put to work around the approaches of the old bridge, for the purpose of preparing for the clearing away of the debris, and the demolishing of such parts of the old work as have been condemned, preparatory to the construction of new piers and other works. A contract will be let at an early date for the removal of the steel work between the land and the piers. This has to be done by the spring so as to allow the caissons for the new piers to be sunk by May 1.

The Minister of Railways, in reply to questions in the House of Commons recently, stated that the new bridge is to be erected at the same site as the old one, the south pier will be used in part but must be enlarged, a new pier will be sunk to the rock on the north side, and the other piers will be rebuilt. Further questions elicited the information that the existing south pier caisson will be fully used, and enlarged to carry the greater load that will be required for the new superstructure. At the north pier, borings have demonstrated that the caisson can be founded on the rock and the span reduced from 1,800 ft. to 1,758 ft. The existing north pier will be demolished. The old bridge was estimated to weigh 35,000 tons, and was to have been built of carbon steel. The new bridge will be built in part of carbon steel, using nickel steel in the more important members. The weight cannot be given at present pending the receipt of tenders for the superstructure.

On Dec. 9, the Minister stated that the total cost of the Quebec bridge to the Dominion Government to date was $6,905,852.35; including subsidies paid of $374,353.33. A contract had been let to

Prince R
branch li
sion of
miles sou
J. D. Mc

Replyi
Common
ways sai
tion of t
Creek, 9
the rate
mated it
complete
from W
there h
$7,053,86
would r
ish it:
for inte
tion he
ing any
G.T. Pac
compan
the Pra
75% of

The
an 18-st
monton
of conc
work o
umns, t
chine s
and gra
with h

In a
M. Hay
the lin
about
The w
pleted

Repo
work
line ea
to the
plosive
at a m

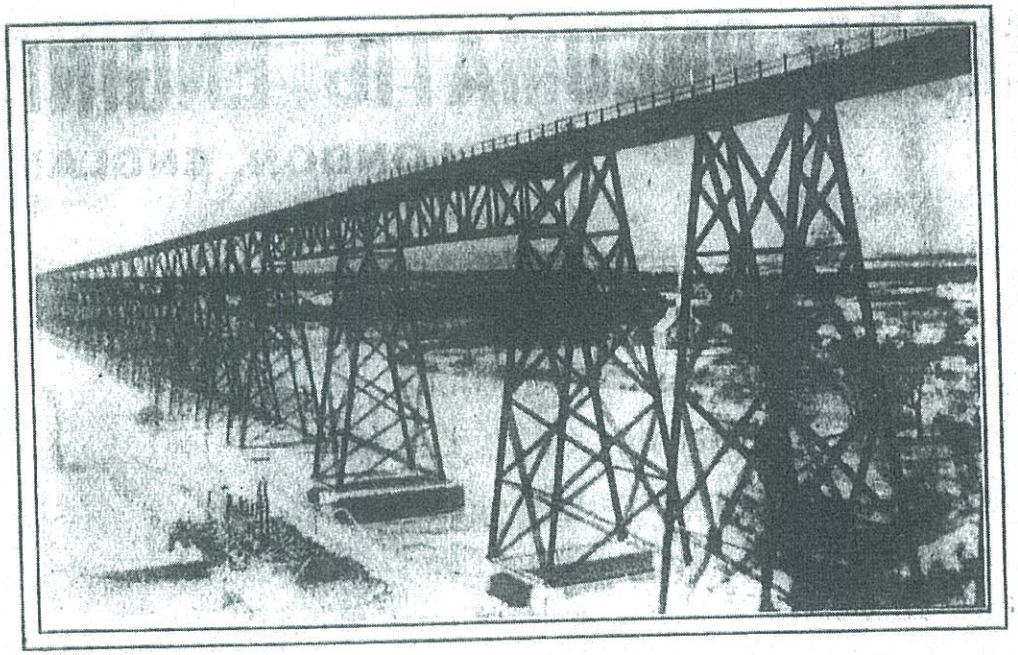
JANUARY 1910 NTR

Cap Rouge Viaduct, N. T Ry.

The Cap Rouge viaduct, which has been built on the National Transcontinental Railway near Quebec, is a single track structure about 3,345 ft. long over all with a maximum height of nearly 173 ft. from low water to base of rail. It contains about 4,500 tons of steel and has thirty-one 40 ft. towers and one single bent supporting thirty-three 40 ft. and twenty-nine 60 ft. plate girder spans and one 150 ft., one 160 ft., and one 125 ft. riveted truss deck spans.

Several comparative estimates were made considering the longitudinal force specified, and indicated that the maximum rigidity and minimum total cost would be secured by the adoption of comparatively wide towers and moderate length connecting spans, which were finally fixed of the dimensions already stated, but which it was considered by the contractors would have been substantially as economical if the lengths of the towers had been increased 10 ft. more. The standard of 40 ft. was, however, adopted in deference to the general attitude taken by the engineers of proportions of high viaducts and it has proved very satisfactory in construction and operation.

The towers are of special construction and are interesting on account of the make up of the columns and the system of bracing, which avoids all intermediate horizontal transverse struts and eliminates them from the centre panels in the longitudinal faces of the towers. This column design has been somewhat modified in subsequent structures proportioned by the same designers to provide better for the transportation and erection stresses and to reduce the wide painting area in the interests of maintenance.



CAP ROUGE VIADUCT, NATIONAL TRANSCONTINENTAL RAILWAY.

The structure is designed for dead loads of 1,350 lbs., 1,500 lbs., and 3,000 lbs. per linear foot of the 40 ft., 60 ft. and 150 ft. spans respectively, and for the "class heavy" live load and unit stresses conforming to the Dominion government specifications of 1905 which provide for two 180 ton engines 48 ft. long followed by a train load of 4,750 lbs. per linear foot. Wind pressure is assumed at 30 lb. per square foot of exposed train and viaduct surface and impact is allowed for by the formula $(l.\ l.)^2 \div (d.\ l. + l.\ l.)$.

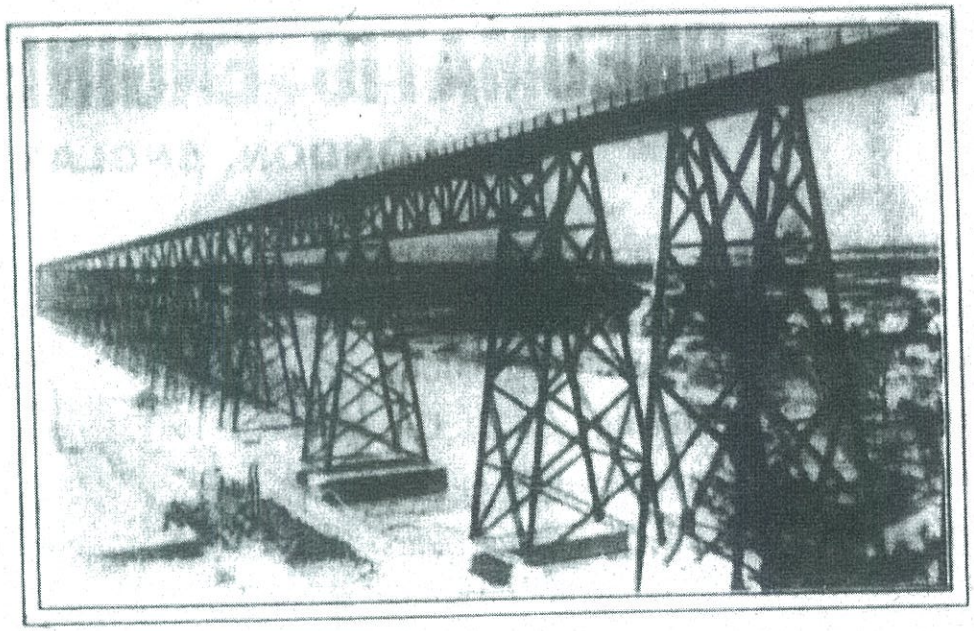
All plate girders have a uniform depth of 6 ft. and sustain maximum calculated stresses of 158,800 lbs. direct shear plus 115,000 lb. impact increment, equals 273,800 lb. for the 60 ft. span, requiring a sectional area of 27.38 sq. in. The corresponding moments give a net flange stress of 2,119,000 lbs., which, increased by the impact increment, 1,465,000 lbs.

Cap Rouge Viaduct, N. T Ry.

The Cap Rouge viaduct, which has been built on the National Transcontinental Railway near Quebec, is a single track structure about 2,345 ft long over all with a maximum height of nearly 173 ft. from low water to base of rail. It contains about 4,500 tons of steel and has thirty-one 40 ft towers and one single bent supporting thirty-three 40 ft. and twenty-nine 60 ft plate girder spans and one 150 ft., one 160 ft., and one 125 ft. riveted truss deck spans.

Several comparative estimates were made considering the longitudinal force specified, and indicated that the maximum rigidity and minimum total cost would be secured by the adoption of comparatively wide towers and moderate length connecting spans, which were finally fixed of the dimensions already stated, but which it was considered by the contractors would have been substantially as economical if the lengths of the towers had been increased 10 ft. more. The standard of 40 ft. was, however, adopted in deference to the general attitude taken by the engineers of proportions of high viaducts and it has proved very satisfactory in construction and operation.

The towers are of special construction and are interesting on account of the make up of the columns and the system of bracing, which avoids all intermediate horizontal transverse struts and eliminates them from the centre panels in the longitudinal faces of the towers. This column design has been somewhat modified in subsequent structures proportioned by the same designers to provide better for the transportation and erection stresses and to reduce the wide painting area in the interests of maintenance.

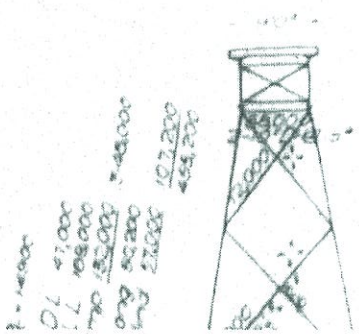


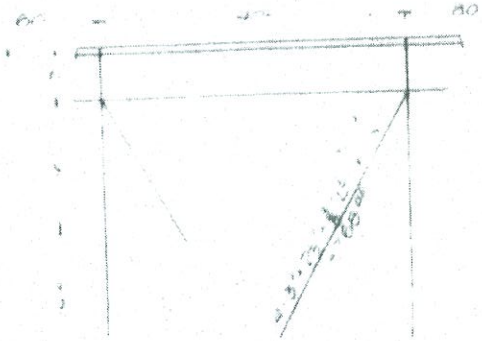
CAP ROUGE VIADUCT, NATIONAL TRANSCONTINENTAL RAILWAY

The structure is designed for dead loads of 1,350 lbs., 1,500 lbs., and 3,000 lbs. per linear foot of the 40 ft., 60 ft. and 150 ft. spans respectively, and for the "class heavy" live load and unit stresses conforming to the Dominion government specifications of 1905 which provide for two 180 ton engines 48 ft. long followed by a train load of 4,750 lbs. per linear foot. Wind pressure is assumed at 30 lb. per square foot of exposed train and viaduct surface and impact is allowed for by the formula [illegible]

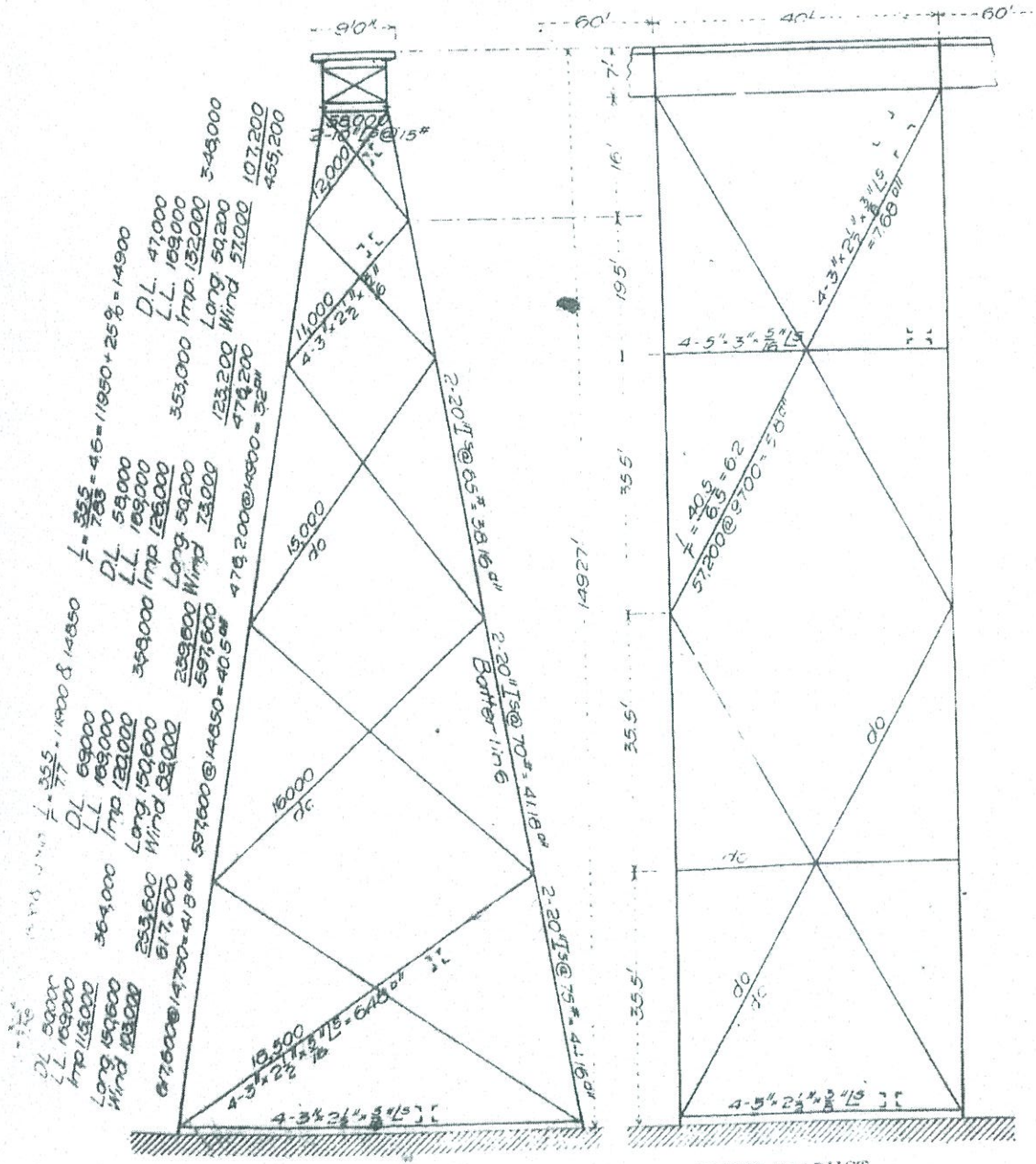
All plate girders have a uniform depth of 6 ft. and sustain maximum calculated stresses of 158,800 lbs. direct shear plus [illegible] lb. impact increment, equals [illegible] lb. for the 60 ft. span, requiring a sectional area of 27.38 sq. in. The corresponding moments give a net flange stress of 2,119,000 lbs., which, increased by the impact increment, 1,465,000 lbs. gives a total of 3,584,000 lbs., for which gross cross sections of 44.26 and 40.12 sq. in. are provided in the top and bottom flanges respectively. For the 40 ft. spans the shear plus increment is 226,800 lbs. with a 22.68 sq. in. net web section and the flange stress 1,984,400 lbs. with net and gross sections of 21.5 and 23.06 sq. in. respectively to both top and bottom flanges.

The maximum stresses in the tallest bents are given in the accompanying





longitudinal faces of the towers. This column design has been somewhat modified in subsequent structures proportion- the [illegible] stresses conforming to the Dominion government specifications of 1905 which



TYPICAL STRAIN SHEET OF TALL TOWER, CAP ROUGE VIADUCT.

115,000 lb. impact increment, equals 273,800 lb. for the 60 ft. span, requiring a sectional area of 27.38 sq. in. The corresponding moments give a net flange stress of 2,119,000 lbs., which, increased by the impact increment, 1,465,000 lbs. gives a total of 3,584,000 lbs., for which gross cross sections of 44.26 and 40.12 sq. in. are provided in the top and bottom flanges respectively. For the 40 ft. spans, the shear plus increment is 226,800 lbs. with a 22.68 sq. in. net web section and the flange stress 1,963,400 lbs. with net and gross sections of 21.5 and 23.06 sq. in. respectively to both top and bottom flanges.

The maximum stresses in the tallest bents are given in the accompanying diagram, which also shows the materials used for the members. In bents 110 ft. high to base of rail, the maximum column stress is reduced to 557,300 lbs. with a required sectional area of 34.1 sq. in., and the columns are made with 18 in. I-beams weighing 60 lbs. for the two lower stories and 55 lbs. for the upper stories. The horizontal and diagonal bracing is the same as for the maximum bent.

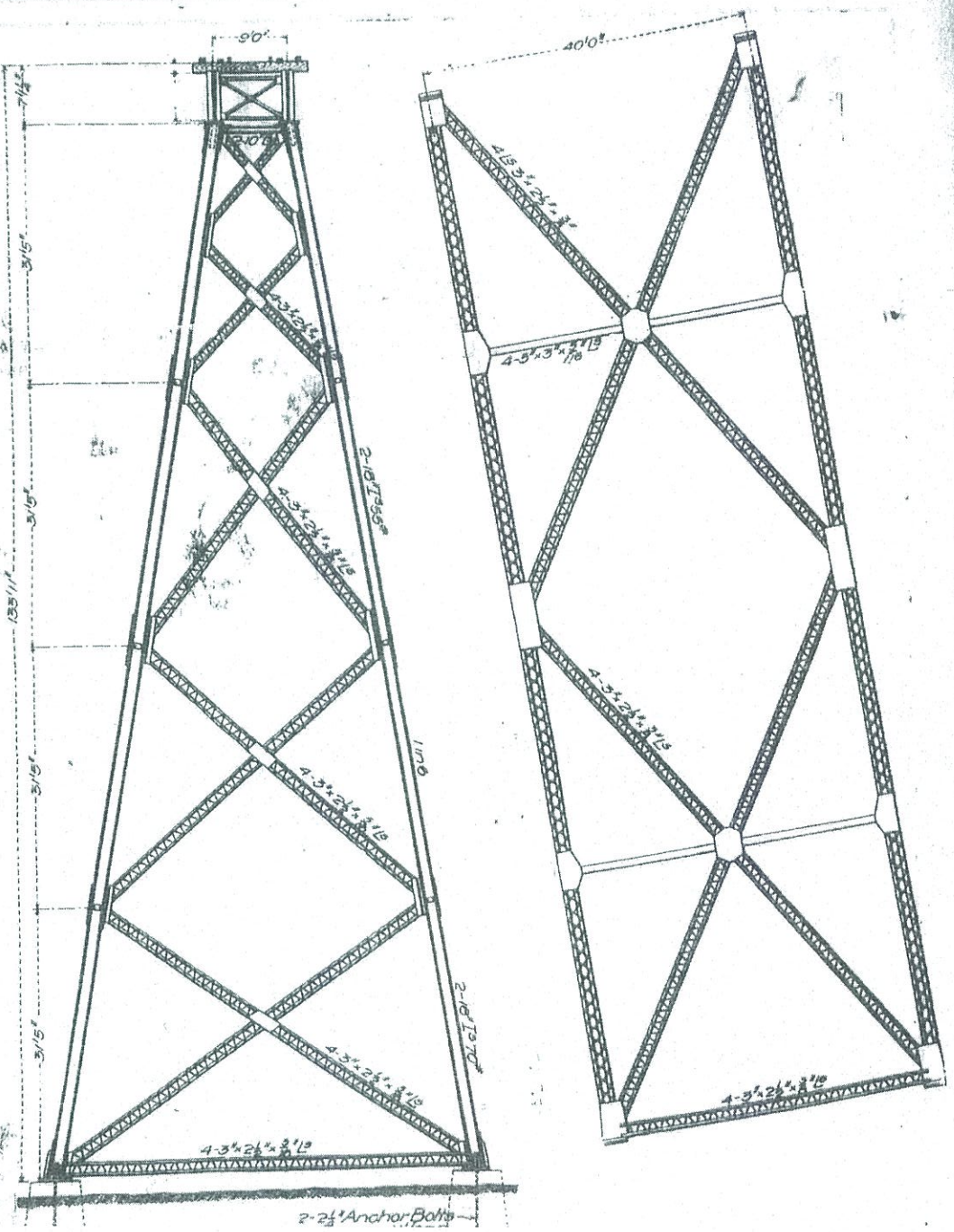
The height of the viaduct does not fall below 100 ft., except near the ends, at one of which is located the 125 ft. span and the single bent. At the other end there are three towers with their pedestals from 53 to 95 ft. below the base of rail. In all of them the columns are made with 18-in. 55 lb. I-beams. The columns are battered 1:6, which increases the uniform transverse distance 9 ft. apart on centres at the top to from 24 ft. 4 in. to 56 ft. 4 in. at the base.

The column posts are made in lengths of about 32 ft. for the upper stories, which are uniform and vary according to the irregularity of the ground for the lower story. Each section is made with a pair of 18 in. I-beams spaced 15 in. apart on centres with their webs transverse to the axis of the viaduct and their flanges connected by double latticing with flat bars. Successive sections are spliced with double web and flange cover plates, the latter being made about 3 ft. long and extending beyond the inner edges of the columns to serve as jaws receiving the field riveted ends of the horizontal and diagonal longitudinal

braces. Pairs of 8 x 3 in. angles about 4 ft. long are riveted to the flange splice plates on the inner sides of the columns to form jaws for the field connections of the transverse X-braces and also serve to add considerable resistance to flexure for the columns at these points.

All diagonal members in the tower bracing have rectangular cross sections made with four 3 x 2½ in. angles latticed on all sides. All diagonals are cut to clear at intersections and are spliced together and with double flange cover plates which, in the case of the top and bottom panels of the longitudinal bracing, connect them also to the continuous horizontal struts which have I-shape cross sections made with two pairs of 5 x 3 in. angles back to back latticed. The column bases are seated on separate concrete pedestals and pairs of vertical distribution angles are riveted to the column webs at the lower end and have bearing plates on top, thus forming pockets and seats for two 2¼ in. anchor bolts 11 ft. long at each column footing of the high towers.

At the upper end of the column, the webs of the I-beams are connected by longitudinal diaphragms which are made with vertical 18 in. I-beams 3 ft. long reinforcing the 36 x ¾ x 38 in. cap plates which, at the ends of the long spans, have guide strips riveted on both edges to engage a cast-iron bed plate with a spherical upper surface finished to a radius of 36 in. A corresponding cast steel bearing plate is finished with a concave surface between which and the convex iron casting there is interposed a sheet lead filler 1-16 in. thick and 21 in. in diameter. The horizontal upper surface of the concave casting is grooved to receive the lower one of a pair of polished Tobin bronze plates 22 in. square and 5-16 in. thick. The upper plate is countersunk riveted to the 1⅞ in. sole plate on the bottom flange of the girder. The girder is thus free to slide longitudinally on the bronze bearings and to be deflected in any direction on the convex casting without materially disturbing the concentric application and distribution of its load on the column top. The cast fillers are bolted between the longitudinal edges of the shoe plate on the girder and the cap plate on the column and are cored for 1 15-16 in. turned bolts which engage round holes in the fixed ends of the girders and slotted holes in the expansion ends.



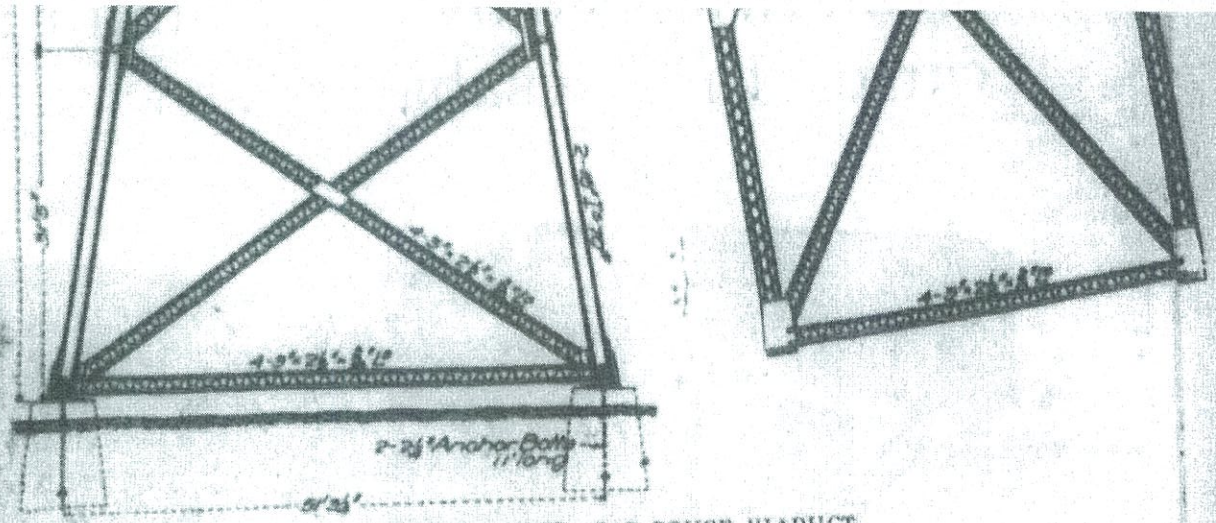
receive the lower one of a pair of power-ed Tobin bronze plates 22 in. square and 1-16 in. thick. The upper plate is countersunk riveted to the 1¼ in. sole plate on the bottom flange of the girder. The girder is thus free to slide longitudinally on the bronze bearings and to be deflected in any direction on the convex casting without materially disturbing the concentric application and distribution of its load on the column top. The cast fillers are bolted between the longitudinal edges of the shoe plate on the girder and the cap plate on the column and are cored for 1 15-16 in. turned bolts which engage round holes in the fixed ends of the girders and slotted holes in the expansion ends.

The 60 ft. girders have 72 x ⅜ in. web plates with top flanges made with a pair of 8 x 8 x ¾ in. upper angles and two 6 x 6 x ⅝ in. lower angles riveted over them with their horizontal flanges downwards, making an H-shape cross section which, with one-eighth of the web, gives a gross section of 44.26 sq. in. The bottom flanges have T-shape cross sections, are made with a pair of 8 x 8 x ¾ in. angles and two 17 x 9-16 in. flange cover plates. The 40 ft. girders also have 72 x ⅜ in. web plates. Their top and bottom flanges are the same and are each made with two 8 x 8 11-16 in. angles. All girders are divided into panels 6 to 7 ft. long by pairs of 5 x 3½ in. intermediate vertical web stiffener angles and 6 x 6 in. end vertical angles. The 60 ft. spans have top and bottom flange X-bracing of single 3½ x 3 in. angles. The 40 ft. spans have top lateral bracing only. Both spans being provided with the usual transverse vertical sway bracing frames at the ends and at alternate panel points.

The 150 ft. span has trusses 25 ft. deep, proportioned for a maximum top chord stress of 768,700 lbs., for which a sectional area of 45.4 sq. in. is required, and is made up with four 6 x 3½ x 9-16 in. angles, two 18 x 7-16 in. web plates and one 2 x 1½ in. cover plate. The truss is divided by vertical posts into six panels, each with a single diagonal member. The 125 ft. span corresponds to the 150 ft. span, except that it has only five panels. The maximum chord stress is 522,000 lbs., and a sectional area of 37.6 in. is provided by two 15 in., 50 lb. channels and one 18 x ½ in. cover plate. Both spans have top and bottom lateral X-bracing, made, in the end panels, with four angles each. The vertical posts are braced transversely with sway frames, composed of 3½ x 3½ and 6 x 3½ in. angles. The trusses are spaced 16 ft. 11 in. apart and the track is carried on 54 in. floor beams and 48 in. stringers.

The viaduct is being erected with an overhead two-boom traveler. All field rivets are driven by pneumatic hammers.

The viaduct was designed and constructed under the direction of R. F. Uniacke, Bridge Engineer National Transcontinental Ry. Commission. The steel was fabricated and erected by the Dominion Bridge Co., Ltd., of Montreal, Phelps Johnson Manager.



TYPICAL TOWER, CAP ROUGE VIADUCT.

S. R. Jecks, messenger Dominion and Western Express Cos., Montreal, writes: "I can assure you I would not be without your very interesting and valued paper, the Railway and Marine World."

Canadian Railway Activity. — Geo. Paish, editor of the London, Eng., Statist, who paid an extended visit to Canada recently, is contributing a series of articles to that paper. In the first one he says:—"A third factor of great import is the ability and far-sightedness of Canada's statesmen. They recognize that the essential thing to be worked for is to open up the country and to admit population to the natural wealth. All the energies of the statesmen of the entire country, Dominion and Provincial, are at the moment directed to the extension of railways. This is the platform upon which the Ministries have been returned to office, and it is this policy they are pledged to carry out. Everything possible is being done to encourage and to stimulate railway construction, both in the prairie districts and between the prairies and the sea coast, east, west and north."

The Ontario Government received $416,936 from taxes levied on railways in the province during the last financial year, against $400,227 in the previous year. Of this $30,000 is applied towards the expenses of the Ontario Railway and Municipal Board.

stantially as economical if the lengths of the towers had been increased 10 ft. more. The standard of 40 ft. was, however, adopted in deference to the general attitude taken by the engineers of proportions of high viaducts and it has proved very satisfactory in construction and operation.

The towers are of special construction and are interesting on account of the make up of the columns and the system of bracing which avoids all intermediate horizontal transverse struts and eliminates them from the centre panels in the longitudinal faces of the towers. This form design has been somewhat modified in subsequent structures proportioned by the same designers to provide better for the transportation and erection stresses and to reduce the wide painting area in the interests of maintenance.

The structure is designed for dead loads of 1,350 lbs., 1,500 lbs. and 3,000 lbs. per linear foot of the 40 ft., 60 ft. and 150 ft. spans respectively, and for the "class heavy" live load and unit stresses conforming to the Dominion government specifications of 1905, which provide for two 180 ton engines 48 ft. long followed by a train load of 4,750 lbs. per linear foot. Wind pressure is assumed at 30 lb. per square foot of exposed train and viaduct surface and impact is allowed for by the formula [illegible]

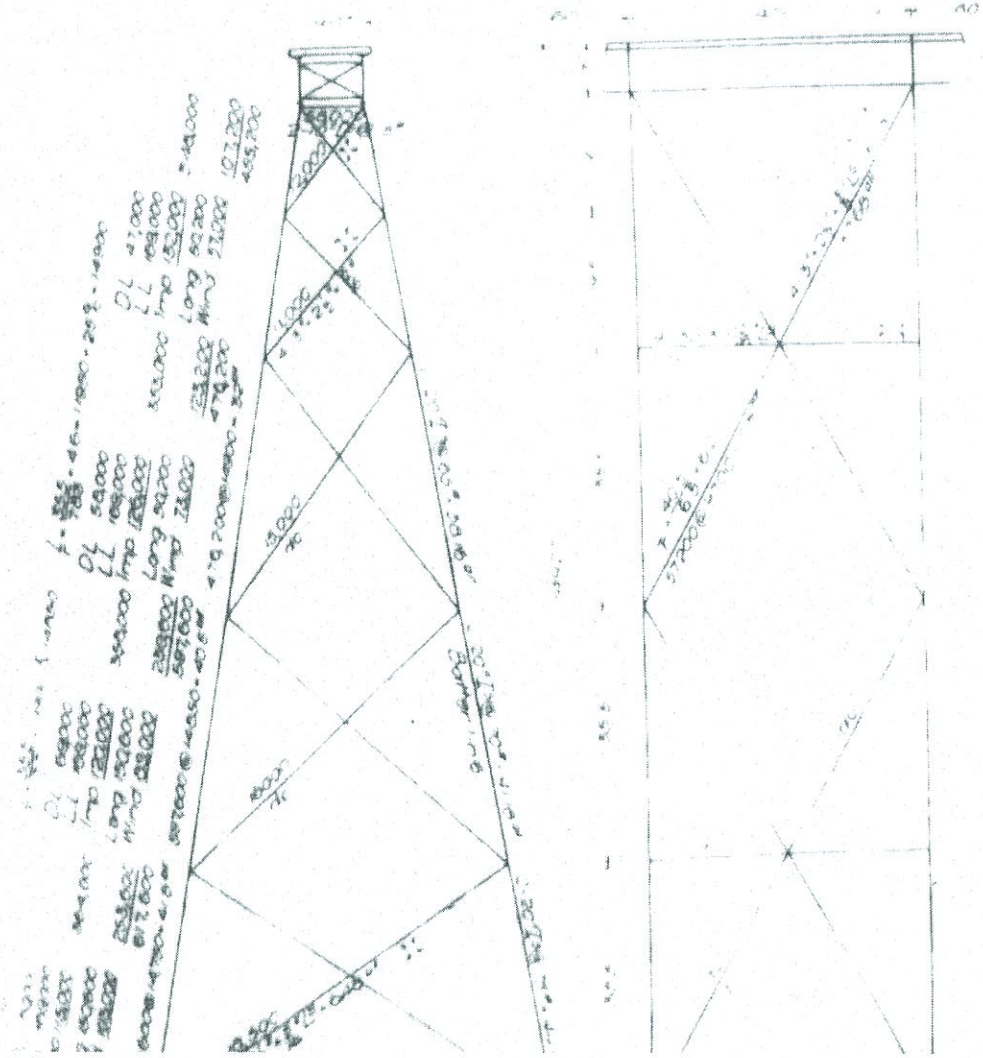
All plate girders have a uniform depth of 6 ft. and sustain maximum calculated stresses of 158,800 lbs. direct shear plus [illegible],000 lb. impact increment, squals [illegible],500 lb. for the 60 ft. span, requiring a sectional area of 27.38 sq. in. The corresponding moments give a net flange stress of 2,119,000 lbs., which, increased by the impact increment, 1,465,000 lbs. gives a total of 3,584,000 lbs., for which gross cross sections of 44.26 and 40.13 sq. in. are provided in the top and bottom flanges respectively. For the 40 ft. spans the shear plus increment is 226,800 lbs. with a 22.68 sq. in. net web section and the flange stress 1,963,400 lbs. with net and gross sections of 21.5 and 23.06 sq. in. respectively to both top and bottom flanges.

The maximum stresses in the tallest bents are given in the accompanying diagram, which also shows the materials used for the members. In bents 110 ft. high to base of rail, the maximum column stress is reduced to 557,300 lbs. with a required sectional area of 34.1 sq. in. and the columns are made with 18 in. I-beams weighing 60 lbs. for the two lower stories and 55 lbs. for the upper stories. The horizontal and diagonal bracing is the same as for the maximum bent.

The height of the viaduct does not fall below 100 ft. except near the ends, at one of which is located the 125 ft. span and the single bent. At the other end there are three towers with their pedestals from 53 to 95 ft. below the base of rail. In all of them the columns are made with 18-in. 55 lb. I-beams. The columns are battered 1:6, which increases the uniform transverse distance 9 ft. apart on centres at the top to from 24 ft. 4 in. to 56 ft. 4 in. at the base.

The column posts are made in lengths of about 32 ft. for the upper stories, which are uniform and vary according to the irregularity of the ground for the lower story. Each section is made with a pair of 18 in. I-beams spaced 15 in. apart on centres with their webs transverse to the axis of the viaduct and their flanges connected by double latticing with flat bars. Successive sections are spliced with double web and flange cover

CAP ROUGE VIADUCT, NATIONAL TRANSCONTINENTAL RAILWAY



National Transcontinental Railway.

We are advised that it is estimated that 312 miles of track were laid during 1900 on the Eastern Division, and on various stretches between Moncton, N.B. and Winnipeg, making with the 249 miles laid to Dec. 31, 1908, a total of 561 miles, and leaving 1,244 miles to be laid to complete the division. The track laid during 1909 is distributed over the different contracts as follows:—Moncton westerly mileage 20 to 30, and mileage 53 to 56, 13 miles; Chipman, mileage 5 to 10 west, five miles; crossing of the Intercolonial Ry., 36 miles west from Moncton, to 13 miles easterly and to 14 miles westerly, 27 miles; from Quebec-New Brunswick boundary easterly for 27 miles, and from mileage 61 to 64, three miles, making 30 miles; east of Quebec bridge 16 miles have been laid between mileage 2.6 and 36; west of the same point 10 miles have been laid in the first 50 miles, 15 miles between the 50th and to the 158th mile; at the junction with the Temiskaming and Northern Ontario Ry. nine miles of track have been laid easterly and 35 miles westerly; from mileage 8 east of the Ontario-Manitoba boundary to mileage 152 east, 144 miles.

Replying to questions in the House of Commons, Nov. 25, the Minister of Railways stated in regard to the delay in the completion of work by several of the contractors, that the contracts provided for a forfeit of $5,000 for each calendar month of default; that no extensions of any of the contracts had been given, and that the enforcement of the penalty clause was a matter for consideration before final payments were made.

On Dec. 9, the Minister said, the only amount paid for terminals for the Railway was $2,187.50 a month paid to the Canadian Northern Ry., being the Government's proportion of rental for terminals at Winnipeg, under the agreement of Mar. 1, 1907. No estimate had been made of the total cost of the terminals required for the line.

Quebec Bridge.—Preliminary work was [illegible] the reconstruction of the M. P. Davis for the substructure of two pneumatic caissons, two abutments, two anchor piers and one intermediate pier, which will all be required if the ultimate decision is for a cantilever bridge, at a cost of $2,448,475. If the decision is that a suspension bridge is to be built the abutment, centre pier and anchor pier will not be required; but anchorage piers for the cables will be required. No estimate for the latter had been made. There was a provision in the contract for withdrawing the items named. The cost of the two pneumatic caissons would be $2,000,800, and these will be required as planned whatever type of bridge superstructure is ultimately decided upon. Pending such decision it was not in the public interest to give any estimates of the cost of the superstructure.

The Department has issued an invitation to contractors for bridge superstructures to visit the office of the Board of Engineers in Montreal, after Jan. 3, for the purpose of receiving information to enable them to prepare bids for the superstructure of a span of 1,758 ft., having a width of 88 ft.

GRAND TRUNK PACIFIC RY.

We are advised that during 1909 the company laid 309 miles of new track distributed as follows:—from Irma, Alta., to Cloverbar, Alta., 102 miles; from Edmonton to Wolfe Creek, Alta., 122 miles, making 224 miles of main line; branch line from Melville to Balcarres, Sask., 34 miles; branch from Melville to Yorkton, Sask., 25 miles; and branch line from Tofield to Camrose, Alta., 26 miles, making a total of 85 miles of branch lines. The company has under construction 414 miles of main line and 24 miles of a branch. The contract for the main line work is being carried out under several contracts by Foley, Welch and Stewart, with headquarters at Stoney Plain, Alta., and Prince Rupert, B.C. The eastern contracts cover the 179 miles from Wolfe Creek to Tete Jaune Cache, and the western contracts cover the 235 miles from Prince Rupert to Aldermere, B.C. The branch line under contract is an extension of the Tofield-Camrose branch 24 [illegible] being let to [illegible] pated, consequently the contractors were not able to get their supplies in by steamer. An attempt will be made to get in supplies for some of the camps by land, but it is not expected that it will be possible to keep more than two or three camps going.

The Dominion Parliament is being asked to pass an act authorizing the construction of the following additional lines by the G.T. Pacific Branch Lines Co.:—From between the east limit of range 12 and the west limit of range 17 west of the third meridian, thence south-westerly and westerly to Calgary, Alta., or to the line authorized to be constructed by par. 14, clause 11, chap. 99, of the statutes of 1909; from the last mentioned line between the east limit of range 20 and the west limit of range 28 west third meridian, easterly or south-easterly to Regina, Sask.; from the last mentioned line between east limit of range 24, and west limit of range 27, west of the second meridian to Moose Jaw, Sask.; from between Artland and Wainwright, easterly and south-easterly to the line authorized to be constructed to Battleford, by par. 13, clause 11, chap. 99, of the statutes of 1909; from Regina, south-westerly and westerly to Lethbridge, Alta., on the line authorized to be constructed from Calgary to the southern boundary of Alberta, near Coutts; from the main line between Moose Lake and Tete Jaune Cache, through the valley of the Clearwater River, Bonaparte River, Seaton and Anderson lakes, Lillooet or Squamish River, to Vancouver, B.C. The company also asks power to issue bonds for $30,000 a mile for the Manitoba, Saskatchewan and Alberta extensions, and for $50,000 a mile for the extension to Vancouver. (Dec., 1909, pg. 893).

Union Station at Fort William.

The plans for the new union station to be erected at Fort William, Ont., by the C.P.R., for the joint use of the C.P.R. and the G.T. Pacific Ry., show a building 272 ft. long. The central portion [illegible]

National Transcontinental Railway.

Reports from New Brunswick, Jan. 5, stated that track had been laid west to Nappadoggan Lake; that work was then going on, and would be continued throughout the winter, unless the weather became too severe. On the section from Moncton westerly for 50 miles, work was closed down Jan. 5. On this section only 10 miles more track has to be laid to complete it. Ballasting will be commenced early in the spring, and it is expected to have everything fully completed by Aug. 18, when the line has to be handed over to the original contractor, the G.T. Pacific Ry. Co.

Replying to a question in the House of Commons, Jan. 19, the Minister of Railways stated there was no record of the amounts claimed by the contractors on District A, but the amounts returned by the engineers, from Dec. 13, 1908, to Jan. 13, 1910, under the terms of the respective contracts, and paid by the Commissioners were shown in the statement following:—

Contract	Name of Contractor
1 Mileage 0-50 from Moncton,	Grand Trunk Pacific Ry. .....
2. Mileage 50 to 58	J. W. McMannus & Co.....
3. Mileage 58 to 164.....	Grand Trunk Pacific Ry. .....
4. " " "	Grand Trunk Pacific Ry. .....
5 Mileage 164 to 195.....	Willard Kitchen & Co. .....
6 Mileage 195 to 255	Lyons & White .....

J. D. McArthur, contractor, stated in Ottawa recently that the section of the line between Winnipeg and Lake Superior Jct., Ont., would be handed over to the Commisioners July 1. Considerable ballasting and incidental work has still to be done.

Quebec Bridge.—The contract for the clearing of the debris of the collapsed uncompleted central span of the projected bridge near Quebec, has been let by the Department of Railways to Capt. Koenig, the work to be completed by Mar. 1. The steel work overhanging the shore piers, and in the bed of the river where it fell, has to be removed. Commenced clearing away

$5,000
prope
lieu a
quired

The
has i
pany
right
limits
the a
by th
Fort
the (
H.
retur
spect
state
laid
the
woul
the
Edso
Rive
The
at E
long

soo
leod
war
and
sec
to

V
stru
it
pec
of
bui
sto
40(
eca
all
roc

National Transcontinental Railway.

Speaking in the House of Commons, recently, the Minister of Railways reported on the progress of construction on the N.T.R., Eastern Division. On Nov 30, 1909, there had been graded on the six districts between Moncton, N.B., and Winnipeg, Man., 1045.1 miles, of which 319.60 miles had been graded since Mar. 31. The mileage graded in the several districts at Nov. 30, was: District A., 241 miles; district B., 349.6; district C., 8.0; district D., 106.0; district E., 33.0; and district F., 307.5. On Mar. 31 there had been laid 275.49 miles of main track, and 59.88 miles of sidings. On Nov. 30, the mileage of track laid was: District A., 124.98 miles of main track, and 20.84 miles of siding; district B., 169.33 main track, 13.94 sidings; district D., 47.44 main track, 10.96 sidings; district F., 255.87 main track, 56.81 sidings. The number of miles of track fully ballasted on Nov. 30, was 425, of which 101.5 was in district A., 74.8 in district B., and 212.4 in district F. There had been steel bridges completed in three of the districts, A., B. and F., representing 23,600,223 lbs. of steel, and 1,732,304 ft. 6 in. of timber, and costing $1,122,449.05. There were steel bridges under construction in four districts, A., B., D. and F., requiring in their construction an estimated weight of steel of 44,459,617 lbs.; and 2,649,979 ft. 6 in. of timber; the estimated cost of these bridges was $2,145,065.66, and there had been paid on account of construction to Dec. 31, 1909, $949,561. There were other bridges required in all districts for which contracts had not been let; for these the estimated quantities of steel required was 37,810,686 lbs; of timber 3,220,241 ft. 6 in.; and the estimated cost $1,949,987.66. The total estimated cost of the bridges on the Eastern Division was therefore $5,217,502.37.

Replying to questions in the House of Commons recently, the Minister of Railways stated that surveys extending from Winnipeg for about 700 miles easterly were taken over by the Commission from the G.T. Pacific Ry. Co. and paid for by the Government. This mileage was all resurveyed and re-located by the Commission's engineers. Parts of the re-located line on the McArthur contract were changed after the contract was let, particularly in two places, the line being improved thereby. On mileage 49 to 93 the cost of the change over the original estimate was $127,377, while the capitalized value of the improvement was Moncton, the estimated quantities, actual excavation to Nov. 30, 1909, and the cost were:—

	Estimate.	Actual.	Cost.
Solid rock, c.y.	498,400	344,334	$499,283.86
Loose rock, c.y.	71,900	380,805	181,942.75
Com. exc., c.y..	374,000	128,611	32,152.75

The cost of the excavation at the contract prices on the estimated quantities was $848,475. The estimated quantities were approximate. In a number of 258.25. The second contract let to the firm covered mileage 1,407.65 to 1,534.04 from Moncton. The estimated quantities, actual excavation to Dec. 31, 1909, and the cost were:—

	Estimate.	Actual.	Cost.
Solid rock, c.y.	2,602,000	658,182	$974,109.35
Loose rock, c.y.	89,000	242,178	205,851.30
Com. exc., c.y..	1,489,000	228,703	66,328.87

The reference to muskeg filling made in the first instance applies to this contract also. The cost of the section on the basis of the estimated quantities at the contract prices is $5,967,208.75.

The question of the entrance of the line from the east into Winnipeg came up for discussion with the Minister of Railways, Feb. 3. The original plan approved by H. D. Lumsden, ex-Chief Engineer, provided for an entrance by a certain route, and the line had been constructed in consequence to a junction with the Canadian Northern Ry. Dundee branch. The C.P.R. objected to the route on account of the crossing of its line involved, and another route, called the northern route, was surveyed and approved by G. Grant, the Commissioners' new Chief Engineer. This route was objected to by the C.P.R. as well as by the Canadian Northern Ry. on the grounds that its use would cut up their yards. An alternative plan was suggested by which the C.N.R. right of way would be used from the junction with the Dundee branch, the right of way being sufficient to permit of both lines being carried along it. After a lengthened discussion between the Minister, the Commissioners and the Chief Commissioner of the Board of Railway Commissioners, the matter was adjourned to permit consideration being given to the suggestion.

GRAND TRUNK PACIFIC RAILWAY

The report of C. Schreiber, General Consulting Engineer to the Government, and Chief Engineer of the Western Division, N.T.R., upon the conditions of the construction being done by the G.T.P.R., to Dec. 31, 1909, as presented to the House of Commons, Feb. 1, by the Minister of Railways, was as follows:—

The Prairie Section extends from Winnipeg to Wolf Creek, 915 miles. The grading and bridging are completed throughout the whole distance, and 1,431 miles of single fencing have been built. The track is laid from Winnipeg to about 24 miles west of Entwhistle, a distance of 885 miles, and a telegraph line has also been built. There is a lift of ballast on the line from Winnipeg to Entwhistle, 861 miles. The road is in operation from Winnipeg to Edmonton, 795 miles, and the traffic for the past 12 months has

A Railway Expert's View.

The Ottawa Electric Railway, from its inception, has been one of the most perfect electric lines on this continent. It was a pioneer in up-to-date equipment and has lived up to the standard then set. Its cars are thoroughly up-to-date in construction and equipment and are well maintained in every respect. Its track is good and its various lines are well operated and give thorough satisfaction to the capital's citizens and to the thousands of people who visit Ottawa on business or pleasure during the year. The credit for this very satisfactory state of affairs is undoubtedly largely due to the Superintendent and Purchasing Agent, J. E. Hutcheson, who entered the company's services in 1891, after 17 years of steam railway work. Mr. Hutcheson is recognized as one of the very best electric railway operating men in Canada. He has taken an active part in the Canadian Street Railway Association's proceedings since its organization, has been a member of its executive committee continuously and was Vice President in 1907-8 and President in 1908-9. His opinion on all matters relating to construction, operating and maintenance is continually sought and always valued. He has been a reader of the Railway and Marine World for many years and recently wrote to our Managing Director as follows:

"I wish to say that I have found The Railway and Marine World the most useful periodical published in the interests of the railway business. The reading matter is live and very interesting and is so arranged as to make the paper a very valuable advertising medium. Railway officials who cannot find time to read your monthly are missing something. I wish you continued success."

estimated cost of these bridges was $2,145,065.66, and there had been paid on account of construction to Dec. 31, 1909, $949,561. There were other bridges required in all districts for which contracts had not been let; for these the estimated quantities of steel required was 37,810,686 lbs; of timber 3,220,241 ft. 6 in.; and the estimated cost $1,949,-987.66. The total estimated cost of the bridges on the Eastern Division was therefore $5,217,502.37.

Replying to questions in the House of Commons recently, the Minister of Railways stated that surveys extending from Winnipeg for about 700 miles easterly were taken over by the Commission from the G.T. Pacific Ry. Co. and paid for by the Government. This mileage was all re-surveyed and re-located by the Commission's engineers. Parts of the re-located line on the McArthur contract were changed after the contract was let, particularly in two places, the line being improved thereby. On mileage 49 to 93 the cost of the change over the original estimate was $127,377, while the capitalized value of the improvement was $49,692 on a saving of 4969.2 ft. in length, and $59,854.40 on a saving of 748 degrees 18 ft. in curvature; on mileage 103-122 the cost over the original estimate was $565,465, while the net saving in capitalized cost was $1,760. The long tunnel east of the Winnipeg River is 613 ft. long. Reports dated Dec. 31, 1909, showed that the line between Winnipeg and Lake Superior Jct., was 94.66% completed, and of the ballasting 59% completed. The estimated quantities, actual excavations and cost were:—

	Estimate.	Actual.	Cost.
Solid rock	3,696,336	6,415,869	$10,906,977.30
Loose rock	733,454	2,056,297	1,233,778.20
Com exc.	11,233,247	2,215,876	664,762.80
	15,663,037	10,688,042	$12,805,518.30

This amount had been paid less 10% hold-back. All the excavations, except the actual entrance into Winnipeg had been completed. The original estimated cost of excavation was $13,010,398.92, and the revised estimates, including rails, ties, steel bridges, etc., was $17,534,000.

The Minister of Railways replying to questions in the House of Commons recently, as to the sections in Districts E. and F. let to O'Brien, Fowler and McDougall, said as to the section in District F., mileage 1,534.04 to 1,538.17 from

17 years of steam railway work. Mr. Hutcheson is recognized as one of the very best electric railway operating men in Canada. He has taken an active part in the Canadian Street Railway Association's proceedings since its organization, has been a member of its executive committee continuously and was Vice President in 1907-8 and President in 1908-9. His opinion on all matters relating to construction, operating and maintenance is continually sought and always valued. He has been a reader of the Railway and Marine World for many years and recently wrote to our Managing Director as follows:

"I wish to say that I have found The Railway and Marine World the most useful periodical published in the interests of the railway business. The reading matter is live and very interesting and is so arranged as to make the paper a very valuable advertising medium. Railway officials who cannot find time to read your monthly are missing something. I wish you continued success."

Mr. Hutcheson's letter points out clearly that our reading matter is what railway men want, that even the most busy ones read it thoroughly and that its value to advertisers is undoubted. Our paper is edited with great care and thoroughness, but all the hard work and expense involved is well repaid by the knowledge that we enjoy the confidence of our subscribers in every Province of the Dominion and in Newfoundland and that the paper is recognized as the authority on transportation matters by people engaged in all branches of that service.

gressed, that the bottom of many of these was of such a nature as to require much larger quantities of filling than was estimated in order to get a solid bottom. These fills had to be made of material nearest to the work, which was almost entirely loose and solid rock. This accounts to a great extent for the large returns of loose rock. The total estimated expenditure on the section was $1,158,-muskegs, where no soundings had been taken it was found as the work pro-

between the Minister, the Commissioners and the Chief Commissioner of the Board of Railway Commissioners, the matter was adjourned to permit consideration being given to the suggestion.

GRAND TRUNK PACIFIC RAILWAY

The report of C. Schreiber, General Consulting Engineer to the Government, and Chief Engineer of the Western Division, N.T.R., upon the conditions of the construction being done by the G.T.P.R., to Dec. 31, 1909, as presented to the House of Commons, Feb. 1, by the Minister of Railways, was as follows:—

The Prairie Section extends from Winnipeg to Wolf Creek, 915 miles. The grading and bridging are completed throughout the whole distance, and 1,431 miles of single fencing have been built. The track is laid from Winnipeg to about 24 miles west of Entwhistle, a distance of 885 miles, and a telegraph line has also been built. There is a lift of ballast on the line from Winnipeg to Entwhistle, 861 miles. The road is in operation from Winnipeg to Edmonton, 795 miles, and the traffic for the past 12 months has been as follows:—

74,715 passengers; 5,880,069 bush. grain; 117,810 tons general freight. The accommodation provided for public traffic service on this section is as follows:—6 engine houses, 3 machine shops, 6 divisional station houses, 33 way station houses, 56 section houses, 67 bunk houses, 55 tool houses, 35 water stations, 6 coaling stations, 77 loading platforms, 113 grain elevators, 13 stock yards. For the safety of the travelling public all crossings by this road of other railways have been guarded by interlocking plant. The following is the public traffic rolling stock:—92 locomotives, 6 sleeping cars, 3 parlor cars, 4 first-class cars, 9 second-class cars, 4 mail and express cars, 9 baggage cars, 11 colonist cars, 33 conductors vans, 33 refrigerator cars, 2 official cars, 3,213 box freight cars, 895 platform cars, 31 stock cars, 3 snow ploughs. Work on the "prairie section" is practically closed down for the winter season; the only work going on, being the laying of the track and the finishing of some of the buildings.

The Mountain Section is about 337 miles long. The following works are under contract, viz.:—From Wolf Creek to 179 miles west thereof. Foley, Welch and Stewart are the contractors for the

MARCH 1910

grading and wooden bridges. They have done considerable clearing of right of way and about 200,000 cu. yds. of excavation. They have a great number of teams on the tote road hauling in plant, tools and supplies, so as to be in readiness for a vigorous prosecution of the works upon the opening of spring. Only a small force is at work in the cuttings. C. May is the contractor for the substructures of the Wolf Creek and McLeod river bridges. There is a large quantity of sand and gravel delivered at both points, and a large force is engaged excavating the foundations for the piers, pedestals and abutments; as soon as the track reaches Wolf Creek, say in three weeks, cement will be carried up to that point by train. It is of urgent importance that the work on these two structures be rushed to completion with the greatest possible speed, in order that track-laying may be advanced, thus facilitating the transportation of plant, tools and supplies to the unlet portions of the mountain section, enabling intending contractors to bid very much lower for the work than they otherwise could. From 179 miles west of Wolf creek to 597 miles west thereof, the work has not been placed under contract. From 597 miles west of the Wolf Creek to Prince Rupert, 240 miles, the work of grading and the construction of wooden bridges is under contract with Foley, Welch and Stewart. No work has been executed on the first 40 miles, and merely a good start has been made on the next 100 miles; the reasons being, that navigation closed on the Skeena River about a month earlier than usual, thus putting a stop to running in supplies, tools, plant, etc. However, the contractors are exerting their efforts to push a tote road through so as to enable them to haul in supplies, etc., by team and keep the work moving throughout the winter. They are now at work on one of the tunnels and some rock cutting. The work of grading and the construction of wooden bridges on the last 100 miles, to Prince Rupert, was practically completed when a very heavy storm with a high tide caused damage, washing away some of the rock embankments where exposed to the sweep of the open ocean, and bringing down considerable slides from the mountain sides, filling up some cuttings and blocking up waterways. The damage, however, was not very extensive. Mr. Ferguson, the contractor for the substructure of the several steel bridges, having failed in carrying out his contract, the G.T.P.R. has relieved him of the work and are carrying it on itself

Canadia

Canad
seven m
Montmo
of whic
missione
practica
ing the
with th
near th
fore the
the fall
was hu
of 1909

The v
don, Q
Grading
some tr
sumptio
structed
the bra

W. D
quoted
Feb. 6,
for the
and th
the exe
what M
said, th
cost wi
work w

Cana
has bee
mons a
into ag
of the
compar
tario a
and Ot
Mining
ville, V
Toront
Bessem

Worl
has be
operate
connec
into O
settled,
in Ott

The
of the
Don v
forwar
by the
clair C
which
gangs
at pre
erable
Don v
work

MARCH 1910

merely a good start has been made on the next 100 miles; the reasons being, that navigation closed on the Skeena River about a month earlier than usual, thus putting a stop to running in supplies, tools, plant, etc. However, the contractors are exerting their efforts to push a tote road through so as to enable them to haul in supplies, etc., by team and keep the work moving throughout the winter. They are now at work on one of the tunnels and some rock cutting. The work of grading and the construction of wooden bridges on the last 100 miles, to Prince Rupert, was practically completed when a very heavy storm with a high tide caused damage, washing away some of the rock embankments where exposed to the sweep of the open ocean, and bringing down considerable slides from the mountain sides, filling up some cuttings and blocking up waterways. The damage, however, was not very extensive. Mr. Ferguson, the contractor for the substructure of the several steel bridges, having failed in carrying out his contract, the G.T.P.R. has relieved him of the work, and are carrying it on itself by day labor. This work is progressing very slowly, but better conditions are promised for the future. If these promises are not realized, track-laying in the spring will be delayed. Steel rails for this 100 miles; 1 locomotive; 1 conductor's van and 24 cars, for the work of track-laying and ballasting, have been delivered at Prince Rupert, and a large quantity of ties has been delievered along the line. About one mile of track has been laid, but nothing further will be done in that direction until next spring." (Feb., pg. 137).

GRAND TRUNK PACIFIC BRANCH LINES CO.—The House of Commons has passed an act amending chap. 86, of the statutes of 1909, by adding to sec. 1, five paragraphs, authorizing the construction of additional lines, as specified in the notice of application quoted on pg. 31 of our Jan. issue, and granting an extension of time for the construction of the branch lines previously authorized. The act also authorizes the company to issue bonds or other securities to the extent of $30,000 a mile in respect of the new branches to be constructed under this act, with the exception of the branch from between Moose Lake and Tete Jaune Cache, to Vancouver, in respect of which $50,000 a mile may be issued.

National Transcontinental Railway.

Tenders have been received by the Commission for the supply of 24,733 gross tons of 80 lb. steel rails, together with the necessary splice bars, track spikes, bolts and nuts, nutlocks and tie plates. Tenders have also been received for the erection of a pump house at the locomotive shops near Winnipeg, the building to be completed by July 1; for the necessary pumping plant to equip the same, such plant to be installed by Aug. 1, and also for the construction of a 2,000,000 gall. reservoir, to be completed by Aug. 1, adjoining the locomotive shops. Tenders will be received by the Commission to April 12, for the supply of the plant for the equipment of the locomotive shops near east of Winnipeg, as follows:—Machines and tools; leather belting; shafting, hangers, steel frame work, etc.; miscellaneous equipment; industrial track and lockers; motors; furnaces and forges; cranes; air compressors; grey iron foundry equipment and brass foundry equipment.

GRAND TRUNK PACIFIC RAILWAY.

We were officially advised Mar. 16, as to the present position of the work on the G.T.P.R., and the construction in hand for the present season as follows: The end of the main line track is at present at the east bank of Wolf Creek, 915 miles from Winnipeg. At this point there is a large steel bridge to erect across Wolf Creek and a half a mile beyond another large steel structure across the McLeod River. The substructures of these bridges have been under construction simultaneously for several months and are now reaching completed. Arthur Co., Winnipeg, general contractor.

From Yorkton, the extension of the branch line from Melville to Yorkton, to Canora, approximately 30 miles; Rigby, Hyland & Plummer, Winnipeg, general contractors.

Contracts will be awarded in the near future for the construction of a branch line from the main line at Oban to Battleford, about 50 miles; from Regina southerly, about 80 miles; and from the main line at Young to Prince Albert, about 130 miles. The grading of these branches will be pushed forward as rapidly as possible with the object of having track laid on all of them during this year.

The Melville-Regina line referred to above is one of the lines which the company is constructing under the subsidy contract with the Saskatchewan Government. The subsidy contract also covers the construction of an extension from Regina to the International boundary line, near Sherwood, Mont., terminus of a branch of the Great Northern Ry. A press report states that these branch lines will be connected, and that the G.N.R. will obtain an entrance to Regina by that route, and thence to other points on the G.T.P.R. Another report states that engineering parties are in the field between Regina and Moose Jaw, Sask., making surveys for a line to Calgary. The first camp was pitched at Grand Conlee. It is said the line will run almost directly to Moose Jaw, then bend north-westerly to the elbow of the South Saskatchewan River, and then on to Calgary. (Mar., pg. 181).

G.T.P. Betterments, Construction, Etc.

National Transcontinental Railway.

In an interview Sept. 8, C. O. Foss, District Engineer for New Brunswick, is reported to have said that except for a stretch of four miles near Grand Falls, and the division yards at Edmonton, the N.T.R. in New Brunswick could be opened for traffic.

A defect was discovered Sept. 3, in the first caisson for the new main piers of the Quebec bridge, and it was condemned Sept. 6 by H. E. Vautelet, the only member of the Bridge Commission in Canada. It is said the caisson will have to be rebuilt.

An order-in-council has been passed authorizing the N.T.R. Commissioners to acquire the Champlain Market, Quebec, for terminal purposes, and they have paid the City Treasurer $100,000, the price of the property.

There is a considerable mileage of track laid in the Province of Quebec to which the completing touches are being given. This includes the 250 miles between the St. Lawrence River and Weymontachene, upon which recent press reports stated a train service would be operated this fall. We have been advised that there have, as yet, been no arrangements made for its operation by the G.T. Pacific Ry. The centre of construction of the next section of the line is at present at Cochrane, the Temiskaming and Northern Ontario Ry.'s terminus. From this point Foley, Welch and Stewart, working easterly, have 30 miles of track laid to Low Bush, where there is a big muskeg which is delaying the work somewhat. Westerly from Cochrane over 30 miles of track have been laid on the grading completed by Fauquier Bros. Tenders are under consideration for the supply of 7,543 tons of 80 lb. steel rails with the necessary fastenings, for delivery at Cochrane.

A temporary agreement has been reached between the Commissioners and the G.T. Pacific Ry., for the operation of the section of the line between Lake Superior Jct., Ont., and Winnipeg, so as to enable the G.T.P.R. to carry grain from Edmonton and intermediate points to Fort William.

Tenders were received by the Com-

tures of these bridges have been under construction simultaneously for several months and are now reaching completion, and it is expected that the erection of the steel superstructures will commence in the early part of April, and as soon as it is possible to cross them, the track will be pushed forward as rapidly as the grading work will permit. The grading of the line is now under contract from Wolf Creek to Tete Jaune Cache, approximately 179 miles. This work will be pushed as rapidly as possible and it is expected to have track laid this year from the east to within 20 or 30 miles of Yellow Head Pass.

The grading of the main line from Prince Rupert easterly to Aldermere, approximately 235 miles, is well under way. There is under construction a steel bridge 7½ miles east from Prince Rupert, crossing from Kai-en Island to the mainland. The work on this structure is being pushed forward as rapidly as possible and as soon as completed, track laying will be commenced easterly from Prince Rupert, and it is expected there will be about 180 miles laid easterly from Prince Rupert by the close of this year. It is the intention to place the balance of the main line between Aldermere and Tete Jaune Cache, approximately 400 miles, under construction this year.

During 1909 twenty-three stations were erected between Winnipeg and Edmonton, and an 18 stall locomotive house and shop at Edmonton. It is the intention this year to erect a 12-stall locomotive house at Edson, the first divisional point west of Edmonton, a 12-stall locomotive house and shop at Prince Rupert, and stations at various points along the line where conditions warrant.

GRAND TRUNK PACIFIC BRANCH LINES.

The following branch lines have recently been placed under contract:

From 50 miles south of the main line at Tofield, Alta., to Calgary, approximately 135 miles; the J. D. McArthur Co., Winnipeg, general contractor.

From Balcarres, the end of the present construction of the branch line from the main line at Melville, to Regina, approximately 60 miles; the J. D. Mc-

to Calgar

G.T.R. E

Southe
Fitzhugh,
and Cent
fore the
Legislatu
the exter
dence wa
ing prom
Ry. inter
let to th
with con
New Yo
Rd., and

Lachin
neuve R
is asking
ratify an
certain s
making
for an a
ment.

Toront
intendent
interview
mediate
G.T.R. to
freight o
opened it
erly and
reported.

Londo
ported M
were ma
Wharncli
connectio
ment of t
away wi

Stratfo
The May
a letter f
President
ious ma
of the s
and that
be dealt

The C
an act c
ing for
period of
ment of
1900.

National Transcontinental Railway.

Judge Cassels has decided in the Court of Exchequer that, the Crown is not liable to be sued on contracts made by the National Transcontinental Ry. Commissioners, and that actions on such contracts should be brought directly against the Commissioners.

An inspection of the line in New Brunswick was completed by C. O. Foss, District Engineer, Oct. 5, and in an interview at St. John, he is reported to have stated that section 1 would be ready for acceptance by Oct. 31; section 2 was ready for operation; section 3 could be taken over at any time, and section 4 would be completed by the end of the season. There was more delay in section 5 between the Tobique River and Grand Falls, the viaduct over the gorge of the Little Salmon River, and some other viaducts not having been completed. These would be completed in the spring, by which time section 6, which included the terminals at Edmundston, would be completed. The line in the province would be ready, and fully equipped for operation by the end of the summer of 1911.

The last day for receiving tenders for the erection of the superstructure of the bridge over the St. Lawrence River, at Quebec, was Oct. 1, when it was reported that four tenders were handed in by Canadian, British and other bridge builders. It will take some time to figure out the tenders, as they are made on the various shapes which enter into the construction of the bridge. The tenders have been turned over to the commission of engineers which prepared the plans for examination and report. With regard to the work going on at the piers, it was stated Oct. 10 that the caisson was being raised and would be examined to ascertain the extent of the damage sustained.

The plans of the union station which it is proposed to erect on the site of the Champlain market, Quebec, have been prepared by G. E. Tanguay, and have been submitted to the Commissioners.

S. R. Poulin, District Engineer, Winnipeg, completed an inspection of the work in progress in his district, extending easterly from Winnipeg, Sept. 30. He reports that work is progressing satisfactorily, considering the shortage of labor at all construction points. He expected to see the track laid from end to end of the district by Dec. 31, 1911. Track has already been laid for 25 miles

vault, 25 by 16 ft. The main floor is divided into three sections, public office, foreman's office and store room. The basement store room is to be equipped with shelves, while the main store and foreman's office have shelves, drawers, plan cabinets, drawing tables, etc. This part of the building is heated by hot water from the boiler in the basement. The oil tanks, pumps and piping for the same, heating and lighting systems are to be installed under separate contracts.

Tenders were received to Oct. 18 for the machinery required for the equipment of a roundhouse at Lake Superior Jct., Ont., and for the centrifugal pumps and motors required for the sewage pumphouse at the Winnipeg shops. The specifications for the latter provide for the supply of one centrifugal pump, volute pattern, with a capacity of 16,000 galls. a minute, against a head of 48 ft., to be direct connected to a vertical motor of sufficient capacity; one centrifugal pump, volute pattern, with a capacity of 2,000 galls. a minute, against a head of 15 ft., to be direct connected to a vertical motor of sufficient capacity.

The arrangement for the temporary operation of the line from Winnipeg to Lake Superior Jct. was put in effect Oct. 6, when G.T. Pacific Ry. trains were run over the C.N.R. line in Winnipeg to the N.T.R., coming from the east, and so on to the G.T. Pacific branch line from Lake Superior Jct. to Fort William, Ont.

The members of the N.T.R. Commission arrived in Winnipeg, Oct. 13, from Fort William, Ont., having made their first official inspection of the newly opened line.

GRAND TRUNK PACIFIC RAILWAY.

Speaking at Montreal, Oct. 3, Senator J. P. Casgrain advocated the building of a line from Montreal to the National Transcontinental Ry. by the Provincial Government, and leasing it to the G.T. Pacific Ry. The G.T.P. Branch Lines Co. has charter powers to build such a line.

It was expected that the G.T. Pacific Ry. would be able to enter into possession of some part of the new union station at Winnipeg towards the end of Oct.

The arrangement between the G.T.P. R. and the Canadian Northern for the building of a loop to connect with the National Transcontinental Ry. at St. Boniface, Man., was not carried out, but a temporary arrangement was made, Oct. 4, by which the G.T.P.R. trains could connect with the N.T.R. over C.N.R. tracks

ngure out the tenders, ... on the various shapes which enter into the construction of the bridge. The tenders have been turned over to the commission of engineers which prepared the plans for examination and report. With regard to the work going on at the piers, it was stated Oct. 10 that the caisson was being raised and would be examined to ascertain the extent of the damage sustained.

The plans of the union station which it is proposed to erect on the site of the Champlain market, Quebec, have been prepared by G. E. Tanguay, and have been submitted to the Commissioners.

S. R. Poulin, District Engineer, Winnipeg, completed an inspection of the work in progress in his district, extending easterly from Winnipeg, Sept. 30. He reports that work is progressing satisfactorily, considering the shortage of labor at all construction points. He expected to see the track laid from end to end of the district by Dec. 31, 1911. Track has already been laid for 25 miles easterly from Lake Superior Jct., and it is expected to add from 40 to 50 miles more by the end of the year.

The Commissioners have approved of standard plans for freight sheds, and storehouses, to be erected at different points on the line, and contracts have been let for the erection of such buildings at Lake Superior Jct., Ont. Reditt and Springfield, Man. The plans for the freight sheds show a frame structure, 28 by 60 ft., on posts, with a flat roof. One end of the building is arranged as an office, while the remainder, 50 by 28 ft., is devoted to a freight room. Two sets of sliding doors are provided on the track side, and an equal number on the opposite side, while there is a single sliding door leading into the freight room from a 9 ft. platform at the end. A room 10 by 14 ft. is built adjoining the office for perishable freight. A coal bin to hold 30 tons of coal is to be built under the office part of the building. The plans for the storehouse show a building 74½ ft. by 20 ft. 2 in. The casement is to be built of concrete, with an 8 in. concrete floor, and the rest of the building is to be of brick, with a tar and gravel roof. The basement store will be divided into two, the general store, 45 by 16 ft., containing the furnace and heating plant, and the second compartment being the oil

Port William, ... first official inspection of the newly opened line.

GRAND TRUNK PACIFIC RAILWAY.

Speaking at Montreal, Oct. 3, Senator J. P. Casgrain advocated the building of a line from Montreal to the National Transcontinental Ry. by the Provincial Government, and leasing it to the G.T. Pacific Ry. The G.T.P. Branch Lines Co. has charter powers to build such a line.

It was expected that the G.T. Pacific Ry. would be able to enter into possession of some part of the new union station at Winnipeg towards the end of Oct.

The arrangement between the G.T.P. R. and the Canadian Northern for the building of a loop to connect with the National Transcontinental Ry. at St. Boniface, Man., was not carried out, but a temporary arrangement was made, Oct. 4, by which the G.T.P.R. trains could connect with the N.T.R. over C.N.R. tracks.

In regard to the proposed lines from Regina to Moose Jaw, Sask., we were recently advised that the company was waiting to have the location maps approved by the Government. Since this information was received the plans have been approved, an arrangement having been made between the C.N.R., the C.P.R. and the G.T.P.R., by which the difficulties have been avoided, and satisfactory routes found for the two new lines without interfering with the C.P.R.

The Board of Railway Commissioners has approved of the location of the projected branch line from sec. 31, tp. 40, range 26, west second meridian, mileage 55.148 to mileage 111.536. The branch will start at Young, mileage 422.3, on the main line, and will terminate in Prince Albert. The question of the route into that place was under consideration at a meeting of the Prince Albert Board of Works, Oct. 11.

Reports from the construction camps Oct. 9, state that the grading gangs are working within 16 miles of Calgary, on the branch line from Tofield, Alta. The route was deflected to the east of Irricana, so as not to interfere with a C.P.R. spur. Contracts have been let for the building of a bridge across the Red Deer River. The bridge will be about 1,100

NOVEMBER 1910